Supplementary:

Extraction of protein from serum:

For serum extraction, Patients at the hospital affiliated with Sultan Qaboos University provided a total of four serum samples. The blood samples were centrifuged at 4 degrees Celsius for 10 minutes at 3000 revolutions per minute. Serum was centrifuged, then placed in Eppendorf tubes and frozen at -80°C until additional testing could be done.

Acetonitrile (ACN) precipitation:

Serum protein precipitation was achieved using acetonitrile. The serum and ACN used in the precipitation were diluted at a ratio of 1:2. After combining the serum and ACN, the mixture was left at room temperature for 30 minutes. It was centrifuged at 14,000 rpm for 10 minutes after the incubation time. We discarded the supernatant and dissolved the precipitate in HPLC-grade water. After lyophilizing the serum for 50-60 minutes and the removal of precipitate the final volume of the and supernatant for 50-60 minutes, the final volume was 200µl.

Estimation of protein concentration:

The amount of protein in each of samples, precipitate, and supernatant was measured using the Bradford protein assay in accordance with the instructions provided by the manufacturer (He 2011). The absorbance of the protein was measured at a wavelength of 595nm. Protein droplets with a volume of 1.5 µl were assessed using a nanodrop test, specifically at a wavelength of 280nm.

One Dimensional sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) gel electrophoresis:

Around 30 µg of supernatant, and precipitate were introduced into an individual well of the sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) apparatus. The electrophoresis experiment was conducted using a vertical slab gel electrophoresis equipment, using the conventional Laemmle's technique. An 8% resolving gel and a 5% stacking gel were used in the process. The gel separation was conducted with an applied voltage of 90 volts. Following the conclusion of the electrophoresis process, the gels were subjected to Coomassie staining for visualization and analysis.

In solution trypsin digestion:

The protein of interest, ranging from 0.1 to 1 milligram, was dissolved in a solution containing 100 microliters of 6 molar Urea and 50 millimolar Tris-HCl at a pH of 8.0. A volume of 5 microliters of a solution containing 200 millimolar concentration of dithiothreitol (DTT) in 50 millimolar concentration of Tris-HCl buffer at pH 8.0 was added to the mixture, which was then incubated for 1 hour at room temperature. A volume of 20 microliters of a solution containing 200 millimolar Iodoacetamide and 50 millimolar Tris-HCl at a pH of 8.0 was added to the sample. The resulting mixture was subjected to vertexing and thereafter incubated for one hour at room temperature while being shielded from light. Subsequently, a solution containing 200 mM DTT and 50 mM Tris-HCl at pH 8.0 was used to neutralize any remaining iodoacetamide that had not undergone a reaction. The mixture was incubated for one hour at room temperature in a dark environment. A volume of 775 µl of a solution containing 50 mM Tris-HCl and 1 mM $CaCl_2$ at a pH of 7.6 was introduced to decrease the concentration of urea to about 0.6 M. A trypsin solution was introduced at a final weight-to-weight ratio of 1:50 (trypsin: protein). The

mixture was subjected to vertexing and thereafter incubated at a temperature of 37 degrees Celsius for 16-20 hours. Formic acid was introduced into the solution to regulate the pH within the range of 3-4. The specimen was kept at a temperature of -20 degrees Celsius.

ZIP TIP® PROTOCOL (adapted from Millipore procedure):

An aqueous solution of trifluoroacetic acid (TFA) was prepared by combining 10 uL of ordinary TFA with a purity of 99% or higher with 90 µl of MilliQ water. To prepare the hydration, wash, peptide elution, and reconstitution solutions in 1 ml Eppendorf tubes for the desalting operation, trifluoroacetic acid (TFA) was used, as shown in Supplementary Table 5. Following the addition of 13 µl of reconstitution solution, the dried material was promptly subjected to vertexing and centrifugation. After the inclusion, vertexing, and centrifugation of 0.3 microliters of a 10% trifluoroacetic acid (TFA) solution. Following the calibration of a P10 pipettor to a volume of 10 µl, a ZipTip containing C18 resin was affixed to the pipettor. To minimize the introduction of air into the resin, a progressive suction technique was used to draw in 10 µl of hydration solution. The proposed solution was rejected, prompting the repetition of the process. The wash solution was aspirated and then discarded twice, resulting in a cumulative volume of 10 µl. A volume of 10 microliters from the reconstituted sample was aspirated and then expelled back into the tube in a gradual manner, loading the sample. This process was repeated between five and six times. Next, the sample is rinsed by expelling 10 microliters of the solution from the wash/H2O tube into the waste tube. A total of four to five washings were conducted. The peptide elution solution was chilled on ice, and a 1.3 µl aliquot was then aspirated and dispensed into the same tube. The procedure was performed twice. Before analysis, the samples were supplemented with 0.7 µl of a suitable matrix solution. The samples were subjected to analysis using High-Performance Liquid Chromatography coupled with Quadrupole Time-of-Flight Mass Spectrometry (HPLC-Q-TOF) at the Analytical and Applied Research Unit of Nizwa University.

High-performance liquid chromatography-time-of-flight mass spectrometry (HPLC-TOF MS/MS) analysis and protein identification:

A total of 200 µg of peptides were loaded onto the column from each sample and subjected to separation using a gradient elution method. The elution was performed using a mixture of 0.1% formic acid in water (Solvent A) and 0.1% formic acid in acetonitrile (Solvent B) at a flow rate of 0.2 ml/min. The separation on the high-performance liquid chromatography (HPLC) system was accomplished by using the Agilent Advance Bio Peptide Map column, which had dimensions of 2.1 mm inner diameter, 100 mm length, and 5 µm particle size. The gradient of the chromatographic separation exhibited the following pattern:

Table 1 The gradient of chromatographic separation

| Step | %A | %B | Time (minute) |
|---|---|---|---|
| 1 | 98 | 2 | 0.00 |
| 2 | 98 | 2 | 1.00 |
| 3 | 80 | 20 | 30.00 |
| 4 | 60 | 40 | 50.00 |

| | | | |
|---|---|---|---|
| 5 | 20 | 80 | 60.00 |
| 6 | 20 | 80 | 65.00 |
| 7 | 98 | 2 | 70.00 |
| 8 | 98 | 2 | 80.00 |
| 9 | 98 | 2 | 90.00 |

Standard western blot protocol:

The Western blotting technique was used to differentiate the target protein from a complex mixture of proteins that were extracted from cellular sources. The proteins extracted from samples of bone marrow or peripheral blood cells were subjected to analysis using the Western blotting technique. The supplementary table (Supp Table 2) provides a comprehensive list of the buffers used for Western blotting (WB) and their respective preparations. Please provide a comprehensive table listing all reagents and buffers used throughout the whole of the research.

SDS- PAGE gel preparation:

The selection of an appropriate gel percentage is contingent upon the size of the target protein. Various gel percentages may be used to achieve optimal separation of the target proteins. Before the gel preparation, a series of glass plates and a 1mm spacer were subjected to a cleaning process including the use of distilled water and a solution of 70% ethanol. The glass plates were thereafter arranged in compliance with the guidelines provided by the manufacturer for the electrophoresis device. The comb is positioned between the fully formed glass, and a reference point is established 1 cm below the teeth of the comb. This reference point indicates the desired level of the resolving gel about the samples that are placed onto the gel. The samples should be evenly spaced apart by a distance of 1 cm. After the preparation of the resolving gel combination, it was carefully loaded up to the designated mark located between the assembled glass components. Table 1 illustrates the preparation of stacking gel and resolving gel with different concentrations, specifically focusing on a 10% concentration. To achieve a smooth gel surface and eliminate any trapped air bubbles, a solution of isopropanol alcohol (or 100% ethanol) was carefully administered over the gel. Subsequently, the gel was allowed to undergo polymerization for a duration of 20 to 30 minutes. Following the completion of gel polymerization, the isopropanol alcohol was then removed, and any residual alcohol was thoroughly rinsed off using distilled water. Subsequently, the glass plates were subjected to a drying process using tissue paper, followed by the loading of a 4% stacking gel. Care was taken to prevent the formation of any bubbles during this step. Subsequently, the comb was promptly introduced, and the stacking gel was allowed to undergo polymerization for a duration of 20 to 30 minutes.

Table 2 Preparation of different percentages of SDS-PAGE resolving gel and 4% stacking gel:

| 2 x 1.5 mm thickness gels | Stacking | Resolving (5%) | Resolving (8%) | Resolving (10%) | Resolving (12%) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| H2O | 4.1 | 13.5 ml | 9.3 ml | 7.9ml | 6.6ml |
| 30% acrylamide: bisacrylamide | 1ml | 4 ml | 5.3 ml | 6.7ml | 8ml |
| 1 M Tris-HCl pH 6.8 | 0.75ml | - | - | - | - |
| 1.5 M Tris-HCl pH 8.8 | - | 6ml | 5 ml | 5ml | 5ml |
| 10% SDS | 60µl | 240 µl | 200 µl | 200 µl | 200 µl |
| 10% (APS) | 60µl | 240µl | 200µl | 200µl | 200µl |
| TEMED | 6µl | 24µl | 12µl | 8µl | 8µl |

Protein running and detection:

The protein lysate of each sample, ranging from 50 to 100 µg, was combined with water and loading dye (6X Sample buffer). The protein samples were subjected to vertexing and then incubated at a temperature of 95°C for 5 minutes. The samples and the Page Ruler pre-stained ladder (Thermo-fisher Scientific, LT) were loaded onto polyacrylamide gels (PAG) with varying concentrations of 5%, 8%, 10%, or 12%. The gels were then subjected to electrophoresis in a running buffer consisting of 1X concentration (900ml H2O + 100ml 10X running buffer). The 1X running buffer was prepared by dissolving 30.2g Tris base, 188g glycine, and 50 ml of 20% SDS in water to make a final volume of 1L. The pH of the running buffer was adjusted to 8.8. Electrophoresis was performed at a constant voltage of 90V for about 2 hours.

The wet transfer technique was used to transfer the isolated proteins onto a nitrocellulose membrane with a pore size of 0.45 µm (Thermoscientific, DE). The nitrocellulose membrane and two filter sheets (Thermoscientific, USA) were subjected to incubation in a 1X transfer buffer solution. The transfer buffer solution was prepared by combining 700 ml of H2O, 200 ml of methanol, and 100 ml of a 10X transfer solution. The 10X transfer solution was prepared by dissolving 30.4g of Tris base and 140.6g of glycine in up to 1L of H2O, adjusting the pH to 8.3. The incubation period lasted for 5 minutes. The proteins were transferred from the gel to the membrane using a wet transfer cell in the prescribed sequence: BIO-RAD filter paper was placed first, followed by the gel, then the Nitrocellulose membrane, and finally another BIO-RAD filter paper. The transfer process was conducted at a voltage of 70V for about one hour.

The membranes underwent a series of washes using a TBST solution, which consisted of 0.1% Tween-20 and 1x TBS. The TBS was prepared by combining 100ml of H2O with 900ml of a 10x TBS solution containing 87.66g NaCl and 24.22g Tris base, resulting in a pH of 8.3. This washing process was repeated three times, with each wash lasting for 5 minutes. Following the washes, the membranes were then blocked in a 5% blocking solution, which consisted of either 5% zero-fat milk or BSA in TBST. The blocking step was carried out for 30 minutes at room temperature. Subsequently, the membranes were subjected to overnight incubation at 4°C with continuous agitation, in the presence of the suitable primary antibody that had been appropriately diluted in the same blocking solution.

On the following day, the membranes were subjected to a series of rinses in TBST (tris-buffered saline with Tween-20) for a duration of 5 minutes, repeated three times. Following this, the membranes were exposed to an HRP-linked secondary antibody (specifically, a 1:5000 dilution of Anti-rabbit/ Anti-Mouse IgG obtained from Invitrogen, USA) for a total duration of 1 hour and 30 minutes at ambient temperature. Following that, the membranes underwent a series of washes with TBST for 5 minutes, repeated three times. The visualization of proteins was performed using the Pierce™ ECL Western Blotting Substrate, manufactured by Thermo-scientific in the United States. The immune-reactant protein bands on the membranes were visualized using the BIO-RAD chemic doc Imaging Touch system in the United States.

Detection of expressions of JAKs and STAT3 by Western blot assay:

Protein extraction was performed on peripheral blood and bone marrow samples, followed by protein concentration determination using a Nanodrop assay at a wavelength of 280nm. Next, a total of 20 µg of proteins was put onto a 10% SDS-PAGE gel for separation. Subsequently, the separated proteins were transferred to a nitrocellulose membrane using a current of 400 mA for 120 minutes. The membrane was obstructed using a 5% non-fat milk solution and thereafter subjected to individual incubation with antibodies targeting phosphor-JAK, phosphor-STAT3, and Actin. The bands were visualized using horseradish peroxidase-conjugated secondary antibodies in conjunction with the enhanced chemiluminescence technique. Subsequently, the quantification of protein bands was performed using Image J software.

Supplementary Tables:

**Supp table1. HiRIEF fractions gradient length.**

| **Sample** | **gradient length** |
|---|---|
| fraction_01 | accumulate in trap column |
| fraction_02 | 50 min |
| fraction_03 | 70 min |
| fraction_04 | 70 min |
| fraction_05 | 90 min |
| fraction_06 | 90 min |

| | |
|---|---|
| fraction_07 | 110 min |
| fraction_08 | 110 min |
| fraction_09 | 110 min |
| fraction_10 | 110 min |
| fraction_11 | 110 min |
| fraction_12 | 110 min |
| fraction_13 | 110 min |
| fraction_14 | 110 min |
| fraction_15 | 90 min |
| fraction_16 | 70 min |
| fraction_17 | 70 min |
| fraction_18 | 50 min |
| fraction_19 | 50 min |
| fraction_20 | accumulate in trap column |
| fraction_21 | accumulate in trap column |
| fraction_22 | accumulate in trap column |
| fraction_23 | accumulate in trap column |
| fraction_24 | accumulate in trap column |
| fraction_25 | accumulate in trap column |
| fraction_26 | accumulate in trap column |
| fraction_27 | 50 min |
| fraction_28 | 50 min |
| fraction_29 | 70 min |
| fraction_30 | 70 min |
| fraction_31 | 70 min |
| fraction_32 | 70 min |
| fraction_33 | 70 min |
| fraction_34 | 70 min |

| | |
|---|---|
| fraction_35 | 70 min |
| fraction_36 | 70 min |
| fraction_37 | 70 min |
| fraction_38 | accumulate in trap column |
| fraction_39 | accumulate in trap column |
| fraction_40 | accumulate in trap column |
| fraction_41 | accumulate in trap column |
| fraction_42 | accumulate in trap column |
| fraction_43 | accumulate in trap column |
| fraction_44 | accumulate in trap column |
| fraction_45 | 70 min |
| fraction_46 | 70 min |
| fraction_47 | 70 min |
| fraction_48 | 70 min |
| fraction_49 | 70 min |
| fraction_50 | 50 min |
| fraction_51 | 50 min |
| fraction_52 | accumulate in trap column |
| fraction_53 | accumulate in trap column |
| fraction_54 | accumulate in trap column |
| fraction_55 | 70 min |
| fraction_56 | 50 min |
| fraction_57 | 50 min |
| fraction_58 | accumulate in trap column |
| fraction_59 | accumulate in trap column |
| fraction_60 | accumulate in trap column |
| fraction_61 | accumulate in trap column |
| fraction_62 | accumulate in trap column |

| | |
|---|---|
| fraction_63 | accumulate in trap column |
| fraction_64 | accumulate in trap column |
| fraction_65 | accumulate in trap column |
| fraction_66 | accumulate in trap column |
| fraction_67 | accumulate in trap column |
| fraction_68 | accumulate in trap column |
| fraction_69 | accumulate in trap column |
| fraction_70 | accumulate in trap column |
| fraction_71 | accumulate in trap column |
| fraction_72 | 50 min |

Supp Table 2 contains the list of these significant DEPs in the comparison of Control (healty volunteer) and PBD.

| Gene Name | fold | fdr |
|---|---|---|
| HMGA1 | -3.30298 | 1.94E-14 |
| HNRNPU | -2.94091 | 2.24E-07 |
| HMGN2 | -2.89645 | 3.25E-12 |
| HMGA1 | -2.87811 | 5.16E-12 |
| H1-2 | -2.66126 | 9.1E-09 |
| RCC1 | -2.42429 | 3.06E-10 |
| H3-2 | -2.39498 | 7.33E-14 |
| H1-5 | -2.38203 | 1.25E-10 |
| PHF6 | -2.36443 | 1.41E-06 |
| RPL26 | -2.35123 | 0.029162 |
| HMGN4 | -2.23262 | 3.11E-12 |
| HMGN1 | -2.16747 | 0.000108 |
| H3-3B | -2.15395 | 1E-06 |
| H4C6 | -2.14923 | 9.06E-12 |

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|---|---|---|
| HLA-B | -2.09975 | 0.000641 |
| H1-4 | -2.07787 | 1.02E-09 |
| HNRNPU | -2.04817 | 0.021471 |
| HLA-DRB5 | -2.04339 | 2.7E-07 |
| ING1 | -2.01908 | 1.13E-07 |
| HNRNPL | -2.01577 | 0.006821 |
| UBE2E2 | -1.97712 | 7.71E-07 |
| YBX1 | -1.96864 | 0.01799 |
| RFX5 | -1.93028 | 0.000109 |
| H2AC18 | -1.92486 | 0.005617 |
| YAF2 | -1.88931 | 9.76E-06 |
| GZMH | -1.87882 | 0.002867 |
| PHLPP2 | -1.86931 | 0.018295 |
| NHP2 | -1.84896 | 5.05E-12 |
| H1-3 | -1.8378 | 6.19E-05 |
| H3C13 | -1.83327 | 0.000736 |
| POLR3K | -1.78817 | 4.02E-10 |
| ERAP2 | -1.78671 | 1.81E-14 |
| CRIP2 | -1.77379 | 1.34E-06 |
| GLT8D1 | -1.74209 | 0.00094 |
| CD200 | -1.73274 | 7.51E-07 |
| GAR1 | -1.72465 | 5.93E-06 |
| RBPMS | -1.72113 | 0.000196 |
| H1-10 | -1.62809 | 1.15E-06 |
| UBE2E1 | -1.62216 | 4.23E-08 |
| CTCF | -1.59799 | 3.06E-07 |
| TMEM126B | -1.57474 | 5.02E-06 |
| CHN2 | -1.56355 | 0.001816 |

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|---|---|---|
| RBMXL1 | -1.55422 | 7.69E-08 |
| TCF12 | -1.55375 | 2.94E-11 |
| TOP1 | -1.55103 | 9.8E-07 |
| SETD6 | -1.54944 | 0.007113 |
| RRP15 | -1.54906 | 0.000762 |
| CEACAM8 | -1.54568 | 1.45E-05 |
| SMIM24 | -1.53443 | 2.68E-05 |
| SPNS3 | -1.52104 | 1.1E-05 |
| LIG1 | -1.51066 | 1.51E-05 |
| SP3 | -1.50932 | 0.000195 |
| BCDIN3D | -1.50879 | 0.012192 |
| NA | -1.50182 | 1.34E-09 |
| FNBP1 | -1.49474 | 2.78E-06 |
| CDC42EP4 | -1.49391 | 0.000308 |
| TYROBP | -1.49202 | 3.48E-09 |
| SLC15A3 | -1.48864 | 6.74E-06 |
| HNRNPC | -1.48064 | 0.016621 |
| SPI1 | -1.47228 | 9.22E-12 |
| LMNB1 | -1.46954 | 1.59E-08 |
| TEX30 | -1.46811 | 0.000379 |
| HBE1 | -1.46625 | 8.29E-10 |
| TRIR | -1.45221 | 4.4E-10 |
| KDM1B | -1.43925 | 1.74E-08 |
| HMGB3 | -1.43005 | 4.74E-12 |
| ZC3H14 | -1.42879 | 2E-09 |
| SSBP2 | -1.41825 | 2.46E-12 |
| RSL1D1 | -1.41642 | 6.37E-05 |
| CHCHD2 | -1.40432 | 0.004428 |

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|---|---|---|
| RNASEH1 | -1.40126 | 4.44E-05 |
| CFP | -1.4012 | 0.000571 |
| ALAS1 | -1.39867 | 4.43E-08 |
| PSIP1 | -1.39801 | 0.000399 |
| SNRNP35 | -1.39296 | 0.001481 |
| BRPF1 | -1.39057 | 0.002201 |
| CLK1 | -1.38917 | 0.001206 |
| PADI4 | -1.38809 | 6.71E-06 |
| NABP2 | -1.3841 | 6.91E-10 |
| PNO1 | -1.38328 | 2.73E-06 |
| POLR3GL | -1.37988 | 0.00014 |
| SLCO4C1 | -1.36938 | 7.49E-08 |
| SRP19 | -1.36827 | 0.00074 |
| KMO | -1.36778 | 0.000296 |
| AGGF1 | -1.36587 | 4.93E-05 |
| BAZ1B | -1.35751 | 2.51E-07 |
| STAC3 | -1.35609 | 0.030498 |
| GTF2F1 | -1.3528 | 0.002987 |
| ZCCHC4 | -1.34176 | 1.3E-05 |
| ARHGAP25 | -1.34104 | 9.81E-08 |
| POU2F2 | -1.33754 | 0.009265 |
| RPS6KA2 | -1.32546 | 1.99E-07 |
| KDM5A | -1.32473 | 1.08E-06 |
| CTC1 | -1.32056 | 1.23E-07 |
| ERH | -1.32008 | 6.2E-08 |
| RPP14 | -1.31704 | 0.006562 |
| PRMT6 | -1.31269 | 2.94E-08 |
| RPL7L1 | -1.31239 | 1.73E-05 |

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|---|---|---|
| H2AZ1 | -1.30956 | 7.5E-07 |
| ZFP36L2 | -1.30347 | 4.72E-07 |
| GZMM | -1.30123 | 2.2E-05 |
| FYTTD1 | -1.29973 | 5.33E-05 |
| MTF1 | -1.29641 | 0.000172 |
| DDX18 | -1.29579 | 2.61E-07 |
| HLA-DRB1 | -1.28838 | 3.28E-09 |
| ZCRB1 | -1.28729 | 0.002693 |
| SF1 | -1.28648 | 4.04E-05 |
| METTL1 | -1.27657 | 9.93E-05 |
| BASP1 | -1.27517 | 0.008359 |
| BUD31 | -1.27003 | 3.89E-06 |
| SET | -1.2641 | 6.76E-07 |
| CDIN1 | -1.26355 | 0.018511 |
| SERPINB2 | -1.26343 | 1.96E-07 |
| HNRNPD | -1.262 | 6.14E-09 |
| HP1BP3 | -1.25955 | 0.000176 |
| MNDA | -1.25817 | 1.54E-06 |
| LIME1 | -1.25335 | 0.002087 |
| MSRB1 | -1.25058 | 0.007011 |
| MGST1 | -1.24439 | 0.00218 |
| TTC12 | -1.24414 | 3.83E-12 |
| TAF9 | -1.24381 | 1.08E-05 |
| C18orf21 | -1.23993 | 1.52E-06 |
| SLC35F6 | -1.23958 | 0.002587 |
| ERVK3-1 | -1.23941 | 0.002793 |
| MME | -1.23645 | 7.5E-06 |
| CRISP3 | -1.23038 | 7.49E-05 |

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|---|---|---|
| ACIN1 | -1.22692 | 0.000931 |
| H1-0 | -1.22346 | 3.4E-07 |
| SAP30 | -1.21558 | 7.81E-09 |
| H2AC21 | -1.21068 | 1.83E-08 |
| L3MBTL3 | -1.21008 | 2.34E-05 |
| UBE2E3 | -1.20936 | 0.002638 |
| SMNDC1 | -1.20565 | 4.46E-07 |
| FBP2 | -1.20519 | 9.18E-05 |
| MARCKSL1 | -1.19729 | 0.025188 |
| EYA3 | -1.19269 | 0.001155 |
| LMNB2 | -1.19108 | 1.74E-08 |
| TCL1A | -1.1893 | 0.003926 |
| HMGN5 | -1.18524 | 9.9E-06 |
| RPLP1 | -1.18413 | 0.000848 |
| DACH1 | -1.18294 | 2E-08 |
| CD8A | -1.18195 | 0.017766 |
| FIP1L1 | -1.1787 | 8.28E-07 |
| PTBP1 | -1.17709 | 0.007159 |
| CDKN2AIP | -1.17502 | 3.95E-05 |
| YBX3 | -1.17326 | 7.42E-07 |
| RAD21 | -1.1616 | 8.34E-05 |
| GABARAPL1 | -1.16114 | 2.96E-07 |
| ZNF706 | -1.15824 | 8.64E-05 |
| LRRC25 | -1.15768 | 0.000746 |
| XRCC4 | -1.15596 | 0.006669 |
| RBM4B | -1.14835 | 2.04E-05 |
| NASP | -1.14779 | 4.12E-05 |
| SP110 | -1.14465 | 7.95E-08 |

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|---|---|---|
| NSUN3 | -1.14097 | 4.5E-06 |
| CCNB1 | -1.14041 | 0.023206 |
| NFYB | -1.14023 | 0.000195 |
| SDE2 | -1.13838 | 0.000363 |
| GNLY | -1.13618 | 0.029415 |
| ALDH1A3 | -1.13493 | 9.28E-13 |
| RREB1 | -1.13373 | 0.000818 |
| COX17 | -1.13299 | 0.021902 |
| PYCARD | -1.12939 | 0.000861 |
| U2AF1 | -1.12773 | 4.31E-06 |
| NOP58 | -1.12766 | 2.85E-09 |
| DCAF12 | -1.12574 | 0.000244 |
| RANBP3 | -1.12569 | 6.15E-08 |
| SNX10 | -1.12183 | 1.05E-08 |
| C1orf35 | -1.12056 | 3.25E-06 |
| LUC7L3 | -1.11884 | 1.03E-05 |
| ENDOG | -1.11799 | 3.43E-09 |
| MIER3 | -1.11196 | 1.62E-05 |
| HNRNPD | -1.10965 | 0.002338 |
| SNU13 | -1.10752 | 0.011611 |
| C5AR1 | -1.10688 | 0.000261 |
| TCTN3 | -1.10642 | 3.12E-05 |
| CPSF7 | -1.10526 | 1.04E-06 |
| MATR3 | -1.10451 | 0.047349 |
| HCK | -1.10356 | 1.44E-05 |
| CDCA8 | -1.10328 | 0.000524 |
| NEMP1 | -1.10262 | 1.42E-05 |
| JADE1 | -1.10255 | 0.014059 |

| | | |
|---|---|---|
| HDGFL3 | -1.10144 | 6.3E-07 |
| GZMA | -1.10053 | 0.000804 |
| RFX1 | -1.09738 | 1.54E-05 |
| SAAL1 | -1.09671 | 8.43E-05 |
| NASP | -1.09214 | 1.24E-06 |
| RHAG | -1.09172 | 0.002343 |
| UTP23 | -1.09154 | 2.18E-07 |
| IGLL1 | -1.09031 | 6.21E-05 |
| TCOF1 | -1.08424 | 4.72E-11 |
| S100A1 | -1.08353 | 4.49E-08 |
| TAF15 | -1.07805 | 0.000268 |
| NSUN5 | -1.07567 | 2.66E-08 |
| AAAS | -1.07458 | 3.99E-05 |
| MSL3 | -1.07363 | 5.44E-07 |
| LRWD1 | -1.07 | 4.08E-06 |
| R3HCC1 | -1.06931 | 0.003573 |
| TFAM | -1.06591 | 4.04E-05 |
| SAAL1 | -1.06569 | 7.27E-07 |
| RRAGB | -1.06436 | 2.18E-08 |
| IRF7 | -1.0603 | 3.12E-05 |
| LSM10 | -1.05863 | 3.26E-09 |
| LTO1 | -1.05798 | 0.001162 |
| TCF4 | -1.05641 | 0.000104 |
| AMMECR1L | -1.05447 | 0.008149 |
| THYN1 | -1.0544 | 0.00116 |
| EAPP | -1.05378 | 4.17E-07 |
| FANCG | -1.05278 | 4.56E-05 |
| TARM1 | -1.05123 | 0.015057 |

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| ATP13A3 | -1.05047 | 0.000733 |
| PLEC | -1.05034 | 0.000188 |
| DDX28 | -1.04859 | 4.03E-07 |
| STAP1 | -1.04764 | 0.002554 |
| WDR4 | -1.0455 | 9.14E-11 |
| TTC17 | -1.04467 | 0.001019 |
| SETDB2 | -1.04432 | 0.049114 |
| BCL7C | -1.03745 | 0.00368 |
| CDK2AP1 | -1.0372 | 0.000101 |
| FBLL1 | -1.03197 | 2.16E-05 |
| FUBP1 | -1.03173 | 0.05051 |
| RNASEH2A | -1.03016 | 0.000839 |
| TMA7 | -1.029 | 0.000664 |
| JADE3 | -1.02493 | 1.37E-07 |
| ZNF593 | -1.02455 | 1.95E-05 |
| KIAA1143 | -1.02404 | 8.01E-10 |
| POMP | -1.02367 | 5.89E-06 |
| MED27 | -1.02208 | 2.1E-05 |
| WDR89 | -1.02208 | 1.21E-10 |
| WDR5 | -1.01943 | 1.84E-05 |
| HNRNPM | -1.01859 | 2.44E-12 |
| EPS8L2 | -1.01856 | 0.028811 |
| NUP153 | -1.018 | 1.27E-05 |
| TCEAL4 | -1.01416 | 2.31E-07 |
| UBR5 | -1.01411 | 3.28E-11 |
| MECP2 | -1.01316 | 0.000765 |
| NOP10 | -1.01165 | 0.000106 |
| RPL29 | -1.01134 | 0.005953 |

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| CCDC61 | -1.00701 | 8.56E-05 |
| PTMA | -1.0064 | 6.21E-05 |
| IFI16 | -1.00583 | 1.05E-09 |
| MBD1 | -1.00538 | 8.5E-12 |
| SLC36A1 | -1.00488 | 7.19E-08 |
| MBNL1 | -1.00342 | 1.3E-05 |
| SPAG5 | -1.00297 | 9.17E-07 |
| CD2 | -1.00076 | 2.67E-05 |
| TRMT1L | -0.99952 | 0.000284 |
| ERI1 | -0.9994 | 0.000287 |
| PRTN3 | -0.99629 | 4.71E-05 |
| RNF168 | -0.99531 | 0.001795 |
| AKAP8L | -0.99465 | 1.75E-05 |
| GLYR1 | -0.99433 | 3.79E-05 |
| PKNOX1 | -0.99225 | 2.07E-07 |
| DPYSL3 | -0.99194 | 2.38E-08 |
| POLD3 | -0.99155 | 0.000237 |
| ATXN7L3B | -0.98934 | 2.87E-08 |
| TLE5 | -0.98825 | 0.000104 |
| SUPT20H | -0.98805 | 0.000145 |
| ASXL2 | -0.98715 | 2.6E-05 |
| ZFX | -0.98607 | 0.004776 |
| CHTOP | -0.98585 | 7.5E-09 |
| LDB1 | -0.98512 | 1.22E-06 |
| ACY3 | -0.98463 | 0.001349 |
| HPGD | -0.98175 | 0.013037 |
| MBD2 | -0.97919 | 3.72E-05 |
| RCSD1 | -0.97685 | 7.35E-11 |

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| PRKRIP1 | -0.97625 | 0.000234 |
| NSMCE4A | -0.9752 | 9.41E-07 |
| RPL18A | -0.97469 | 0.01062 |
| YBX3 | -0.97463 | 1.22E-06 |
| CENPE | -0.97205 | 0.014283 |
| IFRD2 | -0.96856 | 2.61E-06 |
| FUS | -0.96721 | 8.01E-09 |
| CENPK | -0.96679 | 0.002268 |
| NUCKS1 | -0.96448 | 0.000294 |
| PQBP1 | -0.96242 | 2.35E-05 |
| NCBP3 | -0.96227 | 0.000235 |
| GTF2A1 | -0.9618 | 0.017171 |
| RPL31 | -0.95983 | 0.001926 |
| ATF1 | -0.95973 | 0.008944 |
| CHFR | -0.95972 | 2.35E-09 |
| EDRF1 | -0.95969 | 0.007224 |
| RPS9 | -0.95897 | 1.54E-06 |
| LYRM2 | -0.95722 | 0.016419 |
| NEU3 | -0.95466 | 0.000432 |
| CCDC86 | -0.95465 | 8.95E-09 |
| C17orf49 | -0.95395 | 1.7E-06 |
| RALYL | -0.95281 | 0.014123 |
| INTS14 | -0.95131 | 0.009928 |
| POP4 | -0.95093 | 0.001023 |
| CTDSPL2 | -0.94947 | 1.23E-05 |
| SMCHD1 | -0.94906 | 0.000704 |
| PHF23 | -0.94367 | 2.34E-05 |
| ABCF1 | -0.94277 | 0.000563 |

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| SH2D1A | -0.94137 | 0.001262 |
| ZNF460 | -0.93965 | 0.00019 |
| ADA | -0.93962 | 0.004783 |
| HIRA | -0.93925 | 0.006985 |
| HMGB2 | -0.93799 | 2.48E-09 |
| RPL35 | -0.93697 | 1.2E-06 |
| KIT | -0.93623 | 0.000155 |
| PARP1 | -0.93613 | 0.000976 |
| CMAS | -0.93544 | 1.58E-06 |
| DDX39B | -0.9353 | 0.009802 |
| TRIM33 | -0.93476 | 2.82E-05 |
| AFF4 | -0.93452 | 5.97E-05 |
| AURKB | -0.93357 | 0.000999 |
| PRR3 | -0.93332 | 4.78E-06 |
| KCNAB2 | -0.9327 | 8.88E-05 |
| HHEX | -0.9317 | 2.09E-07 |
| HMG20B | -0.93107 | 0.000182 |
| HNRNPA0 | -0.93045 | 3.7E-05 |
| STMN2 | -0.93018 | 0.001414 |
| ZFAND6 | -0.9263 | 0.000856 |
| RNASE6 | -0.92405 | 4.78E-08 |
| GZMB | -0.92333 | 1.31E-06 |
| ZC3H4 | -0.92175 | 1.13E-06 |
| HVCN1 | -0.92115 | 0.034059 |
| STK17B | -0.92034 | 1.98E-06 |
| CENPV | -0.91973 | 0.02996 |
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| ZC3H13 | -0.91886 | 1.3E-07 |

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| ERCC3 | -0.91783 | 6.28E-05 |
| AKAP7 | -0.91588 | 0.022868 |
| MARCKS | -0.91532 | 0.000244 |
| WDR43 | -0.91505 | 0.0007 |
| ZFP91 | -0.91493 | 0.023019 |
| TLE4 | -0.9147 | 5.63E-05 |
| ESCO2 | -0.91291 | 5.96E-05 |
| TK1 | -0.91232 | 1.22E-06 |
| AMIGO3 | -0.9092 | 4.81E-05 |
| CWF19L1 | -0.90722 | 1.26E-06 |
| CRIPT | -0.907 | 6.24E-09 |
| NOL9 | -0.90492 | 2.82E-07 |
| C11orf98 | -0.9037 | 3.73E-06 |
| EXOSC5 | -0.90099 | 3.1E-08 |
| RBM23 | -0.89912 | 3.52E-07 |
| NOC2L | -0.89881 | 6.55E-10 |
| FBL | -0.89743 | 3.45E-11 |
| BCKDHB | -0.89723 | 0.000476 |
| MYBBP1A | -0.89708 | 6.11E-05 |
| SAP30L | -0.8962 | 3.23E-05 |
| EPX | -0.8954 | 5.12E-05 |
| SINHCAF | -0.89513 | 0.002047 |
| IRF4 | -0.8943 | 8.25E-08 |
| SMC1B | -0.89426 | 4.28E-07 |
| SMC1A | -0.89412 | 3.68E-09 |
| UTP3 | -0.89391 | 0.034073 |
| HMGB1 | -0.89375 | 2.39E-06 |
| RTF2 | -0.89353 | 3.29E-08 |

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| BCLAF1 | -0.89204 | 2.89E-06 |
| KHDRBS1 | -0.8919 | 1.86E-07 |
| SMU1 | -0.89178 | 0.004985 |
| CENPH | -0.89168 | 0.00012 |
| RPF1 | -0.88993 | 8.09E-06 |
| OAT | -0.88932 | 0.001377 |
| FEN1 | -0.88916 | 2.1E-05 |
| HLA-DOB | -0.88896 | 2.22E-05 |
| EEPD1 | -0.88865 | 0.003524 |
| GTF2E2 | -0.88815 | 3.31E-05 |
| RBM10 | -0.88804 | 1.47E-07 |
| C5orf22 | -0.88763 | 2.02E-07 |
| FAU | -0.88608 | 0.000359 |
| TMPO | -0.88422 | 8.19E-07 |
| EXOSC3 | -0.88239 | 0.005081 |
| ASH2L | -0.87475 | 1.05E-08 |
| WAPL | -0.87471 | 1.71E-06 |
| BBS2 | -0.8745 | 8.49E-05 |
| C11orf58 | -0.87285 | 0.001117 |
| TAF13 | -0.87215 | 0.027727 |
| NA | -0.87214 | 7.07E-09 |
| RBM34 | -0.87149 | 1.06E-05 |
| GNL3 | -0.87065 | 0.032805 |
| SLC4A1AP | -0.87016 | 0.000116 |
| DIMT1 | -0.86963 | 0.021381 |
| TIPIN | -0.86896 | 0.010533 |
| RPRD2 | -0.86893 | 0.00023 |
| ANXA1 | -0.86817 | 1.78E-07 |

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| GAS7 | -0.86746 | 5.2E-07 |
| POLR1F | -0.86652 | 2.1E-06 |
| SAP18 | -0.86373 | 0.000474 |
| MALT1 | -0.86367 | 0.00266 |
| MTREX | -0.86296 | 0.003779 |
| COMMD3-BMI1 | -0.86261 | 1.1E-06 |
| DHX40 | -0.86209 | 2.44E-09 |
| CFDP1 | -0.86054 | 0.000342 |
| SLC27A6 | -0.8599 | 0.002913 |
| THOC2 | -0.85987 | 4.46E-07 |
| KRT8 | -0.85979 | 6.12E-05 |
| NABP1 | -0.8596 | 7.93E-07 |
| ZNHIT2 | -0.85932 | 2.22E-05 |
| RPS13 | -0.85829 | 8E-06 |
| POLR2J2 | -0.85775 | 0.00045 |
| POLR1B | -0.85753 | 0.017715 |
| UCK2 | -0.85718 | 8.88E-07 |
| SLC14A1 | -0.8552 | 8.5E-06 |
| POLR3F | -0.85366 | 0.035686 |
| RPL15 | -0.85314 | 0.003157 |
| SRSF4 | -0.85092 | 3.29E-07 |
| ZNF346 | -0.85033 | 0.039348 |
| PDLIM2 | -0.8497 | 0.002318 |
| DPY30 | -0.84955 | 0.001488 |
| SNAPC4 | -0.84879 | 1.69E-06 |
| DDX21 | -0.84813 | 9.8E-11 |
| IFIT3 | -0.84756 | 3.81E-10 |
| PEAK3 | -0.84636 | 4.85E-06 |

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| XRCC6 | -0.84609 | 8.04E-07 |
| RBBP5 | -0.84395 | 3.36E-05 |
| ZNRF1 | -0.84383 | 0.006882 |
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| NOLC1 | -0.84287 | 6.9E-05 |
| SPTBN2 | -0.84209 | 7.68E-07 |
| RFC1 | -0.84181 | 2.16E-10 |
| TRMT6 | -0.84172 | 2.13E-05 |
| TMBIM6 | -0.84154 | 4.22E-07 |
| PHC2 | -0.84138 | 1.22E-06 |
| PDS5A | -0.8412 | 4.92E-06 |
| RUFY3 | -0.84 | 1.29E-05 |
| RRN3 | -0.83985 | 6.12E-07 |
| MPG | -0.83956 | 6.28E-06 |
| TNRC6B | -0.83953 | 0.001035 |
| WRNIP1 | -0.83911 | 0.000173 |
| RPL34 | -0.83857 | 0.00114 |
| BAG4 | -0.83814 | 0.002594 |
| KDM1A | -0.83786 | 7.38E-05 |
| UTP11 | -0.83691 | 7.45E-09 |
| GTF3C4 | -0.83643 | 0.003517 |
| GTSF1 | -0.83632 | 5.02E-07 |
| POLR2D | -0.83591 | 3.78E-09 |
| POLL | -0.83547 | 0.009382 |
| RIOX2 | -0.83519 | 0.000273 |
| MT-CO1 | -0.83477 | 0.039309 |
| PDCD11 | -0.83418 | 0.001201 |
| RBMX | -0.83412 | 0.022366 |

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| NOL7 | -0.834 | 1.3E-06 |
| CEBPZ | -0.83312 | 1.29E-05 |
| GTF2F2 | -0.83217 | 0.002159 |
| UBE2J2 | -0.83144 | 0.023138 |
| RRP1B | -0.8313 | 0.011353 |
| TSEN2 | -0.82955 | 5.9E-05 |
| C1orf174 | -0.82952 | 0.01895 |
| OCIAD2 | -0.82887 | 5.28E-05 |
| NFYC | -0.82711 | 0.000358 |
| HPGDS | -0.82692 | 0.00071 |
| CDK8 | -0.82676 | 0.02024 |
| PNN | -0.82632 | 0.000173 |
| TOP2B | -0.82608 | 0.012352 |
| DHX34 | -0.8258 | 1.91E-05 |
| DOCK4 | -0.82544 | 0.002643 |
| YTHDF1 | -0.82495 | 0.000143 |
| DUS3L | -0.82482 | 1.21E-08 |
| MAD2L1 | -0.82437 | 0.000704 |
| PABIR1 | -0.82405 | 0.007727 |
| SP1 | -0.82387 | 0.000405 |
| ALYREF | -0.82202 | 0.004093 |
| THOC7 | -0.82141 | 0.000195 |
| AIF1L | -0.82116 | 8.12E-06 |
| AKAP8 | -0.82114 | 0.002385 |
| SBNO2 | -0.82075 | 1.7E-06 |
| EMG1 | -0.82059 | 9.09E-08 |
| LYAR | -0.82049 | 0.000231 |
| TAF9B | -0.81993 | 0.000233 |

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| PPP4R3A | -0.81939 | 1.76E-06 |
| FSCN1 | -0.81867 | 1.21E-08 |
| PPP4R2 | -0.81684 | 0.006119 |
| SNX20 | -0.81656 | 9.44E-10 |
| MED23 | -0.81574 | 3.06E-09 |
| JCHAIN | -0.81529 | 2.76E-05 |
| DERL3 | -0.81495 | 0.000289 |
| EBNA1BP2 | -0.81416 | 8.58E-08 |
| PRCC | -0.81345 | 0.000258 |
| WDR36 | -0.81344 | 1.55E-08 |
| AGR2 | -0.8134 | 0.036144 |
| MSH2 | -0.81315 | 1.61E-05 |
| SLU7 | -0.81308 | 0.004115 |
| SUDS3 | -0.81304 | 0.000712 |
| SNRPD3 | -0.81265 | 0.001991 |
| PRC1 | -0.81177 | 6.56E-05 |
| RPS2 | -0.81142 | 0.000679 |
| ENTPD7 | -0.81099 | 0.004733 |
| USP39 | -0.81089 | 1.1E-06 |
| SRSF8 | -0.81074 | 0.00039 |
| IRF2BP1 | -0.80954 | 0.021086 |
| DDX23 | -0.80948 | 3.56E-07 |
| SERBP1 | -0.80761 | 2.72E-05 |
| EXOSC4 | -0.8068 | 2.76E-06 |
| COIL | -0.80649 | 5.37E-09 |
| STAG2 | -0.80614 | 7.56E-07 |
| RETN | -0.80556 | 0.000387 |
| PCM1 | -0.8048 | 4.42E-05 |

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| ANP32E | -0.80438 | 0.000261 |
| RBM7 | -0.80432 | 0.000383 |
| ARGLU1 | -0.80419 | 1.06E-05 |
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| SNRPD1 | -0.80226 | 0.006998 |
| TERF2 | -0.80226 | 3.68E-05 |
| GSTA4 | -0.80194 | 5.39E-06 |
| ZRANB2 | -0.80183 | 0.018792 |
| SNRPN | -0.80151 | 3.01E-06 |
| DDX27 | -0.80136 | 0.018328 |
| PDS5B | -0.80116 | 3.58E-09 |
| IWS1 | -0.80048 | 0.002965 |
| CACNA2D2 | -0.79875 | 0.02403 |
| RBM14 | -0.79825 | 3.67E-07 |
| GABARAP | -0.79781 | 4.47E-05 |
| CEP55 | -0.79668 | 0.000284 |
| LAS1L | -0.79539 | 0.003725 |
| CIR1 | -0.79471 | 0.000602 |
| RPL24 | -0.79461 | 0.001212 |
| DGKZ | -0.79344 | 6.92E-07 |
| HSH2D | -0.79318 | 3.92E-05 |
| CD247 | -0.79307 | 0.002773 |
| TANC1 | -0.79279 | 8.49E-07 |
| IL4I1 | -0.79184 | 0.000275 |
| MED30 | -0.79115 | 1.82E-06 |
| LUC7L | -0.79076 | 0.000185 |
| CDK6 | -0.79002 | 3.68E-07 |
| KLF13 | -0.78987 | 4.78E-05 |

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| MLH1 | -0.78982 | 0.009662 |
| ZRSR2 | -0.78933 | 1.69E-06 |
| SGPL1 | -0.78871 | 6.43E-08 |
| ENGASE | -0.78845 | 4.09E-05 |
| TCERG1 | -0.78745 | 0.000251 |
| CD1C | -0.7865 | 5.55E-05 |
| GTF3A | -0.78501 | 0.005319 |
| HDGFL2 | -0.78491 | 0.00047 |
| SLC25A19 | -0.78395 | 0.002383 |
| RPL13 | -0.78364 | 0.000117 |
| CGAS | -0.78162 | 7.83E-07 |
| TSR1 | -0.78158 | 0.023046 |
| TES | -0.78102 | 4.32E-05 |
| SLFN5 | -0.78064 | 1.28E-08 |
| CD200R1 | -0.78043 | 4.11E-05 |
| NOP9 | -0.78 | 7.78E-05 |
| ADA2 | -0.77978 | 4.71E-05 |
| SF3B2 | -0.77968 | 4.17E-06 |
| HEATR1 | -0.77863 | 9.44E-11 |
| SRPK1 | -0.77703 | 4.5E-06 |
| DKC1 | -0.77582 | 1.24E-06 |
| RIOK2 | -0.775 | 0.007338 |
| CBX5 | -0.77484 | 0.005017 |
| GABPB1 | -0.7727 | 1.2E-07 |
| METTL16 | -0.7725 | 2.43E-06 |
| WDR18 | -0.77227 | 0.006511 |
| RNMT | -0.77132 | 4.69E-08 |
| NIFK | -0.77109 | 1.45E-11 |

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| PIK3AP1 | -0.77085 | 0.00021 |
| ERCC1 | -0.77041 | 0.021907 |
| ANP32B | -0.77016 | 1.51E-07 |
| ZBED6 | -0.77008 | 9.52E-05 |
| RPS16 | -0.76782 | 0.003565 |
| RCBTB1 | -0.76773 | 0.001018 |
| RPS25 | -0.7664 | 0.019663 |
| BAZ1A | -0.76618 | 0.001012 |
| RPL21 | -0.76615 | 3.43E-08 |
| DEK | -0.76546 | 4.52E-05 |
| NCBP2 | -0.76543 | 7.82E-08 |
| PLD3 | -0.7649 | 8.95E-10 |
| SLBP | -0.76472 | 5.85E-07 |
| UTP20 | -0.76372 | 0.001231 |
| INTS12 | -0.76316 | 7.7E-05 |
| ATXN7L3 | -0.762 | 6.04E-06 |
| CHCHD1 | -0.76199 | 2.24E-06 |
| DYNC2LI1 | -0.76179 | 0.000126 |
| RPS24 | -0.76151 | 0.000176 |
| ORC3 | -0.76096 | 0.000157 |
| EWSR1 | -0.75933 | 3.63E-05 |
| TRIM71 | -0.75859 | 1.64E-05 |
| TOE1 | -0.75705 | 0.000643 |
| ZNF787 | -0.75663 | 0.024476 |
| PALD1 | -0.75519 | 2.25E-06 |
| CRY2 | -0.75463 | 1.14E-05 |
| RBM26 | -0.75457 | 0.004213 |
| BRIX1 | -0.75423 | 0.000112 |

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| TOP2A | -0.75407 | 0.000977 |
| DPF2 | -0.75361 | 7.25E-06 |
| RNF2 | -0.75341 | 0.000534 |
| RBM28 | -0.75338 | 0.038216 |
| CCNT2 | -0.75319 | 0.004437 |
| HMGXB4 | -0.75299 | 0.00219 |
| OAS1 | -0.75132 | 0.02198 |
| RNASEH2B | -0.74874 | 5E-05 |
| ZC3H18 | -0.74816 | 2.93E-07 |
| EVL | -0.74764 | 0.009053 |
| TFDP1 | -0.74729 | 0.02077 |
| ILKAP | -0.74687 | 2.23E-07 |
| TCEAL3 | -0.74619 | 2.33E-06 |
| C12orf57 | -0.74618 | 4.86E-05 |
| ZNF512 | -0.7451 | 0.039007 |
| RPL32 | -0.74504 | 0.018337 |
| EDF1 | -0.74399 | 1.54E-09 |
| GSE1 | -0.74334 | 7.9E-09 |
| SCML2 | -0.7433 | 5.29E-06 |
| PRPF4B | -0.74313 | 2.31E-06 |
| LIG3 | -0.74288 | 4.89E-05 |
| C16orf87 | -0.74111 | 6.48E-08 |
| DNTT | -0.74097 | 0.000196 |
| TRIM8 | -0.74061 | 0.00075 |
| SNRPA1 | -0.73992 | 2.25E-05 |
| RRP8 | -0.73948 | 0.003619 |
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| CXXC1 | -0.73633 | 8.95E-08 |

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| SMIM11A | -0.7362 | 0.013397 |
| CDK12 | -0.7356 | 1.02E-09 |
| TRAF1 | -0.73507 | 0.015778 |
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| TRPC4AP | -0.73399 | 0.000316 |
| ZC4H2 | -0.73348 | 0.025795 |
| SF3A2 | -0.73339 | 0.005896 |
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| HPF1 | -0.72305 | 6.73E-10 |
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| NOP56 | -0.72264 | 1.78E-08 |

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| TRIM33 | -0.72163 | 4.1E-06 |
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| GPATCH11 | -0.72118 | 9.19E-07 |
| SUB1 | -0.72011 | 0.000884 |
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| SRP14 | -0.71577 | 0.001662 |
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| UTP15 | -0.70947 | 7.59E-06 |
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| TACSTD2 | -0.57909 | 0.002229 |
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| PDS5B | -0.57675 | 5.13E-06 |
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| GGNBP2 | -0.5664 | 3.9E-06 |
| TIMM9 | -0.56628 | 0.005016 |
| HNRNPUL1 | -0.566 | 1.16E-06 |
| S100A8 | -0.56595 | 6.87E-08 |
| WBP11 | -0.56584 | 2.28E-05 |
| MTG1 | -0.56552 | 0.033784 |
| TMA16 | -0.56491 | 0.000413 |

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| TNS3 | -0.5649 | 0.000336 |
| UTP4 | -0.56489 | 0.002566 |
| TIGAR | -0.56462 | 2.76E-06 |
| RPS4Y1 | -0.56424 | 0.017177 |
| PTX3 | -0.56364 | 0.000426 |
| AOAH | -0.56331 | 0.000252 |
| SETDB1 | -0.56249 | 7.18E-05 |
| DDX55 | -0.56194 | 0.001845 |
| INTS11 | -0.56184 | 0.000129 |
| NPM1 | -0.56184 | 5.01E-05 |
| SOAT1 | -0.56161 | 1.67E-10 |
| HMBS | -0.56144 | 9.52E-05 |
| HACD2 | -0.55957 | 0.009708 |
| KCTD12 | -0.55906 | 2.17E-06 |
| SNX32 | -0.55868 | 3.01E-05 |
| EFTUD2 | -0.55824 | 1.39E-06 |
| MDC1 | -0.55813 | 0.011972 |
| OSBPL5 | -0.55777 | 6.51E-05 |
| SERPINB10 | -0.55765 | 3.76E-07 |
| GM2A | -0.55701 | 0.003961 |
| RPL36A | -0.55664 | 0.016091 |
| RPS19 | -0.55658 | 0.005378 |
| EIF3M | -0.55641 | 0.001526 |
| BCCIP | -0.55554 | 1.32E-06 |
| SIRT1 | -0.55545 | 7.28E-05 |
| APOBEC3B | -0.55535 | 0.00107 |
| TNFRSF1B | -0.55528 | 0.028745 |
| CNRIP1 | -0.55524 | 0.001255 |

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| ALOX5 | -0.55435 | 6.46E-08 |
| NOM1 | -0.55423 | 0.002454 |
| ARHGAP30 | -0.55386 | 1.88E-05 |
| SIGLEC9 | -0.55384 | 6.02E-06 |
| DHX9 | -0.55381 | 1.34E-07 |
| PINX1 | -0.55379 | 0.000397 |
| RUFY3 | -0.55297 | 0.001135 |
| CHD2 | -0.5527 | 0.000146 |
| TYMS | -0.55185 | 0.000145 |
| PPM1G | -0.55173 | 1.41E-08 |
| GTF3C3 | -0.551 | 0.007517 |
| GBP1 | -0.55094 | 1.44E-05 |
| MATN2 | -0.55085 | 1.87E-05 |
| CCDC32 | -0.55037 | 0.00214 |
| GTF2I | -0.55031 | 5.74E-05 |
| ANXA6 | -0.54899 | 5.09E-05 |
| CMPK2 | -0.54811 | 6.41E-08 |
| CASTOR2 | -0.548 | 0.002231 |
| SF3A1 | -0.54779 | 1.47E-07 |
| DEPTOR | -0.54759 | 4.23E-05 |
| EAF2 | -0.54758 | 0.000518 |
| HERC5 | -0.54717 | 0.006628 |
| NCOA2 | -0.54684 | 0.015225 |
| CDKN2C | -0.54523 | 2.31E-08 |
| SMARCC2 | -0.54455 | 5.68E-08 |
| TRMT61A | -0.54442 | 0.032705 |
| SLC2A6 | -0.54418 | 2.14E-08 |
| NTHL1 | -0.54374 | 3.66E-07 |

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| ZNF592 | -0.54359 | 0.010765 |
| ATM | -0.54347 | 0.002615 |
| RABL2A | -0.54337 | 0.006468 |
| NCAPH | -0.54319 | 0.001186 |
| LYZ | -0.54286 | 4.85E-07 |
| CTR9 | -0.54221 | 0.004147 |
| ZC3H15 | -0.54213 | 0.020428 |
| AKR1C3 | -0.54161 | 3.08E-05 |
| CHRAC1 | -0.5415 | 0.000685 |
| CCDC126 | -0.54129 | 0.00178 |
| ARHGEF40 | -0.54081 | 0.001861 |
| SRBD1 | -0.54063 | 3.28E-07 |
| ISG20 | -0.54061 | 0.00127 |
| FANCI | -0.5405 | 0.00024 |
| MRPS25 | -0.54036 | 0.002113 |
| CAMK1D | -0.54001 | 2.65E-05 |
| CAMP | -0.53988 | 5.7E-05 |
| RBBP6 | -0.53957 | 4.35E-06 |
| SNRNP200 | -0.53918 | 2.94E-07 |
| PCYT1A | -0.53821 | 0.000392 |
| LY75-CD302 | -0.53764 | 2.49E-05 |
| SETMAR | -0.53749 | 5.93E-05 |
| BTAF1 | -0.5373 | 9.04E-05 |
| MTA2 | -0.53677 | 7.7E-06 |
| APEX2 | -0.5367 | 1.88E-06 |
| C19orf54 | -0.53665 | 1.6E-05 |
| DEFA4 | -0.53661 | 0.00011 |
| PRPF3 | -0.53558 | 5.53E-06 |

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| GBP5 | -0.53525 | 1.52E-05 |
| SART3 | -0.53513 | 1.67E-05 |
| PER1 | -0.53465 | 2.31E-08 |
| TRMT1 | -0.53435 | 0.001034 |
| FTO | -0.5342 | 0.000628 |
| POLR1A | -0.53394 | 0.009152 |
| TREM1 | -0.53371 | 0.000355 |
| ZBTB11 | -0.53354 | 2.27E-05 |
| SAFB | -0.53334 | 0.000109 |
| DNAAF2 | -0.53317 | 0.000918 |
| POLE3 | -0.53309 | 0.002011 |
| HNRNPDL | -0.53216 | 6.14E-06 |
| AAR2 | -0.53196 | 1.15E-05 |
| SRSF9 | -0.53194 | 9.19E-06 |
| RPLP2 | -0.53152 | 0.006179 |
| PPIL4 | -0.5308 | 1.53E-05 |
| XRCC5 | -0.53073 | 3.35E-07 |
| PXN | -0.53043 | 0.000206 |
| FKBP4 | -0.5303 | 0.001588 |
| TRIM24 | -0.53015 | 0.000179 |
| POLR2B | -0.52997 | 0.000478 |
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| GINS3 | -0.52959 | 1.19E-06 |
| TRIAP1 | -0.52866 | 7.23E-05 |
| SLC38A1 | -0.52832 | 0.001773 |
| NUFIP2 | -0.52805 | 0.000189 |
| INO80C | -0.52793 | 1.57E-05 |
| POLB | -0.52779 | 0.000217 |

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| METTL3 | -0.52748 | 3.46E-05 |
| NDC80 | -0.52743 | 2.41E-07 |
| YTHDF2 | -0.52673 | 0.000145 |
| ZCCHC10 | -0.52614 | 0.000778 |
| ASB13 | -0.52585 | 0.017186 |
| SCARB1 | -0.52527 | 0.000263 |
| GCHFR | -0.52503 | 5.19E-06 |
| PHF11 | -0.52461 | 0.013451 |
| IFIT2 | -0.52433 | 7.45E-05 |
| PIGU | -0.52433 | 0.000449 |
| RHBDD2 | -0.5243 | 0.003812 |
| SRSF3 | -0.52415 | 5.04E-07 |
| VIRMA | -0.52409 | 0.000306 |
| CETN3 | -0.52394 | 0.000768 |
| TNRC6A | -0.52379 | 0.000573 |
| NCAPD2 | -0.52377 | 0.000158 |
| GPS2 | -0.52315 | 0.002614 |
| NOSIP | -0.52314 | 8.71E-05 |
| ITGB2 | -0.52234 | 8.73E-08 |
| TSPAN3 | -0.52201 | 9.52E-06 |
| SWI5 | -0.5219 | 6.67E-05 |
| STEAP4 | -0.5218 | 0.043933 |
| TADA1 | -0.52167 | 3.88E-07 |
| CRNKL1 | -0.52162 | 0.009069 |
| OASL | -0.52162 | 0.001125 |
| SRSF10 | -0.52074 | 2.42E-06 |
| CDK4 | -0.52072 | 3.03E-07 |
| FABP5 | -0.5207 | 0.011257 |

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| NCF4 | -0.52057 | 0.001664 |
| ZCCHC8 | -0.51999 | 0.015851 |
| CLNS1A | -0.51995 | 0.003949 |
| RPAP1 | -0.51945 | 5.44E-06 |
| SLC36A4 | -0.51872 | 0.02199 |
| MDN1 | -0.51866 | 1.41E-05 |
| TIMM8B | -0.51796 | 0.000202 |
| RBBP9 | -0.51785 | 0.024446 |
| CHD3 | -0.51775 | 0.020498 |
| MASTL | -0.51766 | 0.01575 |
| RRM1 | -0.51642 | 1.34E-05 |
| UHMK1 | -0.51629 | 0.005984 |
| EXOSC6 | -0.51526 | 0.00734 |
| TAF6L | -0.51478 | 0.000363 |
| SPAG7 | -0.51465 | 4.71E-05 |
| PET100 | -0.51404 | 0.000762 |
| TLR6 | -0.51331 | 0.00349 |
| ARHGEF10L | -0.51295 | 0.004081 |
| MYSM1 | -0.51286 | 2.29E-05 |
| RPL22L1 | -0.51272 | 0.000177 |
| ASDURF | -0.51271 | 0.045615 |
| RRP12 | -0.5125 | 0.000359 |
| USP48 | -0.51193 | 1.01E-05 |
| SAFB2 | -0.51183 | 1.39E-05 |
| PBK | -0.51148 | 0.000473 |
| RPUSD2 | -0.51129 | 1.62E-06 |
| RASA4 | -0.51125 | 0.004445 |
| CFAP20 | -0.51082 | 0.001614 |

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| POP1 | -0.51073 | 0.000215 |
| CCNE1 | -0.51063 | 0.001244 |
| STAT2 | -0.51024 | 0.01043 |
| DHX15 | -0.51011 | 0.001001 |
| DIS3 | -0.50983 | 0.015402 |
| RPS8 | -0.5092 | 2.7E-05 |
| NUP37 | -0.50918 | 5.92E-07 |
| TRIM41 | -0.50895 | 0.014536 |
| AFF1 | -0.5087 | 0.013688 |
| CD163 | -0.50822 | 0.002766 |
| RPS10 | -0.50801 | 3.13E-07 |
| ZNF638 | -0.50788 | 0.000126 |
| RBM15 | -0.5076 | 0.000676 |
| AKAP11 | -0.50758 | 0.00026 |
| WDHD1 | -0.50719 | 1.98E-06 |
| MAML3 | -0.5069 | 0.030807 |
| PSPC1 | -0.50674 | 0.000879 |
| FAM76A | -0.50642 | 0.029508 |
| PRPF31 | -0.50641 | 1.11E-06 |
| NSRP1 | -0.50602 | 3.4E-05 |
| TRGC1 | -0.50579 | 7.23E-07 |
| SART1 | -0.50537 | 2.06E-07 |
| NCAPG | -0.50528 | 0.000187 |
| RPL6 | -0.50515 | 6.25E-05 |
| MRPL19 | -0.50475 | 3.42E-05 |
| XRCC3 | -0.50462 | 3.58E-05 |
| RPLP0 | -0.50458 | 0.000295 |
| P2RY8 | -0.50415 | 0.00872 |

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| COA7 | -0.50357 | 0.001305 |
| IFIT1 | -0.50316 | 0.000121 |
| NSUN2 | -0.50257 | 0.029152 |
| RAB11FIP1 | -0.50204 | 0.022263 |
| PDCD4 | -0.50191 | 0.002685 |
| NHLRC3 | -0.5018 | 0.020553 |
| NEGR1 | -0.50158 | 0.00722 |
| APBB1IP | -0.50139 | 1.04E-06 |
| ADD2 | -0.50132 | 0.002556 |
| CAAP1 | -0.50107 | 8.09E-08 |
| POLE2 | -0.50084 | 0.006198 |
| RPS6 | -0.50072 | 3.65E-08 |
| NONO | -0.5007 | 8.65E-05 |
| S100A10 | -0.50045 | 7.95E-05 |
| SHQ1 | -0.50035 | 2.93E-07 |
| INTS7 | -0.49997 | 0.000772 |
| MCMBP | -0.49917 | 0.015999 |
| ARID1A | -0.49888 | 0.000138 |
| HDGF | -0.49871 | 7.06E-07 |
| CERS5 | -0.49855 | 0.003268 |
| LEO1 | -0.49797 | 8.51E-05 |
| ZFR | -0.49792 | 1.95E-05 |
| VIM | -0.49791 | 2.03E-06 |
| PRPF40A | -0.49782 | 0.005359 |
| MTA1 | -0.49737 | 2.25E-05 |
| AKAP17A | -0.49731 | 2.48E-05 |
| USP22 | -0.49687 | 0.000378 |
| PPAN | -0.49686 | 1.74E-05 |

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| CASP8 | -0.49567 | 0.004033 |
| RCOR1 | -0.49559 | 0.000925 |
| GRWD1 | -0.49555 | 0.000122 |
| SCAF8 | -0.49541 | 2.97E-05 |
| CWC22 | -0.49529 | 0.000352 |
| MATR3 | -0.49478 | 0.047995 |
| SCAF1 | -0.49439 | 0.000129 |
| RPS6KA4 | -0.49406 | 0.017054 |
| TPR | -0.49375 | 2.36E-05 |
| PRF1 | -0.49358 | 0.000161 |
| WEE1 | -0.49357 | 0.005542 |
| RNF20 | -0.49338 | 1.45E-05 |
| PCBP3 | -0.49332 | 0.001845 |
| FAIM | -0.4932 | 0.03733 |
| TBC1D2B | -0.4928 | 9.19E-05 |
| PPT1 | -0.49271 | 0.015138 |
| MMS22L | -0.49265 | 0.011898 |
| GAPT | -0.49129 | 0.006833 |
| PABPC4 | -0.49099 | 0.000162 |
| DDX41 | -0.49087 | 8.07E-05 |
| TARBP1 | -0.49073 | 0.002119 |
| NCBP1 | -0.49005 | 3.74E-07 |
| CYBB | -0.49004 | 0.013059 |
| RBM5 | -0.48999 | 1.9E-06 |
| UAP1 | -0.48988 | 0.00523 |
| RAD50 | -0.4897 | 0.042665 |
| ANKHD1-EIF4EBP3 | -0.48967 | 4.28E-06 |

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| COLGALT1 | -0.48967 | 2.15E-06 |
| SRP72 | -0.48915 | 3.68E-05 |
| SNRPD2 | -0.48871 | 0.000284 |
| PUS7 | -0.48851 | 0.000106 |
| MGST3 | -0.48842 | 0.032475 |
| MFAP1 | -0.48827 | 0.021318 |
| CDC7 | -0.48809 | 0.000316 |
| QTRT1 | -0.48791 | 3.07E-05 |
| CYTH1 | -0.48765 | 0.000344 |
| TENT5A | -0.48764 | 0.011673 |
| GINS2 | -0.48746 | 9.74E-05 |
| SRSF1 | -0.48694 | 1.52E-05 |
| UNC93B1 | -0.48679 | 0.004592 |
| AK5 | -0.48649 | 0.030613 |
| SLFN11 | -0.48607 | 0.002583 |
| TMEM160 | -0.48596 | 0.004225 |
| SF3B2 | -0.48522 | 0.002788 |
| HEATR3 | -0.48436 | 0.033108 |
| YTHDF3 | -0.48373 | 0.006023 |
| NSMCE2 | -0.48371 | 0.007285 |
| DCAF8 | -0.48371 | 0.003617 |
| EIF3A | -0.48366 | 0.000119 |
| MLLT10 | -0.48344 | 7.19E-05 |
| MED10 | -0.4834 | 0.002751 |
| TPK1 | -0.48311 | 2.11E-05 |
| ZNF330 | -0.48279 | 0.011384 |
| ARHGAP9 | -0.48265 | 2.21E-05 |
| SUGP1 | -0.48262 | 8.83E-06 |

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| RPL30 | -0.48249 | 0.000184 |
| EIF4E3 | -0.48239 | 0.04059 |
| UTP25 | -0.48218 | 2.53E-05 |
| BRD4 | -0.48215 | 0.000192 |
| STMN1 | -0.48204 | 7.9E-05 |
| SUPT6H | -0.48186 | 5.76E-05 |
| OS9 | -0.48177 | 0.000475 |
| ZSCAN18 | -0.48041 | 0.003238 |
| FAM32A | -0.47995 | 0.002615 |
| FLT3 | -0.47952 | 3.73E-05 |
| GNPDA1 | -0.47942 | 0.000326 |
| LCP1 | -0.47937 | 0.000264 |
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| CCDC77 | -0.4785 | 0.000218 |
| ZBTB1 | -0.47825 | 8.71E-06 |
| SLC26A2 | -0.47797 | 0.004453 |
| HMG20A | -0.47779 | 4.8E-05 |
| ERICH1 | -0.47701 | 0.006907 |
| HLA-DPA1 | -0.477 | 0.001167 |
| HNRNPK | -0.47686 | 4.85E-06 |
| METAP2 | -0.47673 | 7.59E-05 |
| ACOT11 | -0.47665 | 0.039498 |
| SYNGR1 | -0.47651 | 0.000101 |
| PRICKLE3 | -0.4765 | 0.003058 |
| NUP214 | -0.47643 | 1.95E-06 |
| NAAA | -0.47639 | 7.4E-07 |
| NUP93 | -0.47633 | 2.27E-06 |
| TMEM214 | -0.47533 | 7.97E-05 |

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| CCAR1 | -0.47504 | 0.003605 |
| LRIG2 | -0.47484 | 0.006543 |
| C1orf162 | -0.47457 | 5.37E-06 |
| WDR12 | -0.47433 | 0.00226 |
| ISG15 | -0.47424 | 0.020703 |
| METTL5 | -0.47423 | 2.8E-08 |
| NMNAT1 | -0.47407 | 3.45E-07 |
| PCF11 | -0.47391 | 5.08E-06 |
| GTF2H1 | -0.47288 | 0.0038 |
| FABP3 | -0.4727 | 0.002996 |
| ADGRE5 | -0.47265 | 0.028733 |
| AAMP | -0.4726 | 0.001689 |
| DTD2 | -0.47239 | 0.029238 |
| PRPF19 | -0.47238 | 0.004802 |
| ABRAXAS1 | -0.47181 | 0.02626 |
| RSBN1L | -0.47149 | 0.000268 |
| ATF2 | -0.47135 | 4.57E-05 |
| MED16 | -0.47121 | 2.46E-06 |
| SRP54 | -0.47112 | 0.04355 |
| GTF2H2 | -0.47105 | 0.000204 |
| SELENOK | -0.4706 | 0.024839 |
| ATAD2 | -0.47049 | 0.002616 |
| TFR2 | -0.4704 | 0.023481 |
| EEF2K | -0.46971 | 1.39E-05 |
| OAS2 | -0.46962 | 0.00882 |
| IGFBP7 | -0.46956 | 1.82E-05 |
| RRP7A | -0.46931 | 0.00285 |
| ERO1A | -0.46919 | 0.001595 |

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| RDH10 | -0.46881 | 0.01512 |
| PTBP3 | -0.4681 | 0.000396 |
| SMUG1 | -0.46783 | 6.54E-07 |
| ERG | -0.46779 | 0.047341 |
| NRDE2 | -0.46777 | 0.000732 |
| TIMMDC1 | -0.46763 | 0.012378 |
| NDUFA11 | -0.46754 | 0.009112 |
| ALDH2 | -0.4675 | 0.008329 |
| RPL7 | -0.46718 | 0.000139 |
| MX2 | -0.46704 | 0.000677 |
| PUS3 | -0.46675 | 1.9E-06 |
| ERCC2 | -0.46664 | 1.5E-08 |
| RAB27A | -0.46607 | 7.22E-05 |
| POLR3E | -0.46599 | 7.97E-06 |
| CTDP1 | -0.46599 | 7.03E-05 |
| LRRC41 | -0.4659 | 0.023693 |
| TENT2 | -0.4659 | 0.0016 |
| GIMAP7 | -0.46588 | 0.008325 |
| RPS28 | -0.46558 | 0.000308 |
| BRWD3 | -0.46496 | 0.003558 |
| RPL3 | -0.46474 | 5.97E-05 |
| RRP9 | -0.46474 | 3.54E-05 |
| NUP205 | -0.46468 | 1.59E-06 |
| MPO | -0.46409 | 0.031441 |
| RFC5 | -0.46404 | 0.003565 |
| INTS6 | -0.46387 | 0.030859 |
| COQ8A | -0.4638 | 0.000231 |
| MRPL11 | -0.4636 | 0.000865 |

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| OAS3 | -0.4636 | 9.24E-06 |
| KAT7 | -0.46345 | 0.006418 |
| SWSAP1 | -0.46331 | 6.47E-05 |
| QKI | -0.46304 | 0.005506 |
| DMAP1 | -0.46294 | 0.005911 |
| EIF2AK1 | -0.46211 | 6.45E-06 |
| RRP1 | -0.46173 | 3.96E-06 |
| DIAPH2 | -0.46133 | 0.012966 |
| TOR1AIP1 | -0.46122 | 0.009702 |
| HDDC3 | -0.46122 | 0.000279 |
| BDH2 | -0.46109 | 0.010536 |
| CLIC2 | -0.46059 | 4.17E-05 |
| GTF3C2 | -0.46023 | 0.003539 |
| MCM4 | -0.45931 | 1.53E-07 |
| THOC5 | -0.45923 | 0.002885 |
| BTG2 | -0.45911 | 0.039845 |
| OBI1 | -0.45908 | 2.69E-05 |
| FTL | -0.459 | 0.001609 |
| GCFC2 | -0.45835 | 8.78E-05 |
| TNFRSF1A | -0.45795 | 2.63E-06 |
| ZNF740 | -0.45775 | 0.000364 |
| PCIF1 | -0.4576 | 0.001872 |
| HNRNPA2B1 | -0.45752 | 7.68E-09 |
| CHAMP1 | -0.45749 | 2.06E-05 |
| HSPBP1 | -0.45709 | 0.000232 |
| ATXN3 | -0.45623 | 0.005025 |
| SMC4 | -0.45603 | 3.37E-07 |
| VSIG4 | -0.45596 | 0.006729 |

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| PLBD1 | -0.45586 | 0.000156 |
| PHF2 | -0.45569 | 4.28E-05 |
| NAT14 | -0.45553 | 0.00518 |
| DNAAF5 | -0.45546 | 0.007378 |
| MEFV | -0.45541 | 0.000432 |
| CD48 | -0.4553 | 0.004729 |
| PMS2 | -0.45512 | 0.000141 |
| ARRB2 | -0.45504 | 2.97E-06 |
| NSMCE3 | -0.45502 | 1.37E-05 |
| PANK3 | -0.45496 | 0.000615 |
| EARS2 | -0.4549 | 0.002983 |
| RGS14 | -0.45473 | 2.08E-05 |
| TLR8 | -0.45449 | 0.037577 |
| IBTK | -0.45445 | 0.000188 |
| NTPCR | -0.45434 | 0.000127 |
| DDX24 | -0.45429 | 0.012633 |
| ZAP70 | -0.45412 | 0.000417 |
| HMCES | -0.45373 | 0.04319 |
| ZC3H11A | -0.4532 | 4.6E-05 |
| SMC3 | -0.4532 | 5.99E-09 |
| SNRPG | -0.45298 | 0.000231 |
| ANXA2 | -0.45249 | 4.98E-06 |
| SLC39A14 | -0.45167 | 0.018977 |
| PREX1 | -0.45122 | 0.000343 |
| NCF1 | -0.45106 | 0.000324 |
| DDX58 | -0.45093 | 1.43E-09 |
| TUT4 | -0.45032 | 8.52E-05 |
| PRKCH | -0.45001 | 0.000945 |

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| CKB | -0.44968 | 0.007014 |
| HLTF | -0.44945 | 0.000524 |
| INTS8 | -0.44917 | 0.000578 |
| TRPS1 | -0.44907 | 0.000462 |
| TNFAIP8 | -0.44852 | 1.76E-08 |
| AQR | -0.44796 | 0.00011 |
| THOC3 | -0.44774 | 0.00374 |
| RTN4R | -0.44729 | 0.006082 |
| CDK13 | -0.44702 | 0.000484 |
| IMPDH2 | -0.44696 | 1.99E-06 |
| GABPA | -0.44696 | 3.35E-05 |
| MRPS16 | -0.44657 | 0.02946 |
| HNRNPA3 | -0.4463 | 0.003515 |
| RPAP2 | -0.4462 | 0.050036 |
| NA | -0.44617 | 0.000195 |
| XPC | -0.44596 | 0.002259 |
| APOL2 | -0.44562 | 0.00324 |
| TLR2 | -0.44509 | 0.000302 |
| ZNF696 | -0.44476 | 0.030579 |
| NOC4L | -0.44474 | 0.000225 |
| TAF8 | -0.44467 | 0.02307 |
| ORC4 | -0.44412 | 8.19E-06 |
| ANTXR2 | -0.4437 | 0.004025 |
| SRP9 | -0.44366 | 0.024591 |
| ZWINT | -0.44364 | 0.009886 |
| SPICE1 | -0.44346 | 0.014757 |
| POLE | -0.4434 | 1.01E-06 |
| HSPBAP1 | -0.44336 | 5.61E-07 |

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| THAP12 | -0.44326 | 0.001025 |
| DDA1 | -0.44319 | 5.21E-06 |
| CHURC1 | -0.44312 | 0.007842 |
| MBNL1 | -0.4425 | 0.000712 |
| C19orf53 | -0.44219 | 4.72E-05 |
| PRADC1 | -0.44215 | 4.05E-05 |
| STRBP | -0.44194 | 0.013822 |
| CREB1 | -0.44175 | 0.01028 |
| SYNJ2 | -0.44091 | 0.007341 |
| SUPT7L | -0.44084 | 0.001031 |
| RPL4 | -0.44045 | 0.001248 |
| AGAP3 | -0.44035 | 0.015057 |
| NCOA5 | -0.43992 | 3.22E-07 |
| MAP3K20 | -0.43951 | 0.005473 |
| RPP38 | -0.43936 | 0.000705 |
| CYP7B1 | -0.43935 | 4.57E-05 |
| TLR1 | -0.43902 | 0.002608 |
| GTF2H3 | -0.43863 | 1.45E-07 |
| TOP3A | -0.43802 | 0.000654 |
| EIF4A3 | -0.43776 | 1.15E-06 |
| BCAS2 | -0.43724 | 0.003562 |
| SETX | -0.43674 | 0.000285 |
| GADD45GIP1 | -0.43633 | 0.003497 |
| DFFA | -0.4362 | 0.00249 |
| DUT | -0.43609 | 0.012926 |
| CA8 | -0.43578 | 0.001956 |
| PPP4R3B | -0.43514 | 0.003083 |
| MFSD10 | -0.4349 | 0.003082 |

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| TRMT112 | -0.43467 | 6.12E-05 |
| NKTR | -0.43452 | 0.007379 |
| PIAS4 | -0.43441 | 0.001185 |
| PPIE | -0.43411 | 0.000127 |
| IVNS1ABP | -0.43357 | 3.21E-05 |
| UPP1 | -0.43321 | 2.04E-08 |
| LILRA5 | -0.4332 | 0.044652 |
| MTMR4 | -0.43284 | 0.030915 |
| TIFAB | -0.43227 | 0.018152 |
| TBP | -0.43218 | 2.45E-06 |
| EFHD2 | -0.43195 | 6.25E-06 |
| KIAA0319L | -0.43193 | 0.000849 |
| RPA3 | -0.4316 | 0.001656 |
| RNASET2 | -0.43136 | 0.008816 |
| GANC | -0.4313 | 0.023397 |
| TARDBP | -0.43038 | 0.002085 |
| RCN1 | -0.43036 | 0.038197 |
| ESS2 | -0.4303 | 0.000154 |
| ADNP | -0.42924 | 7.62E-07 |
| ERCC5 | -0.42823 | 7.66E-08 |
| DET1 | -0.42814 | 0.005879 |
| DDX54 | -0.42808 | 0.005202 |
| OARD1 | -0.42802 | 0.000803 |
| CTSG | -0.42734 | 0.018763 |
| RNF181 | -0.42725 | 0.024491 |
| SNIP1 | -0.42683 | 4.35E-06 |
| FCHSD2 | -0.42674 | 3.91E-06 |
| KIF11 | -0.42636 | 2.23E-06 |

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| URB2 | -0.42634 | 0.000581 |
| PRR12 | -0.42628 | 0.002674 |
| DGCR8 | -0.42626 | 7.36E-06 |
| DDX19A | -0.42625 | 0.000745 |
| POP7 | -0.42613 | 0.000353 |
| AGA | -0.42591 | 0.027443 |
| DDX5 | -0.42523 | 0.000476 |
| CHERP | -0.42506 | 0.001015 |
| MRPS12 | -0.42497 | 0.007957 |
| ZMAT2 | -0.42492 | 0.000988 |
| ICAM1 | -0.42489 | 0.018501 |
| DHX38 | -0.42487 | 0.000364 |
| COMMD3 | -0.42394 | 0.039184 |
| TAF4 | -0.42343 | 0.033798 |
| RRAGD | -0.42338 | 0.010424 |
| HAT1 | -0.42328 | 0.002904 |
| RPS20 | -0.4231 | 0.000816 |
| PIAS1 | -0.42265 | 0.001027 |
| KRI1 | -0.42252 | 0.000281 |
| POLR2G | -0.42246 | 1.99E-05 |
| TOX | -0.42237 | 0.013187 |
| GGT5 | -0.42201 | 0.010563 |
| SLC7A6OS | -0.42178 | 0.000358 |
| UBA2 | -0.4217 | 0.0272 |
| NKRF | -0.42157 | 0.000133 |
| HDAC7 | -0.42154 | 0.050814 |
| RCL1 | -0.42132 | 0.001353 |
| MKI67 | -0.42124 | 0.005952 |

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| ZNF587 | -0.42123 | 0.014932 |
| MPLKIP | -0.42119 | 0.00284 |
| AATF | -0.42113 | 2.47E-06 |
| SLC29A1 | -0.42101 | 0.000233 |
| ELOVL5 | -0.42087 | 0.000542 |
| CABIN1 | -0.42087 | 0.004012 |
| CCDC124 | -0.42044 | 9.48E-07 |
| THOC1 | -0.42036 | 0.001234 |
| COLGALT2 | -0.42032 | 4.6E-05 |
| MED6 | -0.42021 | 6.83E-06 |
| TRIM22 | -0.41998 | 0.000784 |
| SH3RF1 | -0.41992 | 0.001412 |
| PHLPP1 | -0.41988 | 0.003508 |
| CAPRIN1 | -0.41845 | 0.000119 |
| RCOR3 | -0.41839 | 0.001506 |
| GNG2 | -0.41787 | 0.000235 |
| MRPS24 | -0.41785 | 0.001915 |
| ARID1B | -0.41766 | 9.43E-05 |
| TP53BP1 | -0.41759 | 0.003265 |
| CHI3L1 | -0.41754 | 0.004858 |
| INO80 | -0.41677 | 0.021955 |
| ARHGAP25 | -0.4165 | 0.001381 |
| ZBTB16 | -0.4158 | 2.1E-05 |
| ANAPC15 | -0.41555 | 0.004713 |
| RPL19 | -0.41441 | 5.02E-05 |
| PTGR2 | -0.41434 | 5.89E-06 |
| EZR | -0.41401 | 0.024828 |
| ARSK | -0.41382 | 0.040475 |

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| TNFRSF10B | -0.41344 | 0.004155 |
| TMCC3 | -0.41298 | 0.002801 |
| INTS4 | -0.4129 | 0.007685 |
| EPB41L2 | -0.41285 | 0.034898 |
| GTF2H5 | -0.41276 | 0.001046 |
| SCD | -0.41228 | 0.000782 |
| RSBN1 | -0.41214 | 0.025334 |
| APEX1 | -0.41181 | 2.96E-06 |
| IMP4 | -0.41144 | 1.15E-05 |
| EED | -0.41137 | 0.041222 |
| JMJD8 | -0.41082 | 0.00485 |
| POLR2E | -0.4107 | 0.028979 |
| RPL7A | -0.41059 | 0.028051 |
| ALDH3B1 | -0.41042 | 4.16E-06 |
| NPC2 | -0.41037 | 6.37E-07 |
| IQGAP1 | -0.41018 | 0.000897 |
| IARS1 | -0.41003 | 7.54E-07 |
| SELENOH | -0.40973 | 0.00197 |
| TFRC | -0.40936 | 3.68E-05 |
| DHX35 | -0.40906 | 3.46E-05 |
| TEDC1 | -0.40887 | 0.000105 |
| CDK9 | -0.40859 | 0.001369 |
| PTRH1 | -0.40857 | 0.000623 |
| PRMT1 | -0.40846 | 9.27E-06 |
| KMT5B | -0.40845 | 0.000429 |
| FCGRT | -0.40839 | 0.000116 |
| NUP210 | -0.40797 | 2.19E-05 |
| MYO1G | -0.40784 | 0.000308 |

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| LSM4 | -0.40769 | 0.000412 |
| NDUFAF2 | -0.40747 | 0.041382 |
| FKBP5 | -0.40716 | 0.001221 |
| PDK4 | -0.40668 | 0.027961 |
| ERCC4 | -0.40668 | 2.71E-05 |
| RFK | -0.40614 | 3.23E-05 |
| ARL2BP | -0.40607 | 0.025519 |
| CUEDC2 | -0.4058 | 0.002379 |
| PAK1 | -0.40579 | 0.001065 |
| SNRPA | -0.40559 | 0.001199 |
| TALDO1 | -0.40552 | 0.002885 |
| TMX2 | -0.40551 | 0.000396 |
| DHX30 | -0.40549 | 0.001577 |
| CENPC | -0.40532 | 0.001266 |
| ISCA1 | -0.40531 | 0.038712 |
| SRSF2 | -0.40528 | 0.005092 |
| LGALS2 | -0.4044 | 0.050757 |
| HPR | -0.40395 | 0.00513 |
| EIF3C | -0.40378 | 0.013425 |
| PTPRCAP | -0.40317 | 0.000741 |
| PPWD1 | -0.40316 | 8.12E-06 |
| SWAP70 | -0.40304 | 9.55E-08 |
| NAA60 | -0.40279 | 1.02E-08 |
| PDSS2 | -0.40276 | 0.000506 |
| KICS2 | -0.4027 | 0.041276 |
| BLM | -0.40262 | 2.75E-06 |
| S100A12 | -0.4025 | 0.008781 |
| RPS26 | -0.40243 | 0.009042 |

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| PDRG1 | -0.40204 | 0.037777 |
| TRAT1 | -0.40199 | 0.000267 |
| MALSU1 | -0.40194 | 0.000495 |
| NAA40 | -0.40186 | 1.36E-07 |
| HPDL | -0.40156 | 1.83E-06 |
| EEF2KMT | -0.4013 | 0.001809 |
| PSME3IP1 | -0.40125 | 0.005096 |
| PELP1 | -0.40115 | 3.28E-05 |
| CHAF1B | -0.40047 | 0.000888 |
| ADGRG3 | -0.40046 | 0.014952 |
| MED12 | -0.40018 | 0.01004 |
| ELAC2 | -0.40003 | 0.002868 |
| GPD1 | -0.39958 | 7.24E-06 |
| SASS6 | -0.39947 | 0.00169 |
| TPPP | -0.39942 | 0.016154 |
| UHRF2 | -0.39921 | 0.003026 |
| DDX50 | -0.39915 | 0.000437 |
| CWF19L2 | -0.39906 | 0.000209 |
| SPATA13 | -0.39901 | 0.039786 |
| CALHM2 | -0.39879 | 0.038578 |
| BICRA | -0.39851 | 0.00513 |
| MRM3 | -0.39806 | 3.75E-05 |
| RECQL5 | -0.39785 | 3.49E-06 |
| KIF15 | -0.39704 | 0.040871 |
| RPL11 | -0.39683 | 0.000416 |
| LARP7 | -0.39681 | 0.000108 |
| WRN | -0.39672 | 0.008911 |
| SNRNP70 | -0.39599 | 2.57E-05 |

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| CPSF1 | -0.39598 | 7.6E-05 |
| PAF1 | -0.39592 | 0.000775 |
| PALM | -0.3958 | 8.75E-05 |
| NUP160 | -0.39575 | 0.025043 |
| SORBS3 | -0.39498 | 0.000138 |
| MED8 | -0.39484 | 0.019031 |
| POLR2A | -0.39484 | 1.8E-05 |
| HDAC2 | -0.39445 | 0.000653 |
| DDX60L | -0.39436 | 0.002752 |
| CCNA2 | -0.39397 | 1.06E-05 |
| GCLC | -0.39388 | 0.001646 |
| FBXW9 | -0.39312 | 0.008299 |
| USP37 | -0.39301 | 0.034393 |
| BBS9 | -0.39269 | 0.014506 |
| C6orf89 | -0.39267 | 5.82E-05 |
| TP53RK | -0.39262 | 0.045693 |
| FABP4 | -0.39209 | 0.000142 |
| ZNF574 | -0.39207 | 0.026893 |
| TMEM70 | -0.39202 | 0.018841 |
| LAMP2 | -0.39148 | 1.01E-08 |
| EXOSC8 | -0.39103 | 2.3E-06 |
| UIMC1 | -0.39087 | 0.002305 |
| RPRD1B | -0.39076 | 1.7E-07 |
| MRPL53 | -0.39068 | 0.043249 |
| NOC3L | -0.39065 | 0.000136 |
| ZMYM4 | -0.39041 | 0.000564 |
| GPKOW | -0.39039 | 0.00065 |
| DCK | -0.39001 | 0.000736 |

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| CORO7 | -0.38962 | 0.000891 |
| NUB1 | -0.38933 | 6.25E-05 |
| AHNAK | -0.38919 | 0.002781 |
| NACA | -0.38891 | 0.014256 |
| FLNB | -0.38888 | 2.15E-05 |
| MED18 | -0.38862 | 7.32E-07 |
| ALOX15 | -0.38841 | 4.01E-06 |
| DRG1 | -0.38834 | 0.002188 |
| PARN | -0.38766 | 1.14E-09 |
| POM121C | -0.38752 | 3.32E-05 |
| PRDX2 | -0.38752 | 1.79E-05 |
| FTSJ3 | -0.38732 | 6.31E-07 |
| RPL10A | -0.38691 | 0.000246 |
| RBM45 | -0.38659 | 8.69E-05 |
| COX11 | -0.3865 | 0.000436 |
| CLK4 | -0.38644 | 0.010069 |
| PSME3 | -0.38623 | 0.050256 |
| HSF1 | -0.38563 | 0.002041 |
| ACTR8 | -0.38562 | 1.47E-05 |
| SLC39A1 | -0.3854 | 0.000205 |
| ZNF428 | -0.3854 | 0.017398 |
| CLPX | -0.38538 | 0.011695 |
| HAAO | -0.38532 | 0.001834 |
| GPA33 | -0.38477 | 0.003979 |
| ADGRE2 | -0.38476 | 0.027753 |
| PPP2R1B | -0.38438 | 0.04477 |
| TYW1 | -0.38413 | 0.033172 |
| NA | -0.38354 | 0.00033 |

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| MLLT1 | -0.38272 | 0.000185 |
| PSMG3 | -0.38262 | 0.000448 |
| AIMP2 | -0.38251 | 9.69E-05 |
| CD4 | -0.38118 | 8.6E-06 |
| NOL8 | -0.38103 | 0.000374 |
| GHITM | -0.38062 | 0.000204 |
| ECHDC2 | -0.38033 | 1.43E-06 |
| STK11IP | -0.38029 | 0.000735 |
| ICE2 | -0.37997 | 6.73E-06 |
| NCALD | -0.37994 | 6.44E-05 |
| RBMS1 | -0.37966 | 0.00014 |
| SETD1A | -0.37929 | 0.000352 |
| AUTS2 | -0.37923 | 0.005047 |
| RASSF2 | -0.37879 | 0.004993 |
| CCNK | -0.37877 | 0.018631 |
| WBP4 | -0.37827 | 2.78E-05 |
| DXO | -0.37813 | 0.00158 |
| PARP14 | -0.37805 | 0.027259 |
| LRRC28 | -0.37799 | 0.008602 |
| DROSHA | -0.37796 | 3.8E-05 |
| MAML1 | -0.37761 | 0.000466 |
| PWP2 | -0.37759 | 2.74E-08 |
| INTS5 | -0.37718 | 1.88E-05 |
| ZNF385A | -0.37687 | 0.029896 |
| FAM98B | -0.37627 | 0.010298 |
| ACTR1B | -0.37561 | 0.00273 |
| PRDM10 | -0.37507 | 0.001259 |
| VCAN | -0.37496 | 0.000488 |

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| TTC33 | -0.37463 | 0.007397 |
| TRMT10C | -0.37442 | 0.000257 |
| SIN3A | -0.37436 | 1.15E-05 |
| NUP88 | -0.37416 | 0.027603 |
| UBXN7 | -0.37391 | 5.12E-05 |
| NIBAN2 | -0.37371 | 4.04E-05 |
| UBE2S | -0.37337 | 0.011484 |
| TULP3 | -0.37299 | 4.33E-06 |
| CHEK1 | -0.37297 | 4.9E-05 |
| RAVER1 | -0.37224 | 0.011461 |
| TEFM | -0.37159 | 0.037906 |
| REL | -0.37152 | 0.000419 |
| ORC2 | -0.3714 | 0.000736 |
| IMPDH1 | -0.37112 | 0.008077 |
| APC | -0.37111 | 0.000319 |
| TRIM6-TRIM34 | -0.3711 | 3.89E-06 |
| NA | -0.3711 | 0.006358 |
| ADSS2 | -0.37094 | 0.002409 |
| BST2 | -0.37093 | 0.039023 |
| SMARCA4 | -0.3708 | 5.88E-07 |
| C7orf26 | -0.37043 | 0.001495 |
| TRIM26 | -0.3704 | 8.28E-06 |
| MAT2B | -0.37024 | 0.026342 |
| KLHL36 | -0.37004 | 0.027785 |
| NUP54 | -0.36958 | 0.002378 |
| ADAM15 | -0.36931 | 0.001778 |
| LRIF1 | -0.36926 | 0.004856 |
| UTP14A | -0.36916 | 0.001288 |

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| MAMDC2 | -0.36912 | 0.000178 |
| KNOP1 | -0.36779 | 0.02711 |
| NUP43 | -0.36724 | 6.23E-05 |
| NA | -0.3672 | 0.00176 |
| METTL25 | -0.36676 | 0.048912 |
| WDFY4 | -0.36659 | 7.92E-05 |
| CTBP2 | -0.36615 | 7.3E-05 |
| ZNF277 | -0.36612 | 2.79E-05 |
| KIF2C | -0.36568 | 0.00443 |
| CLEC5A | -0.36562 | 0.012207 |
| TIMM29 | -0.36542 | 0.016361 |
| CD74 | -0.36538 | 0.018672 |
| SLC8A1 | -0.3652 | 0.001296 |
| DNMT3A | -0.365 | 0.000318 |
| GPN1 | -0.36498 | 0.01382 |
| IFT80 | -0.36496 | 6.05E-06 |
| KCNAB2 | -0.36469 | 0.009837 |
| VMAC | -0.36469 | 0.009143 |
| BCAM | -0.36462 | 0.001682 |
| SMC6 | -0.36425 | 0.004621 |
| HEMGN | -0.36394 | 3.52E-05 |
| ASB6 | -0.36332 | 0.000164 |
| ILF3 | -0.36251 | 0.025462 |
| STAMBPL1 | -0.36234 | 0.005732 |
| YEATS4 | -0.3621 | 0.004238 |
| CD96 | -0.36208 | 0.000227 |
| RBM6 | -0.36202 | 0.006523 |
| PDSS1 | -0.36201 | 0.000999 |

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| NARF | -0.36181 | 1.32E-05 |
| CDKN1C | -0.36121 | 0.025777 |
| RNPS1 | -0.36091 | 5.61E-05 |
| NIBAN3 | -0.3608 | 0.032389 |
| PRCP | -0.36051 | 0.015157 |
| CD3G | -0.36043 | 0.000998 |
| DDX31 | -0.36029 | 0.000367 |
| RXRA | -0.35972 | 0.009446 |
| ADAP1 | -0.35965 | 0.001904 |
| GNA15 | -0.35937 | 0.040245 |
| ACOT4 | -0.35934 | 0.010389 |
| CRIP1 | -0.35914 | 0.008303 |
| RBL2 | -0.35904 | 0.040162 |
| MCRS1 | -0.35878 | 2.55E-05 |
| MAP3K20 | -0.35824 | 0.005233 |
| G3BP1 | -0.35823 | 0.010052 |
| ABHD2 | -0.3582 | 0.00153 |
| CRP | -0.35745 | 0.002187 |
| ACP3 | -0.35742 | 0.00409 |
| NOP14 | -0.35734 | 0.006431 |
| SMARCAD1 | -0.35727 | 0.00298 |
| NUP85 | -0.35725 | 0.006583 |
| RNPEP | -0.35714 | 0.000367 |
| TTC14 | -0.35695 | 0.002477 |
| TRMT44 | -0.35668 | 0.035841 |
| RBM17 | -0.3558 | 7.71E-06 |
| GRN | -0.3556 | 0.000415 |
| CMTR2 | -0.35506 | 3.11E-06 |

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| LIN54 | -0.35471 | 1.97E-07 |
| MRPS23 | -0.35464 | 0.016458 |
| ITM2A | -0.35456 | 0.005772 |
| DHX16 | -0.3542 | 2.61E-05 |
| TSC22D3 | -0.35391 | 0.001053 |
| ALDH9A1 | -0.35386 | 0.011519 |
| RPS23 | -0.35368 | 0.000476 |
| TRDC | -0.35356 | 0.038925 |
| CBFA2T2 | -0.35338 | 0.03452 |
| SEC14L4 | -0.35273 | 0.000119 |
| MKLN1 | -0.35273 | 0.042195 |
| NDUFA2 | -0.35253 | 0.004176 |
| HBZ | -0.35248 | 0.002456 |
| RFESD | -0.35234 | 1.15E-05 |
| XAB2 | -0.35223 | 5.2E-05 |
| USP10 | -0.35212 | 9.2E-05 |
| MORF4L1 | -0.35209 | 0.000821 |
| RRM2 | -0.35205 | 1.99E-05 |
| DPH1 | -0.35076 | 0.007687 |
| RPL13A | -0.34989 | 0.000937 |
| NAIP | -0.3498 | 4.6E-05 |
| TBC1D8 | -0.3492 | 5.6E-06 |
| RPL9 | -0.3491 | 0.000228 |
| CRYBG1 | -0.34889 | 0.002825 |
| COQ5 | -0.34882 | 0.005106 |
| KRT85 | -0.34866 | 9.81E-05 |
| MRPS35 | -0.34851 | 0.021576 |
| CARMIL2 | -0.34828 | 0.022358 |

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| PLD4 | -0.34792 | 0.034914 |
| ACAT1 | -0.34777 | 2.78E-05 |
| GBP2 | -0.34774 | 0.006877 |
| MACROH2A1 | -0.34733 | 0.00031 |
| FAM111A | -0.34724 | 0.002766 |
| NUP188 | -0.34714 | 0.000942 |
| EIF3G | -0.34609 | 0.000447 |
| PHOSPHO1 | -0.34576 | 0.005821 |
| ADAM28 | -0.34564 | 0.037948 |
| PAK1IP1 | -0.34513 | 0.001078 |
| CACTIN | -0.34478 | 0.005518 |
| IRF8 | -0.34437 | 3.49E-06 |
| BCLAF1 | -0.34392 | 0.002351 |
| APOL3 | -0.34376 | 4.78E-05 |
| CD2BP2 | -0.34322 | 3.36E-05 |
| CARHSP1 | -0.3428 | 0.044308 |
| THADA | -0.34279 | 0.000127 |
| EEFSEC | -0.34264 | 0.001163 |
| PLCD1 | -0.3426 | 0.001174 |
| RC3H1 | -0.34196 | 0.000812 |
| CNOT8 | -0.34192 | 0.006092 |
| RPS21 | -0.34169 | 0.000215 |
| PUM2 | -0.34153 | 0.00011 |
| BRMS1 | -0.34141 | 0.001292 |
| GTF2H4 | -0.34133 | 1.31E-06 |
| TCEAL5 | -0.34123 | 0.000893 |
| C2orf49 | -0.34095 | 0.017069 |
| ALG14 | -0.34086 | 0.011389 |

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| GPATCH1 | -0.34081 | 0.045108 |
| MRPL41 | -0.34075 | 0.00076 |
| IGHM | -0.34049 | 0.048975 |
| CCNL2 | -0.34048 | 0.000195 |
| VAV2 | -0.34022 | 0.003578 |
| TRERF1 | -0.34017 | 3.74E-05 |
| NUP62 | -0.34007 | 0.003438 |
| ASB3 | -0.33993 | 0.0058 |
| FAM50A | -0.33977 | 0.022014 |
| BLVRB | -0.33976 | 0.002048 |
| RIDA | -0.33948 | 0.000649 |
| KMT2A | -0.33903 | 0.047262 |
| HOXA10 | -0.33876 | 0.000487 |
| CYFIP2 | -0.33875 | 5.07E-05 |
| EAF1 | -0.33865 | 3.45E-05 |
| TRANK1 | -0.33863 | 0.032834 |
| SULT1B1 | -0.3381 | 0.005925 |
| DCUN1D5 | -0.33771 | 0.001935 |
| PRPF40B | -0.33768 | 0.01768 |
| MED28 | -0.33725 | 0.030786 |
| TMPO | -0.33708 | 0.023048 |
| GLT1D1 | -0.33631 | 0.002221 |
| RGS14 | -0.33609 | 0.006809 |
| TIMM10 | -0.33544 | 0.005867 |
| FUCA1 | -0.33544 | 0.006451 |
| MICAL2 | -0.33543 | 4.11E-06 |
| SMARCA2 | -0.33501 | 0.02949 |
| CCNC | -0.33465 | 0.005756 |

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| LSP1 | -0.33436 | 0.001306 |
| SLC25A10 | -0.3342 | 0.00923 |
| FPGS | -0.33385 | 0.031481 |
| TFPT | -0.33365 | 1.31E-06 |
| CYTH4 | -0.33364 | 2.32E-05 |
| MRPS15 | -0.33357 | 0.005212 |
| ALDH1B1 | -0.33347 | 0.006225 |
| RPS12 | -0.33344 | 7.55E-05 |
| SMURF2 | -0.33336 | 0.005597 |
| PIGS | -0.33324 | 6.31E-05 |
| NVL | -0.33319 | 0.00761 |
| NEU1 | -0.33317 | 0.004109 |
| R3HDM4 | -0.33288 | 0.003475 |
| DCAF4 | -0.33273 | 0.000654 |
| SRSF6 | -0.33251 | 7.46E-05 |
| CHEK2 | -0.33249 | 0.035129 |
| MEST | -0.33247 | 0.039302 |
| RPL27 | -0.33216 | 0.000113 |
| SMC2 | -0.33144 | 0.007897 |
| DDX20 | -0.33101 | 0.000107 |
| ZNF618 | -0.33052 | 0.00865 |
| TSPO | -0.33038 | 0.049304 |
| KBTBD11 | -0.32984 | 0.01927 |
| ABHD6 | -0.32976 | 0.001973 |
| IMPA2 | -0.32959 | 0.033694 |
| MIDEAS | -0.32947 | 0.033243 |
| RBM3 | -0.32918 | 1.98E-05 |
| ITPA | -0.32899 | 0.010344 |

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| CCDC117 | -0.32881 | 0.017575 |
| RBM41 | -0.32821 | 0.030756 |
| MNAT1 | -0.32817 | 0.005287 |
| TIMM13 | -0.32812 | 0.040117 |
| BTF3L4 | -0.32811 | 9.41E-08 |
| MED13 | -0.3279 | 0.00149 |
| LCK | -0.32732 | 0.002696 |
| TGM2 | -0.32633 | 0.000135 |
| CD6 | -0.32608 | 0.02618 |
| TRIM27 | -0.32608 | 1.02E-05 |
| PAXBP1 | -0.3257 | 0.033789 |
| ANKFY1 | -0.32545 | 0.00018 |
| WDR19 | -0.32545 | 0.014966 |
| PHF21A | -0.32534 | 0.022237 |
| TUSC1 | -0.32529 | 0.036583 |
| SF3B5 | -0.3247 | 0.007612 |
| GLMN | -0.3245 | 0.001806 |
| MORC2 | -0.32439 | 0.001924 |
| SFSWAP | -0.32431 | 0.000994 |
| GIMAP4 | -0.32387 | 0.002369 |
| ASB1 | -0.32347 | 0.000452 |
| RPS6KA5 | -0.32322 | 0.00012 |
| DUS2 | -0.32294 | 0.042278 |
| TSTD2 | -0.32287 | 0.013078 |
| CCNT1 | -0.32284 | 0.012274 |
| CORO7-PAM16 | -0.32269 | 0.050547 |
| PTGFRN | -0.32264 | 3.35E-05 |
| ZMYM2 | -0.32207 | 0.000918 |

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| CYP2S1 | -0.32206 | 0.005929 |
| NAMPT | -0.32177 | 0.000497 |
| TCF25 | -0.32133 | 0.004189 |
| CHIT1 | -0.32071 | 0.001648 |
| PPA1 | -0.32068 | 6.11E-07 |
| SMARCD1 | -0.32024 | 0.001258 |
| SENP8 | -0.3202 | 0.000534 |
| IRF2 | -0.32005 | 0.001839 |
| HBD | -0.31997 | 7.54E-06 |
| CNOT2 | -0.31986 | 0.007398 |
| PADI2 | -0.31944 | 0.000181 |
| MRPL28 | -0.31933 | 0.003406 |
| SENP7 | -0.31869 | 0.002011 |
| CTBP1 | -0.31816 | 5.19E-05 |
| PHIP | -0.31801 | 0.009455 |
| TLK2 | -0.31774 | 0.000646 |
| ZMAT5 | -0.31772 | 0.000828 |
| QARS1 | -0.31767 | 3.15E-07 |
| CDYL | -0.31761 | 0.006539 |
| TPRKB | -0.31718 | 0.003588 |
| STAU1 | -0.31701 | 0.001481 |
| POLR1E | -0.31686 | 0.00027 |
| HOMER3 | -0.31659 | 0.003438 |
| CYP4F3 | -0.31604 | 0.014976 |
| GPAT3 | -0.3159 | 0.000657 |
| TKT | -0.31505 | 7.77E-05 |
| YJU2 | -0.31376 | 2.77E-05 |
| CCDC174 | -0.3133 | 1.47E-05 |

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| RASSF4 | -0.31327 | 0.026535 |
| NDUFS5 | -0.31317 | 0.001438 |
| ITM2C | -0.3131 | 0.015125 |
| BRD2 | -0.31301 | 0.026076 |
| ACAA2 | -0.31299 | 0.00032 |
| ESF1 | -0.31289 | 2.91E-05 |
| TFEB | -0.31247 | 0.047053 |
| RNF145 | -0.31229 | 0.018482 |
| LRPAP1 | -0.31212 | 0.003732 |
| SLC2A5 | -0.31205 | 0.001879 |
| HSBP1 | -0.31191 | 0.000186 |
| FUNDC2 | -0.31132 | 0.001016 |
| TAF5L | -0.31118 | 0.025381 |
| CPA3 | -0.311 | 0.00633 |
| DDB2 | -0.31075 | 5.46E-06 |
| ALKBH5 | -0.31063 | 3.42E-05 |
| THOC6 | -0.31058 | 0.004477 |
| NCAPG2 | -0.31054 | 0.003997 |
| RHCE | -0.31017 | 0.046335 |
| THAP11 | -0.30967 | 2.76E-06 |
| KLHDC4 | -0.30945 | 0.003121 |
| B3GLCT | -0.30941 | 1.22E-05 |
| NUP58 | -0.3093 | 0.043769 |
| MRPL14 | -0.30924 | 0.000108 |
| EPRS1 | -0.30924 | 3.8E-06 |
| DNAJC24 | -0.30905 | 0.003893 |
| UBE2L6 | -0.30904 | 0.010248 |
| GIMAP1 | -0.30895 | 0.002964 |

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|---|---|---|
| CYRIA | -0.3089 | 9.99E-05 |
| PDCD5 | -0.30885 | 0.007052 |
| DCPS | -0.30838 | 0.010694 |
| COX14 | -0.30812 | 0.010476 |
| KAT8 | -0.30798 | 8.9E-05 |
| INIP | -0.30793 | 0.015872 |
| NCOA3 | -0.3077 | 0.000292 |
| BCL11A | -0.30756 | 0.001044 |
| SSU72 | -0.30753 | 0.013608 |
| AK6 | -0.30744 | 0.02509 |
| RBM12B | -0.30686 | 0.029303 |
| DCAF13 | -0.30667 | 0.009454 |
| TET2 | -0.3056 | 0.002896 |
| NAGK | -0.30549 | 5.16E-05 |
| PPP4C | -0.30549 | 0.000321 |
| HDHD5 | -0.30526 | 0.001204 |
| UQCRH | -0.30525 | 0.042147 |
| RETSAT | -0.30521 | 0.002498 |
| TTC39C | -0.30488 | 0.000927 |
| PTCD3 | -0.30474 | 0.002409 |
| GCN1 | -0.30431 | 0.000106 |
| HLA-DPB1 | -0.30417 | 0.004525 |
| AP1S3 | -0.30406 | 0.001651 |
| LDHD | -0.30351 | 6.67E-05 |
| NLRP12 | -0.30342 | 0.037786 |
| CLUH | -0.3031 | 0.048307 |
| ARFIP1 | -0.30305 | 0.00051 |
| PIGK | -0.30293 | 0.000514 |

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|---|---|---|
| SUMO1 | -0.30276 | 0.012982 |
| SUPV3L1 | -0.3025 | 0.028781 |
| HIP1R | -0.30249 | 0.000101 |
| ATP2B4 | -0.30246 | 0.008555 |
| SDHC | -0.30237 | 9.93E-06 |
| SH3TC1 | -0.30213 | 0.026276 |
| FCGR1A | -0.30198 | 0.020387 |
| TBC1D2 | -0.30173 | 5.58E-05 |
| FOXK1 | -0.3015 | 3.08E-05 |
| DCAF16 | -0.30132 | 0.043199 |
| EHD2 | -0.30126 | 0.006483 |
| CKAP4 | -0.301 | 0.000839 |
| ACSL6 | -0.30025 | 2.88E-06 |
| SLC12A4 | -0.29991 | 0.040041 |
| RMI1 | -0.29891 | 0.000471 |
| PSMG1 | -0.29869 | 2.48E-05 |
| KIF4A | -0.29839 | 0.000279 |
| LLPH | -0.29824 | 3.04E-07 |
| C6orf120 | -0.29745 | 0.023879 |
| FGD2 | -0.29723 | 0.00031 |
| MNT | -0.29722 | 0.00031 |
| RAD51D | -0.29648 | 0.050005 |
| PRPF18 | -0.29638 | 3.84E-06 |
| HNRNPLL | -0.29556 | 0.000743 |
| SEC14L2 | -0.29536 | 0.007613 |
| CPVL | -0.29529 | 0.006736 |
| SAMHD1 | -0.29477 | 0.019019 |
| INTS10 | -0.29477 | 0.00282 |

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|---|---|---|
| DISC1 | -0.29472 | 0.004026 |
| PHF8 | -0.29458 | 0.001566 |
| EP300 | -0.29354 | 0.000385 |
| IQSEC1 | -0.29283 | 0.001179 |
| PJA2 | -0.2928 | 0.000246 |
| B4GALT3 | -0.29253 | 0.011885 |
| MTFR1 | -0.29224 | 0.013929 |
| PROSER1 | -0.29192 | 0.000765 |
| MYO1F | -0.29139 | 6.09E-05 |
| MBIP | -0.29129 | 0.00101 |
| PARP16 | -0.29123 | 0.006302 |
| SIK2 | -0.29122 | 0.000128 |
| MOV10 | -0.29114 | 7.67E-05 |
| NEO1 | -0.29104 | 0.013722 |
| CSTB | -0.29102 | 0.015348 |
| MAGOH | -0.29066 | 0.001885 |
| IPO4 | -0.29042 | 0.001405 |
| PTPN4 | -0.29015 | 0.018929 |
| AK2 | -0.28919 | 0.000258 |
| FGL2 | -0.28913 | 0.002251 |
| SUPT5H | -0.28886 | 0.000764 |
| GARRE1 | -0.28813 | 0.009217 |
| RAB3D | -0.28782 | 0.00432 |
| TAF2 | -0.2878 | 1.1E-07 |
| PNKP | -0.28777 | 0.019707 |
| POLRMT | -0.28705 | 0.00021 |
| EPB42 | -0.28681 | 1.44E-05 |
| GNS | -0.28679 | 0.000973 |

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|---|---|---|
| DDX52 | -0.28676 | 0.00019 |
| TMOD1 | -0.28674 | 0.000812 |
| POGZ | -0.28649 | 0.000201 |
| RASSF3 | -0.2862 | 0.004645 |
| CRABP1 | -0.28589 | 0.001202 |
| ARL14EP | -0.28573 | 0.00092 |
| MAD1L1 | -0.28497 | 0.003533 |
| NIT2 | -0.28461 | 0.018876 |
| USP16 | -0.28429 | 0.01535 |
| ZFAND3 | -0.28424 | 0.033529 |
| RAPGEF6 | -0.284 | 0.000461 |
| FAM204A | -0.28361 | 0.024556 |
| DNAJB12 | -0.28357 | 0.029704 |
| DNTTIP1 | -0.28335 | 0.027663 |
| RNF114 | -0.28312 | 0.018261 |
| ASTE1 | -0.28306 | 0.048847 |
| TNFAIP2 | -0.28293 | 0.035767 |
| WIZ | -0.28292 | 0.010004 |
| HMOX1 | -0.2825 | 0.000223 |
| POLR2C | -0.2814 | 0.003406 |
| OGFOD2 | -0.28073 | 0.00623 |
| FCGR3A | -0.28011 | 0.000134 |
| NFIA | -0.27991 | 1.73E-06 |
| TTI1 | -0.27981 | 0.007038 |
| GNL2 | -0.27973 | 0.022712 |
| CPSF2 | -0.27966 | 0.001013 |
| MANBA | -0.27958 | 0.000604 |
| URI1 | -0.27953 | 0.000316 |

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| KIAA0930 | -0.27908 | 0.002695 |
| NUF2 | -0.27863 | 0.002796 |
| FBXL3 | -0.27817 | 0.029204 |
| SAP30BP | -0.27799 | 0.000783 |
| RPL18 | -0.27799 | 0.000313 |
| EPB41 | -0.27791 | 0.001049 |
| NUDT6 | -0.27786 | 0.026442 |
| LSM2 | -0.2778 | 0.018946 |
| RPL36AL | -0.27776 | 0.011183 |
| BOLA1 | -0.27764 | 0.028495 |
| MFSD8 | -0.27746 | 0.045371 |
| CDK7 | -0.27724 | 0.00157 |
| BRI3BP | -0.27705 | 9.48E-05 |
| CLIC3 | -0.27702 | 0.007177 |
| B4GALT4 | -0.27645 | 5.09E-06 |
| AZI2 | -0.27644 | 0.003957 |
| MRPS2 | -0.27625 | 0.002007 |
| SPG11 | -0.27613 | 3.7E-05 |
| ABR | -0.27602 | 0.032709 |
| DDX1 | -0.27594 | 3.79E-06 |
| ZNF687 | -0.27594 | 0.004807 |
| THOP1 | -0.27518 | 0.000452 |
| RBBP4 | -0.27444 | 0.026787 |
| NEK6 | -0.27431 | 0.040352 |
| PKLR | -0.27424 | 0.008228 |
| MTF2 | -0.27375 | 4.3E-05 |
| FBXO30 | -0.2737 | 0.037912 |
| SPATS2L | -0.2737 | 0.021586 |

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| SLC39A6 | -0.27334 | 0.008616 |
| RSF1 | -0.27306 | 4.42E-05 |
| CEACAM1 | -0.27284 | 0.004334 |
| ABCF3 | -0.27115 | 1.42E-06 |
| PPIL2 | -0.27085 | 1.82E-07 |
| MPND | -0.27042 | 3.85E-06 |
| GINS4 | -0.27024 | 0.013464 |
| EIF2AK4 | -0.27 | 1.74E-05 |
| GEMIN4 | -0.26985 | 0.002376 |
| CRYGD | -0.2696 | 0.016116 |
| RNF213 | -0.26937 | 0.000882 |
| CDKAL1 | -0.26937 | 0.000115 |
| TCEAL1 | -0.26935 | 0.014019 |
| IRF5 | -0.26931 | 0.000356 |
| OGFOD1 | -0.26854 | 0.000878 |
| LTA4H | -0.26797 | 5.88E-06 |
| SERINC1 | -0.26777 | 0.002016 |
| AMBRA1 | -0.26755 | 0.033686 |
| ABCA13 | -0.26746 | 0.045759 |
| UBR7 | -0.26712 | 0.017821 |
| FMNL1 | -0.26681 | 0.00343 |
| PLXND1 | -0.26675 | 0.017596 |
| PSMB9 | -0.26653 | 0.043726 |
| RAD1 | -0.26628 | 6.76E-05 |
| SRM | -0.26623 | 0.002608 |
| MERTK | -0.26595 | 0.00542 |
| BST1 | -0.26555 | 0.001504 |
| TFB2M | -0.26548 | 7.22E-05 |

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| CD101 | -0.2654 | 0.028468 |
| FAM120C | -0.26463 | 0.014418 |
| MRC1 | -0.26407 | 0.04906 |
| RBM19 | -0.26406 | 0.017041 |
| SEPTIN1 | -0.26399 | 0.006709 |
| TUT1 | -0.26386 | 0.014128 |
| BRIP1 | -0.26378 | 1.59E-05 |
| GTPBP10 | -0.26372 | 0.001811 |
| PABPC1 | -0.2633 | 0.000258 |
| HMOX2 | -0.26306 | 0.002833 |
| NLRC4 | -0.26195 | 0.012175 |
| GPBP1L1 | -0.26189 | 0.000878 |
| HNRNPR | -0.26177 | 0.005041 |
| MRE11 | -0.26168 | 2.07E-05 |
| LRP1 | -0.26146 | 0.003392 |
| DDX3X | -0.26144 | 0.028632 |
| EIF3I | -0.26007 | 0.001142 |
| COX7A2 | -0.25979 | 0.035288 |
| USP38 | -0.25972 | 6.77E-05 |
| DPP4 | -0.25948 | 0.001542 |
| UXT | -0.25944 | 1.86E-06 |
| PAPOLG | -0.25939 | 0.046637 |
| RAB43 | -0.25915 | 0.00032 |
| TPCN2 | -0.25827 | 3.07E-05 |
| NUP155 | -0.25822 | 0.013646 |
| ADAR | -0.25789 | 0.005181 |
| FBXO6 | -0.25767 | 0.030488 |
| RACK1 | -0.25757 | 0.000803 |

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| HECA | -0.25734 | 0.005775 |
| CEACAM21 | -0.25699 | 0.010826 |
| HLA-F | -0.25693 | 0.025395 |
| TXLNG | -0.25689 | 0.000259 |
| LSG1 | -0.25673 | 0.012972 |
| U2AF2 | -0.25672 | 0.022799 |
| NAA20 | -0.25638 | 0.000326 |
| ERAL1 | -0.25621 | 0.023788 |
| TPRN | -0.25608 | 0.035704 |
| RCCD1 | -0.25581 | 7.39E-06 |
| CERS6 | -0.25576 | 1.36E-05 |
| ADPRS | -0.25548 | 0.033862 |
| PSMG2 | -0.25512 | 5.15E-05 |
| POLR2H | -0.2551 | 0.00361 |
| DNAJC21 | -0.25461 | 0.020019 |
| WDR73 | -0.25399 | 0.005758 |
| RPS27L | -0.25393 | 0.020364 |
| NATD1 | -0.25379 | 0.007546 |
| MAGED1 | -0.25375 | 0.024871 |
| IPO11 | -0.25363 | 6.98E-05 |
| CSTF2T | -0.25351 | 0.002643 |
| TOM1 | -0.25277 | 0.000956 |
| ABI3 | -0.25272 | 0.003942 |
| CAPN15 | -0.25267 | 0.000633 |
| SAMD9L | -0.25244 | 0.035305 |
| PTPMT1 | -0.25147 | 0.005668 |
| INO80B | -0.25147 | 0.006352 |
| DHRS1 | -0.25096 | 0.04014 |

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| HSD17B8 | -0.24994 | 0.004238 |
| MSI2 | -0.24973 | 0.001449 |
| PHF10 | -0.24939 | 0.016775 |
| ERLIN1 | -0.24939 | 0.000309 |
| HGFAC | -0.24923 | 0.015431 |
| FTH1 | -0.24913 | 6.11E-06 |
| MED13L | -0.24848 | 0.011458 |
| RBBP4 | -0.2478 | 0.022359 |
| EEF1AKMT2 | -0.2475 | 0.010699 |
| SLC4A1 | -0.24694 | 0.005807 |
| SLC19A1 | -0.24628 | 0.000885 |
| VAT1 | -0.2461 | 0.000204 |
| DNAJC9 | -0.24544 | 0.020777 |
| HBG1 | -0.24516 | 0.008391 |
| ATP8B4 | -0.24458 | 0.005366 |
| LETMD1 | -0.24433 | 0.002975 |
| CORO2A | -0.24402 | 0.039944 |
| UBE2A | -0.24373 | 0.007029 |
| TFB1M | -0.24342 | 0.007288 |
| JPT1 | -0.24288 | 0.014823 |
| UGCG | -0.24239 | 0.049683 |
| LMBR1 | -0.24217 | 0.020652 |
| MBD4 | -0.24215 | 0.037409 |
| APOBR | -0.24195 | 0.004037 |
| SKA3 | -0.24079 | 0.040018 |
| PHRF1 | -0.24062 | 0.000519 |
| HSPA14 | -0.24058 | 0.032923 |
| ANKRD50 | -0.24057 | 0.018241 |

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| GMPS | -0.24052 | 2.84E-05 |
| PLRG1 | -0.24046 | 0.009177 |
| MYO1D | -0.2404 | 0.036826 |
| SNAPC5 | -0.24036 | 0.016046 |
| FMNL1 | -0.23889 | 0.012362 |
| MRM1 | -0.23882 | 0.011875 |
| LIN9 | -0.2375 | 0.000105 |
| RAB3IL1 | -0.23719 | 0.000709 |
| CCDC113 | -0.23716 | 0.041568 |
| MTHFSD | -0.23705 | 0.021157 |
| LRPPRC | -0.23676 | 0.038257 |
| ADK | -0.23656 | 0.016259 |
| REXO4 | -0.23646 | 0.027789 |
| ARHGEF11 | -0.23622 | 0.008506 |
| TXNDC15 | -0.23551 | 0.001192 |
| PPP1R13L | -0.23551 | 0.020075 |
| LRATD2 | -0.23546 | 0.005927 |
| NA | -0.23539 | 0.019099 |
| AASDHPPT | -0.23537 | 0.00395 |
| EIF3J | -0.23531 | 0.020152 |
| UROS | -0.23488 | 0.032969 |
| TFIP11 | -0.2348 | 1.82E-05 |
| TMCO1 | -0.23472 | 0.032567 |
| MRPS10 | -0.23448 | 0.024021 |
| SERPINB8 | -0.23446 | 0.018455 |
| DCP1B | -0.23446 | 0.020154 |
| TMEM38B | -0.23439 | 0.00607 |
| NUDT22 | -0.23377 | 0.03238 |

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| UTRN | -0.23363 | 0.00222 |
| RUVBL1 | -0.23322 | 0.0164 |
| GIMAP6 | -0.2327 | 0.001793 |
| GEMIN8 | -0.23199 | 0.019388 |
| PTAR1 | -0.23177 | 0.04452 |
| PTPRC | -0.2315 | 0.001263 |
| PYGM | -0.23145 | 0.019491 |
| SLC38A7 | -0.23132 | 0.023768 |
| NSMCE1 | -0.23112 | 0.020774 |
| MIS18A | -0.2311 | 0.037109 |
| PCBD1 | -0.23098 | 0.000471 |
| RAPGEF1 | -0.23084 | 0.001417 |
| APIP | -0.23084 | 0.00285 |
| LPIN1 | -0.23069 | 8.87E-05 |
| KNTC1 | -0.23069 | 0.00018 |
| GLYCTK | -0.23054 | 0.00079 |
| SCP2 | -0.2304 | 0.000165 |
| FAM117B | -0.23017 | 0.023312 |
| HSPE1 | -0.23007 | 0.008234 |
| C16orf91 | -0.23004 | 0.005252 |
| IKBKE | -0.22964 | 1.08E-05 |
| PIH1D1 | -0.22946 | 0.014905 |
| CD86 | -0.22917 | 0.026092 |
| PRDX1 | -0.22894 | 8.39E-05 |
| IL1RN | -0.2287 | 0.001267 |
| KDM2A | -0.22827 | 0.022591 |
| CDC20 | -0.22818 | 0.010795 |
| SHKBP1 | -0.22805 | 0.000475 |

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| MRPL21 | -0.22786 | 8.98E-06 |
| ZFP92 | -0.22784 | 0.00162 |
| MIIP | -0.2278 | 0.048452 |
| NPC1 | -0.22769 | 0.03033 |
| NYNRIN | -0.22754 | 0.029277 |
| KCTD5 | -0.22719 | 0.019849 |
| LARP1 | -0.22717 | 0.029273 |
| FADS2 | -0.22649 | 0.000107 |
| LARS1 | -0.22633 | 1.57E-05 |
| RAB29 | -0.22618 | 0.009378 |
| MRPL49 | -0.22591 | 0.001285 |
| DCAF5 | -0.22587 | 0.00259 |
| DSCC1 | -0.22574 | 0.011629 |
| ABCA2 | -0.22525 | 0.035828 |
| C12orf29 | -0.22524 | 0.005021 |
| CMSS1 | -0.22443 | 0.000668 |
| LRRK2 | -0.22441 | 0.001221 |
| SKP2 | -0.224 | 1.95E-05 |
| ACTL6A | -0.22393 | 0.011012 |
| CENPO | -0.2236 | 0.00476 |
| GLUL | -0.22318 | 0.002038 |
| SMIM20 | -0.22311 | 0.008445 |
| PUDP | -0.22297 | 0.030914 |
| AMACR | -0.22285 | 0.000478 |
| RPS17 | -0.22203 | 0.000842 |
| HK2 | -0.2219 | 0.005882 |
| URGCP | -0.22189 | 0.025948 |
| ALPK1 | -0.22176 | 0.032209 |

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| KCNQ5 | -0.22173 | 0.021849 |
| EIF3E | -0.22158 | 0.000167 |
| PCMTD1 | -0.22071 | 0.027053 |
| CALCOCO2 | -0.22025 | 0.011053 |
| COA3 | -0.21963 | 0.015588 |
| ACBD5 | -0.21947 | 0.00197 |
| FBP1 | -0.21836 | 0.003601 |
| SNRPE | -0.21799 | 0.000392 |
| TMEM39A | -0.21795 | 0.048631 |
| TMLHE | -0.21781 | 0.000145 |
| TSKS | -0.21779 | 0.023685 |
| KLHL22 | -0.21772 | 0.004154 |
| RAPH1 | -0.21688 | 0.009961 |
| ELP1 | -0.21681 | 0.000376 |
| S100A13 | -0.21655 | 0.035689 |
| WDR74 | -0.21638 | 0.046334 |
| LILRB2 | -0.21626 | 0.000144 |
| LHPP | -0.21604 | 0.001381 |
| ELP6 | -0.21602 | 0.011899 |
| CKS1B | -0.21601 | 0.050452 |
| IMP3 | -0.21569 | 0.035955 |
| REEP6 | -0.21566 | 0.003476 |
| ALKBH6 | -0.21484 | 0.021843 |
| CNOT11 | -0.21448 | 0.000125 |
| TTL | -0.21444 | 0.01579 |
| DTX3L | -0.21426 | 0.024318 |
| CAMKMT | -0.21389 | 0.000802 |
| USP30 | -0.21385 | 0.022709 |

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| HDDC2 | -0.21374 | 0.022084 |
| FAM136A | -0.21374 | 0.029169 |
| CYRIB | -0.21316 | 0.003276 |
| ELP3 | -0.21307 | 0.012587 |
| TANGO6 | -0.21289 | 0.015925 |
| RRS1 | -0.21262 | 0.021741 |
| MTR | -0.21238 | 0.01328 |
| HIP1 | -0.21224 | 0.027675 |
| ABCB7 | -0.21193 | 0.000421 |
| RTRAF | -0.21159 | 0.000207 |
| HSP90AB1 | -0.21127 | 0.000279 |
| LYL1 | -0.21122 | 0.021209 |
| BPGM | -0.21115 | 0.003506 |
| SLX9 | -0.21112 | 0.000856 |
| BIK | -0.21105 | 0.008775 |
| SLC25A40 | -0.21076 | 0.000654 |
| IGF2BP3 | -0.21044 | 0.042973 |
| NUSAP1 | -0.20998 | 0.02676 |
| SAP130 | -0.20988 | 0.005099 |
| ARMCX5 | -0.20975 | 0.004018 |
| PUS7L | -0.20972 | 0.001619 |
| CEACAM6 | -0.20926 | 0.030059 |
| KIF21B | -0.20923 | 0.003692 |
| ENPEP | -0.20879 | 0.029395 |
| RPGR | -0.20826 | 0.013055 |
| COX8A | -0.20776 | 0.004255 |
| COMMD7 | -0.20773 | 0.002789 |
| DIDO1 | -0.20767 | 0.025816 |

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| CIAO2B | -0.20762 | 0.019016 |
| DNA2 | -0.20691 | 0.002804 |
| SLC9A6 | -0.20641 | 0.002438 |
| PSME2 | -0.20636 | 0.013909 |
| NANS | -0.20635 | 0.03663 |
| KANSL3 | -0.2063 | 9.32E-06 |
| APOBEC3D | -0.20611 | 0.00037 |
| SIGLEC1 | -0.20608 | 0.012544 |
| RALGPS2 | -0.20608 | 0.014379 |
| TRNAU1AP | -0.20595 | 0.040863 |
| DCAF10 | -0.20589 | 0.024629 |
| POLD4 | -0.2055 | 0.012879 |
| COX6C | -0.2053 | 0.000173 |
| CAMKK1 | -0.20494 | 0.003366 |
| MRPS14 | -0.20464 | 0.000769 |
| H6PD | -0.20446 | 9.87E-06 |
| WDR75 | -0.20367 | 0.004788 |
| FAM193A | -0.20298 | 0.002851 |
| LONP2 | -0.20284 | 0.024473 |
| ADH1A | -0.20283 | 0.000164 |
| SNRNP40 | -0.20241 | 0.010943 |
| MT-CYB | -0.20214 | 0.005654 |
| PYHIN1 | -0.20198 | 0.00815 |
| MRPS5 | -0.20134 | 0.006917 |
| PNPT1 | -0.20119 | 0.007553 |
| RIPOR1 | -0.20117 | 0.001777 |
| THAP4 | -0.20115 | 0.029227 |
| ARSB | -0.20066 | 0.009325 |

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| HELQ | -0.20063 | 0.046875 |
| ARID4B | -0.20009 | 0.000309 |
| METTL18 | -0.19991 | 0.035504 |
| CNOT10 | -0.19985 | 0.051207 |
| LXN | -0.19915 | 0.020048 |
| ALDH7A1 | -0.19891 | 0.039283 |
| CIP2A | -0.19881 | 0.013696 |
| AGO2 | -0.19871 | 7.03E-05 |
| MRPL3 | -0.19781 | 0.012774 |
| CD300E | -0.1976 | 0.002978 |
| PALS2 | -0.19749 | 0.000231 |
| EIF5 | -0.19744 | 0.017687 |
| PARD6B | -0.19731 | 0.0021 |
| PGGT1B | -0.19726 | 0.008313 |
| TMEM161A | -0.19721 | 0.027337 |
| ERCC8 | -0.19707 | 0.010678 |
| NOLC1 | -0.19493 | 0.0054 |
| DLAT | -0.19457 | 0.001092 |
| USP7 | -0.19454 | 0.002597 |
| ANAPC1 | -0.19446 | 0.00177 |
| MAX | -0.19367 | 0.000777 |
| PHF3 | -0.19296 | 0.017155 |
| PPIH | -0.19294 | 0.004807 |
| HCLS1 | -0.19288 | 0.029897 |
| MORC3 | -0.19283 | 0.042911 |
| CCDC51 | -0.19271 | 0.000736 |
| ATXN1L | -0.19258 | 0.014226 |
| SIPA1L2 | -0.19089 | 6.56E-05 |

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|---|---|---|
| PSPH | -0.19085 | 0.042726 |
| TAGAP | -0.19057 | 0.003371 |
| SLC39A8 | -0.1901 | 0.008925 |
| SCLY | -0.18997 | 0.048832 |
| DAP3 | -0.18971 | 0.042106 |
| CDAN1 | -0.18956 | 0.017423 |
| ERCC6 | -0.18943 | 0.005226 |
| CAPN2 | -0.18915 | 0.001713 |
| HLA-DRA | -0.18881 | 0.049856 |
| GINS1 | -0.18841 | 0.000398 |
| KLHL11 | -0.18783 | 0.004757 |
| NPAT | -0.1876 | 0.017917 |
| MRPL48 | -0.18705 | 0.005699 |
| CA3 | -0.18695 | 0.037065 |
| TCEA2 | -0.18663 | 0.03275 |
| GALNS | -0.18616 | 0.002364 |
| KEAP1 | -0.18587 | 0.000585 |
| SLC25A24 | -0.18331 | 0.005338 |
| GRAP | -0.18329 | 0.018087 |
| FAS | -0.18301 | 3.46E-06 |
| TRIM38 | -0.18288 | 0.045689 |
| CISD1 | -0.18263 | 0.016325 |
| SACS | -0.18234 | 0.016128 |
| ABHD18 | -0.18115 | 0.032241 |
| HNRNPF | -0.18096 | 0.000901 |
| PCGF5 | -0.18029 | 0.050558 |
| COX19 | -0.18019 | 0.021723 |
| SPC24 | -0.17996 | 0.000105 |

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|---|---|---|
| GEMIN5 | -0.17901 | 0.001413 |
| GFM1 | -0.1789 | 0.000228 |
| GCLC | -0.17832 | 0.017846 |
| BCKDHA | -0.17823 | 0.005252 |
| SYNE2 | -0.17795 | 0.009969 |
| NUDT15 | -0.17789 | 0.009105 |
| CLN5 | -0.17787 | 0.009089 |
| PRMT7 | -0.17733 | 0.000325 |
| GALNT3 | -0.17711 | 0.022415 |
| ATXN10 | -0.17659 | 0.01278 |
| CDK18 | -0.17634 | 0.019213 |
| ICAM3 | -0.176 | 0.019859 |
| ZNF280D | -0.17587 | 0.010478 |
| RBBP7 | -0.17561 | 0.031831 |
| HEXB | -0.17545 | 0.025031 |
| GLRX2 | -0.17476 | 7.87E-05 |
| MOGS | -0.17474 | 8.35E-05 |
| AP5B1 | -0.17468 | 0.030011 |
| AMPD3 | -0.17424 | 0.004958 |
| TATDN3 | -0.17393 | 1.44E-05 |
| XPOT | -0.17356 | 0.000212 |
| IL1RAP | -0.17338 | 0.006614 |
| RAD23A | -0.17332 | 0.007237 |
| ITGA9 | -0.17262 | 0.040362 |
| LEMD3 | -0.17259 | 0.00155 |
| ARMC5 | -0.17253 | 0.004414 |
| SHCBP1 | -0.17234 | 0.023304 |
| AP5Z1 | -0.17207 | 1.17E-05 |

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|---|---|---|
| TRIM62 | -0.17204 | 0.012721 |
| LCMT2 | -0.17197 | 0.035836 |
| KDM4A | -0.17192 | 0.032419 |
| BICRAL | -0.17134 | 0.021543 |
| RMND1 | -0.17084 | 0.051277 |
| POLD2 | -0.17062 | 0.037347 |
| NUP133 | -0.17005 | 0.00111 |
| DR1 | -0.16835 | 0.01842 |
| SYNE1 | -0.16828 | 0.022104 |
| MILR1 | -0.16795 | 0.005377 |
| MRPL20 | -0.16748 | 0.021881 |
| CLEC12A | -0.16729 | 0.01246 |
| EIF2D | -0.16727 | 0.013213 |
| FECH | -0.1671 | 0.043292 |
| LPIN2 | -0.16665 | 0.001523 |
| CNOT6L | -0.16634 | 0.018955 |
| NME6 | -0.16622 | 0.007626 |
| RPAP3 | -0.16617 | 0.000651 |
| GID4 | -0.16595 | 0.042434 |
| MAN2B1 | -0.16479 | 0.03366 |
| EXOSC2 | -0.16418 | 0.000276 |
| RNF167 | -0.16386 | 0.022672 |
| ALKBH8 | -0.16308 | 0.000894 |
| DNAJC2 | -0.16275 | 0.000287 |
| MRPS22 | -0.1624 | 0.038984 |
| COQ7 | -0.16212 | 0.003228 |
| CCDC88A | -0.1618 | 0.007667 |
| PPFIBP2 | -0.16171 | 0.000589 |

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| NR2C2AP | -0.16171 | 0.000979 |
| NUP107 | -0.16106 | 0.004246 |
| CFLAR | -0.16077 | 0.015768 |
| VLDLR | -0.16 | 0.001566 |
| PARVG | -0.15975 | 0.005877 |
| DGLUCY | -0.15949 | 0.022682 |
| CCDC88B | -0.15948 | 0.02487 |
| LZTFL1 | -0.15886 | 8.89E-05 |
| HSD17B11 | -0.15822 | 0.021017 |
| OSBPL9 | -0.15815 | 0.021905 |
| P4HA1 | -0.15803 | 0.021944 |
| CFAP298 | -0.15775 | 9.5E-05 |
| IGF2R | -0.15719 | 0.025486 |
| FHIP1B | -0.15684 | 0.044298 |
| PDHX | -0.15645 | 0.040687 |
| DENND4B | -0.15645 | 0.030553 |
| PLEKHM2 | -0.15604 | 0.002558 |
| POT1 | -0.156 | 0.001298 |
| FUBP3 | -0.15582 | 0.015625 |
| FAM50B | -0.15561 | 0.002381 |
| AHCY | -0.15534 | 0.039891 |
| TMEM131L | -0.15415 | 0.006973 |
| MID1IP1 | -0.15382 | 0.010093 |
| CTSD | -0.15363 | 0.024267 |
| TIMM23B-AGAP6 | -0.1536 | 0.014629 |
| CFAP36 | -0.15343 | 0.014999 |
| ISY1 | -0.15257 | 0.000872 |

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| CD276 | -0.1515 | 0.045893 |
| NDUFS1 | -0.15025 | 0.033337 |
| POLDIP2 | -0.14946 | 0.049113 |
| PLEKHA2 | -0.14919 | 0.036211 |
| HBS1L | -0.14906 | 0.011501 |
| PTGES2 | -0.14896 | 0.001621 |
| DPH5 | -0.14878 | 0.020288 |
| GEMIN7 | -0.14873 | 0.032011 |
| KATNIP | -0.14866 | 0.000927 |
| NMRAL1 | -0.14789 | 0.037315 |
| MRFAP1 | -0.14747 | 0.002952 |
| HEXIM1 | -0.1465 | 0.002345 |
| LRRC20 | -0.14639 | 0.006523 |
| DLD | -0.14579 | 0.042485 |
| WDR91 | -0.14576 | 0.000939 |
| OSBP2 | -0.14575 | 0.031795 |
| ARFIP2 | -0.14518 | 0.007324 |
| CTU2 | -0.14477 | 0.008867 |
| RNF166 | -0.14396 | 0.000454 |
| RMDN1 | -0.14234 | 0.007794 |
| HLA-DOA | -0.14192 | 0.032822 |
| CEP120 | -0.14148 | 0.032608 |
| MIER1 | -0.14118 | 0.001759 |
| CASP7 | -0.13998 | 0.045926 |
| FBXW11 | -0.13943 | 0.009979 |
| GART | -0.13881 | 0.000395 |
| LBR | -0.13877 | 0.00532 |
| TNFAIP8L2 | -0.13848 | 0.011465 |

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| BTBD1 | -0.13847 | 0.020516 |
| HELZ2 | -0.13818 | 0.006124 |
| SLC2A1 | -0.13727 | 0.006072 |
| CAD | -0.13708 | 0.005025 |
| KIF14 | -0.13703 | 0.003272 |
| RPL22 | -0.13651 | 0.024392 |
| PARP4 | -0.13641 | 0.000521 |
| HOOK1 | -0.1363 | 0.035547 |
| R3HDM1 | -0.13612 | 0.024851 |
| KIF1C | -0.13552 | 0.002167 |
| SPATA5L1 | -0.13499 | 0.006803 |
| ITGAX | -0.13452 | 0.001984 |
| YARS2 | -0.13427 | 0.043031 |
| CSDE1 | -0.13386 | 0.004934 |
| AKR1A1 | -0.13386 | 0.011096 |
| BBS1 | -0.13381 | 0.029906 |
| ZNF652 | -0.13338 | 0.002719 |
| LYRM7 | -0.13315 | 0.012663 |
| DDX6 | -0.13285 | 0.015722 |
| POMT2 | -0.13279 | 0.007694 |
| RO60 | -0.13274 | 0.032962 |
| BRD3 | -0.13273 | 0.000904 |
| DNAAF10 | -0.13268 | 0.021397 |
| ENTPD1 | -0.13195 | 0.015062 |
| PTPN22 | -0.13175 | 0.035987 |
| HUS1 | -0.13169 | 0.05055 |
| ATG13 | -0.13132 | 0.013694 |
| ZNF101 | -0.13125 | 0.002951 |

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| NUDCD1 | -0.13097 | 0.010456 |
| SEPTIN8 | -0.13071 | 0.021436 |
| WDR6 | -0.13039 | 0.000585 |
| MRPL45 | -0.12903 | 0.034279 |
| CYBA | -0.12811 | 0.010432 |
| ZBTB21 | -0.1266 | 0.019638 |
| ERG28 | -0.12628 | 0.010916 |
| GTPBP3 | -0.1258 | 0.000432 |
| NARS2 | -0.12545 | 7.71E-05 |
| SEC63 | -0.12503 | 0.024076 |
| FANCB | -0.12499 | 0.039609 |
| PYM1 | -0.12474 | 0.004279 |
| FAM118B | -0.1241 | 0.014437 |
| TRNT1 | -0.12398 | 0.041364 |
| ODF2 | -0.12326 | 0.020198 |
| PEDS1-UBE2V1 | -0.12261 | 0.041558 |
| CHTF18 | -0.1216 | 0.015563 |
| TMEM120A | -0.12139 | 0.001549 |
| EDEM3 | -0.1212 | 0.043188 |
| NUDT9 | -0.12064 | 0.030059 |
| POR | -0.1203 | 0.040686 |
| CEACAM3 | -0.12012 | 8.97E-07 |
| ALKBH1 | -0.12003 | 0.000792 |
| SECISBP2 | -0.11907 | 0.038796 |
| PSMB2 | -0.11694 | 0.004234 |
| AZU1 | -0.11691 | 0.000461 |
| ZCCHC17 | -0.11605 | 0.004085 |
| NELFCD | -0.11545 | 0.008799 |

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| CNOT1 | -0.11476 | 0.004719 |
| DENND1A | -0.11438 | 0.04011 |
| NAB2 | -0.11422 | 0.028007 |
| CIRBP | -0.11357 | 0.013438 |
| NFKB1 | -0.11308 | 0.020862 |
| DNAJC13 | -0.11279 | 0.000186 |
| UBFD1 | -0.11251 | 0.006121 |
| EIF2B4 | -0.11195 | 0.013559 |
| PLIN3 | -0.1119 | 0.000976 |
| CELF1 | -0.11181 | 0.002787 |
| IDUA | -0.10983 | 0.009338 |
| TP53I11 | -0.10946 | 0.041876 |
| NT5E | -0.10916 | 0.008696 |
| SNUPN | -0.10891 | 0.048648 |
| HELZ | -0.10857 | 0.041966 |
| KDM3A | -0.10843 | 0.008117 |
| THUMPD3 | -0.10835 | 0.020499 |
| CNOT7 | -0.10724 | 0.015405 |
| SCRIB | -0.10678 | 0.006024 |
| CCNH | -0.10668 | 0.036519 |
| KCTD2 | -0.10623 | 0.011674 |
| FBXO33 | -0.10585 | 0.018956 |
| SAMD9 | -0.10568 | 0.043618 |
| AAK1 | -0.10558 | 0.041613 |
| CARM1 | -0.10506 | 0.002397 |
| CNOT1 | -0.10467 | 0.015112 |
| ADCK1 | -0.10385 | 0.012519 |
| NECAP2 | -0.1029 | 0.004652 |

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| SLC9A7 | -0.10211 | 0.001467 |
| RPS27 | -0.10146 | 0.030851 |
| FAM210A | -0.10118 | 0.005251 |
| TRPV2 | -0.10051 | 0.050086 |
| GCSH | -0.09995 | 0.030845 |
| A2M | -0.09938 | 0.030215 |
| COMT | -0.09891 | 0.002681 |
| PAICS | -0.09882 | 0.0422 |
| NDUFA9 | -0.09698 | 0.046018 |
| HTD2 | -0.09688 | 0.004593 |
| JMJD4 | -0.09672 | 0.045731 |
| RABEPK | -0.09667 | 0.022893 |
| URM1 | -0.09595 | 0.036826 |
| NDUFAB1 | -0.09527 | 0.032275 |
| MTRFR | -0.09504 | 0.010671 |
| DNAJC7 | -0.09339 | 0.020719 |
| ZFYVE16 | -0.09328 | 0.022513 |
| WDR82 | -0.0932 | 0.017326 |
| RFC3 | -0.09245 | 0.013898 |
| SETD1B | -0.09212 | 0.034353 |
| COMMD5 | -0.09155 | 0.009111 |
| PSMD5 | -0.09155 | 0.003426 |
| FARSA | -0.09146 | 0.025838 |
| PTEN | -0.08968 | 0.011104 |
| MARF1 | -0.08923 | 0.028673 |
| MRPL43 | -0.08873 | 0.030672 |
| ATG5 | -0.08738 | 0.004686 |
| TMCO4 | -0.08734 | 0.006673 |

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| HAUS2 | -0.08632 | 0.013665 |
| TELO2 | -0.08592 | 0.047304 |
| LIMK2 | -0.08588 | 0.041254 |
| CYBRD1 | -0.08467 | 0.048909 |
| GANAB | -0.08457 | 0.031352 |
| PLXNC1 | -0.08399 | 0.015132 |
| NFATC2 | -0.08379 | 0.000325 |
| BBX | -0.08344 | 0.003092 |
| FAM120A | -0.08316 | 0.036287 |
| SENP3 | -0.08293 | 0.007068 |
| PMPCB | -0.08263 | 0.013137 |
| AGTRAP | -0.08251 | 0.029583 |
| ADHFE1 | -0.08236 | 0.007081 |
| ARL11 | -0.08222 | 0.00266 |
| ANKRD16 | -0.08191 | 0.006862 |
| LACTB2 | -0.08164 | 2.6E-06 |
| TGFBR1 | -0.08133 | 0.005279 |
| SNX27 | -0.08099 | 0.031304 |
| DSN1 | -0.08021 | 0.047559 |
| RP9 | -0.07966 | 0.02549 |
| ACSF2 | -0.07893 | 0.00277 |
| PHYH | -0.07837 | 0.041685 |
| HGSNAT | -0.07831 | 0.013769 |
| SQLE | -0.0781 | 0.024806 |
| GPHN | -0.07665 | 0.00032 |
| HAUS4 | -0.07565 | 0.020915 |
| CD180 | -0.07546 | 0.016289 |
| ALDH6A1 | -0.07395 | 0.00558 |

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| PATL1 | -0.07304 | 0.025706 |
| NFS1 | -0.07295 | 0.001412 |
| TRIM14 | -0.07267 | 0.017011 |
| NA | -0.07076 | 0.041709 |
| FBXO38 | -0.07042 | 0.02012 |
| MTRF1 | -0.07002 | 0.008007 |
| MAEA | -0.06906 | 0.007009 |
| APOBEC3G | -0.06819 | 0.005631 |
| TMEM120B | -0.06578 | 0.003861 |
| IGKV2-30 | -0.06548 | 0.005382 |
| MVK | -0.06509 | 0.023342 |
| PIKFYVE | -0.0649 | 0.001383 |
| ATL2 | -0.06386 | 0.005768 |
| ROGDI | -0.06329 | 0.035413 |
| ZNF598 | -0.06293 | 0.006228 |
| MET | -0.06179 | 0.015059 |
| LSM12 | -0.06013 | 0.003565 |
| USP20 | -0.05974 | 0.03873 |
| RAB11FIP5 | -0.05962 | 0.051125 |
| ANKRD12 | -0.05826 | 0.009684 |
| MAP4K1 | -0.05617 | 0.039177 |
| ELP4 | -0.05415 | 0.011309 |
| TUBB6 | -0.05321 | 0.01107 |
| PAQR4 | -0.05303 | 0.012487 |
| CD300A | -0.05207 | 0.018126 |
| ATP6V1H | -0.05193 | 0.038325 |
| RNF41 | -0.04935 | 0.014562 |
| ERI3 | -0.04922 | 0.001107 |

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| ALDH5A1 | -0.04915 | 0.042531 |
| GRAMD1A | -0.04898 | 0.047588 |
| LAT2 | -0.0465 | 0.041755 |
| TOMM34 | -0.04541 | 0.01133 |
| EIF2S2 | -0.04405 | 0.008051 |
| SLC35A1 | -0.0437 | 0.046174 |
| GIGYF2 | -0.04331 | 0.037148 |
| IDI1 | -0.04291 | 0.028315 |
| TSN | -0.04277 | 0.031915 |
| FASTKD2 | -0.04121 | 0.034337 |
| PDHA1 | -0.04038 | 0.022529 |
| METTL17 | -0.04031 | 0.020411 |
| ALG6 | -0.03955 | 0.033231 |
| TOPORS | -0.03352 | 0.016834 |
| DPH2 | -0.0333 | 0.005883 |
| STAT5A | -0.03287 | 0.008617 |
| RPIA | -0.03181 | 0.013306 |
| MTIF2 | -0.03124 | 0.02046 |
| MCCC1 | -0.03036 | 0.015368 |
| MPI | -0.02896 | 0.045606 |
| MYG1 | -0.02587 | 0.026917 |
| DNTTIP2 | -0.02395 | 0.000695 |
| MAP3K1 | -0.02272 | 0.023761 |
| DNAJB1 | -0.02139 | 0.023298 |
| CRYBG3 | -0.02064 | 0.049162 |
| RNF14 | -0.01928 | 0.001074 |
| CDC26 | -0.01381 | 0.013718 |
| ZBP1 | -0.01011 | 0.044397 |

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| MTX1 | -0.00401 | 0.045763 |
| HMMR | -0.00353 | 0.049633 |
| SCAP | -0.00333 | 0.01224 |
| FHIT | -0.00311 | 0.031012 |
| PDGFRB | -0.00178 | 0.009421 |
| IP6K1 | -0.00045 | 0.019433 |
| ILRUN | 0.000317 | 0.014481 |
| ELMO2 | 0.005984 | 0.017028 |
| BIRC6 | 0.008508 | 4.02E-05 |
| NA | 0.008789 | 0.004143 |
| PCYT2 | 0.009886 | 0.003337 |
| RESF1 | 0.019489 | 0.012454 |
| PGAM1 | 0.028059 | 0.042932 |
| PBDC1 | 0.033895 | 0.049403 |
| RPE | 0.03635 | 0.026493 |
| RFC2 | 0.043491 | 0.048021 |
| MSLN | 0.047544 | 0.016698 |
| PGM2 | 0.048132 | 0.041735 |
| PEX26 | 0.048555 | 0.035242 |
| LYST | 0.049415 | 0.026148 |
| UBE2Z | 0.051831 | 0.005697 |
| NAGPA | 0.053856 | 0.00729 |
| TMEM19 | 0.053962 | 0.005501 |
| ECI2 | 0.055978 | 0.043507 |
| SCRN1 | 0.056309 | 0.050867 |
| TMEM231 | 0.057223 | 0.050909 |
| ATOX1 | 0.061057 | 0.020762 |
| PIK3CA | 0.063015 | 0.010247 |

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| AMY1C | 0.066506 | 0.044792 |
| ZNF668 | 0.067345 | 0.028237 |
| SUGT1 | 0.068268 | 0.04361 |
| TMEM234 | 0.074341 | 0.003794 |
| CUL7 | 0.077574 | 0.006276 |
| TRAPPC5 | 0.088008 | 0.046122 |
| CHMP4B | 0.088289 | 0.03646 |
| UBL7 | 0.09612 | 0.014785 |
| ABTB1 | 0.097183 | 0.009846 |
| PSMC6 | 0.098545 | 0.03351 |
| SYNE1 | 0.099628 | 0.036734 |
| COQ3 | 0.101457 | 0.034237 |
| ETHE1 | 0.102112 | 0.05133 |
| ALKBH3 | 0.102952 | 0.040112 |
| OTUB1 | 0.104406 | 0.009594 |
| OPLAH | 0.105792 | 0.008857 |
| RETREG3 | 0.106056 | 0.003069 |
| IPO7 | 0.107833 | 0.040869 |
| SKIV2L | 0.109138 | 0.021211 |
| UFL1 | 0.110325 | 0.006631 |
| SCNM1 | 0.111784 | 0.041127 |
| B4GALT7 | 0.112252 | 0.036204 |
| CROCC | 0.113219 | 0.026151 |
| SDF2L1 | 0.114279 | 0.024699 |
| SEC13 | 0.11654 | 0.043519 |
| TOMM70 | 0.116978 | 0.04695 |
| XPO4 | 0.117905 | 0.008985 |
| KRT1 | 0.119604 | 0.00909 |

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| SNX16 | 0.120165 | 0.027617 |
| PPP2R5B | 0.125094 | 0.00679 |
| MAN1A2 | 0.126565 | 0.006411 |
| MKRN2 | 0.127095 | 0.014948 |
| THG1L | 0.127435 | 0.032028 |
| PPTC7 | 0.12894 | 0.049075 |
| TECPR1 | 0.130598 | 0.020077 |
| PREP | 0.131525 | 0.042432 |
| CEP250 | 0.13232 | 0.043132 |
| FAM53C | 0.133091 | 0.031458 |
| COTL1 | 0.134166 | 0.011713 |
| AFTPH | 0.135317 | 0.004079 |
| ARHGDIA | 0.136216 | 0.035146 |
| CDV3 | 0.136293 | 0.014034 |
| TAPT1 | 0.136866 | 0.017977 |
| FOXO3 | 0.137279 | 0.034017 |
| GAB1 | 0.137551 | 0.029951 |
| RALGAPB | 0.138193 | 0.010944 |
| CTPS1 | 0.138426 | 0.025856 |
| EIF2B1 | 0.138502 | 0.039873 |
| UBR4 | 0.138512 | 0.040606 |
| SEC16A | 0.139115 | 0.028504 |
| UGGT1 | 0.140287 | 0.006779 |
| TMUB1 | 0.141903 | 0.018635 |
| KDM5C | 0.142229 | 0.033724 |
| WDFY2 | 0.144119 | 0.036845 |
| IGKV3D-11 | 0.144245 | 0.008228 |
| TRIM21 | 0.144552 | 0.047358 |

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| TFAP2E | 0.145029 | 0.050239 |
| LATS2 | 0.145762 | 0.033367 |
| PHACTR4 | 0.146259 | 0.005738 |
| COL6A1 | 0.146325 | 0.017704 |
| DARS1 | 0.147412 | 0.04887 |
| PICALM | 0.147676 | 0.045789 |
| MRPL50 | 0.147694 | 0.039975 |
| ORMDL3 | 0.150833 | 0.03409 |
| YTHDC2 | 0.151866 | 0.006551 |
| RAB39B | 0.153521 | 0.015426 |
| WASHC1 | 0.156357 | 0.017987 |
| SARS1 | 0.156475 | 0.003194 |
| ALG12 | 0.157956 | 0.015231 |
| HSPA6 | 0.158105 | 0.023903 |
| ZFYVE9 | 0.158871 | 0.033743 |
| CDC37 | 0.158971 | 0.003392 |
| AHCYL1 | 0.1596 | 0.015271 |
| RHOA | 0.1601 | 0.037365 |
| HIBCH | 0.161053 | 0.029702 |
| STX5 | 0.161642 | 0.029271 |
| BNIP1 | 0.161958 | 0.001012 |
| PES1 | 0.162528 | 0.048174 |
| JPT2 | 0.16278 | 0.04111 |
| PIP5K1A | 0.165825 | 0.019705 |
| DSP | 0.165913 | 0.01646 |
| DUSP23 | 0.166261 | 0.013494 |
| CUL5 | 0.166409 | 0.003146 |
| ZZZ3 | 0.167162 | 0.044974 |

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| EMC10 | 0.167465 | 0.018997 |
| MTDH | 0.16771 | 0.020463 |
| VPS51 | 0.168398 | 0.02149 |
| STUB1 | 0.168862 | 0.028885 |
| TMX1 | 0.170242 | 0.046835 |
| THEM6 | 0.171396 | 0.008329 |
| MMUT | 0.171945 | 0.023069 |
| BROX | 0.172019 | 0.033492 |
| NF2 | 0.172054 | 0.041355 |
| PGAP2 | 0.175232 | 0.010425 |
| CSNK1G2 | 0.175364 | 0.031957 |
| CDK2 | 0.175409 | 0.036089 |
| CHP1 | 0.175592 | 0.016882 |
| CIAPIN1 | 0.176301 | 0.006518 |
| AMD1 | 0.176486 | 0.022375 |
| CUL3 | 0.176825 | 0.00057 |
| OVCA2 | 0.177296 | 0.030396 |
| GYS1 | 0.178126 | 0.012242 |
| VIPAS39 | 0.17814 | 0.036601 |
| GALNT2 | 0.178167 | 0.051209 |
| NA | 0.179056 | 0.008809 |
| RIOK3 | 0.179341 | 0.000139 |
| DCAF7 | 0.180936 | 0.050581 |
| PEA15 | 0.181 | 0.030608 |
| TP53I3 | 0.18106 | 0.015422 |
| SRA1 | 0.182161 | 0.042506 |
| FXN | 0.182598 | 0.026813 |
| BCL2L11 | 0.183089 | 0.011825 |

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| B3GNTL1 | 0.183225 | 0.001522 |
| PHKG2 | 0.183344 | 0.031967 |
| PDP1 | 0.183551 | 0.007657 |
| SLC25A51 | 0.183592 | 0.022688 |
| TMEM94 | 0.183616 | 0.013312 |
| PFDN4 | 0.183808 | 0.001529 |
| SUOX | 0.184026 | 0.010855 |
| STT3A | 0.184039 | 0.003055 |
| RAC3 | 0.184491 | 0.001993 |
| TGFBR2 | 0.184914 | 0.013179 |
| ALG1 | 0.185236 | 0.035271 |
| COPS5 | 0.185699 | 0.029879 |
| SYAP1 | 0.185736 | 0.01377 |
| GALT | 0.186555 | 0.006276 |
| NUDT2 | 0.187085 | 0.01561 |
| GGA1 | 0.187133 | 0.005458 |
| HAUS5 | 0.187272 | 0.002445 |
| GLRX3 | 0.187548 | 0.019133 |
| DOCK8 | 0.187736 | 0.02645 |
| ADCY9 | 0.187775 | 0.036073 |
| CLCN7 | 0.188686 | 0.050461 |
| ZNRD2 | 0.18938 | 0.025232 |
| ABHD3 | 0.189493 | 0.012591 |
| NSDHL | 0.189869 | 0.000752 |
| HINT2 | 0.190737 | 0.022243 |
| GUK1 | 0.190852 | 0.008854 |
| SELENOS | 0.191128 | 0.012152 |
| TSTD1 | 0.191146 | 0.0359 |

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| WDR45B | 0.191325 | 0.041604 |
| PITPNC1 | 0.191778 | 0.006774 |
| SIGMAR1 | 0.192162 | 0.002977 |
| RWDD3 | 0.193786 | 0.009442 |
| COG7 | 0.193931 | 0.031995 |
| AURKAIP1 | 0.19402 | 0.03262 |
| PDE6D | 0.194121 | 0.002839 |
| IL17RA | 0.194527 | 0.011673 |
| TMEM134 | 0.19457 | 0.051206 |
| GNAS | 0.194956 | 0.017124 |
| CCDC14 | 0.194958 | 0.050194 |
| NUDT12 | 0.19643 | 0.02217 |
| PRRC2A | 0.196873 | 0.044678 |
| HSPA1L | 0.198926 | 0.018943 |
| CCDC25 | 0.198983 | 0.005764 |
| CCDC47 | 0.199003 | 0.018298 |
| PLAAT3 | 0.199279 | 0.001248 |
| ISOC1 | 0.19945 | 0.026955 |
| AP2S1 | 0.199864 | 0.000551 |
| PLCG2 | 0.199935 | 0.005434 |
| S100A7 | 0.200061 | 0.016576 |
| IRF3 | 0.20012 | 0.011394 |
| CRTC3 | 0.200149 | 8.06E-05 |
| PRRC1 | 0.201284 | 0.02902 |
| YWHAQ | 0.201675 | 0.047158 |
| FUT11 | 0.201689 | 0.005504 |
| CYP2U1 | 0.202094 | 0.043499 |
| FLG | 0.202498 | 0.033582 |

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| MARK2 | 0.202709 | 0.041445 |
| COPS3 | 0.20455 | 0.012544 |
| LPGAT1 | 0.204908 | 0.020355 |
| FGD3 | 0.205705 | 0.005595 |
| RABEP2 | 0.206208 | 0.031615 |
| EIF4G2 | 0.207313 | 0.016205 |
| RAB23 | 0.207421 | 0.010403 |
| BCL3 | 0.207728 | 0.022211 |
| GIT2 | 0.208025 | 0.027194 |
| KIFAP3 | 0.208468 | 0.027488 |
| KIF2C | 0.208548 | 0.003771 |
| COPS4 | 0.208598 | 0.017684 |
| BPNT1 | 0.208861 | 0.040959 |
| TMEM263 | 0.209224 | 0.018438 |
| TARS1 | 0.209475 | 0.012714 |
| PUM1 | 0.209637 | 0.034789 |
| DOCK6 | 0.210344 | 0.022377 |
| GOLGA4 | 0.21075 | 0.010612 |
| WFS1 | 0.210838 | 0.009579 |
| ATXN1 | 0.210889 | 0.005208 |
| SGPP1 | 0.211973 | 0.017561 |
| JMY | 0.212026 | 0.010571 |
| SPECC1L | 0.21203 | 0.01644 |
| SFXN4 | 0.212861 | 0.028673 |
| PPP2R5C | 0.213673 | 0.027971 |
| CHMP5 | 0.214046 | 0.006694 |
| COQ10B | 0.214454 | 0.020124 |
| FBXW8 | 0.214454 | 0.019116 |

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| SNX13 | 0.2148 | 0.015031 |
| AP1AR | 0.215375 | 0.04718 |
| PEX3 | 0.215874 | 0.045807 |
| MAPK3 | 0.216004 | 0.02521 |
| IKBIP | 0.216477 | 0.012441 |
| UGGT2 | 0.216594 | 0.031305 |
| PEAK1 | 0.216603 | 0.018879 |
| PLEKHA3 | 0.216704 | 0.033143 |
| EPDR1 | 0.216933 | 0.002835 |
| LENG1 | 0.217783 | 0.017828 |
| MOB1B | 0.218705 | 0.012359 |
| KBTBD7 | 0.219021 | 0.033961 |
| DPYSL4 | 0.219605 | 0.010602 |
| FNTB | 0.220022 | 0.049929 |
| CNNM2 | 0.221136 | 0.008415 |
| ERN2 | 0.221749 | 0.004839 |
| BORCS6 | 0.222178 | 0.002419 |
| CAB39L | 0.222209 | 0.047221 |
| ATG2A | 0.2224 | 0.00153 |
| UBR2 | 0.222543 | 0.037426 |
| DMAC2L | 0.222689 | 0.043643 |
| STAM | 0.222845 | 0.004615 |
| MYCBP | 0.222846 | 0.006265 |
| NA | 0.224018 | 0.030264 |
| FKBP1A | 0.22419 | 0.017324 |
| ZRANB1 | 0.224553 | 0.027073 |
| TUBB | 0.224779 | 0.002063 |
| WWC3 | 0.225146 | 0.010667 |

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| BLOC1S6 | 0.225602 | 2.51E-05 |
| MTMR14 | 0.225716 | 0.035632 |
| MRPS26 | 0.225736 | 0.021084 |
| C4orf3 | 0.225791 | 0.012944 |
| CCPG1 | 0.22588 | 0.012618 |
| AGAP2 | 0.226454 | 0.033057 |
| SH2B1 | 0.226686 | 0.015115 |
| PEX13 | 0.226826 | 0.007215 |
| CUL2 | 0.226964 | 0.011423 |
| VPS36 | 0.227173 | 0.002485 |
| RING1 | 0.227446 | 0.004182 |
| BNIP3L | 0.227885 | 0.015883 |
| MOSPD2 | 0.228016 | 0.046874 |
| TEPSIN | 0.228539 | 0.028239 |
| SNX2 | 0.229661 | 0.042964 |
| ACAD11 | 0.229936 | 0.040904 |
| AKAP1 | 0.230319 | 0.034221 |
| MSN | 0.230516 | 0.002274 |
| LDAH | 0.231914 | 0.008937 |
| DECR1 | 0.232023 | 0.000853 |
| HSP90B1 | 0.232434 | 0.009286 |
| DENND1B | 0.232539 | 0.000995 |
| AGPS | 0.232549 | 0.001896 |
| SLAMF6 | 0.232574 | 0.004576 |
| ARHGAP17 | 0.232603 | 0.003018 |
| DBNL | 0.232734 | 0.009257 |
| SIRT2 | 0.233057 | 0.009618 |
| TXNDC9 | 0.233377 | 0.044131 |

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| RNF31 | 0.233848 | 0.035687 |
| TWSG1 | 0.234153 | 0.026588 |
| ARPP19 | 0.23456 | 0.001006 |
| LEMD2 | 0.234757 | 0.007586 |
| METAP1D | 0.235062 | 0.022047 |
| SH2D4A | 0.235327 | 0.041261 |
| BTN3A3 | 0.235574 | 0.015801 |
| SIPA1L3 | 0.235951 | 0.032443 |
| AFM | 0.235994 | 0.047283 |
| TMEM43 | 0.236171 | 0.024207 |
| FAM221A | 0.23623 | 0.016462 |
| SSR3 | 0.236239 | 0.003261 |
| PPM1B | 0.236521 | 0.037494 |
| AP1B1 | 0.237159 | 0.001837 |
| SYNJ1 | 0.237201 | 0.001858 |
| WDR59 | 0.237364 | 0.035742 |
| NDUFB1 | 0.237582 | 0.012381 |
| VTI1A | 0.238069 | 0.026944 |
| COPZ1 | 0.238245 | 0.011652 |
| ARF6 | 0.238377 | 0.031417 |
| NGLY1 | 0.238998 | 0.038444 |
| DNAJC10 | 0.23941 | 0.012811 |
| AMDHD2 | 0.239578 | 0.007721 |
| CAB39 | 0.240348 | 0.006934 |
| DNAJC6 | 0.241211 | 0.014184 |
| ALDH3A2 | 0.241231 | 0.009814 |
| MRPL42 | 0.241317 | 0.001453 |
| ITCH | 0.241647 | 0.006662 |

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| DNAJA2 | 0.241703 | 0.009778 |
| CNP | 0.242145 | 0.007427 |
| SUCLA2 | 0.242588 | 0.000239 |
| CDK14 | 0.242603 | 0.010066 |
| TTC5 | 0.244093 | 0.009492 |
| CCNYL1 | 0.244242 | 0.014979 |
| MGAT1 | 0.244813 | 0.047583 |
| WDR45 | 0.245694 | 0.004535 |
| MGMT | 0.245798 | 0.009611 |
| PNP | 0.246867 | 0.041087 |
| PURB | 0.247133 | 0.044125 |
| COPB2 | 0.247248 | 0.022481 |
| GOLIM4 | 0.247375 | 0.003578 |
| BOLA3 | 0.247596 | 0.018638 |
| FAF2 | 0.248441 | 0.002047 |
| B3GALT6 | 0.248947 | 0.01583 |
| ADAM17 | 0.249218 | 0.000187 |
| EHBP1L1 | 0.24956 | 0.019515 |
| ACAP2 | 0.249691 | 0.025214 |
| PDIA6 | 0.25086 | 0.002547 |
| COPG2 | 0.251125 | 0.001306 |
| ATP2B1 | 0.25136 | 0.000586 |
| TANK | 0.251417 | 0.006198 |
| SIGLEC10 | 0.251479 | 0.046008 |
| LCMT1 | 0.251721 | 0.018141 |
| FH | 0.251951 | 0.02668 |
| OSBPL8 | 0.252594 | 9.41E-06 |
| SLC35E2B | 0.253023 | 0.034231 |

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|---|---|---|
| GPAT4 | 0.253236 | 0.011802 |
| OSBP | 0.25355 | 0.006694 |
| NECTIN1 | 0.254092 | 0.049313 |
| IRGQ | 0.254439 | 0.031163 |
| SLC35C1 | 0.254509 | 0.000879 |
| C2orf69 | 0.254566 | 0.014651 |
| REN | 0.254712 | 0.047883 |
| CFHR5 | 0.2551 | 0.017521 |
| HADH | 0.255986 | 0.044237 |
| ZBTB34 | 0.256014 | 0.00066 |
| IKBIP | 0.256286 | 0.01343 |
| YIPF1 | 0.256298 | 0.017457 |
| LGALS12 | 0.256563 | 0.004373 |
| INPP5F | 0.257024 | 0.009602 |
| STX10 | 0.257396 | 0.017526 |
| MBLAC2 | 0.257726 | 0.005066 |
| NINL | 0.257884 | 0.005851 |
| EIF4EBP1 | 0.25827 | 0.018506 |
| C15orf39 | 0.258771 | 0.02478 |
| POC1B | 0.259326 | 0.018114 |
| SLC39A11 | 0.259886 | 0.037314 |
| ANXA11 | 0.259896 | 0.001686 |
| FSD1L | 0.259989 | 0.01163 |
| POMGNT1 | 0.260862 | 0.015818 |
| CRYBB1 | 0.261184 | 0.034361 |
| RAB11B | 0.261347 | 0.021845 |
| GORASP2 | 0.261849 | 0.013605 |
| ATP6V1A | 0.261992 | 0.005991 |

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|---|---|---|
| ATP7B | 0.262022 | 0.008857 |
| NAXD | 0.262563 | 0.032182 |
| C16orf54 | 0.262666 | 0.02142 |
| DEGS1 | 0.262874 | 0.002726 |
| ADAM22 | 0.263163 | 0.046431 |
| BSDC1 | 0.263382 | 0.012839 |
| ABHD12 | 0.263903 | 0.021196 |
| OBSL1 | 0.263972 | 0.00207 |
| TYK2 | 0.26611 | 0.003366 |
| NAT1 | 0.266385 | 0.007132 |
| RBCK1 | 0.266429 | 0.000182 |
| ICA1 | 0.266436 | 0.012992 |
| LNPK | 0.266934 | 0.005582 |
| AKAP7 | 0.267051 | 0.03413 |
| TRAPPC12 | 0.267124 | 0.007391 |
| APBA3 | 0.267551 | 0.045714 |
| CGREF1 | 0.267641 | 0.006248 |
| TUBGCP2 | 0.267767 | 0.049361 |
| KCTD18 | 0.268192 | 0.004344 |
| RWDD4 | 0.268681 | 0.004263 |
| LUZP1 | 0.268999 | 0.001907 |
| DCTN6 | 0.269243 | 0.001808 |
| COPE | 0.269271 | 0.001126 |
| PLCB2 | 0.269355 | 0.042637 |
| SHC1 | 0.269355 | 0.003123 |
| CPEB4 | 0.27028 | 0.001666 |
| TBC1D9 | 0.270433 | 0.00244 |
| EIF4H | 0.270497 | 9.44E-08 |

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|---|---|---|
| TPD52L2 | 0.270538 | 0.001397 |
| CYP20A1 | 0.271263 | 0.000327 |
| VPS13C | 0.27138 | 0.01578 |
| OPA3 | 0.271652 | 0.000647 |
| EPM2A | 0.271847 | 0.002323 |
| ENTPD5 | 0.272083 | 0.014315 |
| NBEA | 0.273117 | 0.015082 |
| RABEP1 | 0.273203 | 0.02715 |
| RUFY2 | 0.273316 | 0.037999 |
| LCN1 | 0.274031 | 0.01728 |
| PPP3CA | 0.274052 | 0.000105 |
| TBC1D22A | 0.274348 | 0.016587 |
| RAB8B | 0.274477 | 0.050819 |
| LPIN3 | 0.274636 | 0.008547 |
| CALM2 | 0.274819 | 0.006674 |
| PPM1M | 0.274872 | 0.010503 |
| RIPK2 | 0.275368 | 0.009764 |
| STK25 | 0.275594 | 0.004425 |
| ATG4B | 0.275698 | 0.011199 |
| LIPT2 | 0.27581 | 0.011283 |
| C17orf75 | 0.276132 | 0.036585 |
| GNPAT | 0.27645 | 0.021577 |
| NBAS | 0.276522 | 0.000845 |
| UCHL1 | 0.276533 | 8.14E-05 |
| DKK2 | 0.277155 | 0.01303 |
| PPL | 0.277291 | 0.00379 |
| DECR2 | 0.277814 | 0.034056 |
| LZTR1 | 0.278112 | 0.032663 |

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|---|---|---|
| MAPK1 | 0.278611 | 0.009176 |
| SZRD1 | 0.278756 | 0.001058 |
| STRAP | 0.279095 | 0.002272 |
| SPRY1 | 0.279602 | 0.000677 |
| TMEM167B | 0.279814 | 0.014137 |
| IFT22 | 0.279899 | 0.000125 |
| SOS2 | 0.280198 | 2.77E-05 |
| LAMTOR1 | 0.281515 | 0.002019 |
| RABGGTB | 0.281987 | 0.002339 |
| CCDC90B | 0.282206 | 0.005263 |
| ARL8B | 0.282208 | 0.001658 |
| CDCA2 | 0.282476 | 0.023624 |
| UBL4A | 0.282486 | 0.01492 |
| WDFY3 | 0.28271 | 0.020649 |
| FITM2 | 0.283216 | 0.02042 |
| PRR14L | 0.283711 | 0.014048 |
| ALPL | 0.283873 | 0.012742 |
| HLA-DMB | 0.284254 | 0.046337 |
| RIPK1 | 0.284383 | 0.006058 |
| EIF2AK3 | 0.2844 | 0.016839 |
| QDPR | 0.284419 | 0.00169 |
| IGLC7 | 0.284756 | 0.014487 |
| PHKA2 | 0.284803 | 0.04163 |
| RHOB | 0.284837 | 0.006456 |
| OXR1 | 0.284985 | 0.000174 |
| TARBP2 | 0.28509 | 0.025908 |
| CASKIN2 | 0.285826 | 0.017678 |
| PLEKHG2 | 0.286126 | 0.000584 |

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|---|---|---|
| RRBP1 | 0.286289 | 0.016396 |
| RAB33B | 0.286308 | 0.009243 |
| RHBDD1 | 0.286312 | 0.002478 |
| ABCD1 | 0.286644 | 0.038857 |
| CCDC6 | 0.286752 | 0.009528 |
| KIDINS220 | 0.286788 | 0.010539 |
| CHKB | 0.287088 | 0.019787 |
| GALNT1 | 0.287899 | 0.002991 |
| TMEM181 | 0.28813 | 0.013115 |
| PLP2 | 0.288247 | 0.000811 |
| PTK2B | 0.288386 | 9.61E-05 |
| PGAM5 | 0.288637 | 0.005121 |
| ENPP4 | 0.289135 | 0.012379 |
| DYRK1A | 0.289563 | 0.005131 |
| SEC23A | 0.289795 | 0.000773 |
| RPH3AL | 0.289858 | 0.000311 |
| SH3BP5L | 0.28995 | 0.030416 |
| SOS1 | 0.290168 | 0.004439 |
| ARAF | 0.290227 | 0.01761 |
| PAGR1 | 0.290462 | 0.003626 |
| AP2B1 | 0.290466 | 0.000128 |
| VCP | 0.290929 | 0.000392 |
| GNG7 | 0.291189 | 0.050551 |
| SCFD2 | 0.29223 | 0.007862 |
| RABAC1 | 0.292334 | 0.011291 |
| SPCS3 | 0.292579 | 5.25E-06 |
| EXOC7 | 0.292869 | 0.027834 |
| CREBBP | 0.293079 | 0.000462 |

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|---|---|---|
| TEX2 | 0.293123 | 0.002723 |
| ZFPM1 | 0.293188 | 0.036102 |
| ACSS2 | 0.293453 | 0.000472 |
| TF | 0.293738 | 0.002546 |
| RUBCN | 0.293754 | 0.000761 |
| PKD2 | 0.293893 | 0.00031 |
| OTC | 0.294279 | 0.051032 |
| FAM98C | 0.294462 | 0.045437 |
| GAPVD1 | 0.294638 | 0.003007 |
| ATAD2B | 0.294787 | 0.004244 |
| CARD6 | 0.294808 | 0.001046 |
| SNX3 | 0.294938 | 0.02224 |
| MOCS2 | 0.295192 | 0.043256 |
| RABL3 | 0.295211 | 0.006817 |
| ADAT3 | 0.295339 | 0.010559 |
| ACO2 | 0.295363 | 0.023308 |
| COG4 | 0.295383 | 0.030096 |
| F8A2 | 0.295701 | 0.030984 |
| NRROS | 0.295714 | 0.030264 |
| JAK1 | 0.295826 | 0.024542 |
| NUMBL | 0.296247 | 0.000383 |
| AGPAT2 | 0.296537 | 0.032105 |
| ATF6 | 0.296721 | 0.015289 |
| GPX4 | 0.29687 | 0.024885 |
| XXYLT1 | 0.296983 | 6.11E-05 |
| ERGIC1 | 0.297022 | 0.029159 |
| ATL3 | 0.297142 | 0.000586 |
| GNAS | 0.297155 | 0.040006 |

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|---|---|---|
| UBE2K | 0.297361 | 0.006675 |
| RIN1 | 0.297725 | 0.004422 |
| STX18 | 0.297884 | 0.002781 |
| CD68 | 0.298092 | 0.023406 |
| TUBG1 | 0.298194 | 0.001135 |
| THTPA | 0.298244 | 4.95E-05 |
| AP4B1 | 0.298316 | 0.004034 |
| MGST2 | 0.298576 | 0.025212 |
| ARL8A | 0.298721 | 1.19E-05 |
| TMEM68 | 0.29885 | 0.038165 |
| BIRC2 | 0.299478 | 0.035937 |
| ATP6V0D2 | 0.299518 | 0.006122 |
| EXOC1 | 0.299798 | 0.01548 |
| C1R | 0.300093 | 3.72E-05 |
| GPLD1 | 0.300166 | 0.033498 |
| TMEM109 | 0.300524 | 0.009424 |
| PTRHD1 | 0.300543 | 0.000684 |
| LSS | 0.300641 | 0.006777 |
| PPP1CA | 0.300754 | 0.00052 |
| FSIP1 | 0.300955 | 0.000259 |
| LMAN2 | 0.301248 | 8.67E-06 |
| MKRN1 | 0.30143 | 0.000879 |
| TMUB2 | 0.301707 | 0.038309 |
| SLC35A4 | 0.301989 | 0.019264 |
| ANKLE2 | 0.302012 | 0.005966 |
| PYCARD | 0.302301 | 0.004524 |
| AMZ2 | 0.302317 | 0.002663 |
| ATG16L1 | 0.302391 | 0.018215 |

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|---|---|---|
| DZIP3 | 0.302432 | 0.000281 |
| CNTROB | 0.302837 | 0.025392 |
| STX6 | 0.303415 | 0.003662 |
| CRTAP | 0.30395 | 0.01444 |
| CMC2 | 0.303979 | 0.036074 |
| SEC22A | 0.304929 | 0.00808 |
| MYO9B | 0.305385 | 0.003841 |
| DCAKD | 0.305538 | 0.031085 |
| DDHD2 | 0.305743 | 0.001372 |
| TPT1 | 0.305909 | 0.011513 |
| CCS | 0.30622 | 0.000279 |
| DGKQ | 0.30632 | 0.017117 |
| RABGGTA | 0.306638 | 0.000405 |
| FKBP8 | 0.307425 | 0.005152 |
| MICAL1 | 0.307738 | 0.037662 |
| SFXN3 | 0.307874 | 0.003486 |
| TMED5 | 0.308271 | 0.015105 |
| EXOC2 | 0.30876 | 0.023169 |
| KPNA6 | 0.309009 | 0.046119 |
| NRBP1 | 0.309098 | 0.000141 |
| ACO2 | 0.309159 | 0.020263 |
| ARMH3 | 0.309248 | 0.006785 |
| SPR | 0.309675 | 0.00074 |
| NRAS | 0.309717 | 0.001439 |
| ARRB1 | 0.310081 | 0.034816 |
| SSH3 | 0.310363 | 0.002483 |
| MAIP1 | 0.311049 | 0.004706 |
| MAPRE3 | 0.311447 | 0.003756 |

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|---|---|---|
| DNAJC25 | 0.311658 | 0.026409 |
| B3GAT3 | 0.312256 | 0.041491 |
| ABHD17B | 0.312491 | 0.034103 |
| FBXL15 | 0.312559 | 0.001866 |
| PDK2 | 0.312811 | 0.001704 |
| CYB5B | 0.312953 | 0.007681 |
| PLEKHJ1 | 0.313413 | 0.005808 |
| SLC2A9 | 0.313667 | 0.00153 |
| PGM5 | 0.313982 | 0.011417 |
| RICTOR | 0.31455 | 0.016846 |
| HLA-A | 0.314863 | 0.013754 |
| AGFG1 | 0.314934 | 0.012534 |
| UBR2 | 0.315294 | 0.010245 |
| ATP5PF | 0.315427 | 0.03917 |
| AGFG2 | 0.315471 | 0.001933 |
| MACIR | 0.315844 | 0.017949 |
| OXCT1 | 0.316148 | 0.041771 |
| RAB3GAP1 | 0.316185 | 0.030997 |
| GMFB | 0.316519 | 0.005322 |
| GSR | 0.316677 | 0.025763 |
| YWHAE | 0.31718 | 0.000459 |
| PPP2R2A | 0.317357 | 6.71E-05 |
| KRT77 | 0.317426 | 0.03244 |
| PEX11B | 0.317675 | 0.002495 |
| STRIP1 | 0.317955 | 0.023983 |
| PREB | 0.318415 | 0.006542 |
| LMAN2L | 0.318856 | 0.001474 |
| CETN2 | 0.320313 | 0.001658 |

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|---|---|---|
| AP2A1 | 0.320402 | 0.000611 |
| KPNA3 | 0.321238 | 0.005102 |
| STX8 | 0.321564 | 0.039056 |
| EMC4 | 0.321629 | 1.66E-05 |
| ANAPC7 | 0.322166 | 0.021808 |
| DDO | 0.322214 | 0.01914 |
| MAPK8IP3 | 0.322597 | 0.03781 |
| MESD | 0.322625 | 0.009954 |
| ELMOD2 | 0.322722 | 0.000675 |
| NSFL1C | 0.322851 | 0.014766 |
| EIF4EBP2 | 0.323129 | 0.01576 |
| MAP3K7 | 0.323272 | 0.008514 |
| STT3B | 0.323336 | 0.000112 |
| USP28 | 0.323433 | 0.022957 |
| CHML | 0.323529 | 0.021848 |
| SMIM8 | 0.324187 | 0.013058 |
| ZBTB7B | 0.324221 | 0.001958 |
| CCNY | 0.324497 | 0.0055 |
| RAB5C | 0.324536 | 0.006323 |
| AKNA | 0.324548 | 0.037696 |
| CCM2 | 0.324658 | 0.000189 |
| ABRACL | 0.325045 | 0.010504 |
| TCAF1 | 0.325247 | 0.02659 |
| MTMR6 | 0.32528 | 0.004491 |
| TMED9 | 0.325755 | 0.000301 |
| COG3 | 0.325794 | 0.003146 |
| ADGRG1 | 0.326118 | 0.001068 |
| EIPR1 | 0.326593 | 0.039236 |

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|---|---|---|
| FIBP | 0.326947 | 0.001816 |
| RIN3 | 0.326997 | 0.004684 |
| ITIH1 | 0.327095 | 0.023622 |
| MAP2K4 | 0.327286 | 0.001804 |
| ERP44 | 0.327349 | 0.002821 |
| IGHG2 | 0.327465 | 0.032592 |
| IGSF8 | 0.32751 | 0.033267 |
| UBAP1 | 0.32767 | 0.010646 |
| FILIP1L | 0.327924 | 0.003797 |
| TJP1 | 0.328044 | 0.024475 |
| ARR3 | 0.328483 | 5.93E-05 |
| MLST8 | 0.328524 | 0.003023 |
| SLC35B2 | 0.328784 | 6.22E-06 |
| ALDH16A1 | 0.329002 | 0.01202 |
| TMEM102 | 0.329024 | 8.05E-05 |
| RAB5B | 0.329641 | 0.010257 |
| NEDD1 | 0.32986 | 0.001419 |
| AGPAT3 | 0.329899 | 0.031912 |
| PPM1F | 0.329996 | 8.08E-05 |
| AP1S2 | 0.330236 | 0.002262 |
| DPH6 | 0.330476 | 0.027641 |
| DSC1 | 0.330679 | 0.019896 |
| PRKACG | 0.331287 | 7.24E-06 |
| NME7 | 0.332833 | 0.003951 |
| CEP44 | 0.333039 | 0.011963 |
| MANEA | 0.333116 | 0.02051 |
| UBE2W | 0.333215 | 0.002106 |
| CRTC2 | 0.333405 | 0.00829 |

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|---|---|---|
| TMCO6 | 0.333515 | 0.001783 |
| UBA5 | 0.333582 | 0.007511 |
| MYLK4 | 0.333692 | 0.003103 |
| TESK2 | 0.333881 | 0.000129 |
| CANX | 0.33405 | 0.011731 |
| UBE2D2 | 0.334918 | 0.047195 |
| ATG14 | 0.335345 | 0.002572 |
| CRBN | 0.335661 | 0.001323 |
| MVD | 0.335925 | 0.039361 |
| CRADD | 0.335992 | 8.7E-05 |
| TAX1BP3 | 0.336144 | 0.007029 |
| ITSN1 | 0.33623 | 0.029342 |
| COG8 | 0.337174 | 0.039127 |
| MAST4 | 0.337786 | 0.00011 |
| CYBC1 | 0.338177 | 0.000568 |
| NDUFA7 | 0.338218 | 0.044535 |
| MYO6 | 0.338336 | 0.000591 |
| IKBKG | 0.338381 | 0.005583 |
| ST8SIA4 | 0.338527 | 0.005759 |
| RTN4 | 0.338628 | 0.021167 |
| TSC22D4 | 0.338706 | 0.005154 |
| RAB6A | 0.338821 | 0.008502 |
| ATF7-NPFF | 0.33907 | 0.024286 |
| HACE1 | 0.339226 | 0.002401 |
| UGP2 | 0.339239 | 0.005085 |
| DPYSL2 | 0.339403 | 0.002041 |
| AUP1 | 0.339497 | 0.005254 |
| EEF1B2 | 0.339563 | 0.003693 |

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|---|---|---|
| CHSY1 | 0.339603 | 0.024417 |
| C8orf82 | 0.339963 | 0.004175 |
| RAB22A | 0.340784 | 0.00122 |
| P3H1 | 0.340966 | 0.02055 |
| RP2 | 0.341516 | 0.000245 |
| ULK3 | 0.341685 | 0.027726 |
| PNMA5 | 0.34213 | 0.000191 |
| CS | 0.342768 | 0.020476 |
| COPG1 | 0.342921 | 0.001651 |
| SERPINB6 | 0.343295 | 0.002043 |
| PALS1 | 0.343799 | 0.004816 |
| ARHGAP12 | 0.343922 | 0.003473 |
| HGS | 0.344064 | 0.000195 |
| MAPKAP1 | 0.34451 | 0.038699 |
| GXYLT1 | 0.344586 | 0.010954 |
| TNFAIP6 | 0.344753 | 0.020026 |
| CPT1B | 0.344765 | 0.026915 |
| FTSJ1 | 0.344978 | 0.01813 |
| GOLM2 | 0.345078 | 9.32E-07 |
| PPP1R9A | 0.345358 | 1.98E-05 |
| NRCAM | 0.345569 | 0.023191 |
| ZSWIM8 | 0.345676 | 0.024559 |
| COG1 | 0.345689 | 7.69E-05 |
| STK11 | 0.345694 | 0.00226 |
| SLC25A17 | 0.346273 | 0.031872 |
| TNFRSF13C | 0.346455 | 0.019745 |
| DPM1 | 0.346499 | 0.000879 |
| STK26 | 0.34687 | 0.009845 |

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|---|---|---|
| C6orf136 | 0.347458 | 5.18E-05 |
| BSCL2 | 0.347496 | 0.006811 |
| FCGR2A | 0.347624 | 0.027763 |
| HECTD4 | 0.347778 | 0.043841 |
| SLC30A1 | 0.348118 | 6.56E-05 |
| PIK3C2A | 0.3484 | 0.017369 |
| ARFGAP2 | 0.349216 | 0.019194 |
| DMXL1 | 0.349471 | 0.00862 |
| TSPAN4 | 0.350226 | 0.022457 |
| IMPA1 | 0.350455 | 9.37E-05 |
| TENT5C | 0.350688 | 0.000374 |
| AGT | 0.350692 | 0.010072 |
| EMC7 | 0.350992 | 0.000998 |
| HMGCL | 0.351107 | 0.007918 |
| PIGA | 0.351389 | 0.001389 |
| EBP | 0.35187 | 0.012823 |
| AKR7A2 | 0.351881 | 0.003712 |
| LRRC59 | 0.352089 | 0.015843 |
| DNAJB11 | 0.352486 | 1.62E-06 |
| MYF6 | 0.352524 | 4.16E-05 |
| TMEM168 | 0.352626 | 0.004173 |
| MTHFS | 0.353027 | 0.021164 |
| ARL5A | 0.353765 | 5.29E-05 |
| PCCA | 0.353804 | 0.050767 |
| TUBGCP3 | 0.353942 | 0.003419 |
| HRAS | 0.35414 | 0.003949 |
| ST3GAL4 | 0.354914 | 0.032072 |
| TBC1D13 | 0.355392 | 0.038519 |

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|---|---|---|
| HSPA5 | 0.355477 | 0.002744 |
| ITGB1BP1 | 0.355823 | 0.038709 |
| RAB11FIP4 | 0.356472 | 0.000456 |
| MCOLN1 | 0.356654 | 0.004515 |
| AAK1 | 0.356739 | 0.014495 |
| ANKIB1 | 0.357103 | 0.000391 |
| CBWD2 | 0.357336 | 0.014789 |
| ITSN2 | 0.357406 | 0.027777 |
| PORCN | 0.35751 | 0.048954 |
| TMEM245 | 0.357608 | 0.009989 |
| TARS3 | 0.35765 | 0.000302 |
| FKBP9 | 0.35816 | 0.016128 |
| CEPT1 | 0.358258 | 0.020631 |
| GDE1 | 0.358271 | 0.002131 |
| ANKRD40 | 0.358361 | 0.003869 |
| C21orf91 | 0.358436 | 0.004478 |
| CHST11 | 0.358449 | 0.018154 |
| ANKMY2 | 0.358899 | 0.00275 |
| UBXN2A | 0.35903 | 0.040503 |
| PELI1 | 0.359231 | 0.045995 |
| CHMP1B | 0.359349 | 0.002475 |
| DNM2 | 0.359916 | 0.001143 |
| LTBP3 | 0.360047 | 0.001079 |
| PPFIA1 | 0.360095 | 0.001343 |
| DSG1 | 0.360108 | 0.029843 |
| PRKAR1B | 0.360193 | 0.022986 |
| BID | 0.360377 | 4.7E-06 |
| SCAMP2 | 0.361385 | 0.031278 |

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|---|---|---|
| TRAC | 0.361584 | 0.019706 |
| DHX29 | 0.361671 | 0.001411 |
| GNB4 | 0.362087 | 0.00051 |
| JOSD1 | 0.362135 | 0.000133 |
| SCAMP1 | 0.362435 | 0.000467 |
| CES1 | 0.362742 | 0.04458 |
| PRKAG1 | 0.362821 | 0.000398 |
| TMED10 | 0.362929 | 0.004614 |
| ZFYVE19 | 0.363415 | 0.002856 |
| INPPL1 | 0.363662 | 0.00033 |
| POC1B-GALNT4 | 0.363754 | 0.004027 |
| FUT8 | 0.363968 | 0.000831 |
| KIF20B | 0.363969 | 0.016867 |
| TMEM33 | 0.364279 | 0.020542 |
| GMPPB | 0.364618 | 0.001207 |
| GLS | 0.365427 | 0.001653 |
| PCMT1 | 0.365509 | 0.009363 |
| STX17 | 0.36574 | 0.036701 |
| HLA-DRB3 | 0.36579 | 0.042642 |
| EXOC4 | 0.365858 | 0.001318 |
| CCSER2 | 0.365948 | 1.62E-05 |
| CYB561A3 | 0.365993 | 0.036712 |
| RABGEF1 | 0.366122 | 0.001285 |
| SCYL1 | 0.366196 | 0.000502 |
| SERPINB9 | 0.366596 | 0.002637 |
| NPEPPS | 0.366868 | 0.013169 |
| SPRYD7 | 0.366996 | 0.00506 |
| CASP9 | 0.367132 | 0.030588 |

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|---|---|---|
| TMC6 | 0.36714 | 0.011746 |
| BCAP29 | 0.367314 | 0.000574 |
| SPCS2 | 0.367474 | 0.00424 |
| CHMP2B | 0.367566 | 0.012972 |
| AARS1 | 0.36769 | 0.017567 |
| HDAC6 | 0.367836 | 5.55E-05 |
| PDK3 | 0.368342 | 0.000788 |
| PPP2R2D | 0.368863 | 0.000957 |
| SOD1 | 0.369061 | 4.9E-05 |
| HIF1AN | 0.369341 | 0.011323 |
| METAP1 | 0.369714 | 0.001477 |
| PDIA3 | 0.369884 | 0.019587 |
| ARFGEF2 | 0.370038 | 0.001275 |
| ACP1 | 0.370269 | 0.045096 |
| DERL2 | 0.370662 | 0.00307 |
| PDZD8 | 0.370727 | 0.000808 |
| HSD17B12 | 0.370798 | 0.001624 |
| LTK | 0.371014 | 6.74E-05 |
| METTL6 | 0.371106 | 0.009838 |
| XPNPEP1 | 0.371984 | 0.003458 |
| TMEM258 | 0.37225 | 0.01098 |
| LPIN2 | 0.372385 | 0.005752 |
| AXIN1 | 0.372737 | 0.007965 |
| ATXN3L | 0.373007 | 0.000269 |
| RMDN3 | 0.373251 | 0.039538 |
| SLC9A3R1 | 0.37326 | 0.010456 |
| F10 | 0.373518 | 0.004855 |
| ZFAND1 | 0.373787 | 0.005064 |

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|---|---|---|
| SLC25A15 | 0.373792 | 0.005301 |
| ITFG1 | 0.374374 | 0.00866 |
| TRPM4 | 0.374608 | 9.31E-06 |
| EMC8 | 0.374826 | 0.000606 |
| ZDHHC20 | 0.374963 | 0.012706 |
| UBE2H | 0.37517 | 1.18E-07 |
| PELI2 | 0.375232 | 0.00727 |
| HM13 | 0.37543 | 0.000314 |
| ATP6V0D1 | 0.375627 | 9.98E-07 |
| GRB2 | 0.375657 | 0.008825 |
| AOC1 | 0.375854 | 0.003457 |
| YARS1 | 0.37624 | 0.004669 |
| SUCO | 0.376243 | 0.008388 |
| IGHV5-51 | 0.376522 | 0.000318 |
| CIB1 | 0.376957 | 5.88E-05 |
| MTMR9 | 0.377085 | 0.008977 |
| NHEJ1 | 0.377189 | 6.67E-05 |
| FAM20B | 0.377279 | 0.00035 |
| C7 | 0.377358 | 6.44E-05 |
| UBE2O | 0.377666 | 0.000102 |
| SCRN3 | 0.378037 | 0.030017 |
| MED26 | 0.378478 | 0.016494 |
| CLGN | 0.378546 | 0.040139 |
| FAM91A1 | 0.37865 | 0.004296 |
| ACD | 0.378908 | 0.004948 |
| TBC1D15 | 0.378909 | 0.000765 |
| ZDHHC24 | 0.379205 | 0.001077 |
| MIB1 | 0.379209 | 0.019861 |

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|---|---|---|
| MEAK7 | 0.379688 | 0.011953 |
| EXOC8 | 0.379857 | 0.003936 |
| NUDT10 | 0.380075 | 0.017445 |
| TPP2 | 0.380571 | 3.76E-06 |
| PPP3CC | 0.381479 | 0.009796 |
| GOLGA1 | 0.382146 | 0.013103 |
| RAB32 | 0.382598 | 0.001716 |
| TFG | 0.382927 | 0.013909 |
| MPPED2 | 0.382942 | 0.00055 |
| SGMS1 | 0.383037 | 0.025414 |
| CCDC69 | 0.383114 | 0.037013 |
| ZDHHC2 | 0.383253 | 0.000463 |
| PRSS1 | 0.38394 | 0.001028 |
| CCDC91 | 0.384101 | 0.01493 |
| TOR1AIP1 | 0.384195 | 0.015628 |
| KRT6A | 0.384866 | 0.013538 |
| C5orf51 | 0.385657 | 8.52E-05 |
| RETREG1 | 0.385804 | 0.017922 |
| ARL6 | 0.385897 | 0.011497 |
| ACTN1 | 0.386224 | 0.000466 |
| CAPNS1 | 0.38652 | 0.001377 |
| SDHAF4 | 0.386989 | 1.7E-05 |
| SHARPIN | 0.387139 | 0.003059 |
| IDH2 | 0.387287 | 0.020575 |
| RAPGEF2 | 0.387399 | 0.015741 |
| PPP1R3D | 0.388012 | 0.046254 |
| CALML5 | 0.388132 | 0.02834 |
| SEC22B | 0.388289 | 8.82E-05 |

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|---|---|---|
| TUBA4B | 0.38837 | 0.015676 |
| KATNBL1 | 0.388388 | 0.028068 |
| NKIRAS2 | 0.389043 | 0.001658 |
| SSH1 | 0.389115 | 0.003333 |
| RWDD2B | 0.389522 | 0.008598 |
| PROC | 0.389611 | 0.048189 |
| DIAPH1 | 0.389883 | 0.012492 |
| HAGH | 0.389896 | 0.002588 |
| FAM120B | 0.389912 | 2.2E-06 |
| FBXL19 | 0.390106 | 0.01239 |
| CCDC167 | 0.390473 | 0.003714 |
| ACO1 | 0.390699 | 0.042269 |
| ZFPL1 | 0.390864 | 1.22E-05 |
| ABCB1 | 0.391751 | 0.033018 |
| TMX3 | 0.391884 | 0.016769 |
| PIP4K2B | 0.392142 | 2.28E-06 |
| CLTC | 0.39246 | 0.000329 |
| PPP1R37 | 0.392571 | 0.00185 |
| PTPA | 0.392858 | 0.001787 |
| SCAMP4 | 0.392874 | 0.008832 |
| FBXO40 | 0.393102 | 0.000173 |
| LANCL2 | 0.393125 | 0.00259 |
| SLC16A3 | 0.393323 | 0.00241 |
| CRACR2A | 0.393385 | 0.049072 |
| ABHD17A | 0.393393 | 0.00381 |
| SH3GLB1 | 0.393669 | 0.000185 |
| PON1 | 0.393751 | 0.023864 |
| F9 | 0.39465 | 0.003946 |

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|---|---|---|
| ABCC5 | 0.394925 | 0.004146 |
| TUBGCP4 | 0.395172 | 0.006077 |
| CLCC1 | 0.396296 | 0.00695 |
| CDC42 | 0.396363 | 5.03E-05 |
| FKBP14 | 0.396417 | 0.001092 |
| ALG5 | 0.396629 | 5.76E-05 |
| EMC1 | 0.396678 | 0.001469 |
| GOPC | 0.396679 | 0.001199 |
| ANGEL1 | 0.396766 | 0.002327 |
| OGFOD3 | 0.396781 | 0.002242 |
| MAP2K2 | 0.397179 | 0.001612 |
| TWF1 | 0.3973 | 0.001217 |
| NUDT3 | 0.397464 | 0.001312 |
| SLC39A7 | 0.397869 | 0.001185 |
| DNAJC3 | 0.397912 | 0.002563 |
| GOSR2 | 0.397925 | 0.021079 |
| KRT80 | 0.397972 | 0.012515 |
| TBK1 | 0.397977 | 0.003878 |
| ZNF852 | 0.399444 | 0.031468 |
| SIMC1 | 0.399918 | 0.004612 |

Supp Table 3. the list of these significant DEPs in the comparison of PBD and PBR.

| Gene Name | fold | fdr |
|---|---|---|
| ZNF207 | -0.33417 | 0.108241 |
| SYNCRIP | -0.15666 | 0.115507 |
| HMGA1 | -0.07651 | 0.29323 |
| HNRNPU | -0.04629 | 0.0109 |
| HMGN3 | -0.0254 | 0.403896 |

| | | |
|---|---|---|
| RPL26 | 0.010566 | 0.002249 |
| COA6 | 0.017063 | 0.247325 |
| COA5 | 0.032693 | 0.081453 |
| IER2 | 0.036752 | 0.145685 |
| PTBP1 | 0.05929 | 0.093762 |
| CHCHD2 | 0.070926 | 0.012985 |
| HNRNPCL1 | 0.073606 | 0.445348 |
| ANP32E | 0.084514 | 0.07018 |
| POLR2M | 0.089577 | 0.103175 |
| LSM14B | 0.090108 | 0.003276 |
| COX7C | 0.112197 | 0.247085 |
| NHP2 | 0.122275 | 0.002489 |
| UBE2E2 | 0.131208 | 0.002501 |
| TAF1C | 0.131837 | 0.004401 |
| DTL | 0.13529 | 0.002915 |
| DPPA4 | 0.139626 | 0.426405 |
| HNRNPU | 0.155074 | 0.017195 |
| REV1 | 0.158636 | 0.035141 |
| HNRNPA1 | 0.159854 | 0.025751 |
| UBE2E3 | 0.161065 | 0.008268 |
| SLCO4C1 | 0.162619 | 0.018193 |
| C18orf25 | 0.165155 | 0.129967 |
| TYROBP | 0.169224 | 0.020455 |
| EXO1 | 0.170249 | 0.111317 |
| RBM10 | 0.173843 | 0.016521 |
| ZNF813 | 0.176251 | 0.023954 |
| RPL37A | 0.178646 | 0.021633 |
| ZNF765 | 0.181698 | 0.072951 |

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|---|---|---|
| ZNF740 | 0.182251 | 0.208832 |
| CD1A | 0.184835 | 0.225223 |
| YAF2 | 0.1897 | 0.074575 |
| HMGA1 | 0.189957 | 0.472691 |
| SS18L2 | 0.190922 | 0.09465 |
| DDX46 | 0.20077 | 0.014454 |
| KCTD15 | 0.202745 | 0.117648 |
| RBM26 | 0.202762 | 0.007495 |
| NUMA1 | 0.202845 | 0.038534 |
| BEND5 | 0.204127 | 0.321702 |
| SET | 0.208548 | 0.04494 |
| MSRB1 | 0.209605 | 0.063919 |
| PLIN2 | 0.210863 | 0.413177 |
| CDCA5 | 0.211496 | 0.032926 |
| NASP | 0.212667 | 0.047188 |
| GRAMD1C | 0.213707 | 0.000263 |
| TMEM126B | 0.216075 | 0.036039 |
| PHF6 | 0.216972 | 0.00243 |
| HNRNPD | 0.217508 | 0.01036 |
| HMGN4 | 0.220278 | 0.444872 |
| RPGRIP1L | 0.2243 | 0.261932 |
| HNRNPL | 0.228564 | 0.036921 |
| SBNO1 | 0.229223 | 0.01726 |
| NEFH | 0.233507 | 0.050182 |
| HLA-DPB1 | 0.234429 | 0.367117 |
| HLA-DRB5 | 0.240275 | 0.19951 |
| TIMM17B | 0.240711 | 0.054 |
| SLC35F6 | 0.24314 | 0.004257 |

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|---|---|---|
| GAR1 | 0.243341 | 0.001916 |
| PADI3 | 0.246162 | 0.50974 |
| YBX1 | 0.25138 | 0.01014 |
| MTF1 | 0.263493 | 0.270516 |
| TRIR | 0.265458 | 0.022748 |
| CNBP | 0.26662 | 0.062584 |
| ARHGAP27 | 0.271444 | 0.213741 |
| FBXO5 | 0.272036 | 0.268472 |
| UBE2E1 | 0.272252 | 0.002679 |
| MAP7 | 0.27243 | 0.541415 |
| ZC3H13 | 0.27531 | 0.00241 |
| BASP1 | 0.275347 | 0.837896 |
| CD1C | 0.277119 | 0.086893 |
| ZNF281 | 0.278283 | 0.028922 |
| TEX30 | 0.281454 | 0.005898 |
| TPPP3 | 0.282625 | 0.008059 |
| HMGN1 | 0.286024 | 0.301166 |
| ABCF1 | 0.29021 | 0.304285 |
| ZFX | 0.290575 | 0.385388 |
| SF3B2 | 0.29231 | 0.018027 |
| MARCKSL1 | 0.293113 | 0.131782 |
| CDK2AP1 | 0.297028 | 0.007648 |
| DBF4 | 0.298109 | 0.006396 |
| CLEC2B | 0.30251 | 0.278986 |
| SEC61G | 0.304492 | 0.123227 |
| ZNF787 | 0.305551 | 0.008959 |
| FLNB | 0.306329 | 0.539405 |
| C18orf21 | 0.30776 | 0.009377 |

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|---|---|---|
| LMNA | 0.309478 | 0.908595 |
| HNRNPD | 0.309998 | 0.043004 |
| ZIK1 | 0.311629 | 0.04964 |
| PTBP1 | 0.312374 | 0.048132 |
| FBLL1 | 0.312463 | 0.00844 |
| MATR3 | 0.312867 | 0.027353 |
| RBPMS | 0.312879 | 0.006902 |
| OR4K3 | 0.313445 | 0.019963 |
| ZCRB1 | 0.313484 | 0.000315 |
| TCTN3 | 0.31476 | 3.03E-05 |
| FAM219A | 0.317145 | 0.127827 |
| AMMECR1L | 0.32108 | 0.000127 |
| NSUN3 | 0.321474 | 0.07164 |
| HVCN1 | 0.32245 | 0.043484 |
| ZC3H14 | 0.323807 | 0.011743 |
| SF1 | 0.323893 | 0.254826 |
| IFT80 | 0.324621 | 0.018296 |
| POLR3K | 0.325152 | 0.019363 |
| FARP1 | 0.328158 | 0.527966 |
| SPTLC3 | 0.330724 | 0.026444 |
| NA | 0.330728 | 0.465425 |
| DDX42 | 0.331977 | 0.228743 |
| ADGRG3 | 0.33218 | 0.100618 |
| S100PBP | 0.332569 | 0.103419 |
| HCK | 0.332914 | 0.089215 |
| PRR15 | 0.332922 | 0.090456 |
| CENPV | 0.335605 | 0.130149 |
| RPL29 | 0.338099 | 0.007432 |

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|---|---|---|
| TGIF1 | 0.338146 | 0.141316 |
| ADAMTSL4 | 0.342436 | 0.253679 |
| HNRNPC | 0.343666 | 0.09607 |
| INO80B | 0.344292 | 0.003925 |
| TCOF1 | 0.345488 | 0.079097 |
| RPL34 | 0.3493 | 0.005652 |
| ZBED3 | 0.349542 | 0.03491 |
| UBAP2L | 0.350726 | 0.137236 |
| ARHGAP25 | 0.350873 | 0.007498 |
| SOX11 | 0.351071 | 0.563911 |
| SF1 | 0.35193 | 0.001926 |
| ZNF207 | 0.352321 | 0.251125 |
| H3-3B | 0.352955 | 0.251703 |
| H1-4 | 0.355415 | 0.549324 |
| CD200 | 0.355484 | 0.222528 |
| GANAB | 0.356922 | 0.082132 |
| KIF18A | 0.356927 | 0.016967 |
| RSL1D1 | 0.357221 | 0.008268 |
| SINHCAF | 0.35789 | 0.031004 |
| YBX3 | 0.358804 | 0.014624 |
| TRERF1 | 0.359 | 0.04215 |
| FIP1L1 | 0.361981 | 0.018093 |
| ERH | 0.36228 | 0.022839 |
| TKTL1 | 0.362937 | 0.851437 |
| COX17 | 0.363688 | 0.115247 |
| CMC1 | 0.36376 | 0.249577 |
| PYCARD | 0.36503 | 0.081306 |
| RPL28 | 0.366624 | 0.005012 |

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|---|---|---|
| LY86 | 0.36795 | 0.084643 |
| POLR3GL | 0.36801 | 0.079167 |
| SMIM11A | 0.368186 | 0.089958 |
| ZFP91 | 0.368601 | 0.006588 |
| H2AJ | 0.369531 | 0.546588 |
| HLA-DQB1 | 0.370397 | 0.727314 |
| MAPK4 | 0.370897 | 0.57548 |
| HPGD | 0.371183 | 0.108069 |
| NEMP1 | 0.371992 | 0.00784 |
| UBR5 | 0.372817 | 0.002611 |
| LIG1 | 0.373145 | 0.027061 |
| HMGN2 | 0.373971 | 0.38233 |
| TCEAL4 | 0.374399 | 0.00232 |
| NDC1 | 0.374857 | 0.000269 |
| NASP | 0.375322 | 0.00655 |
| SMNDC1 | 0.375424 | 0.008808 |
| IGLL1 | 0.37548 | 0.068867 |
| DACH1 | 0.375965 | 0.192872 |
| RBKS | 0.377992 | 0.009626 |
| MCM9 | 0.378898 | 0.018043 |
| INTS14 | 0.379574 | 0.000417 |
| POU2F2 | 0.379585 | 0.010615 |
| AK5 | 0.380402 | 0.089155 |
| C6orf62 | 0.38082 | 0.111834 |
| ZBED6 | 0.381685 | 0.210185 |
| NTHL1 | 0.382057 | 0.060118 |
| RREB1 | 0.382457 | 0.227483 |
| TRH | 0.383674 | 0.781712 |

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|---|---|---|
| METAP2 | 0.383997 | 0.003893 |
| RBMXL1 | 0.384067 | 0.007061 |
| TOX4 | 0.384819 | 0.003992 |
| PRTN3 | 0.385146 | 0.080413 |
| HMGN5 | 0.386791 | 0.062052 |
| CHTF8 | 0.387217 | 0.032431 |
| SLC25A22 | 0.387231 | 0.015404 |
| ZMAT3 | 0.387378 | 0.083939 |
| ZCCHC4 | 0.387691 | 0.000522 |
| BCDIN3D | 0.387759 | 0.024026 |
| ROMO1 | 0.388201 | 0.029609 |
| STMN2 | 0.392984 | 0.001059 |
| ZNHIT3 | 0.393794 | 0.282219 |
| TMEM39A | 0.394277 | 0.001468 |
| NSUN5 | 0.394785 | 0.005787 |
| SLC27A6 | 0.395654 | 0.041936 |
| C5AR1 | 0.396485 | 0.029139 |
| CFP | 0.396973 | 0.151151 |
| RBBP4 | 0.399427 | 0.014685 |
| CRABP1 | 0.399442 | 0.49408 |
| HNRNPM | 0.403345 | 0.003128 |
| SLC1A3 | 0.403518 | 0.022507 |
| SLC36A1 | 0.404463 | 0.032558 |
| TAF9 | 0.404954 | 0.023641 |
| CLK1 | 0.405643 | 0.012028 |
| PHLPP2 | 0.406155 | 0.40495 |
| SNRNP35 | 0.406493 | 0.001485 |
| AKAP13 | 0.406509 | 0.115921 |

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|---|---|---|
| SLC15A3 | 0.407021 | 0.018412 |
| ING4 | 0.407264 | 0.325176 |
| BPIFA3 | 0.407824 | 0.021559 |
| SP1 | 0.408131 | 0.39249 |
| MED27 | 0.408278 | 0.01521 |
| TRIM33 | 0.4086 | 0.156642 |
| PRG3 | 0.40861 | 0.063722 |
| NA | 0.40924 | 0.010599 |
| TK1 | 0.409784 | 0.00079 |
| FCGR3B | 0.409813 | 0.230827 |
| H3C13 | 0.410066 | 0.401595 |
| P2RY8 | 0.410173 | 0.132577 |
| RPL24 | 0.410704 | 0.004126 |
| RPL32 | 0.411447 | 0.005983 |
| SNX10 | 0.411506 | 0.006133 |
| ARL6IP6 | 0.41375 | 0.351693 |
| H3-2 | 0.414802 | 0.727742 |
| YY1 | 0.416231 | 0.185659 |
| MEGF6 | 0.416332 | 0.210865 |
| MMACHC | 0.416456 | 0.055366 |
| SAAL1 | 0.416497 | 0.004762 |
| RPL35 | 0.417069 | 0.002437 |
| PPP4R2 | 0.417077 | 0.010142 |
| DPYSL3 | 0.418003 | 0.048931 |
| FNBP1 | 0.418405 | 0.052973 |
| ELK3 | 0.418991 | 0.011664 |
| CPS1 | 0.419107 | 0.399276 |
| MGST1 | 0.419283 | 0.007121 |

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|---|---|---|
| RPL18A | 0.419502 | 0.008325 |
| C1orf174 | 0.420768 | 0.034348 |
| SAP18 | 0.420769 | 0.038899 |
| RPN2 | 0.421061 | 0.114704 |
| RPLP1 | 0.421409 | 0.003155 |
| MYBBP1A | 0.421516 | 0.003575 |
| PDS5B | 0.421858 | 0.066783 |
| RNASEH2B | 0.42187 | 0.000635 |
| POLD3 | 0.421903 | 0.007108 |
| ELF1 | 0.422188 | 0.008133 |
| H4C6 | 0.422839 | 0.466731 |
| BUD31 | 0.423104 | 0.004366 |
| ZNF22 | 0.423229 | 0.284187 |
| SAAL1 | 0.423458 | 0.010856 |
| SRSF8 | 0.42363 | 0.113132 |
| RPL15 | 0.423925 | 0.001148 |
| ZNF346 | 0.424188 | 0.016986 |
| VEZF1 | 0.424862 | 0.702061 |
| ATPSCKMT | 0.425465 | 0.070127 |
| MORF4L2 | 0.425538 | 0.008893 |
| RTN4R | 0.425732 | 0.010179 |
| EEF1A1 | 0.426004 | 0.087206 |
| RANBP3 | 0.426452 | 0.082313 |
| SCD5 | 0.426519 | 0.157184 |
| SMIM24 | 0.426787 | 0.008594 |
| ATXN7L3B | 0.427336 | 0.004298 |
| RPS9 | 0.427979 | 0.000481 |
| LSM10 | 0.428947 | 0.002809 |

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|---|---|---|
| RCL1 | 0.429442 | 0.005531 |
| HLA-DOB | 0.429848 | 0.01145 |
| PPP4R3A | 0.431213 | 0.000214 |
| NKAPD1 | 0.431318 | 0.010374 |
| BCKDHB | 0.432021 | 0.015079 |
| RRP15 | 0.432724 | 0.019815 |
| TSPO | 0.432976 | 0.048868 |
| TRAF3IP2 | 0.433087 | 0.149276 |
| RBM26 | 0.433639 | 0.001041 |
| RANBP3 | 0.434002 | 0.356008 |
| CRIP2 | 0.434226 | 0.125851 |
| TCEAL3 | 0.434569 | 0.009843 |
| PIKFYVE | 0.434748 | 0.063597 |
| WDR4 | 0.435111 | 0.001171 |
| MAMDC2 | 0.435498 | 0.006534 |
| UBTF | 0.435523 | 0.118471 |
| LPCAT2 | 0.436465 | 0.000417 |
| HSF2 | 0.437154 | 0.007934 |
| WAPL | 0.437685 | 0.00604 |
| SLAIN1 | 0.437798 | 0.167824 |
| SLC25A19 | 0.438184 | 0.019653 |
| PRICKLE1 | 0.440184 | 0.691354 |
| MKKS | 0.44043 | 0.02943 |
| FUS | 0.441248 | 0.012325 |
| PRMT6 | 0.441336 | 0.001774 |
| XRCC4 | 0.441581 | 0.038579 |
| STAP1 | 0.441888 | 0.014246 |
| AAAS | 0.442347 | 0.000514 |

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|---|---|---|
| LUC7L3 | 0.443762 | 0.01111 |
| NOP58 | 0.443778 | 0.026616 |
| XRCC6 | 0.44414 | 0.002231 |
| FAM111B | 0.44446 | 0.05142 |
| IGF2BP1 | 0.444678 | 0.003352 |
| EEPD1 | 0.444834 | 0.002195 |
| FBL | 0.445005 | 0.039233 |
| EXOSC3 | 0.44534 | 0.001047 |
| TACSTD2 | 0.445514 | 0.347935 |
| ZFP36L2 | 0.445553 | 0.003675 |
| SURF6 | 0.446233 | 0.008457 |
| PKNOX1 | 0.446382 | 0.085272 |
| CDKN2AIP | 0.446404 | 0.004593 |
| U2AF1 | 0.446442 | 0.005236 |
| UTP23 | 0.446536 | 0.008886 |
| SCML2 | 0.446926 | 0.018053 |
| DPY19L4 | 0.447093 | 0.001207 |
| CWC15 | 0.447228 | 0.026993 |
| RPL27A | 0.447577 | 0.003693 |
| DGKZ | 0.44778 | 0.181582 |
| VPREB1 | 0.448542 | 0.674097 |
| NAA15 | 0.450358 | 0.05468 |
| TLE5 | 0.45164 | 0.067359 |
| GLIPR1 | 0.451899 | 0.281517 |
| TLE4 | 0.452566 | 0.000831 |
| PRR3 | 0.452612 | 0.012845 |
| NOL9 | 0.452914 | 0.010259 |
| PARP1 | 0.453021 | 0.062191 |

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| FAU | 0.453243 | 0.030312 |
| ALAS1 | 0.453675 | 0.010792 |
| PCBP2 | 0.453697 | 0.113917 |
| GTF2F1 | 0.453794 | 0.018422 |
| POLR1B | 0.453935 | 0.000274 |
| MSH6 | 0.454149 | 0.000421 |
| NFIX | 0.454477 | 0.169249 |
| CSTF3 | 0.454692 | 0.000804 |
| DTWD1 | 0.455044 | 0.00068 |
| SAP30L | 0.455406 | 0.070492 |
| TNFRSF8 | 0.455581 | 0.34105 |
| WDR36 | 0.45584 | 0.001593 |
| POP4 | 0.456192 | 0.000204 |
| ZNF706 | 0.45693 | 0.039221 |
| EPN3 | 0.457243 | 0.476798 |
| IGHA2 | 0.457329 | 0.980836 |
| IRF2BP1 | 0.457535 | 0.003803 |
| MED24 | 0.457827 | 0.000729 |
| USP39 | 0.458405 | 0.001376 |
| UQCRH | 0.458545 | 0.344662 |
| TMEM14C | 0.458782 | 0.00294 |
| PDS5A | 0.458927 | 0.01758 |
| NABP2 | 0.45938 | 0.010121 |
| SUPT20H | 0.460298 | 0.006709 |
| CRIPT | 0.460358 | 0.03043 |
| RPP14 | 0.460537 | 0.007441 |
| RPL13 | 0.461081 | 0.004657 |
| DUS3L | 0.461609 | 0.001185 |

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| WSB1 | 0.462166 | 0.148657 |
| PCNA | 0.462404 | 0.00078 |
| POLR2J2 | 0.462429 | 0.001313 |
| MSL3 | 0.462699 | 0.108955 |
| TMEM35B | 0.462732 | 0.001156 |
| PHLPP1 | 0.462782 | 0.002834 |
| EXOSC4 | 0.462809 | 0.000851 |
| CTCF | 0.463033 | 0.309959 |
| DERPC | 0.463538 | 0.02417 |
| CBX2 | 0.463849 | 0.091363 |
| HIRA | 0.463981 | 0.15375 |
| INTS11 | 0.464011 | 0.004696 |
| AMBN | 0.464192 | 0.767697 |
| HOXA10 | 0.464316 | 0.17348 |
| DDX19A | 0.465368 | 0.020258 |
| MED23 | 0.465773 | 0.000619 |
| LYRM2 | 0.465825 | 0.240852 |
| FSCN1 | 0.466023 | 0.002358 |
| MBD1 | 0.466099 | 0.096892 |
| SPINK2 | 0.467061 | 0.066738 |
| RPRD2 | 0.46763 | 0.047867 |
| CTNNBL1 | 0.467757 | 0.003676 |
| IRF7 | 0.468131 | 0.186702 |
| EAPP | 0.46814 | 0.000585 |
| PRKDC | 0.468956 | 0.000431 |
| TRIM33 | 0.469163 | 0.019502 |
| RDH10 | 0.469229 | 0.067995 |
| FUBP1 | 0.469432 | 0.042248 |

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|---|---|---|
| CNRIP1 | 0.469487 | 0.03148 |
| MMP8 | 0.469883 | 0.439505 |
| LCN2 | 0.469906 | 0.439929 |
| RPS13 | 0.470287 | 0.001457 |
| RPL35A | 0.470921 | 0.013883 |
| MED7 | 0.471097 | 0.138551 |
| CEP55 | 0.471113 | 0.001161 |
| PTMA | 0.471217 | 0.044439 |
| MED8 | 0.471544 | 0.011059 |
| ZNRF1 | 0.471565 | 0.146486 |
| ZNF69 | 0.472156 | 0.016461 |
| ANPEP | 0.472395 | 0.113467 |
| RPL38 | 0.472621 | 0.001381 |
| CMBL | 0.472713 | 0.000786 |
| PJA1 | 0.472825 | 0.111148 |
| BRWD3 | 0.472984 | 0.028927 |
| TAF15 | 0.473387 | 0.076488 |
| YBX3 | 0.473756 | 0.084426 |
| HHEX | 0.473825 | 0.041002 |
| SRFBP1 | 0.473876 | 0.003401 |
| COA7 | 0.47404 | 0.021731 |
| SLC25A10 | 0.474539 | 0.228975 |
| FAM76A | 0.474598 | 0.004197 |
| SUPT3H | 0.474763 | 0.000871 |
| BRIX1 | 0.474781 | 0.000884 |
| RTF2 | 0.475027 | 0.005779 |
| DYNC2I2 | 0.475385 | 0.015199 |
| TCN1 | 0.475688 | 0.117757 |

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| HNRNPA0 | 0.477213 | 0.015019 |
| NOP2 | 0.477434 | 0.016908 |
| FYTTD1 | 0.477518 | 0.021648 |
| P2RY13 | 0.477806 | 0.059794 |
| ZNF276 | 0.478004 | 0.068948 |
| ADA | 0.478125 | 0.02962 |
| RRN3 | 0.478342 | 0.001566 |
| METTL1 | 0.478889 | 0.000102 |
| NOP56 | 0.478989 | 0.021845 |
| SERF2 | 0.478999 | 0.099201 |
| LUC7L | 0.479423 | 0.000751 |
| ZCCHC7 | 0.479543 | 0.16162 |
| KIT | 0.47973 | 0.044029 |
| DDX18 | 0.479807 | 0.010846 |
| WRNIP1 | 0.480506 | 0.001736 |
| SLC1A4 | 0.480517 | 0.009769 |
| RBM14 | 0.480546 | 0.031253 |
| RNASEH2A | 0.481101 | 0.000676 |
| B3GALNT1 | 0.481511 | 0.174809 |
| POLDIP3 | 0.481524 | 0.007342 |
| MT-ND1 | 0.481663 | 0.401069 |
| TIMM8B | 0.481835 | 0.025023 |
| PNO1 | 0.482581 | 0.662659 |
| RPL21 | 0.482918 | 0.001714 |
| IFI16 | 0.483006 | 0.127975 |
| CALHM2 | 0.483168 | 0.344292 |
| ZNF512 | 0.483644 | 0.360478 |
| GTF3C3 | 0.483709 | 0.003665 |

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|---|---|---|
| PRPF38B | 0.484012 | 0.028047 |
| SCARB1 | 0.484944 | 0.019216 |
| THOC2 | 0.485179 | 0.015247 |
| TCF4 | 0.485238 | 0.018208 |
| STAG2 | 0.485281 | 0.041489 |
| ZNF93 | 0.485472 | 0.017439 |
| WDR70 | 0.485503 | 0.005726 |
| RPL31 | 0.485523 | 0.00349 |
| FBRSL1 | 0.485582 | 0.059646 |
| RCSD1 | 0.485882 | 0.030019 |
| UTP11 | 0.486205 | 0.010218 |
| SAP30 | 0.486838 | 0.014017 |
| C2CD3 | 0.487049 | 0.042569 |
| THOC7 | 0.48724 | 0.009776 |
| FNBP4 | 0.487257 | 0.012348 |
| PRIM2 | 0.487627 | 0.000424 |
| EBNA1BP2 | 0.487634 | 0.017422 |
| OLFM4 | 0.487739 | 0.643242 |
| TSC22D3 | 0.488218 | 0.069011 |
| POLR1F | 0.488273 | 0.015056 |
| TMEM201 | 0.488699 | 0.229023 |
| CMSS1 | 0.48882 | 0.053925 |
| MCM7 | 0.488947 | 0.002273 |
| NELFB | 0.489122 | 0.000241 |
| DNTT | 0.489134 | 0.11039 |
| TIMM23B-AGAP6 | 0.489273 | 0.233254 |
| RRP1B | 0.489311 | 0.014622 |

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|---|---|---|
| C19orf38 | 0.489319 | 0.125994 |
| RPP30 | 0.489339 | 0.000251 |
| RBM22 | 0.489366 | 0.003733 |
| REXO4 | 0.489985 | 0.005793 |
| FABP5 | 0.49029 | 0.044251 |
| EIF1AX | 0.490502 | 0.078022 |
| MIER3 | 0.490661 | 0.012799 |
| RPL36A | 0.491075 | 0.004347 |
| ASB3 | 0.49119 | 0.003595 |
| IGFBP7 | 0.491246 | 0.000365 |
| RPRD1A | 0.491469 | 0.00265 |
| DDX47 | 0.491531 | 0.001358 |
| NBN | 0.49208 | 0.001845 |
| SWI5 | 0.492456 | 0.02292 |
| RMI2 | 0.492478 | 0.000671 |
| LTO1 | 0.492622 | 0.008506 |
| RPL7L1 | 0.492743 | 0.006264 |
| PDS5B | 0.492984 | 0.064823 |
| PHC2 | 0.493287 | 0.004385 |
| GNL3 | 0.49358 | 0.005395 |
| FRG1 | 0.49395 | 0.003481 |
| RBMX | 0.49463 | 0.083551 |
| PSIP1 | 0.494718 | 0.342226 |
| RFX1 | 0.494851 | 0.061383 |
| CDC123 | 0.495106 | 0.00661 |
| SNRPD3 | 0.495281 | 0.000427 |
| H1-2 | 0.495408 | 0.726098 |
| SLC25A23 | 0.495737 | 0.163343 |

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|---|---|---|
| ZNF649 | 0.495942 | 0.018819 |
| RETN | 0.496044 | 0.054583 |
| GINS3 | 0.496296 | 0.000268 |
| SFR1 | 0.496414 | 0.002111 |
| DYNC2LI1 | 0.496745 | 0.002094 |
| TTC17 | 0.497054 | 0.045468 |
| DKC1 | 0.497158 | 0.020633 |
| CCNB1 | 0.49724 | 0.018115 |
| LITAF | 0.497331 | 0.333468 |
| ORC3 | 0.497361 | 0.005231 |
| CSTA | 0.497398 | 0.057639 |
| PPP1R8 | 0.497507 | 0.034563 |
| MIS18A | 0.497624 | 0.003722 |
| SMARCC1 | 0.497727 | 0.044998 |
| GPS2 | 0.498183 | 0.007337 |
| MTFR2 | 0.498467 | 0.076651 |
| TARM1 | 0.498617 | 0.277446 |
| NOC2L | 0.498919 | 0.028969 |
| SMU1 | 0.499061 | 0.005369 |
| TRPT1 | 0.49955 | 0.001348 |
| DIMT1 | 0.499776 | 0.006764 |
| LMNB1 | 0.499892 | 0.43947 |
| CCR1 | 0.50008 | 0.186492 |
| AIMP2 | 0.500211 | 0.00763 |
| SNRPN | 0.500567 | 0.005519 |
| THYN1 | 0.500935 | 0.020377 |
| SNRPD1 | 0.501 | 0.003067 |
| RRAGD | 0.501909 | 0.002259 |

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|---|---|---|
| POLR3G | 0.5021 | 0.017839 |
| ARHGEF40 | 0.502157 | 0.007708 |
| ZNF8 | 0.502188 | 0.026553 |
| CCDC12 | 0.502228 | 0.009828 |
| TMPO | 0.502473 | 0.050421 |
| SRP14 | 0.502496 | 0.005633 |
| FANCI | 0.5025 | 0.003672 |
| MED25 | 0.502581 | 0.000693 |
| GPAT3 | 0.502612 | 0.03788 |
| PRAM1 | 0.502683 | 0.002273 |
| RPP25 | 0.502853 | 0.015934 |
| CCHCR1 | 0.502936 | 0.030842 |
| C5AR2 | 0.503435 | 0.168851 |
| RRAGB | 0.503592 | 0.001442 |
| POP5 | 0.503708 | 0.002469 |
| NOP16 | 0.50381 | 0.008029 |
| CRY2 | 0.503936 | 7.62E-06 |
| ESCO1 | 0.504111 | 0.632459 |
| KDM5A | 0.504218 | 0.143447 |
| KLF16 | 0.504318 | 0.057605 |
| UBA2 | 0.504603 | 0.618028 |
| TRMT1 | 0.504677 | 0.003292 |
| AKAP17A | 0.504677 | 0.006444 |
| GTF3C4 | 0.504753 | 0.008362 |
| TTI2 | 0.504785 | 0.002035 |
| CTC1 | 0.504791 | 0.010683 |
| CEACAM8 | 0.504934 | 0.132035 |
| NOP9 | 0.505579 | 0.000643 |

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|---|---|---|
| HMGB3 | 0.505653 | 0.123372 |
| UTP3 | 0.505784 | 0.014525 |
| RPS11 | 0.506231 | 0.006559 |
| TRIM71 | 0.506328 | 0.005909 |
| PRIM1 | 0.506457 | 0.002184 |
| CEACAM3 | 0.506688 | 0.295521 |
| UCK2 | 0.506913 | 0.000647 |
| BUB3 | 0.506956 | 0.006343 |
| AKAP8L | 0.507113 | 0.005013 |
| POLR2L | 0.50723 | 0.000579 |
| STMN3 | 0.507359 | 0.072435 |
| TRMT6 | 0.507496 | 0.006562 |
| RPP40 | 0.507675 | 0.00627 |
| MTA2 | 0.507921 | 0.015693 |
| NUCKS1 | 0.508258 | 0.097078 |
| TIMELESS | 0.508283 | 0.003278 |
| TMEM38B | 0.508458 | 0.010917 |
| MTREX | 0.508511 | 0.001856 |
| RUFY3 | 0.508659 | 0.009847 |
| KCNN4 | 0.508676 | 0.003897 |
| GPATCH11 | 0.508777 | 0.012221 |
| MSL2 | 0.508848 | 0.256414 |
| RPS16 | 0.508877 | 0.003361 |
| FNTA | 0.508973 | 0.253775 |
| ZNF75A | 0.509105 | 0.588125 |
| WDR89 | 0.509346 | 0.014335 |
| RUNX1 | 0.509415 | 0.032002 |
| ADGRE2 | 0.509606 | 0.086239 |

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|---|---|---|
| MED6 | 0.50963 | 0.029373 |
| UTP6 | 0.50967 | 0.006392 |
| HOMER3 | 0.509999 | 0.035981 |
| THAP11 | 0.510062 | 0.002653 |
| S100A8 | 0.510133 | 0.17679 |
| CEBPZ | 0.510261 | 0.011847 |
| DHFR | 0.510423 | 0.008995 |
| ARID3A | 0.510473 | 0.019309 |
| NCAPD3 | 0.510576 | 0.00092 |
| GABARAP | 0.510682 | 0.057766 |
| NOL6 | 0.510714 | 0.044008 |
| RPS24 | 0.510738 | 0.000493 |
| ARGLU1 | 0.510906 | 0.041781 |
| RRP8 | 0.510918 | 0.014491 |
| PALM | 0.511278 | 0.382084 |
| C8orf33 | 0.511379 | 0.007934 |
| RPL14 | 0.5115 | 0.008753 |
| NGDN | 0.511583 | 0.009817 |
| NSRP1 | 0.512 | 0.019431 |
| URB2 | 0.512032 | 0.010918 |
| DEK | 0.512139 | 0.398582 |
| UNG | 0.512234 | 0.029755 |
| MBNL1 | 0.512356 | 0.011769 |
| RBM28 | 0.512614 | 0.008912 |
| GSTA4 | 0.512625 | 0.1271 |
| SNU13 | 0.512629 | 0.068809 |
| ZNF250 | 0.512649 | 0.170724 |
| ASH2L | 0.512754 | 0.00391 |

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| GPATCH4 | 0.512757 | 0.014702 |
| ZRANB3 | 0.51276 | 0.011357 |
| DONSON | 0.512973 | 0.365061 |
| CACNA2D2 | 0.513035 | 0.46038 |
| ANKRD22 | 0.513237 | 0.003322 |
| SENP6 | 0.513422 | 0.000997 |
| HEATR1 | 0.513635 | 0.010761 |
| CCAR2 | 0.514094 | 0.010688 |
| BBS2 | 0.514114 | 0.003862 |
| WAC | 0.514327 | 0.00174 |
| FCF1 | 0.51466 | 0.023087 |
| LAS1L | 0.514696 | 0.034436 |
| CYGB | 0.514917 | 0.293345 |
| EYA3 | 0.51535 | 0.001797 |
| RTL10 | 0.515599 | 0.154231 |
| PDCD11 | 0.515916 | 0.054015 |
| EWSR1 | 0.516008 | 0.002719 |
| PLK4 | 0.516192 | 0.105614 |
| RSRC2 | 0.516479 | 0.066356 |
| ZC3H4 | 0.516548 | 0.005467 |
| RECQL | 0.516582 | 0.009289 |
| RPL17 | 0.516591 | 0.001242 |
| MSLN | 0.51662 | 0.831618 |
| AFF4 | 0.516702 | 0.037652 |
| RNF114 | 0.516751 | 0.024522 |
| KRT8 | 0.516934 | 0.071905 |
| NONO | 0.517112 | 0.004972 |
| RNF138 | 0.517957 | 0.000805 |

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| RASA4 | 0.517999 | 0.076276 |
| EXOSC5 | 0.51808 | 0.000731 |
| SRP19 | 0.51813 | 0.012233 |
| LEO1 | 0.518482 | 0.015258 |
| FANCG | 0.518516 | 0.031969 |
| PARP2 | 0.518719 | 0.001602 |
| BCL7C | 0.518786 | 0.057897 |
| UNC50 | 0.518821 | 0.005308 |
| TTC12 | 0.518879 | 0.015192 |
| ABCC3 | 0.519016 | 0.003702 |
| PRPF4B | 0.51913 | 0.014882 |
| FAM76B | 0.519234 | 0.009337 |
| DEPDC7 | 0.519458 | 0.060776 |
| ATF2 | 0.519823 | 0.005676 |
| PIAS2 | 0.520177 | 0.005681 |
| WDR5 | 0.520208 | 0.015978 |
| STK17B | 0.520268 | 0.030016 |
| UFD1 | 0.520475 | 0.203968 |
| MTA1 | 0.520844 | 0.00502 |
| RPS19BP1 | 0.521018 | 0.26495 |
| LRIG2 | 0.521104 | 0.004309 |
| GABPB1 | 0.521487 | 0.035425 |
| HDAC1 | 0.521529 | 0.013413 |
| NPR3 | 0.52163 | 0.017952 |
| COX7A2L | 0.521688 | 0.417017 |
| NABP1 | 0.521693 | 0.012953 |
| MT-ATP6 | 0.521917 | 0.183123 |
| H2AZ1 | 0.522034 | 0.2309 |

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| SMARCAL1 | 0.522054 | 0.001203 |
| LRRC28 | 0.52211 | 0.017832 |
| SMIM12 | 0.522171 | 0.0462 |
| RAB7B | 0.522278 | 0.00495 |
| NCBP2 | 0.522329 | 0.036963 |
| TNFAIP8L3 | 0.522579 | 0.238994 |
| PTDSS1 | 0.522589 | 0.011746 |
| HAT1 | 0.522833 | 0.003838 |
| LEPROTL1 | 0.522888 | 0.576905 |
| LY75-CD302 | 0.522897 | 0.010833 |
| INTS12 | 0.523061 | 0.009333 |
| ORC5 | 0.5231 | 0.005184 |
| SYMPK | 0.523219 | 0.000485 |
| DDX31 | 0.523254 | 0.000835 |
| GTSF1 | 0.523278 | 0.04986 |
| NOLC1 | 0.523301 | 0.086847 |
| ANP32B | 0.523385 | 0.001373 |
| C14orf119 | 0.523822 | 0.003036 |
| DERL3 | 0.523826 | 0.006421 |
| TMA7 | 0.52388 | 0.072627 |
| TRIM24 | 0.523969 | 0.000885 |
| DFFA | 0.524036 | 0.058005 |
| KHSRP | 0.524103 | 0.033906 |
| ANXA1 | 0.524144 | 0.014211 |
| BANF1 | 0.524265 | 0.040846 |
| PRCC | 0.5243 | 0.008467 |
| P2RX4 | 0.524313 | 0.045596 |
| MCM5 | 0.524386 | 0.000819 |

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| CLUH | 0.524556 | 0.10681 |
| MET | 0.525155 | 0.232933 |
| MLLT10 | 0.525202 | 0.039544 |
| MCM6 | 0.525274 | 0.000797 |
| MED28 | 0.525294 | 0.076738 |
| COMMD3 | 0.525705 | 0.000473 |
| ATXN7L3 | 0.525764 | 0.011192 |
| DDX55 | 0.526144 | 0.002622 |
| SLU7 | 0.526283 | 0.004897 |
| NUP50 | 0.526554 | 0.004218 |
| DCK | 0.526744 | 0.006221 |
| RRP12 | 0.527011 | 0.002554 |
| KHDRBS1 | 0.527053 | 0.017305 |
| CDK6 | 0.527157 | 0.008675 |
| C1orf35 | 0.527324 | 0.006633 |
| RPUSD4 | 0.527611 | 0.089807 |
| ZDHHC13 | 0.527726 | 9.28E-05 |
| FNDC3B | 0.52786 | 0.020679 |
| COPS2 | 0.527882 | 0.192726 |
| INTS9 | 0.527998 | 0.000956 |
| CPSF7 | 0.528042 | 0.042918 |
| NAT14 | 0.528088 | 0.000393 |
| RASAL1 | 0.528446 | 0.699602 |
| WDR18 | 0.528947 | 0.019729 |
| TOE1 | 0.52895 | 0.002065 |
| TCEAL8 | 0.529007 | 0.327649 |
| RFC1 | 0.529268 | 0.006548 |
| PNN | 0.529454 | 0.036766 |

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| MRNIP | 0.529852 | 0.007508 |
| OS9 | 0.529962 | 0.08781 |
| MAP3K20 | 0.529969 | 0.035547 |
| OTULINL | 0.53 | 0.019313 |
| PIK3AP1 | 0.530017 | 0.005323 |
| GLT8D1 | 0.53005 | 0.011935 |
| QRICH1 | 0.530308 | 0.004922 |
| DDX56 | 0.530422 | 0.001302 |
| C1orf112 | 0.530643 | 0.023532 |
| CDK1 | 0.530763 | 0.000554 |
| OSBPL5 | 0.530811 | 0.012532 |
| NUP153 | 0.531155 | 0.034299 |
| SNAPC1 | 0.531321 | 0.035734 |
| SYNGR1 | 0.531482 | 0.068112 |
| RPS18 | 0.53149 | 0.004435 |
| SNX20 | 0.531589 | 0.000288 |
| PLAU | 0.531729 | 0.002879 |
| AKAP8 | 0.531741 | 0.008897 |
| CD34 | 0.531991 | 0.045058 |
| COMMD3-BMI1 | 0.532165 | 0.084204 |
| SMARCE1 | 0.532469 | 0.246763 |
| UTP20 | 0.532548 | 0.017832 |
| RBM23 | 0.532622 | 0.003106 |
| YTHDF1 | 0.532696 | 0.002996 |
| TOP2B | 0.532793 | 0.242855 |
| ANXA13 | 0.532833 | 0.162369 |
| MCM3 | 0.532921 | 0.002749 |
| CHCHD1 | 0.532928 | 0.184242 |

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|---|---|---|
| BTF3 | 0.532991 | 0.003175 |
| ZNHIT2 | 0.533064 | 0.006659 |
| YTHDF3 | 0.53337 | 0.003534 |
| MEX3B | 0.533423 | 0.041094 |
| EGLN1 | 0.533441 | 0.004949 |
| RABL2A | 0.533453 | 0.004354 |
| HNRNPM | 0.533804 | 0.065221 |
| GTPBP4 | 0.533835 | 0.000653 |
| CKAP2 | 0.53397 | 0.047067 |
| KIF27 | 0.53413 | 0.060305 |
| TOMM5 | 0.534226 | 0.414786 |
| H1-10 | 0.534363 | 0.524452 |
| TFDP1 | 0.534467 | 0.007578 |
| ZNF23 | 0.53455 | 0.017146 |
| BBX | 0.534577 | 0.010322 |
| SMC1A | 0.534642 | 0.058713 |
| SF3A2 | 0.534823 | 0.005788 |
| MED21 | 0.535192 | 0.00562 |
| DYNLT1 | 0.535242 | 0.006398 |
| TCERG1 | 0.535433 | 0.010646 |
| RPL5 | 0.535935 | 0.005835 |
| PRPF6 | 0.536628 | 0.005973 |
| METTL18 | 0.536775 | 0.002413 |
| MFSD10 | 0.536827 | 0.001487 |
| ZFP1 | 0.537169 | 0.21649 |
| UHRF1 | 0.537386 | 0.028361 |
| ILF2 | 0.537541 | 0.001556 |
| CYHR1 | 0.537824 | 0.000332 |

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|---|---|---|
| MSH2 | 0.537853 | 0.00103 |
| H2AC21 | 0.538289 | 0.54487 |
| SDE2 | 0.53832 | 0.029126 |
| CHAF1B | 0.538326 | 0.001324 |
| SF3B4 | 0.538563 | 0.009179 |
| STMN1 | 0.538577 | 0.008493 |
| IFRD2 | 0.538778 | 0.025967 |
| PABIR2 | 0.538796 | 0.138812 |
| CNPY2 | 0.539022 | 0.052904 |
| NELFA | 0.539264 | 0.005087 |
| SERPINB10 | 0.539303 | 0.201182 |
| RNF2 | 0.539339 | 0.010417 |
| STAT2 | 0.539465 | 0.210701 |
| CLP1 | 0.539499 | 0.001182 |
| SNW1 | 0.539657 | 0.001494 |
| SP110 | 0.539685 | 0.403159 |
| RPS2 | 0.539919 | 0.000417 |
| HACD2 | 0.540544 | 0.036881 |
| CD33 | 0.540577 | 0.039705 |
| FBXW9 | 0.540805 | 0.012678 |
| TRIM28 | 0.540858 | 0.004277 |
| POLR2B | 0.540928 | 0.001131 |
| TPR | 0.541021 | 0.17766 |
| RPL7 | 0.541063 | 0.002301 |
| CDK8 | 0.541116 | 0.054505 |
| S100A12 | 0.541257 | 0.300366 |
| TNFRSF1A | 0.541322 | 0.000417 |
| PM20D2 | 0.541342 | 7.85E-05 |

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| SP3 | 0.541363 | 0.126843 |
| NA | 0.54147 | 0.161588 |
| NLE1 | 0.541529 | 0.001233 |
| IGF2BP3 | 0.541532 | 0.00072 |
| INTS3 | 0.541732 | 0.020683 |
| HLA-DQB1 | 0.541929 | 0.999353 |
| HNRNPUL1 | 0.54193 | 0.003239 |
| NA | 0.542064 | 0.088978 |
| SFMBT2 | 0.542307 | 0.037413 |
| FANCD2 | 0.542888 | 0.00642 |
| TMEM205 | 0.542932 | 0.035752 |
| POP1 | 0.542974 | 0.002408 |
| CDC37 | 0.543004 | 0.194358 |
| SPRY1 | 0.543222 | 0.689809 |
| TBC1D2B | 0.543232 | 0.001638 |
| TRMT1L | 0.543319 | 0.007517 |
| CHAMP1 | 0.543836 | 0.062709 |
| PRG2 | 0.543998 | 0.083844 |
| SERBP1 | 0.544125 | 0.091418 |
| POLD1 | 0.544145 | 0.000428 |
| NDUFB11 | 0.544293 | 0.648396 |
| MCM2 | 0.544345 | 0.001541 |
| COX7B | 0.544428 | 0.375824 |
| RFC4 | 0.544554 | 0.000723 |
| THUMPD1 | 0.544729 | 0.008855 |
| INTS13 | 0.54484 | 0.003483 |
| SRRT | 0.544961 | 0.025587 |
| CDK12 | 0.545112 | 0.00855 |

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|---|---|---|
| KIAA1328 | 0.545114 | 0.052881 |
| SNRNP27 | 0.545288 | 0.124432 |
| SUDS3 | 0.545441 | 0.072397 |
| COQ8A | 0.545586 | 0.005623 |
| DHX40 | 0.54596 | 0.000992 |
| C19orf47 | 0.545975 | 0.627238 |
| FEN1 | 0.546402 | 0.005787 |
| PUM3 | 0.546438 | 0.001937 |
| MRPS25 | 0.54666 | 0.046422 |
| DDX21 | 0.546815 | 0.036293 |
| NOL10 | 0.546974 | 0.006396 |
| ERCC3 | 0.547069 | 0.005664 |
| CCNL1 | 0.547805 | 0.01037 |
| SF3B1 | 0.547933 | 0.003006 |
| S100A9 | 0.548017 | 0.301394 |
| KRT86 | 0.548272 | 0.583957 |
| MECP2 | 0.548462 | 0.582691 |
| ASXL2 | 0.548481 | 0.054729 |
| UBE2C | 0.548659 | 0.036837 |
| OSTC | 0.548728 | 0.119315 |
| RAD21 | 0.54876 | 0.131317 |
| ITM2A | 0.548808 | 0.065093 |
| SLC16A1 | 0.548838 | 0.251608 |
| UBAP2 | 0.548973 | 0.079865 |
| SRRM2 | 0.549085 | 0.050777 |
| VIRMA | 0.549202 | 0.0182 |
| TIPIN | 0.549591 | 0.020183 |
| APEX1 | 0.549665 | 0.010188 |

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|---|---|---|
| TMEM230 | 0.549823 | 0.014661 |
| DDX49 | 0.550016 | 0.000541 |
| RPS25 | 0.550081 | 0.003147 |
| ZNF609 | 0.550156 | 0.005181 |
| FLT3 | 0.5503 | 0.003711 |
| KCNAB2 | 0.550589 | 0.137835 |
| DET1 | 0.550782 | 0.006275 |
| SOX6 | 0.550825 | 0.157636 |
| APBB1IP | 0.550863 | 0.003095 |
| MAP7D1 | 0.550873 | 0.013256 |
| L3MBTL3 | 0.550893 | 0.278699 |
| AURKB | 0.551031 | 0.062375 |
| LRPPRC | 0.551271 | 0.011705 |
| RPS19 | 0.551855 | 0.01201 |
| CDK11B | 0.551997 | 0.007775 |
| HLA-C | 0.552005 | 0.274994 |
| ANKRD63 | 0.55217 | 0.083654 |
| VLDLR | 0.552586 | 0.155529 |
| SLC38A1 | 0.552673 | 0.051469 |
| NXF1 | 0.552832 | 0.010364 |
| SULF2 | 0.552836 | 0.218134 |
| SETD1A | 0.552959 | 0.002489 |
| MEPCE | 0.553081 | 0.003238 |
| SFPQ | 0.553197 | 0.049386 |
| SMARCA5 | 0.553231 | 0.120444 |
| ERLIN1 | 0.553517 | 0.01434 |
| NRP1 | 0.553626 | 0.124429 |
| DCAF15 | 0.5537 | 0.030886 |

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|---|---|---|
| GTF2E2 | 0.553995 | 0.018275 |
| GATAD2A | 0.554249 | 0.035207 |
| INTS7 | 0.554494 | 0.005182 |
| IGSF6 | 0.554589 | 0.205971 |
| POGZ | 0.554772 | 0.044124 |
| POLR1A | 0.555076 | 0.004221 |
| PTX3 | 0.555202 | 0.061088 |
| NCOA2 | 0.555208 | 0.008768 |
| ZNF326 | 0.555214 | 0.009201 |
| SPNS3 | 0.555247 | 0.323808 |
| HLA-DMA | 0.555321 | 0.014923 |
| RIOX2 | 0.555537 | 0.030933 |
| CDC7 | 0.555704 | 0.05155 |
| HDGFL2 | 0.555798 | 0.023354 |
| RPL19 | 0.55582 | 0.003013 |
| APAF1 | 0.556104 | 0.679033 |
| MLH1 | 0.556215 | 0.010565 |
| RBM25 | 0.55622 | 0.043435 |
| DDX17 | 0.556225 | 0.002034 |
| RPL7A | 0.556412 | 0.018792 |
| YIF1A | 0.55657 | 0.019918 |
| TADA2B | 0.556812 | 0.079021 |
| EDF1 | 0.556989 | 0.034612 |
| ZRSR2 | 0.557143 | 0.008182 |
| UQCC3 | 0.557382 | 0.029335 |
| MAD2L1 | 0.557881 | 0.00032 |
| NDUFS7 | 0.558093 | 0.353487 |
| C19orf53 | 0.558283 | 0.123099 |

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|---|---|---|
| SOWAHD | 0.558296 | 0.00822 |
| DCAF16 | 0.55832 | 0.048684 |
| SSB | 0.558769 | 0.006508 |
| MED13L | 0.558934 | 0.008626 |
| RAD50 | 0.559033 | 0.00866 |
| CCDC59 | 0.559281 | 0.079066 |
| SRP68 | 0.559375 | 0.001183 |
| DDA1 | 0.559377 | 0.024192 |
| MRTO4 | 0.559496 | 0.058405 |
| RAD17 | 0.559608 | 0.0083 |
| RPL6 | 0.559801 | 0.002846 |
| AIMP2 | 0.55981 | 0.158251 |
| CSF1R | 0.559817 | 0.027892 |
| SPINDOC | 0.560074 | 0.117208 |
| C11orf58 | 0.560077 | 0.065354 |
| SLC20A1 | 0.560169 | 0.710374 |
| HDAC2 | 0.560208 | 0.014894 |
| CDC20 | 0.560506 | 0.413535 |
| ORMDL1 | 0.560903 | 0.058147 |
| IQCB1 | 0.560904 | 0.019672 |
| HSPBAP1 | 0.560968 | 0.009756 |
| ZBED5 | 0.56097 | 0.087598 |
| SLC25A26 | 0.561182 | 0.02201 |
| ZNF638 | 0.561284 | 0.026269 |
| PWP2 | 0.561553 | 0.009358 |
| DHX9 | 0.561567 | 0.001329 |
| WDHD1 | 0.561799 | 0.00253 |
| CRNKL1 | 0.562005 | 0.005875 |

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|---|---|---|
| NR3C1 | 0.562027 | 0.006746 |
| LARP7 | 0.562151 | 0.000656 |
| ZNF595 | 0.562217 | 0.327664 |
| GTF2H2 | 0.562258 | 0.002035 |
| NFYC | 0.562294 | 0.019637 |
| H1-5 | 0.562306 | 0.701412 |
| MCMBP | 0.562331 | 0.020888 |
| FCAR | 0.562345 | 0.121139 |
| TMEM243 | 0.562433 | 0.601522 |
| LRWD1 | 0.562477 | 0.111152 |
| JADE3 | 0.562554 | 0.050902 |
| HNRNPDL | 0.562697 | 0.019929 |
| SNRPA1 | 0.562907 | 0.010804 |
| DIAPH2 | 0.562926 | 0.002612 |
| RIOK2 | 0.562987 | 0.094962 |
| TCF20 | 0.563017 | 0.076679 |
| KIAA1522 | 0.563195 | 0.068346 |
| TARBP1 | 0.563555 | 0.000934 |
| CDC40 | 0.563646 | 0.017342 |
| PPP4R3B | 0.563732 | 0.003943 |
| SRSF3 | 0.563943 | 0.124768 |
| CAAP1 | 0.564084 | 0.009372 |
| ELOA | 0.56412 | 0.01539 |
| ZBTB16 | 0.56414 | 0.000523 |
| PRPF38A | 0.564216 | 0.02312 |
| CLK4 | 0.564231 | 0.047432 |
| HDHD5 | 0.564339 | 0.030303 |
| SLC35B1 | 0.56434 | 0.296244 |

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|---|---|---|
| RPS23 | 0.564387 | 0.001541 |
| LARP4B | 0.564397 | 0.003231 |
| NSMCE2 | 0.564556 | 0.004234 |
| ATF7IP | 0.564778 | 0.071662 |
| PLD1 | 0.564814 | 0.005377 |
| CHD4 | 0.565317 | 0.027843 |
| PTGR2 | 0.565417 | 0.002906 |
| TTC32 | 0.565429 | 0.287358 |
| ZRANB2 | 0.565479 | 0.08451 |
| MASTL | 0.565559 | 0.009825 |
| GSDME | 0.56565 | 0.304572 |
| CCAR1 | 0.565786 | 0.022663 |
| EXOSC9 | 0.565951 | 0.00172 |
| ALDH3B1 | 0.566004 | 0.022339 |
| C12orf57 | 0.566074 | 0.079048 |
| CHI3L1 | 0.566131 | 0.906948 |
| HP1BP3 | 0.566207 | 0.601846 |
| ERCC1 | 0.56631 | 0.007214 |
| HNRNPUL2 | 0.566402 | 0.023995 |
| C16orf86 | 0.566495 | 0.722194 |
| RFX5 | 0.566599 | 0.194085 |
| HSPA1B | 0.566777 | 0.195253 |
| MBD2 | 0.566779 | 0.141534 |
| TM7SF3 | 0.566829 | 0.07821 |
| RBM10 | 0.566847 | 0.028185 |
| HTATSF1 | 0.566967 | 0.036456 |
| TMPO | 0.566988 | 0.761894 |
| SLC4A1AP | 0.567143 | 0.009086 |

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|---|---|---|
| TES | 0.567436 | 0.090723 |
| CNOT8 | 0.567466 | 0.002565 |
| RPS5 | 0.567649 | 0.05871 |
| EXOSC6 | 0.567995 | 0.009925 |
| SET | 0.568135 | 0.058781 |
| SATB1 | 0.568209 | 0.408014 |
| CASP8 | 0.568343 | 0.020821 |
| LMNB2 | 0.56882 | 0.383495 |
| THOC5 | 0.569039 | 0.011054 |
| ARID1B | 0.569047 | 0.081439 |
| DOP1B | 0.569331 | 0.002527 |
| TERF2 | 0.569544 | 0.189207 |
| MCM4 | 0.569613 | 0.001526 |
| LRRC41 | 0.569678 | 0.001284 |
| SLC36A4 | 0.569801 | 0.050475 |
| NSUN2 | 0.569861 | 0.004908 |
| NUP205 | 0.569876 | 0.033551 |
| VAT1 | 0.56988 | 0.006379 |
| MCEMP1 | 0.569891 | 0.13936 |
| SNRPC | 0.569946 | 0.021765 |
| RPL8 | 0.57001 | 0.011794 |
| RPLP0 | 0.570093 | 0.002835 |
| RPF2 | 0.570252 | 0.010665 |
| PPP1R10 | 0.570334 | 0.010478 |
| MBD4 | 0.570493 | 0.011932 |
| LAIR1 | 0.570607 | 0.003792 |
| LIG3 | 0.570796 | 0.096045 |
| H3C12 | 0.571015 | 0.320095 |

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|---|---|---|
| PEAK3 | 0.571115 | 0.131969 |
| RPS6 | 0.571249 | 0.009679 |
| CEACAM6 | 0.571437 | 0.820602 |
| POLR3A | 0.571588 | 0.003385 |
| RALYL | 0.571604 | 0.051025 |
| MPHOSPH6 | 0.571669 | 0.010776 |
| TFDP2 | 0.572155 | 0.035836 |
| PALD1 | 0.57225 | 0.003433 |
| RALY | 0.572329 | 0.041195 |
| MED30 | 0.572331 | 0.001086 |
| ZC3H11A | 0.572363 | 0.013169 |
| THOC3 | 0.572439 | 0.00573 |
| LYAR | 0.572551 | 0.028474 |
| DIS3 | 0.572678 | 0.000225 |
| GAPT | 0.572815 | 0.046528 |
| COLGALT1 | 0.572841 | 0.011406 |
| TMEM219 | 0.572896 | 0.590514 |
| ANKHD1-EIF4EBP3 | 0.572963 | 0.009792 |
| ERG | 0.573062 | 0.009471 |
| DDX28 | 0.573085 | 0.021264 |
| RAVER2 | 0.573092 | 0.001416 |
| ZNF622 | 0.573095 | 0.015832 |
| CD44 | 0.573186 | 0.028222 |
| RPAP1 | 0.573192 | 0.00255 |
| RRP1 | 0.573418 | 0.021883 |
| DDB2 | 0.573682 | 0.029567 |
| SF3B6 | 0.573721 | 0.019619 |

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| MATR3 | 0.573744 | 0.021344 |
| CHRAC1 | 0.573848 | 0.015593 |
| FAM32A | 0.573914 | 0.037741 |
| NUP35 | 0.573931 | 0.198523 |
| GTF2F2 | 0.574048 | 0.005264 |
| FTO | 0.574068 | 0.011981 |
| ERAP2 | 0.574297 | 0.260406 |
| KDM1A | 0.5743 | 0.002511 |
| TKTL2 | 0.574389 | 0.00244 |
| DOCK2 | 0.574429 | 0.00553 |
| NUP85 | 0.574441 | 0.029909 |
| MED16 | 0.574504 | 0.022093 |
| GTF2H3 | 0.574517 | 0.000643 |
| CFDP1 | 0.574601 | 0.022522 |
| RBM7 | 0.57465 | 0.009738 |
| AZI2 | 0.57468 | 0.006807 |
| CLEC5A | 0.574732 | 0.527405 |
| SRSF10 | 0.574763 | 0.052785 |
| AOAH | 0.574947 | 0.183449 |
| NUFIP2 | 0.575148 | 0.035252 |
| SNRPG | 0.575195 | 0.002627 |
| THOC1 | 0.575352 | 0.013356 |
| SCAF11 | 0.575428 | 0.050961 |
| NMNAT1 | 0.575475 | 0.018822 |
| MBD3 | 0.575555 | 0.005843 |
| ARHGEF6 | 0.575559 | 0.0262 |
| GPATCH8 | 0.575576 | 0.036856 |
| SNRPB2 | 0.575608 | 0.004614 |

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|---|---|---|
| ERLIN2 | 0.575619 | 0.022203 |
| YTHDF2 | 0.575672 | 0.006511 |
| NLRP2 | 0.575881 | 0.346166 |
| C1orf167 | 0.5759 | 0.457062 |
| POLE | 0.576033 | 0.000579 |
| NXF3 | 0.576035 | 0.334784 |
| SLX9 | 0.576157 | 0.009255 |
| SAFB | 0.576198 | 0.111654 |
| NDRG1 | 0.57625 | 0.0055 |
| POLE2 | 0.576511 | 0.001653 |
| NA | 0.576622 | 0.264014 |
| CWF19L1 | 0.576718 | 0.003618 |
| TAF13 | 0.576753 | 0.155683 |
| CGGBP1 | 0.576821 | 0.109719 |
| DHX37 | 0.576891 | 0.002203 |
| UTP4 | 0.576983 | 0.069573 |
| SF3A1 | 0.576995 | 0.01604 |
| WDR3 | 0.577022 | 0.005041 |
| NOC3L | 0.577041 | 0.013262 |
| PIGU | 0.577138 | 0.001342 |
| ZCCHC8 | 0.57745 | 0.012851 |
| ZNF24 | 0.577483 | 0.169147 |
| ZC3H8 | 0.577613 | 0.032979 |
| THRAP3 | 0.577681 | 0.061464 |
| SLC27A2 | 0.577764 | 0.001995 |
| LSM11 | 0.577796 | 0.142219 |
| NCL | 0.578534 | 0.005631 |
| RPA1 | 0.578576 | 0.021669 |

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| SRSF7 | 0.57863 | 0.088247 |
| RCC2 | 0.578686 | 0.040655 |
| SMCHD1 | 0.57876 | 0.187873 |
| BYSL | 0.578789 | 0.011478 |
| CENPE | 0.578859 | 0.001986 |
| SLC25A24 | 0.57901 | 0.208182 |
| C16orf87 | 0.579201 | 0.050884 |
| INTS2 | 0.57947 | 0.001914 |
| IMPA2 | 0.579562 | 0.000344 |
| SF3B5 | 0.579656 | 0.007523 |
| PSPC1 | 0.579689 | 0.009462 |
| MEST | 0.579853 | 0.013675 |
| PRORP | 0.579955 | 0.037283 |
| RPL23 | 0.579965 | 0.010717 |
| IFIH1 | 0.580062 | 0.016511 |
| OGFR | 0.580096 | 0.000857 |
| PRPF8 | 0.580123 | 0.002416 |
| C6orf120 | 0.580148 | 0.115673 |
| BCL11A | 0.580154 | 0.05673 |
| NOM1 | 0.580158 | 0.024774 |
| ETV6 | 0.580188 | 0.105254 |
| STRBP | 0.580307 | 0.027902 |
| U2SURP | 0.580373 | 0.035809 |
| NEU3 | 0.580448 | 0.017907 |
| SART3 | 0.580483 | 0.008999 |
| AQR | 0.580794 | 0.001414 |
| HLA-DQA1 | 0.58123 | 0.424821 |
| WTAP | 0.58161 | 0.018391 |

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| DDX51 | 0.581632 | 0.028407 |
| SCD | 0.581866 | 0.073258 |
| MEAF6 | 0.581875 | 0.182827 |
| IK | 0.581875 | 0.030204 |
| PSMA8 | 0.581937 | 0.929133 |
| API5 | 0.582015 | 0.001594 |
| RPL4 | 0.582311 | 0.001982 |
| TBPL1 | 0.582418 | 0.003246 |
| URB1 | 0.582478 | 0.014405 |
| MMP9 | 0.582823 | 0.467223 |
| PET100 | 0.58287 | 0.088983 |
| DDX27 | 0.582904 | 0.002855 |
| RHBDD2 | 0.582927 | 0.016691 |
| CCDC86 | 0.583302 | 0.220696 |
| ARAP3 | 0.58331 | 0.037615 |
| DDX23 | 0.583345 | 0.011395 |
| SF3A3 | 0.583658 | 0.008938 |
| PMS1 | 0.583979 | 0.004536 |
| MED12 | 0.584064 | 0.00446 |
| NOP10 | 0.584268 | 0.038462 |
| NUP160 | 0.584276 | 0.016553 |
| MBOAT7 | 0.58429 | 0.003645 |
| RFC5 | 0.584303 | 0.000571 |
| UTP25 | 0.584348 | 0.003027 |
| KIAA0232 | 0.58445 | 0.006375 |
| SRPK1 | 0.58456 | 0.02047 |
| TNFRSF10A | 0.584645 | 0.194453 |
| CAPG | 0.584649 | 0.090017 |

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|---|---|---|
| POLR3F | 0.584768 | 0.005495 |
| TOP1 | 0.584896 | 0.726582 |
| ERCC2 | 0.584966 | 0.001103 |
| TYMS | 0.585182 | 0.012074 |
| RECQL5 | 0.585191 | 0.002876 |
| TBC1D2 | 0.585283 | 0.002688 |
| KIAA1143 | 0.585629 | 0.073344 |
| TRA2A | 0.585874 | 0.095529 |
| NKRF | 0.585955 | 0.023872 |
| AMIGO3 | 0.585971 | 0.017816 |
| RAB44 | 0.586021 | 0.002386 |
| MED13 | 0.586283 | 0.004789 |
| NT5E | 0.586337 | 0.512676 |
| AIF1L | 0.58635 | 0.23333 |
| ZNF792 | 0.58643 | 0.256296 |
| ALDH1A3 | 0.586467 | 0.083765 |
| CDK4 | 0.586483 | 0.004606 |
| KMT2A | 0.586902 | 0.012172 |
| IL3RA | 0.586936 | 0.059996 |
| PIM1 | 0.586948 | 0.108093 |
| ZBTB11 | 0.587018 | 0.018563 |
| ELAVL1 | 0.587052 | 0.036411 |
| MT-CO3 | 0.587247 | 0.804513 |
| XPO5 | 0.587455 | 0.004917 |
| TBP | 0.587531 | 0.004244 |
| GTF2A1 | 0.587768 | 0.013555 |
| TRMT10A | 0.587783 | 0.000139 |
| MEN1 | 0.587864 | 0.225367 |

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|---|---|---|
| CCDC137 | 0.58789 | 0.059033 |
| TPPP | 0.587911 | 0.033442 |
| MAT2A | 0.587972 | 0.000538 |
| PROSER1 | 0.588126 | 0.000263 |
| PDRG1 | 0.588254 | 0.044879 |
| EDRF1 | 0.588373 | 0.004412 |
| ANP32A | 0.5884 | 0.01267 |
| NIPBL | 0.588411 | 0.203407 |
| SAE1 | 0.588441 | 0.007255 |
| CHD1L | 0.588533 | 0.022724 |
| ZSWIM3 | 0.588534 | 0.505639 |
| C12orf43 | 0.588723 | 0.018465 |
| RARA | 0.588758 | 0.185832 |
| NOSIP | 0.588784 | 0.091628 |
| DDX24 | 0.58887 | 0.004464 |
| WDR43 | 0.589071 | 0.036679 |
| SLC43A1 | 0.589141 | 0.01399 |
| CDK7 | 0.589209 | 0.000302 |
| TSR1 | 0.589236 | 0.009443 |
| C17orf49 | 0.589355 | 0.025473 |
| SETD6 | 0.589433 | 0.105502 |
| PRPF19 | 0.589701 | 0.001029 |
| LRRC42 | 0.5899 | 0.326828 |
| BOD1 | 0.589971 | 0.022037 |
| UBXN8 | 0.590092 | 0.292483 |
| LARP4 | 0.590141 | 0.004296 |
| ALYREF | 0.590149 | 0.055077 |
| RCBTB1 | 0.590256 | 0.02148 |

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|---|---|---|
| SF3B3 | 0.590282 | 0.001901 |
| MED14 | 0.590598 | 0.004011 |
| CSTF2T | 0.590665 | 0.020487 |
| CLNS1A | 0.590755 | 0.017013 |
| MED17 | 0.590937 | 0.118631 |
| SRSF9 | 0.591015 | 0.04671 |
| MTHFSD | 0.591026 | 0.001374 |
| RNMT | 0.59105 | 0.007063 |
| SUPT16H | 0.591534 | 0.012049 |
| CWC22 | 0.591545 | 0.029853 |
| MX2 | 0.591559 | 0.746669 |
| LDB1 | 0.591777 | 0.022242 |
| SNAPC4 | 0.591867 | 0.023654 |
| KRCC1 | 0.59198 | 0.636701 |
| MICOS13 | 0.592174 | 0.303907 |
| HCFC1 | 0.592177 | 0.033219 |
| POLR3C | 0.592316 | 0.005784 |
| ZMAT2 | 0.592489 | 0.0061 |
| PRIMPOL | 0.592593 | 0.181751 |
| S100P | 0.592628 | 0.320588 |
| CUEDC2 | 0.592867 | 0.025377 |
| INTS4 | 0.592883 | 0.012353 |
| MAP3K20 | 0.592949 | 0.00249 |
| CEACAM1 | 0.592994 | 0.345637 |
| RNF187 | 0.593096 | 0.116458 |
| GPALPP1 | 0.593411 | 0.01704 |
| NA | 0.593429 | 0.009254 |
| R3HCC1 | 0.593524 | 0.004505 |

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|---|---|---|
| SNRPA | 0.593526 | 0.062638 |
| ACTR6 | 0.593577 | 0.02904 |
| SIVA1 | 0.593578 | 0.062837 |
| SRSF5 | 0.593653 | 0.010095 |
| NCF4 | 0.594001 | 0.02485 |
| ANXA6 | 0.594158 | 0.120917 |
| GRAMD4 | 0.594196 | 0.002565 |
| AK4 | 0.594412 | 0.17259 |
| GOLGA8N | 0.594493 | 0.678929 |
| MFAP1 | 0.594731 | 0.205629 |
| FKBP5 | 0.594971 | 0.004363 |
| POLR3B | 0.59508 | 0.003079 |
| NAT10 | 0.595295 | 0.006781 |
| ICAM1 | 0.595337 | 0.098314 |
| INO80E | 0.595382 | 0.081704 |
| ICOSLG | 0.595451 | 0.070153 |
| GLE1 | 0.595458 | 0.077261 |
| WEE1 | 0.595472 | 0.002289 |
| NOL11 | 0.595484 | 0.036973 |
| WDR33 | 0.595571 | 0.059144 |
| GTF2I | 0.595701 | 0.030642 |
| CCDC168 | 0.595732 | 0.690658 |
| PDSS2 | 0.595756 | 0.000918 |
| CCDC28A | 0.595789 | 0.144789 |
| GTF2B | 0.595876 | 0.004011 |
| ELL | 0.595948 | 0.005476 |
| RNF20 | 0.595964 | 0.009053 |
| RIF1 | 0.596017 | 0.043261 |

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|---|---|---|
| RPL30 | 0.59609 | 0.061791 |
| SLC2A5 | 0.596276 | 0.15799 |
| ASB13 | 0.596281 | 0.015154 |
| MPPE1 | 0.596297 | 0.36283 |
| SPIN1 | 0.596303 | 0.019642 |
| MMS22L | 0.596365 | 0.002677 |
| SF3B2 | 0.596495 | 0.005208 |
| PQBP1 | 0.596909 | 0.039155 |
| PUS10 | 0.59697 | 0.003135 |
| LBHD1 | 0.596974 | 0.454543 |
| TCF3 | 0.597068 | 0.087138 |
| STAT2 | 0.59727 | 0.257578 |
| TNRC6B | 0.597336 | 0.098757 |
| GMEB1 | 0.597358 | 0.021057 |
| KIAA0825 | 0.597359 | 0.628857 |
| METAP2 | 0.597405 | 0.084843 |
| DPF2 | 0.597479 | 0.157313 |
| RPLP2 | 0.597633 | 0.029066 |
| ITGA9 | 0.597777 | 0.02091 |
| RB1 | 0.597801 | 0.016719 |
| MPHOSPH8 | 0.59786 | 0.088589 |
| POLA1 | 0.597885 | 0.002874 |
| DDX20 | 0.598098 | 0.01257 |
| TENT2 | 0.598159 | 0.001045 |
| RPL13A | 0.598273 | 0.008683 |
| PIK3CD | 0.598374 | 0.003119 |
| GINS1 | 0.598576 | 0.0029 |
| TMX2 | 0.598639 | 0.008858 |

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|---|---|---|
| HSD17B11 | 0.598757 | 0.000378 |
| TCEA1 | 0.598771 | 0.015789 |
| CCDC61 | 0.598796 | 0.036091 |
| EAF1 | 0.598818 | 0.003191 |
| ORC4 | 0.59885 | 0.01232 |
| AGGF1 | 0.598881 | 0.050855 |
| NEIL2 | 0.598882 | 0.007164 |
| HBA1 | 0.599054 | 0.7682 |
| OCIAD2 | 0.599141 | 0.11184 |
| BMS1 | 0.599232 | 0.007096 |
| RAVER1 | 0.599579 | 0.00241 |
| SIRPA | 0.599661 | 0.447742 |
| RPAIN | 0.599711 | 0.199712 |
| COQ5 | 0.599848 | 0.006274 |
| ISY1 | 0.599858 | 0.045779 |
| MPV17L2 | 0.599875 | 0.333909 |
| PRADC1 | 0.600089 | 0.097738 |
| SNRNP200 | 0.600125 | 0.002725 |
| TSR3 | 0.600186 | 0.078894 |
| IFNAR2 | 0.600246 | 0.15352 |
| PCID2 | 0.600355 | 0.002179 |
| NA | 0.600458 | 0.006919 |
| ZNF593 | 0.600486 | 0.100501 |
| SETDB2 | 0.600519 | 0.096119 |
| SIRPB1 | 0.600552 | 0.541344 |
| NCBP3 | 0.600568 | 0.185728 |
| TMBIM6 | 0.600595 | 0.006385 |
| TRPC4AP | 0.60061 | 0.002126 |

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|---|---|---|
| ZC3H18 | 0.600735 | 0.041769 |
| LRR1 | 0.60084 | 0.116867 |
| TP53BP1 | 0.600884 | 0.096634 |
| GRN | 0.601275 | 0.163864 |
| R3HDM4 | 0.601295 | 0.326303 |
| FUOM | 0.601513 | 0.035731 |
| POLR3D | 0.601575 | 0.006012 |
| ARID2 | 0.601591 | 0.128032 |
| ERVK3-1 | 0.601711 | 0.036508 |
| ATP5MK | 0.601714 | 0.215531 |
| BCL2 | 0.601751 | 0.016765 |
| TENT5A | 0.601803 | 0.049973 |
| SMARCC2 | 0.601944 | 0.259286 |
| NFIC | 0.602117 | 0.221149 |
| PARN | 0.602119 | 0.006536 |
| NAIP | 0.602155 | 0.102949 |
| PIAS4 | 0.602268 | 0.03961 |
| MAF1 | 0.602507 | 0.015711 |
| DPY30 | 0.602603 | 0.008153 |
| RNF216 | 0.602796 | 0.003203 |
| ASDURF | 0.602797 | 0.017846 |
| PRKRA | 0.602952 | 0.004709 |
| TRAPPC6A | 0.603039 | 0.008048 |
| MYO1F | 0.603199 | 0.026124 |
| TBL3 | 0.603248 | 0.02068 |
| ZNF629 | 0.603397 | 0.006308 |
| NA | 0.603686 | 0.133857 |
| SAA2 | 0.603687 | 0.866082 |

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|---|---|---|
| TTF1 | 0.603808 | 0.389572 |
| RLF | 0.603851 | 0.513275 |
| INTS1 | 0.604091 | 0.012301 |
| UQCR11 | 0.604222 | 0.26568 |
| POLK | 0.60438 | 0.001278 |
| TP53RK | 0.604588 | 0.003103 |
| STK16 | 0.604743 | 0.127544 |
| ALMS1 | 0.604804 | 0.070888 |
| MDC1 | 0.604826 | 0.187127 |
| PRPF40A | 0.604999 | 0.144986 |
| NCOR2 | 0.605329 | 0.033602 |
| CHST10 | 0.605342 | 0.007544 |
| TANC1 | 0.60539 | 0.056393 |
| EPX | 0.605689 | 0.17785 |
| UNC93B1 | 0.605706 | 0.045723 |
| GOLGA8N | 0.605734 | 0.724352 |
| ENDOG | 0.606268 | 0.072823 |
| HNRNPA2B1 | 0.606361 | 0.063863 |
| GATAD2B | 0.606589 | 0.025892 |
| XRCC2 | 0.606694 | 0.014323 |
| NSMAF | 0.606865 | 0.005344 |
| PHGDH | 0.606867 | 0.125516 |
| CDC5L | 0.607015 | 0.003725 |
| MRPS5 | 0.607114 | 0.037936 |
| GTF3C2 | 0.607128 | 0.007085 |
| ZFR | 0.607248 | 0.015956 |
| SCAF4 | 0.607317 | 0.116637 |
| SUZ12 | 0.607363 | 0.162399 |

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|---|---|---|
| SLC25A1 | 0.607397 | 0.473627 |
| BRI3BP | 0.607604 | 0.010233 |
| ZC3HC1 | 0.607617 | 0.335642 |
| ARHGEF18 | 0.607765 | 0.000942 |
| DDX5 | 0.607816 | 0.003741 |
| TEX10 | 0.607861 | 0.007492 |
| POLR2A | 0.607928 | 0.004815 |
| RPS6KA4 | 0.607986 | 0.00295 |
| ENTPD1 | 0.608035 | 0.258135 |
| FLNB | 0.608304 | 0.095811 |
| POLR2G | 0.608333 | 0.003518 |
| WDFY4 | 0.608337 | 0.011105 |
| SSBP2 | 0.608438 | 0.032122 |
| PHF10 | 0.608616 | 0.126949 |
| HOXB4 | 0.608754 | 0.134594 |
| ZNF639 | 0.608823 | 0.136039 |
| RRM1 | 0.608925 | 0.002743 |
| SDCBP | 0.608967 | 0.030345 |
| PDCD4 | 0.608972 | 0.052114 |
| RNF135 | 0.609077 | 0.012249 |
| HJURP | 0.609276 | 0.098917 |
| GNA15 | 0.609378 | 0.01049 |
| ENGASE | 0.609398 | 0.108583 |
| NCF1 | 0.609454 | 0.560283 |
| PPAN | 0.609475 | 0.024776 |
| SART1 | 0.609726 | 0.019269 |
| RPS10 | 0.609815 | 0.119405 |
| CENPM | 0.609997 | 0.006678 |

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|---|---|---|
| RSAD1 | 0.610082 | 0.081941 |
| LYSMD2 | 0.610213 | 0.068555 |
| RPS27L | 0.610289 | 0.012056 |
| NUP93 | 0.610334 | 0.011823 |
| SNRPD2 | 0.61057 | 0.012082 |
| TSEN34 | 0.610795 | 0.005034 |
| SERINC1 | 0.610809 | 0.029937 |
| RPS15 | 0.610826 | 0.012799 |
| MRC1 | 0.61087 | 0.073306 |
| PHF11 | 0.610901 | 0.098693 |
| APTX | 0.610986 | 0.006538 |
| PIGQ | 0.611001 | 0.060462 |
| MDN1 | 0.611038 | 0.006481 |
| MAZ | 0.611127 | 0.621584 |
| TCEAL1 | 0.611161 | 0.20245 |
| PUS7 | 0.611383 | 0.010802 |
| SRBD1 | 0.611525 | 0.055956 |
| MPO | 0.611591 | 0.028921 |
| EIF2AK2 | 0.611619 | 0.061188 |
| FOXP1 | 0.611695 | 0.467292 |
| MYC | 0.611819 | 0.484811 |
| CTDP1 | 0.612084 | 0.016695 |
| HMGB1 | 0.612228 | 0.144303 |
| ARL6IP4 | 0.612306 | 0.039978 |
| PTPMT1 | 0.612334 | 0.003544 |
| TRRAP | 0.612349 | 0.055138 |
| TRIM27 | 0.612446 | 0.018737 |
| IARS1 | 0.612467 | 0.001816 |

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|---|---|---|
| MLLT11 | 0.612478 | 0.014496 |
| YY1AP1 | 0.612669 | 0.003331 |
| MAT2B | 0.612709 | 0.375455 |
| SRP9 | 0.612781 | 0.00826 |
| HMGB2 | 0.6128 | 0.207683 |
| PRR12 | 0.612803 | 0.140673 |
| FKBP4 | 0.612878 | 0.025551 |
| PIGBOS1 | 0.612975 | 0.991795 |
| CDK19 | 0.613021 | 0.001779 |
| SMC1B | 0.613121 | 0.584479 |
| RNASEH2C | 0.613209 | 0.001813 |
| CC2D1A | 0.613412 | 0.028476 |
| INSIG2 | 0.613567 | 0.046943 |
| MYO18A | 0.613691 | 0.030771 |
| BBS7 | 0.61377 | 0.035043 |
| MRPS23 | 0.613931 | 0.036771 |
| TRMT5 | 0.613974 | 0.001135 |
| PREX1 | 0.614201 | 0.013431 |
| ZNF696 | 0.614327 | 0.05409 |
| RPL10A | 0.614339 | 0.001758 |
| FOXRED2 | 0.614358 | 0.019904 |
| CDK9 | 0.614378 | 0.001161 |
| RPL23A | 0.614639 | 0.005253 |
| PIGS | 0.614652 | 9.82E-05 |
| DAZAP2 | 0.614827 | 0.161975 |
| C5orf22 | 0.614888 | 0.030027 |
| ELOVL1 | 0.61501 | 0.644957 |
| RANBP2 | 0.615257 | 0.065776 |

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|---|---|---|
| IWS1 | 0.615325 | 0.011295 |
| CALML4 | 0.615418 | 0.390072 |
| TGFBRAP1 | 0.615497 | 0.000891 |
| POGK | 0.615606 | 0.004285 |
| MUS81 | 0.61566 | 0.032335 |
| MRPL57 | 0.615805 | 0.040705 |
| RPS3 | 0.615879 | 0.270261 |
| BCL2L12 | 0.6161 | 0.008777 |
| RPS4Y1 | 0.616604 | 0.27781 |
| MAP4K3 | 0.616631 | 0.009196 |
| SNRNP70 | 0.616644 | 0.079693 |
| DMAP1 | 0.616663 | 0.112663 |
| SREK1 | 0.616716 | 0.012143 |
| PPIP5K2 | 0.616794 | 0.20768 |
| NA | 0.616855 | 0.004702 |
| PAPOLA | 0.616857 | 0.001379 |
| CYP4F3 | 0.616891 | 0.320116 |
| TLR2 | 0.616908 | 0.053493 |
| ZC3H6 | 0.617007 | 0.051455 |
| RPS4X | 0.617014 | 0.009769 |
| CD1D | 0.617039 | 0.053794 |
| WDCP | 0.617057 | 0.038542 |
| CYBRD1 | 0.61708 | 0.030822 |
| PHF2 | 0.617155 | 0.230535 |
| RAB40C | 0.617253 | 0.000594 |
| MAGI3 | 0.61726 | 0.540649 |
| ERCC4 | 0.617373 | 0.001582 |
| PLA2G6 | 0.61742 | 0.272034 |

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| XRCC5 | 0.61743 | 0.002183 |
| WDR12 | 0.617593 | 0.01222 |
| CAV1 | 0.61764 | 0.763713 |
| PPP2R3B | 0.617719 | 0.015504 |
| NOB1 | 0.617735 | 0.015444 |
| BZW2 | 0.6178 | 0.012406 |
| PDSS1 | 0.617921 | 0.00625 |
| BOD1L1 | 0.617958 | 0.114304 |
| SELENOK | 0.617967 | 0.025171 |
| ILKAP | 0.617979 | 0.02876 |
| KBTBD11 | 0.618061 | 0.028234 |
| CAPRIN1 | 0.618103 | 0.022055 |
| NSMCE3 | 0.618161 | 0.028451 |
| CDC73 | 0.618201 | 0.007283 |
| KLHL28 | 0.618275 | 0.333239 |
| MLH3 | 0.618354 | 0.140876 |
| NUP210 | 0.618364 | 0.026845 |
| RBM34 | 0.618426 | 0.101751 |
| DHX8 | 0.618698 | 0.004482 |
| ZBTB33 | 0.618708 | 0.315733 |
| POLR2D | 0.618845 | 0.011166 |
| RCC1 | 0.618981 | 0.421539 |
| CTR9 | 0.618987 | 0.000702 |
| PPM1G | 0.619159 | 0.026731 |
| IQGAP1 | 0.61917 | 0.073054 |
| EFTUD2 | 0.619298 | 0.005049 |
| COIL | 0.619528 | 0.012063 |
| EP400 | 0.619563 | 0.150705 |

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| SIN3A | 0.619586 | 0.148662 |
| RPS12 | 0.61972 | 0.018702 |
| DEPTOR | 0.619835 | 0.002293 |
| DTNB | 0.619934 | 0.159364 |
| BTAF1 | 0.620104 | 0.000931 |
| MAD1L1 | 0.620109 | 0.047577 |
| PHF5A | 0.620124 | 0.014593 |
| SENP8 | 0.620141 | 0.000364 |
| ADNP | 0.620449 | 0.144616 |
| BAG4 | 0.620509 | 0.0063 |
| KLF2 | 0.620667 | 0.377592 |
| MRPS16 | 0.620775 | 0.066295 |
| SMC3 | 0.62086 | 0.083861 |
| ANKRD17 | 0.620895 | 0.007027 |
| PPIG | 0.620945 | 0.200262 |
| ABRAXAS1 | 0.620997 | 0.068819 |
| HERC5 | 0.621016 | 0.089174 |
| FBP2 | 0.621088 | 0.06841 |
| XRN2 | 0.621106 | 0.007586 |
| NUDT4 | 0.621122 | 0.043293 |
| SDAD1 | 0.621275 | 0.009616 |
| ISCA1 | 0.621473 | 0.015379 |
| KNTC1 | 0.621807 | 0.004 |
| PBXIP1 | 0.621843 | 0.0568 |
| MSH3 | 0.621964 | 0.002652 |
| DDX10 | 0.622219 | 0.005585 |
| CDK13 | 0.622221 | 0.009355 |
| MMP14 | 0.622312 | 0.367307 |

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| STAU2 | 0.622355 | 0.010424 |
| TTI1 | 0.622372 | 0.002503 |
| SLTM | 0.622474 | 0.153042 |
| C1orf52 | 0.622721 | 0.044166 |
| MRPS15 | 0.622803 | 0.044642 |
| RBM39 | 0.622863 | 0.011198 |
| COCH | 0.622943 | 0.972353 |
| SRSF11 | 0.622987 | 0.019053 |
| SIRT1 | 0.623062 | 0.003915 |
| UIMC1 | 0.623095 | 0.028035 |
| ZMYM1 | 0.623101 | 0.002378 |
| RAC2 | 0.623159 | 0.330262 |
| DENND5B | 0.623216 | 0.05175 |
| PCF11 | 0.623229 | 0.007566 |
| MTMR8 | 0.62325 | 0.275334 |
| ERCC5 | 0.623258 | 0.005503 |
| CETN3 | 0.623289 | 0.023043 |
| HNRNPK | 0.623359 | 0.054792 |
| GPBP1 | 0.623453 | 0.030574 |
| CDIN1 | 0.623467 | 0.047398 |
| DNAAF5 | 0.623514 | 0.010999 |
| SLC35A1 | 0.623569 | 0.028592 |
| PRDM11 | 0.623719 | 0.001848 |
| ZBTB14 | 0.623743 | 0.655763 |
| CXXC1 | 0.623745 | 0.025293 |
| HNRNPR | 0.623749 | 0.012983 |
| GTF2H1 | 0.623787 | 0.004574 |
| NIFK | 0.623808 | 0.030664 |

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|---|---|---|
| CENPC | 0.623908 | 0.20332 |
| NOL8 | 0.624096 | 0.113412 |
| CCNE1 | 0.62416 | 0.335343 |
| HBA2 | 0.624195 | 0.786983 |
| RBMX2 | 0.624232 | 0.113448 |
| BPHL | 0.624251 | 0.026313 |
| PHF21A | 0.624348 | 0.03289 |
| MTARC1 | 0.624473 | 0.163534 |
| CASC3 | 0.62461 | 0.081219 |
| CDK18 | 0.624665 | 0.213537 |
| RERE | 0.624866 | 0.001691 |
| RRP9 | 0.624931 | 0.0197 |
| RBM45 | 0.625084 | 0.039954 |
| NELFE | 0.625126 | 0.021415 |
| EIF3A | 0.62531 | 0.014515 |
| ZBTB1 | 0.625362 | 0.137476 |
| ARSK | 0.625619 | 0.057773 |
| RPL12 | 0.625838 | 0.037667 |
| RPS7 | 0.626072 | 0.002202 |
| LIN37 | 0.626168 | 0.17123 |
| ARID1A | 0.626215 | 0.287703 |
| NPM1 | 0.626428 | 0.021996 |
| S100Z | 0.626446 | 0.554505 |
| XRCC1 | 0.626454 | 0.066649 |
| SUGP2 | 0.626538 | 0.025847 |
| CHTF18 | 0.6266 | 0.000612 |
| KPNA2 | 0.62668 | 0.007638 |
| TMEM214 | 0.626682 | 0.001286 |

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|---|---|---|
| PUS3 | 0.626728 | 0.002016 |
| HERPUD2 | 0.626919 | 0.026616 |
| PIGT | 0.626963 | 0.000785 |
| BCL2L15 | 0.627007 | 0.514473 |
| AHCTF1 | 0.627351 | 0.341807 |
| DGCR8 | 0.627388 | 0.008395 |
| CC2D1A | 0.627485 | 0.458815 |
| TRIM22 | 0.627583 | 0.075889 |
| CPSF1 | 0.627674 | 0.003847 |
| THAP12 | 0.627687 | 0.004349 |
| TOP3A | 0.627716 | 0.034202 |
| PALS2 | 0.627724 | 0.058296 |
| SGPL1 | 0.627727 | 0.058587 |
| SMIM20 | 0.627737 | 0.146706 |
| H1-0 | 0.627756 | 0.801178 |
| TAF6L | 0.627758 | 0.004357 |
| ESF1 | 0.627811 | 0.005399 |
| CHD3 | 0.62787 | 0.243032 |
| DENND4A | 0.627953 | 0.199635 |
| ZMYM4 | 0.628159 | 0.056814 |
| MBNL1 | 0.628197 | 0.009586 |
| S100A1 | 0.628217 | 0.510291 |
| MPG | 0.628261 | 0.237254 |
| SRSF4 | 0.628509 | 0.123877 |
| RPS6KA2 | 0.628611 | 0.161012 |
| HAX1 | 0.628711 | 0.015394 |
| ARL2BP | 0.628717 | 0.004472 |
| POLG2 | 0.62886 | 0.120334 |

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|---|---|---|
| NUDT21 | 0.628917 | 0.011069 |
| NCF2 | 0.629175 | 0.310499 |
| HAAO | 0.629215 | 0.020207 |
| DROSHA | 0.62928 | 0.059231 |
| PHYHD1 | 0.629453 | 0.029045 |
| KIF2C | 0.62964 | 0.019266 |
| KRR1 | 0.629675 | 0.013129 |
| RBM15 | 0.629779 | 0.052727 |
| SCAF8 | 0.629883 | 0.003455 |
| RTF1 | 0.629974 | 0.02013 |
| MPHOSPH10 | 0.629995 | 0.029615 |
| RBM6 | 0.63016 | 0.020008 |
| CENPH | 0.630503 | 0.044575 |
| ALOX5 | 0.630529 | 0.109972 |
| NCAPH | 0.630537 | 0.060096 |
| HEXD | 0.630726 | 0.003782 |
| VRK1 | 0.630899 | 0.320272 |
| MAML3 | 0.630965 | 0.155331 |
| HEATR3 | 0.631032 | 0.002901 |
| HPF1 | 0.631034 | 0.033525 |
| ZNF670 | 0.631042 | 0.096529 |
| RBBP4 | 0.631216 | 0.050139 |
| TAF2 | 0.631327 | 0.005605 |
| TAF10 | 0.631343 | 0.076926 |
| TOMM22 | 0.631389 | 0.61375 |
| RBBP5 | 0.631393 | 0.021134 |
| CHERP | 0.631502 | 0.010974 |
| MTG2 | 0.631628 | 0.037286 |

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|---|---|---|
| ZMYM2 | 0.631731 | 0.046825 |
| CWC25 | 0.631754 | 0.069778 |
| INTS8 | 0.63188 | 0.004174 |
| H1-3 | 0.631925 | 0.838523 |
| BCCIP | 0.631989 | 0.015732 |
| BCL2L2-PABPN1 | 0.632084 | 0.024166 |
| KIF11 | 0.632201 | 0.028342 |
| SMC6 | 0.632259 | 0.009125 |
| AFF1 | 0.632326 | 0.023225 |
| PDCD7 | 0.632442 | 0.01238 |
| SKA1 | 0.6325 | 0.286919 |
| SLIRP | 0.632583 | 0.033404 |
| ZWILCH | 0.632599 | 0.026663 |
| RAD54B | 0.632618 | 0.019662 |
| DYNC1H1 | 0.632912 | 0.003723 |
| BTBD10 | 0.632921 | 0.031567 |
| ZFC3H1 | 0.632992 | 0.003249 |
| TMA16 | 0.633142 | 0.045691 |
| SMC4 | 0.633207 | 0.017566 |
| TLK2 | 0.633317 | 0.04 |
| NSMCE4A | 0.63335 | 0.099032 |
| RASSF2 | 0.633358 | 0.009628 |
| YTHDC1 | 0.633474 | 0.128391 |
| HDGF | 0.633535 | 0.049888 |
| CPSF6 | 0.633569 | 0.05086 |
| SRSF6 | 0.633613 | 0.05749 |
| ABITRAM | 0.633701 | 0.029481 |
| EIF2AK4 | 0.633768 | 0.004199 |

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|---|---|---|
| POLR3E | 0.633826 | 0.00165 |
| C17orf97 | 0.63385 | 0.309078 |
| THADA | 0.633967 | 0.000448 |
| BAIAP2 | 0.633995 | 0.009977 |
| KDM6A | 0.634069 | 0.273257 |
| FAM168A | 0.634096 | 0.127093 |
| GINS2 | 0.634118 | 0.001168 |
| COA3 | 0.634295 | 0.332337 |
| CPSF2 | 0.634299 | 0.013439 |
| ARHGAP4 | 0.63431 | 0.003881 |
| FCHSD2 | 0.634403 | 0.011973 |
| PODXL2 | 0.634453 | 0.451064 |
| RPP38 | 0.634577 | 0.000256 |
| CDK11A | 0.634608 | 0.033531 |
| WBP11 | 0.634726 | 0.018185 |
| DHX15 | 0.634937 | 0.002631 |
| LGALS2 | 0.634956 | 0.25571 |
| TMCO1 | 0.635175 | 0.159008 |
| NCBP1 | 0.635387 | 0.003602 |
| MRPS18B | 0.635397 | 0.097541 |
| CA4 | 0.635398 | 0.052652 |
| ZNF277 | 0.635404 | 0.052095 |
| N6AMT1 | 0.635436 | 0.030924 |
| RBBP6 | 0.635523 | 0.07412 |
| PRSS57 | 0.635595 | 0.111353 |
| SMC5 | 0.635793 | 0.034701 |
| SUPT7L | 0.635834 | 0.001702 |
| PROM1 | 0.635838 | 0.086704 |

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|---|---|---|
| NTPCR | 0.63585 | 0.013926 |
| GABPA | 0.635959 | 0.026542 |
| CERS6 | 0.63608 | 0.019223 |
| GPBP1L1 | 0.636394 | 0.175497 |
| AATF | 0.636453 | 0.001786 |
| RNPEP | 0.636529 | 0.001981 |
| AAMP | 0.636539 | 0.004385 |
| PIK3R3 | 0.636587 | 0.845864 |
| LSM4 | 0.636996 | 0.001136 |
| POLB | 0.63704 | 0.039986 |
| GGT5 | 0.637206 | 0.100268 |
| EPS8L2 | 0.637333 | 0.176535 |
| RAB11FIP1 | 0.637362 | 0.048394 |
| NR2C2 | 0.637388 | 0.175666 |
| RPS8 | 0.637416 | 0.004491 |
| PDCD2 | 0.63786 | 0.05224 |
| FCGRT | 0.637898 | 0.092318 |
| MOGS | 0.638076 | 0.000806 |
| TIMM13 | 0.638101 | 0.016075 |
| MYO1B | 0.638115 | 0.131683 |
| RBM5 | 0.638147 | 0.025867 |
| YLPM1 | 0.638206 | 0.045827 |
| SHQ1 | 0.638272 | 0.001569 |
| SUN2 | 0.638451 | 0.265589 |
| DNAJC8 | 0.638569 | 0.021027 |
| SMARCA4 | 0.638738 | 0.141763 |
| CYP2S1 | 0.638749 | 0.217584 |
| ATR | 0.638787 | 0.004533 |

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|---|---|---|
| ZNF460 | 0.638897 | 0.111474 |
| HNRNPK | 0.638898 | 0.066212 |
| SETDB1 | 0.639054 | 0.006135 |
| DDX41 | 0.639265 | 0.004036 |
| SETMAR | 0.639306 | 0.056306 |
| XRCC4 | 0.639352 | 0.734976 |
| POLR2E | 0.639432 | 0.006758 |
| ICMT | 0.639572 | 0.041977 |
| BCL9 | 0.639641 | 0.541006 |
| GCN1 | 0.639787 | 0.002009 |
| SUGP1 | 0.640154 | 0.023663 |
| MED18 | 0.64024 | 0.017332 |
| PAQR4 | 0.640348 | 0.026283 |
| GCFC2 | 0.640486 | 0.010868 |
| MFAP4 | 0.640548 | 0.63678 |
| TGDS | 0.64055 | 0.004415 |
| PAK6 | 0.64066 | 0.322701 |
| NA | 0.640742 | 0.006377 |
| NIBAN1 | 0.640809 | 0.00333 |
| PLBD1 | 0.640879 | 0.728017 |
| METTL3 | 0.641043 | 0.003559 |
| LTV1 | 0.641083 | 0.201551 |
| KMT2B | 0.641177 | 0.179652 |
| UBA2 | 0.641214 | 0.00677 |
| RPL27 | 0.641263 | 0.038684 |
| IL1B | 0.641296 | 0.050291 |
| KDELR1 | 0.641334 | 0.169988 |
| RIDA | 0.641338 | 0.105968 |

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|---|---|---|
| PRPF31 | 0.641494 | 0.001431 |
| DDX60L | 0.641644 | 0.006212 |
| DHX34 | 0.641686 | 0.003487 |
| IVNS1ABP | 0.641708 | 0.051586 |
| ZNF587 | 0.641734 | 0.18335 |
| TEDC1 | 0.641748 | 0.207671 |
| C4orf3 | 0.641758 | 0.279296 |
| NLRC4 | 0.642218 | 0.093221 |
| TFAM | 0.642294 | 0.399683 |
| HNRNPR | 0.642299 | 0.02879 |
| DEFA3 | 0.64236 | 0.912196 |
| TRIM8 | 0.64237 | 0.011591 |
| OXA1L | 0.642561 | 0.143436 |
| SMPDL3B | 0.642635 | 0.103961 |
| CHD1 | 0.64276 | 0.028334 |
| BCLAF3 | 0.642766 | 0.050432 |
| DNTTIP1 | 0.642776 | 0.131571 |
| SPAG5 | 0.642945 | 0.01547 |
| RNF5 | 0.643003 | 0.196515 |
| BAZ1B | 0.643239 | 0.422782 |
| RNASEH1 | 0.643327 | 0.080509 |
| PLRG1 | 0.643348 | 0.039238 |
| RPUSD2 | 0.643379 | 0.03775 |
| TANC2 | 0.643449 | 0.037687 |
| CDAN1 | 0.643534 | 0.001507 |
| THOC6 | 0.643546 | 0.023531 |
| IBTK | 0.643611 | 0.006944 |
| PSME3 | 0.643678 | 0.013061 |

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|---|---|---|
| NCAPD2 | 0.643784 | 0.044186 |
| PDCD6IP | 0.643996 | 0.017332 |
| RPP25L | 0.644001 | 0.037074 |
| FASTKD1 | 0.644028 | 0.029593 |
| COP1 | 0.644069 | 0.392924 |
| ACP3 | 0.644577 | 0.081844 |
| METTL14 | 0.64463 | 0.015418 |
| LTA4H | 0.644672 | 0.015325 |
| DHX38 | 0.644824 | 0.003282 |
| AGAP3 | 0.644854 | 0.023692 |
| C11orf98 | 0.645111 | 0.125433 |
| TARDBP | 0.645143 | 0.012494 |
| YEATS4 | 0.645168 | 0.033539 |
| ACTR8 | 0.645291 | 0.014283 |
| DRG1 | 0.645306 | 0.006258 |
| AAR2 | 0.645347 | 0.000951 |
| C2orf49 | 0.645382 | 0.060117 |
| THOP1 | 0.645698 | 0.000428 |
| C7orf26 | 0.645711 | 0.019723 |
| RNGTT | 0.645715 | 0.003816 |
| ELANE | 0.645832 | 0.679269 |
| RPL3 | 0.646123 | 0.006975 |
| TRMT2A | 0.646166 | 0.001857 |
| BCLAF1 | 0.646258 | 0.297059 |
| DHRS9 | 0.646284 | 0.080446 |
| ARMC5 | 0.646466 | 0.001492 |
| MIEF2 | 0.646531 | 0.2113 |
| MAP7 | 0.646642 | 0.13608 |

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|---|---|---|
| PHB2 | 0.646724 | 0.303687 |
| DHX57 | 0.646737 | 0.011298 |
| CYBA | 0.646816 | 0.288973 |
| XAB2 | 0.646942 | 0.007775 |
| EPB41L2 | 0.647012 | 0.099312 |
| ARHGAP30 | 0.647064 | 0.253934 |
| POLR2K | 0.647228 | 0.318237 |
| LRRC25 | 0.647268 | 0.251099 |
| DTX2 | 0.647318 | 0.3121 |
| UBXN7 | 0.647358 | 0.000505 |
| KDM1B | 0.647392 | 0.084874 |
| KRT83 | 0.647563 | 0.493718 |
| ZNF654 | 0.647581 | 0.084807 |
| EVPL | 0.647597 | 0.221291 |
| GPAA1 | 0.647737 | 0.000872 |
| DCP1B | 0.647773 | 0.028494 |
| TIFA | 0.647802 | 0.051181 |
| MED4 | 0.647872 | 0.002745 |
| SUPT6H | 0.647938 | 0.013962 |
| SSRP1 | 0.64795 | 0.064843 |
| CPA3 | 0.647954 | 0.021294 |
| BBS9 | 0.647985 | 0.040444 |
| TDG | 0.648101 | 0.156712 |
| ATAD2 | 0.648102 | 0.078667 |
| ZC3H15 | 0.648133 | 0.004535 |
| RBM19 | 0.64815 | 0.004108 |
| BST1 | 0.648294 | 0.050466 |
| POLR1E | 0.648376 | 0.021938 |

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|---|---|---|
| PUM2 | 0.648434 | 0.010091 |
| PCIF1 | 0.64849 | 0.00318 |
| RNASE6 | 0.648647 | 0.566017 |
| DDX50 | 0.648671 | 0.061793 |
| AGTRAP | 0.648725 | 0.148926 |
| RPS28 | 0.648727 | 0.012379 |
| GEMIN4 | 0.648795 | 0.008606 |
| SLC22A16 | 0.648896 | 0.147505 |
| COX6C | 0.649435 | 0.375223 |
| SETX | 0.649933 | 0.003285 |
| CHEK2 | 0.649958 | 0.003678 |
| PIAS1 | 0.649984 | 0.006703 |
| DIP2B | 0.649988 | 0.005554 |
| CNOT2 | 0.650052 | 0.011419 |
| MN1 | 0.650273 | 0.188502 |
| DFFB | 0.650324 | 0.002198 |
| NCAPG | 0.650535 | 0.032328 |
| PHF8 | 0.650544 | 0.018866 |
| SLC25A40 | 0.650754 | 0.080424 |
| RNF113A | 0.650797 | 0.027852 |
| ARPP21 | 0.650799 | 0.590718 |
| AKTIP | 0.650834 | 0.276539 |
| IMMT | 0.650967 | 0.924984 |
| MPDU1 | 0.651089 | 0.054422 |
| NUP214 | 0.651097 | 0.008063 |
| NOD2 | 0.651135 | 0.05285 |
| MAGOH | 0.651269 | 0.042264 |
| MRPS2 | 0.651341 | 0.066802 |

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|---|---|---|
| NOC4L | 0.651398 | 0.006468 |
| TONSL | 0.651425 | 0.000348 |
| AASDH | 0.651588 | 0.02697 |
| B3GNT8 | 0.651681 | 0.062622 |
| SRSF1 | 0.651733 | 0.171015 |
| DMTF1 | 0.65175 | 0.295533 |
| RSL24D1 | 0.651803 | 0.004305 |
| ARHGAP25 | 0.651819 | 0.022539 |
| PRAME | 0.65184 | 0.687356 |
| ZNF385A | 0.651894 | 0.126338 |
| SENP7 | 0.651949 | 0.398951 |
| TAF6 | 0.651991 | 0.05796 |
| XPOT | 0.651997 | 0.001813 |
| RPS3A | 0.652048 | 0.002866 |
| NDUFAF6 | 0.652072 | 0.100707 |
| THUMPD2 | 0.652164 | 0.022424 |
| MTBP | 0.652186 | 0.347712 |
| SPI1 | 0.652207 | 0.214375 |
| IPO11 | 0.65223 | 0.004745 |
| AKAP7 | 0.652296 | 0.093171 |
| NCAPG2 | 0.652371 | 0.001451 |
| EP300 | 0.652387 | 0.009517 |
| PCNP | 0.652791 | 0.24137 |
| RPS26 | 0.652869 | 0.011308 |
| EZH2 | 0.652891 | 0.260159 |
| ATP5MF-PTCD1 | 0.652921 | 0.044377 |
| SCLY | 0.652994 | 0.072015 |
| MORC2 | 0.653077 | 0.062886 |

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|---|---|---|
| FAM210A | 0.653109 | 0.395386 |
| SFSWAP | 0.653235 | 0.007727 |
| ATRAID | 0.653259 | 0.0341 |
| POLR2H | 0.65335 | 0.009811 |
| U2AF2 | 0.653389 | 0.002351 |
| SETD7 | 0.653412 | 0.041581 |
| ATP5MJ | 0.653498 | 0.676053 |
| DNAJC17 | 0.653501 | 0.012933 |
| TDP1 | 0.653533 | 0.028623 |
| CEP95 | 0.653628 | 0.056752 |
| LYZ | 0.653642 | 0.349615 |
| RSBN1L | 0.65365 | 0.064059 |
| NXT1 | 0.653691 | 0.003025 |
| TUT4 | 0.653725 | 0.000546 |
| MAGED1 | 0.653804 | 0.170399 |
| EHD2 | 0.653887 | 0.053653 |
| PHIP | 0.653916 | 0.377498 |
| HIRIP3 | 0.653982 | 0.007845 |
| USP10 | 0.653991 | 0.005093 |
| PTBP2 | 0.654052 | 0.037808 |
| PAK1IP1 | 0.654059 | 0.008141 |
| ZCCHC3 | 0.65406 | 0.019177 |
| HNRNPH3 | 0.654094 | 0.066376 |
| RBM27 | 0.654262 | 0.018501 |
| SRP72 | 0.654319 | 0.002973 |
| PPP4C | 0.654456 | 0.022667 |
| NEO1 | 0.65448 | 0.999703 |
| DENND10 | 0.654494 | 0.002635 |

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|---|---|---|
| MRPS35 | 0.654579 | 0.071558 |
| AKR1C3 | 0.655033 | 0.025743 |
| METTL7A | 0.655041 | 0.102435 |
| POLE3 | 0.655053 | 0.034511 |
| TDP2 | 0.655053 | 0.019794 |
| ICA1 | 0.655093 | 0.003871 |
| H6PD | 0.65527 | 0.010858 |
| ZADH2 | 0.655311 | 0.024654 |
| DENND1A | 0.655557 | 0.017716 |
| SKA3 | 0.655616 | 0.011968 |
| EARS2 | 0.655817 | 0.045285 |
| DHX35 | 0.655877 | 0.003281 |
| COQ7 | 0.655881 | 0.012108 |
| PCYT1A | 0.655897 | 0.014461 |
| PTPRE | 0.65592 | 0.026288 |
| ZFAND6 | 0.65592 | 0.037779 |
| NUMA1 | 0.65601 | 0.099043 |
| TRIM47 | 0.65609 | 0.028613 |
| CCNL2 | 0.656094 | 0.010828 |
| TRMT10C | 0.656153 | 0.028076 |
| METTL16 | 0.656213 | 0.021754 |
| CLSPN | 0.656298 | 0.673549 |
| GRK2 | 0.65632 | 0.007575 |
| BDH2 | 0.656329 | 0.091843 |
| ACIN1 | 0.656345 | 0.29165 |
| BCKDHA | 0.656557 | 0.106735 |
| TARS2 | 0.65677 | 0.015181 |
| C1orf112 | 0.65689 | 0.014983 |

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|---|---|---|
| KIFC1 | 0.657082 | 0.07423 |
| CDK2 | 0.657379 | 0.005518 |
| EXOSC8 | 0.657575 | 0.014255 |
| DNAAF10 | 0.657653 | 0.039639 |
| FUBP3 | 0.657839 | 0.023756 |
| CREG1 | 0.65795 | 0.202845 |
| TAF9B | 0.658034 | 0.098611 |
| FTSJ3 | 0.658056 | 0.02488 |
| HNRNPA3 | 0.658212 | 0.053584 |
| NAF1 | 0.658364 | 0.15154 |
| SRPK2 | 0.658508 | 0.083135 |
| EXOSC1 | 0.658619 | 0.021263 |
| WDR82 | 0.658654 | 0.001398 |
| HLA-C | 0.658707 | 0.880007 |
| UBE2L6 | 0.658771 | 0.018724 |
| CORO7-PAM16 | 0.658827 | 0.609253 |
| DNMT1 | 0.658908 | 0.096261 |
| TRMT61A | 0.658924 | 0.003335 |
| USP22 | 0.659049 | 0.024424 |
| ZNF574 | 0.65912 | 0.00068 |
| GLMN | 0.659459 | 0.020248 |
| JADE1 | 0.659476 | 0.123204 |
| CLPX | 0.659574 | 0.023603 |
| PAF1 | 0.659624 | 0.025274 |
| ADAM15 | 0.659651 | 0.077168 |
| INTS5 | 0.65975 | 0.021824 |
| STRN3 | 0.659885 | 0.37809 |
| UBLCP1 | 0.66 | 0.058647 |

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|---|---|---|
| CENPL | 0.66013 | 0.60863 |
| PHAX | 0.660242 | 0.03295 |
| EEF2KMT | 0.660267 | 0.305783 |
| G6PD | 0.660545 | 0.321845 |
| ZNF100 | 0.660668 | 0.049562 |
| SDHD | 0.660876 | 0.449271 |
| GALNT14 | 0.661058 | 0.114843 |
| FBRS | 0.661181 | 0.248442 |
| KDSR | 0.661224 | 0.021274 |
| ENTR1 | 0.661237 | 0.071846 |
| FAM98B | 0.661311 | 0.005641 |
| RFLNB | 0.661331 | 0.365706 |
| NUP98 | 0.661335 | 0.047421 |
| USF1 | 0.66134 | 0.779489 |
| PRMT1 | 0.661352 | 0.020401 |
| MCCC2 | 0.661403 | 0.058643 |
| NOP14 | 0.661412 | 0.079146 |
| ARHGEF1 | 0.661417 | 0.26316 |
| SRR | 0.66142 | 0.254563 |
| SMC2 | 0.66143 | 0.026271 |
| MRPS21 | 0.661439 | 0.054399 |
| EIF4A3 | 0.661523 | 0.030635 |
| TGS1 | 0.661545 | 0.021603 |
| QPRT | 0.661697 | 0.094922 |
| SPG11 | 0.661735 | 0.001461 |
| IFITM3 | 0.661902 | 0.670191 |
| CSNK1G2 | 0.661918 | 0.209995 |
| LMBR1 | 0.662011 | 0.00863 |

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|---|---|---|
| BCAS2 | 0.662092 | 0.001531 |
| SLBP | 0.662102 | 0.136536 |
| REL | 0.662142 | 0.028338 |
| RAD54L2 | 0.662154 | 0.016768 |
| ELAC2 | 0.662165 | 0.006119 |
| BTG2 | 0.662212 | 0.126185 |
| TASOR2 | 0.662255 | 0.137831 |
| DGAT1 | 0.662424 | 0.018374 |
| CDCA8 | 0.662551 | 0.188236 |
| WIZ | 0.662578 | 0.212525 |
| RNF40 | 0.66263 | 0.023298 |
| LSM7 | 0.662755 | 0.041505 |
| CDKN2A | 0.662861 | 0.418406 |
| MZB1 | 0.662878 | 0.087029 |
| BMT2 | 0.662904 | 0.008172 |
| EID1 | 0.662961 | 0.313408 |
| MEIS1 | 0.663183 | 0.264515 |
| TGFBR1 | 0.663292 | 0.169852 |
| COQ4 | 0.663299 | 0.066453 |
| YJU2B | 0.663355 | 0.002147 |
| ALDH1B1 | 0.663365 | 0.031643 |
| PLEC | 0.663427 | 0.476603 |
| NLRP1 | 0.66346 | 0.05589 |
| ADCK5 | 0.663599 | 0.774119 |
| STAG1 | 0.663654 | 0.3107 |
| EEF2K | 0.663869 | 0.027214 |
| CDKN2C | 0.66406 | 0.398971 |
| SUPT4H1 | 0.664073 | 0.031652 |

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|---|---|---|
| FLI1 | 0.664087 | 0.056499 |
| ALG3 | 0.664089 | 0.020762 |
| SLFN13 | 0.664186 | 0.252814 |
| CD163 | 0.664228 | 0.077699 |
| PELP1 | 0.664266 | 0.077112 |
| BRAT1 | 0.664269 | 0.000427 |
| CMAS | 0.664283 | 0.371418 |
| BRMS1 | 0.664287 | 0.386563 |
| KRT85 | 0.664295 | 0.508029 |
| UTP14A | 0.664336 | 0.030401 |
| LTB4R | 0.664382 | 0.87993 |
| GRWD1 | 0.664408 | 0.001933 |
| NAA60 | 0.664485 | 0.371995 |
| SRF | 0.664609 | 0.36043 |
| HK3 | 0.664624 | 0.361142 |
| KDM3B | 0.664634 | 0.002493 |
| LIN7A | 0.664655 | 0.323503 |
| FBXO7 | 0.664656 | 0.140967 |
| N4BP2 | 0.664758 | 0.037776 |
| METTL2B | 0.664771 | 0.011828 |
| KCTD12 | 0.664772 | 0.532201 |
| EVI2B | 0.664812 | 0.139004 |
| POP7 | 0.664891 | 0.252883 |
| FADS2 | 0.665091 | 0.003731 |
| OAS1 | 0.665098 | 0.300137 |
| CIR1 | 0.665116 | 0.068805 |
| SFT2D3 | 0.665128 | 0.129923 |
| ZC4H2 | 0.665468 | 0.025493 |

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|---|---|---|
| TMCC3 | 0.665473 | 0.207204 |
| MRGBP | 0.665486 | 0.107038 |
| CMTR1 | 0.66559 | 0.015262 |
| ITM2C | 0.665679 | 0.04779 |
| SMARCD1 | 0.665739 | 0.219102 |
| RBIS | 0.665749 | 0.462772 |
| QKI | 0.665853 | 0.007812 |
| NUP133 | 0.665933 | 0.026755 |
| NOPCHAP1 | 0.666133 | 0.068827 |
| NUFIP1 | 0.666267 | 0.056082 |
| IMPDH1 | 0.666413 | 0.003173 |
| DOCK4 | 0.666435 | 0.158943 |
| ZBTB9 | 0.666444 | 0.208486 |
| SLC1A5 | 0.666509 | 0.070149 |
| NUP88 | 0.666539 | 0.041475 |
| GINS4 | 0.666585 | 0.003244 |
| ANLN | 0.666721 | 0.119265 |
| MAT2B | 0.66681 | 0.027144 |
| MGST3 | 0.666963 | 0.388145 |
| HNRNPLL | 0.667024 | 0.316461 |
| XRCC3 | 0.667035 | 0.004143 |
| INTS10 | 0.667037 | 0.029302 |
| PSME3IP1 | 0.667057 | 0.057701 |
| NPM2 | 0.667182 | 0.676824 |
| CHTOP | 0.667192 | 0.209923 |
| EED | 0.667206 | 0.080618 |
| TRIAP1 | 0.667209 | 0.012673 |
| NAP1L4 | 0.667277 | 0.021137 |

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|---|---|---|
| NRDE2 | 0.667293 | 0.034567 |
| CBX8 | 0.667377 | 0.767317 |
| TADA1 | 0.667569 | 0.047239 |
| MED10 | 0.667645 | 0.062855 |
| TRMT44 | 0.667667 | 0.072671 |
| MRPS12 | 0.667735 | 0.087207 |
| TKT | 0.667788 | 0.008647 |
| PIGK | 0.667841 | 0.001598 |
| SELENOS | 0.667881 | 0.1044 |
| RPS4Y2 | 0.667901 | 0.994323 |
| DNAAF2 | 0.668057 | 0.016814 |
| NAA20 | 0.668084 | 0.004196 |
| HK2 | 0.668087 | 0.038533 |
| RPRD1B | 0.668133 | 0.030215 |
| SLC43A2 | 0.668295 | 0.248788 |
| GTF2E1 | 0.668315 | 0.026322 |
| TMEM237 | 0.668369 | 0.133185 |
| FLII | 0.668392 | 0.66585 |
| HEATR6 | 0.668399 | 0.012697 |
| GEMIN8 | 0.668699 | 0.027041 |
| RPUSD3 | 0.668713 | 0.005096 |
| COMT | 0.668791 | 0.004401 |
| RPL36 | 0.668886 | 0.030568 |
| PABIR1 | 0.668902 | 0.043521 |
| SMARCB1 | 0.668994 | 0.623881 |
| MRPS24 | 0.669151 | 0.109688 |
| DDX54 | 0.669278 | 0.026936 |
| CAMKK1 | 0.669342 | 0.132545 |

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|---|---|---|
| MCRIP2 | 0.66947 | 0.222339 |
| LMCD1 | 0.669534 | 0.139011 |
| RNF185 | 0.669581 | 0.194043 |
| TRPS1 | 0.669625 | 0.251079 |
| BRPF1 | 0.669937 | 0.159217 |
| KAT7 | 0.669956 | 0.131387 |
| P4HA1 | 0.670077 | 0.012819 |
| DNAJC13 | 0.670114 | 0.01542 |
| KANK1 | 0.670219 | 0.058037 |
| KAT6A | 0.670362 | 0.27805 |
| RBBP7 | 0.670405 | 0.004238 |
| PNPLA4 | 0.670405 | 0.074306 |
| IPO8 | 0.670467 | 0.004699 |
| NDUFA9 | 0.670472 | 0.312157 |
| AHNAK | 0.670474 | 0.201083 |
| SWAP70 | 0.670507 | 0.021067 |
| RPL18 | 0.670676 | 0.039612 |
| STING1 | 0.670728 | 0.072772 |
| CNOT11 | 0.67079 | 0.024465 |
| LYL1 | 0.670885 | 0.025168 |
| HMCES | 0.670897 | 0.165117 |
| HLA-DPA1 | 0.671134 | 0.062773 |
| KIAA0930 | 0.671169 | 0.010943 |
| DPYSL5 | 0.671282 | 0.903626 |
| FBXW4 | 0.671351 | 0.312439 |
| TFPT | 0.671404 | 0.065815 |
| STK19 | 0.671411 | 0.052973 |
| CNOT10 | 0.671465 | 0.007716 |

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|---|---|---|
| HBD | 0.671648 | 0.828321 |
| ISG20L2 | 0.671658 | 0.044494 |
| BUB1B | 0.671689 | 0.035825 |
| MT-ND5 | 0.671796 | 0.960968 |
| MBIP | 0.671799 | 0.08992 |
| SWSAP1 | 0.671807 | 0.028633 |
| IGF2BP2 | 0.671872 | 0.0202 |
| ERI1 | 0.671919 | 0.079954 |
| MED22 | 0.672001 | 0.044708 |
| TAF7 | 0.672149 | 0.017622 |
| B4GALT4 | 0.672151 | 0.002563 |
| METTL9 | 0.672154 | 0.073196 |
| TCAIM | 0.672286 | 0.127894 |
| CSF2RA | 0.672344 | 0.045379 |
| ELAVL4 | 0.672432 | 0.929222 |
| RPL22 | 0.672554 | 0.014972 |
| TNS3 | 0.672579 | 0.006172 |
| SGK3 | 0.672629 | 0.003774 |
| RAD51B | 0.67296 | 0.007934 |
| NSL1 | 0.672966 | 0.089668 |
| LACC1 | 0.673021 | 0.032234 |
| ARNT | 0.673046 | 0.008812 |
| ZKSCAN1 | 0.673061 | 0.060315 |
| PDCD5 | 0.673308 | 0.046466 |
| RBM42 | 0.673385 | 0.007135 |
| MAPK1IP1L | 0.673436 | 0.409239 |
| TRAF3IP3 | 0.673518 | 0.483532 |
| NAMPT | 0.673702 | 0.004001 |

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|---|---|---|
| YJU2 | 0.673709 | 0.013447 |
| ADAM28 | 0.673735 | 0.067294 |
| TAOK2 | 0.673826 | 0.146949 |
| MYO5C | 0.67385 | 0.024924 |
| ORMDL3 | 0.67391 | 0.240389 |
| GHITM | 0.673911 | 0.538415 |
| CDC45 | 0.673944 | 0.002207 |
| ITGB2 | 0.674097 | 0.218298 |
| HAVCR2 | 0.674162 | 0.688255 |
| PABPC4 | 0.674296 | 0.009925 |
| SLC15A4 | 0.674328 | 0.135581 |
| FBXL12 | 0.674353 | 0.117274 |
| ASF1B | 0.674391 | 0.260878 |
| EAF2 | 0.674434 | 0.086002 |
| CABIN1 | 0.674451 | 0.033285 |
| RRM2 | 0.674455 | 0.026372 |
| EIF3M | 0.674473 | 0.006626 |
| CDT1 | 0.674487 | 0.212164 |
| DCTPP1 | 0.674494 | 0.007696 |
| ASNSD1 | 0.674547 | 0.059252 |
| GPKOW | 0.67455 | 0.006723 |
| KYNU | 0.67458 | 0.054373 |
| IFT57 | 0.674728 | 0.063366 |
| HPS3 | 0.674733 | 0.004553 |
| ARMC9 | 0.674774 | 0.071119 |
| LGALS9 | 0.674779 | 0.057573 |
| UBR7 | 0.67478 | 0.010322 |
| ALDH2 | 0.674783 | 0.646291 |

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|---|---|---|
| RACGAP1 | 0.674843 | 0.194676 |
| ZNHIT6 | 0.674921 | 0.034532 |
| TPSAB1 | 0.675004 | 0.392316 |
| IMP4 | 0.675011 | 0.045506 |
| DDX39B | 0.675054 | 0.120123 |
| TRA2B | 0.675106 | 0.235586 |
| AK6 | 0.67511 | 0.030661 |
| SURF2 | 0.675111 | 0.028785 |
| SP140L | 0.675135 | 0.052344 |
| POMP | 0.675159 | 0.041227 |
| IMPDH2 | 0.675161 | 0.026823 |
| ABHD15 | 0.675275 | 0.054046 |
| NUP62 | 0.675276 | 0.022566 |
| SYNE3 | 0.675315 | 0.239422 |
| ATP5MC1 | 0.675327 | 0.194493 |
| TAF4 | 0.675392 | 0.131392 |
| EHMT1 | 0.675473 | 0.321482 |
| STAT5A | 0.675521 | 0.006337 |
| RCOR1 | 0.675659 | 0.035795 |
| KDM5B | 0.675775 | 0.2894 |
| SOAT1 | 0.675789 | 0.175155 |
| SLC25A42 | 0.67581 | 0.24786 |
| TIMM29 | 0.675824 | 0.142466 |
| ERO1A | 0.67585 | 0.014245 |
| TCIRG1 | 0.675856 | 0.072115 |
| ALOX15 | 0.676051 | 0.397458 |
| TOR1AIP1 | 0.676079 | 0.603745 |
| RBM17 | 0.676116 | 0.038805 |

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|---|---|---|
| LDB3 | 0.676174 | 0.319585 |
| PAPSS1 | 0.676457 | 0.007584 |
| EMG1 | 0.676488 | 0.072611 |
| PABPC1L2A | 0.676533 | 0.611981 |
| SAP30BP | 0.676588 | 0.056437 |
| SIRT7 | 0.676672 | 0.115347 |
| NHLRC3 | 0.676686 | 0.092867 |
| DUSP6 | 0.676855 | 0.080826 |
| MYO18A | 0.676866 | 0.023286 |
| CCDC126 | 0.676949 | 0.220665 |
| C9orf78 | 0.676962 | 0.061427 |
| RRP36 | 0.677192 | 0.287048 |
| SMARCA2 | 0.677219 | 0.365093 |
| APOBEC3B | 0.67726 | 0.047959 |
| CLYBL | 0.67734 | 0.082158 |
| SASS6 | 0.677389 | 0.021402 |
| MRE11 | 0.677433 | 0.022827 |
| RNPS1 | 0.677578 | 0.135008 |
| TLR3 | 0.677663 | 0.128458 |
| POLR1D | 0.677663 | 0.056896 |
| DHX30 | 0.677782 | 0.00504 |
| KIN | 0.677868 | 0.01675 |
| RPF1 | 0.677903 | 0.059764 |
| HSF1 | 0.678253 | 0.006401 |
| NUP155 | 0.678284 | 0.153332 |
| UXT | 0.678297 | 0.010228 |
| SMARCD2 | 0.678303 | 0.298225 |
| PRRC2B | 0.678361 | 0.042976 |

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|---|---|---|
| SFXN5 | 0.678431 | 0.10251 |
| COX7A2 | 0.678488 | 0.48403 |
| C1D | 0.678548 | 0.024643 |
| ZNF611 | 0.678554 | 0.622498 |
| PAXBP1 | 0.678731 | 0.023108 |
| FOXRED1 | 0.678763 | 0.046342 |
| ARRB2 | 0.678778 | 0.105076 |
| NUP107 | 0.678826 | 0.043567 |
| CDK5 | 0.679 | 0.0013 |
| ZBED1 | 0.679129 | 0.0834 |
| QTRT1 | 0.679139 | 0.05884 |
| ODF2 | 0.67922 | 0.187193 |
| RBP1 | 0.67924 | 0.754548 |
| ARHGEF2 | 0.679335 | 0.348942 |
| EPRS1 | 0.679546 | 0.009481 |
| NKIRAS1 | 0.679561 | 0.003402 |
| ABHD2 | 0.67958 | 0.005056 |
| PUF60 | 0.679653 | 0.024263 |
| DNA2 | 0.679657 | 0.436255 |
| NELFCD | 0.679768 | 0.010959 |
| SLC27A1 | 0.679785 | 0.002659 |
| TOR1AIP1 | 0.679789 | 0.385411 |
| IRF4 | 0.679793 | 0.208598 |
| C7orf50 | 0.679819 | 0.077968 |
| ACOT13 | 0.679861 | 0.023243 |
| MRPL34 | 0.679894 | 0.996829 |
| FAR2 | 0.680012 | 0.027313 |
| CAMKK2 | 0.680141 | 0.029485 |

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|---|---|---|
| PRAG1 | 0.680147 | 0.007868 |
| WDR91 | 0.680198 | 0.012229 |
| GALNT3 | 0.68023 | 0.219783 |
| SRM | 0.680277 | 0.006598 |
| HBB | 0.680291 | 0.723865 |
| KAT5 | 0.680315 | 0.02657 |
| OAS3 | 0.680325 | 0.539364 |
| GTF3A | 0.680354 | 0.121337 |
| NCOA5 | 0.68039 | 0.319777 |
| TSEN2 | 0.680412 | 0.050618 |
| HLX | 0.680413 | 0.16178 |
| CNTRL | 0.680449 | 0.02003 |
| ABCD4 | 0.680472 | 0.00368 |
| EOLA1 | 0.68051 | 0.421735 |
| INTS6 | 0.680667 | 0.03654 |
| CREBBP | 0.680756 | 0.037572 |
| PTPN9 | 0.68078 | 0.005691 |
| SIRPB2 | 0.680782 | 0.089493 |
| GLB1L2 | 0.680802 | 0.968673 |
| CACTIN | 0.680805 | 0.005899 |
| SORL1 | 0.681018 | 0.028824 |
| ACOT2 | 0.681058 | 0.03863 |
| CSE1L | 0.681062 | 0.012628 |
| APEX2 | 0.681079 | 0.008943 |
| PRPF3 | 0.681124 | 0.038378 |
| RESF1 | 0.681182 | 0.195499 |
| PWWP2A | 0.681199 | 0.499 |
| RANBP6 | 0.681282 | 0.007237 |

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|---|---|---|
| STEEP1 | 0.681289 | 0.028799 |
| DTWD2 | 0.681362 | 0.251948 |
| CDYL | 0.681432 | 0.268661 |
| PPT2 | 0.681554 | 0.645528 |
| GMEB2 | 0.681555 | 0.05436 |
| ARMC10 | 0.681684 | 0.077443 |
| TFIP11 | 0.681724 | 0.012532 |
| CLEC12A | 0.68177 | 0.062563 |
| RPS27 | 0.681783 | 0.016664 |
| ZC3H10 | 0.681931 | 0.005642 |
| GCDH | 0.682239 | 0.024456 |
| NUBPL | 0.682323 | 0.034494 |
| DCLRE1C | 0.682376 | 0.008866 |
| CENPX | 0.682386 | 0.035427 |
| ECD | 0.682399 | 0.032905 |
| NEIL1 | 0.682431 | 0.416544 |
| CYTH1 | 0.68257 | 0.256061 |
| MPND | 0.682591 | 0.089911 |
| NUP188 | 0.682595 | 0.04153 |
| METTL25 | 0.68265 | 0.000352 |
| ANTXR2 | 0.682687 | 0.017485 |
| SREK1IP1 | 0.682763 | 0.272311 |
| STAT6 | 0.682844 | 0.008919 |
| DHX16 | 0.682854 | 0.00383 |
| GALNT7 | 0.682965 | 0.022424 |
| RAB27A | 0.682992 | 0.029755 |
| BORA | 0.683024 | 0.142623 |
| PTBP3 | 0.683031 | 0.014465 |

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|---|---|---|
| PPWD1 | 0.683113 | 0.014333 |
| DENND1C | 0.683158 | 0.109221 |
| PRC1 | 0.683408 | 0.176285 |
| NUP42 | 0.683447 | 0.092545 |
| NFKBIE | 0.683481 | 0.102812 |
| RNPC3 | 0.683481 | 0.017415 |
| NOP53 | 0.683521 | 0.144054 |
| VSTM1 | 0.683665 | 0.274252 |
| MELK | 0.683742 | 0.032956 |
| MKI67 | 0.683865 | 0.268293 |
| GNL2 | 0.684104 | 0.009451 |
| TBL1XR1 | 0.68411 | 0.05301 |
| KHDRBS3 | 0.684133 | 0.486536 |
| HOOK2 | 0.684136 | 0.025764 |
| G3BP1 | 0.684144 | 0.017162 |
| ZNF667 | 0.684146 | 0.150132 |
| PCM1 | 0.684186 | 0.213814 |
| MAPK8 | 0.684234 | 0.065563 |
| C5orf63 | 0.68428 | 0.124849 |
| UQCRQ | 0.684359 | 0.358061 |
| PUS1 | 0.684374 | 0.010295 |
| RIOK1 | 0.684507 | 0.036945 |
| MTHFD1L | 0.684597 | 0.100463 |
| MAP3K8 | 0.684691 | 0.003045 |
| CDK5RAP1 | 0.684756 | 0.054574 |
| TIMMDC1 | 0.684771 | 0.088398 |
| YIPF4 | 0.684777 | 0.000422 |
| CFAP20 | 0.684826 | 0.025438 |

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| NDUFAF1 | 0.685025 | 0.075832 |
| TTC8 | 0.685088 | 0.231667 |
| CRIP1 | 0.685324 | 0.354414 |
| OGT | 0.685326 | 0.005899 |
| IPO4 | 0.685358 | 0.00053 |
| XPO6 | 0.685535 | 0.003691 |
| RACK1 | 0.685561 | 0.047395 |
| INO80 | 0.685644 | 0.258482 |
| NCOA3 | 0.68577 | 0.017354 |
| TSTD2 | 0.68577 | 0.013329 |
| HGH1 | 0.68587 | 0.011284 |
| ROGDI | 0.685885 | 0.081886 |
| CCNT2 | 0.686123 | 0.114698 |
| TMCO6 | 0.686188 | 0.098922 |
| CISD1 | 0.686299 | 0.128189 |
| CKS1B | 0.68633 | 0.002467 |
| FLOT1 | 0.686423 | 0.243607 |
| S100A10 | 0.686423 | 0.880807 |
| USP13 | 0.686433 | 0.003992 |
| FUBP1 | 0.686487 | 0.143214 |
| CAMP | 0.686577 | 0.836665 |
| MYO1G | 0.686644 | 0.073455 |
| TMEM248 | 0.686731 | 0.767897 |
| UTP15 | 0.686738 | 0.128105 |
| HLA-DPB1 | 0.686881 | 0.471797 |
| NA | 0.686938 | 0.057543 |
| TMEM11 | 0.686972 | 0.186224 |
| KICS2 | 0.687057 | 0.051859 |

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| SRP54 | 0.687064 | 0.006668 |
| CARNMT1 | 0.687071 | 0.481053 |
| ARL11 | 0.687247 | 0.056508 |
| TAF5L | 0.687259 | 0.013332 |
| DYNLRB1 | 0.687277 | 0.010807 |
| EMILIN2 | 0.687422 | 0.085069 |
| ZNF217 | 0.687425 | 0.295153 |
| LUC7L2 | 0.687528 | 0.147952 |
| METTL21A | 0.687568 | 0.00924 |
| SLC35C2 | 0.687572 | 0.567633 |
| TMEM143 | 0.687665 | 0.044481 |
| ADA2 | 0.687832 | 0.309131 |
| SMARCAD1 | 0.687897 | 0.010765 |
| AP5B1 | 0.687898 | 0.001787 |
| RASSF3 | 0.688 | 0.054812 |
| SLC7A8 | 0.688009 | 0.985148 |
| SAMD3 | 0.688032 | 0.567219 |
| SLFN11 | 0.68805 | 0.001308 |
| MRPS9 | 0.688079 | 0.088904 |
| BOP1 | 0.688183 | 0.007137 |
| NPEPL1 | 0.688315 | 0.038087 |
| VPS26C | 0.688377 | 0.007654 |
| DCAF1 | 0.688381 | 0.009168 |
| PHB | 0.688478 | 0.30026 |
| LARS1 | 0.688525 | 0.016554 |
| HLA-DRB1 | 0.688541 | 0.642123 |
| GPSM2 | 0.68857 | 0.465526 |
| PMS2 | 0.688722 | 0.012794 |

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|---|---|---|
| ARHGEF10L | 0.688795 | 0.222911 |
| MEFV | 0.68889 | 0.695674 |
| CYTIP | 0.689107 | 0.125399 |
| MED1 | 0.689134 | 0.029348 |
| ESCO2 | 0.689159 | 0.388595 |
| NCOA7 | 0.689239 | 0.138449 |
| PPIL4 | 0.68927 | 0.042146 |
| ZCCHC9 | 0.689296 | 0.338814 |
| ADSS2 | 0.689402 | 0.003419 |
| CHD2 | 0.689451 | 0.175532 |
| MPLKIP | 0.689525 | 0.062602 |
| DYNC2I1 | 0.689536 | 0.211457 |
| SNRPF | 0.68955 | 0.093496 |
| MGAM | 0.689577 | 0.492727 |
| CENATAC | 0.689601 | 0.205216 |
| RAB3D | 0.689604 | 0.136384 |
| WRAP53 | 0.689605 | 0.006603 |
| IGHMBP2 | 0.689614 | 0.000817 |
| GTPBP10 | 0.689615 | 0.095778 |
| HSP90AB1 | 0.689649 | 0.007729 |
| TMLHE | 0.689666 | 0.037245 |
| METTL7B | 0.690086 | 0.243557 |
| RTEL1 | 0.690187 | 0.019316 |
| RO60 | 0.690198 | 0.003281 |
| SRRM1 | 0.690294 | 0.173837 |
| PARP16 | 0.690333 | 0.01765 |
| PEX11A | 0.690408 | 0.42212 |
| SEC61A1 | 0.690457 | 0.044322 |

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| NPC2 | 0.690603 | 0.045913 |
| TFB1M | 0.69064 | 0.040209 |
| EDEM3 | 0.690664 | 0.001351 |
| DYSF | 0.690722 | 0.305562 |
| EIF3G | 0.690749 | 0.024482 |
| PNISR | 0.690752 | 0.139888 |
| NEPRO | 0.690904 | 0.06258 |
| ATXN3 | 0.690951 | 0.021454 |
| MTFR1 | 0.691038 | 0.061324 |
| POM121C | 0.691435 | 0.359555 |
| HLA-C | 0.691491 | 0.660852 |
| MORF4L1 | 0.691506 | 0.073668 |
| SH3TC1 | 0.691605 | 0.056062 |
| PLPP1 | 0.691715 | 0.951971 |
| METTL8 | 0.691744 | 0.133403 |
| OAS2 | 0.691794 | 0.637513 |
| RNF145 | 0.691828 | 0.281377 |
| TRMT2B | 0.691873 | 0.023306 |
| CWF19L2 | 0.691903 | 0.002213 |
| DGLUCY | 0.691975 | 0.233579 |
| SPOUT1 | 0.69198 | 0.01995 |
| DMXL2 | 0.692106 | 0.043163 |
| TAF12 | 0.692205 | 0.092453 |
| AGTRAP | 0.692208 | 0.062535 |
| MALT1 | 0.692212 | 0.273653 |
| ANAPC1 | 0.692261 | 0.00633 |
| LPIN1 | 0.692363 | 0.082414 |
| DCPS | 0.69238 | 0.042618 |

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| FAM193A | 0.692399 | 0.005896 |
| ZMYM3 | 0.692415 | 0.067261 |
| ELP3 | 0.692431 | 0.00241 |
| ABCF3 | 0.692477 | 0.003162 |
| AADAT | 0.692497 | 0.490366 |
| PLA2G2A | 0.692527 | 0.834154 |
| AMPD3 | 0.692549 | 0.095251 |
| PIGC | 0.692569 | 0.883069 |
| RPL11 | 0.69262 | 0.002705 |
| SERAC1 | 0.692731 | 0.140382 |
| PDE3B | 0.692776 | 0.01543 |
| ACAD10 | 0.693011 | 0.023244 |
| ISYNA1 | 0.693108 | 0.026931 |
| KMT2D | 0.693147 | 0.045769 |
| UNKL | 0.693177 | 0.21065 |
| NUP58 | 0.693262 | 0.058759 |
| FAM118B | 0.693522 | 0.030585 |
| RECQL4 | 0.693535 | 0.043119 |
| APOO | 0.693572 | 0.290386 |
| KLHDC2 | 0.693673 | 0.00082 |
| LLPH | 0.693787 | 0.058656 |
| YARS2 | 0.693891 | 0.044835 |
| LENG8 | 0.693983 | 0.010896 |
| CCDC57 | 0.694075 | 0.472858 |
| UBE2J2 | 0.694111 | 0.059414 |
| ABCG2 | 0.694284 | 0.694746 |
| SHKBP1 | 0.694382 | 0.109676 |
| ISOC2 | 0.694395 | 0.000109 |

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| CUTC | 0.694601 | 0.06097 |
| ZNF607 | 0.69463 | 0.581404 |
| TECR | 0.694637 | 0.007669 |
| GNL3L | 0.694696 | 0.035212 |
| DPEP3 | 0.694811 | 0.718428 |
| CCDC124 | 0.694854 | 0.03364 |
| SYF2 | 0.694911 | 0.07769 |
| RNF168 | 0.694954 | 0.19766 |
| ING1 | 0.694987 | 0.268457 |
| UBE2I | 0.695024 | 0.019886 |
| SDCCAG8 | 0.695137 | 0.151324 |
| METTL5 | 0.695157 | 0.021274 |
| NKTR | 0.69524 | 0.078392 |
| UAP1 | 0.695254 | 0.071986 |
| CLN3 | 0.695281 | 0.114048 |
| XPA | 0.695579 | 0.125484 |
| BMF | 0.695588 | 0.205036 |
| MRPL30 | 0.695607 | 0.17696 |
| TRIT1 | 0.695642 | 0.051945 |
| TAF1A | 0.695707 | 0.221054 |
| NUP37 | 0.695796 | 0.007361 |
| ARL14EP | 0.696016 | 0.006871 |
| NOL7 | 0.696064 | 0.100661 |
| ENTPD4 | 0.696207 | 0.670302 |
| SSNA1 | 0.696234 | 0.123891 |
| TRIM65 | 0.696258 | 0.023996 |
| RAMAC | 0.696284 | 0.060749 |
| TALDO1 | 0.696343 | 0.004115 |

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|---|---|---|
| SYNJ2 | 0.696647 | 0.069743 |
| TIAL1 | 0.696733 | 0.252809 |
| PPP1R2 | 0.696741 | 0.0877 |
| CD99 | 0.696777 | 0.689789 |
| WRN | 0.69689 | 0.012965 |
| KCTD1 | 0.696912 | 0.984257 |
| SETD2 | 0.696937 | 0.056984 |
| GANC | 0.697072 | 0.105246 |
| CKS2 | 0.697185 | 0.007188 |
| KRI1 | 0.697372 | 0.152558 |
| BRD1 | 0.697446 | 0.953587 |
| POLD4 | 0.697662 | 0.039769 |
| NLRP12 | 0.697719 | 0.072255 |
| HIGD1A | 0.697771 | 0.707116 |
| CREB1 | 0.697848 | 0.154497 |
| RRM2B | 0.697904 | 0.00166 |
| WBP4 | 0.698002 | 0.090742 |
| NADK | 0.698093 | 0.187272 |
| PADI2 | 0.698153 | 0.576171 |
| CCDC85B | 0.698308 | 0.945163 |
| UBTF | 0.698528 | 0.830332 |
| ALG6 | 0.698579 | 0.107004 |
| SUPT5H | 0.698664 | 0.047112 |
| RRP7A | 0.698692 | 0.212454 |
| DDX46 | 0.69877 | 0.573693 |
| CENPO | 0.69879 | 0.224936 |
| MED9 | 0.69886 | 0.012604 |
| RPL9 | 0.698877 | 0.005246 |

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| NDUFA4 | 0.698952 | 0.520405 |
| PAK1 | 0.699019 | 0.018045 |
| CD74 | 0.699133 | 0.232217 |
| HPS6 | 0.699167 | 0.01003 |
| NUP54 | 0.699172 | 0.060372 |
| TFB2M | 0.699251 | 0.021076 |
| KNOP1 | 0.69927 | 0.187091 |
| HLA-DPB1 | 0.699283 | 0.984718 |
| NT5DC3 | 0.699289 | 0.200184 |
| TLR6 | 0.699329 | 0.076642 |
| BOLA2 | 0.699343 | 0.042533 |
| NRF1 | 0.699372 | 0.226658 |
| CLASRP | 0.699663 | 0.107251 |
| BUD13 | 0.699663 | 0.149606 |
| TTC19 | 0.699705 | 0.023958 |
| PHF3 | 0.699797 | 0.128543 |
| ZNF350 | 0.69981 | 0.934604 |
| NDC80 | 0.699959 | 0.057333 |
| IFT43 | 0.699989 | 0.076035 |
| RPA2 | 0.700088 | 0.097301 |
| CAMK2A | 0.70011 | 0.516614 |
| GIMAP2 | 0.700162 | 0.039055 |
| MALSU1 | 0.700172 | 0.105793 |
| EIF3C | 0.700181 | 0.037145 |
| ITGA4 | 0.700215 | 0.087652 |
| ATXN2L | 0.700231 | 0.119798 |
| RASGRP4 | 0.700262 | 0.012475 |
| CUL4B | 0.700305 | 0.008037 |

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| ENDOV | 0.700457 | 0.223329 |
| SULT1B1 | 0.700484 | 0.051288 |
| PNKP | 0.700532 | 0.200927 |
| ZNF888 | 0.700546 | 0.002866 |
| VSIG4 | 0.700623 | 0.214628 |
| ZFAND5 | 0.700724 | 0.000431 |
| DIDO1 | 0.700747 | 0.341914 |
| NAP1L1 | 0.700774 | 0.671235 |
| COQ8B | 0.70079 | 0.022683 |
| EEF2 | 0.700839 | 0.005025 |
| ZNF687 | 0.70096 | 0.069793 |
| SIL1 | 0.701183 | 0.003004 |
| PRPF40B | 0.701215 | 0.384121 |
| PRPF39 | 0.701258 | 0.004979 |
| TMEM223 | 0.701259 | 0.216936 |
| NLN | 0.701268 | 0.029062 |
| NCOR1 | 0.701407 | 0.008849 |
| SORBS3 | 0.701438 | 0.050959 |
| ACSF3 | 0.701495 | 0.063222 |
| CHEK1 | 0.701539 | 0.010301 |
| ZNF579 | 0.7016 | 0.434348 |
| USP48 | 0.701629 | 0.247277 |
| ATP5MG | 0.701928 | 0.376074 |
| ACAA2 | 0.702115 | 0.14308 |
| ZMAT5 | 0.70218 | 0.032761 |
| GABARAPL1 | 0.702257 | 0.192116 |
| OSGEP | 0.702397 | 0.029314 |
| TXNIP | 0.702406 | 0.153209 |

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| MACROH2A1 | 0.70242 | 0.297313 |
| PRKCI | 0.702723 | 0.009579 |
| KMO | 0.702745 | 0.155346 |
| WDR74 | 0.702843 | 0.004102 |
| CASP8 | 0.702989 | 0.076687 |
| CST7 | 0.70301 | 0.417108 |
| DHDDS | 0.703042 | 0.00942 |
| FAM133B | 0.703053 | 0.306728 |
| IFNGR1 | 0.703133 | 0.186486 |
| ELP1 | 0.703187 | 0.033225 |
| KIF4A | 0.703328 | 0.045617 |
| NDUFA8 | 0.703335 | 0.247395 |
| USP34 | 0.7035 | 0.017062 |
| TRAF5 | 0.703557 | 0.022457 |
| RAD9A | 0.703789 | 0.004414 |
| ZDHHC14 | 0.703817 | 0.156287 |
| ELMO1 | 0.703894 | 0.090979 |
| CIZ1 | 0.703927 | 0.530293 |
| RETSAT | 0.703963 | 0.004566 |
| ZBTB21 | 0.703982 | 0.001646 |
| SLC41A3 | 0.704085 | 0.01169 |
| DIP2A | 0.704094 | 0.01229 |
| ATP8B4 | 0.704099 | 0.034803 |
| TGM2 | 0.704184 | 0.651797 |
| LRATD2 | 0.704216 | 0.368185 |
| LRRC58 | 0.704307 | 0.091532 |
| FOXK1 | 0.704315 | 0.010966 |
| POLE4 | 0.704367 | 0.034476 |

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|---|---|---|
| COPS7B | 0.704441 | 0.039107 |
| COQ9 | 0.704447 | 0.125906 |
| STAC3 | 0.704447 | 0.268083 |
| NFXL1 | 0.704502 | 0.084366 |
| LSG1 | 0.704682 | 0.003908 |
| ZWINT | 0.704926 | 0.083688 |
| KHDC4 | 0.704927 | 0.010658 |
| WASHC4 | 0.705032 | 0.030771 |
| BRD3 | 0.705044 | 0.475933 |
| TRNAU1AP | 0.705248 | 0.042837 |
| ZNF148 | 0.705428 | 0.234065 |
| NA | 0.705435 | 0.158136 |
| DDX59 | 0.705468 | 0.011679 |
| TUT1 | 0.705553 | 0.002756 |
| KLHDC4 | 0.705644 | 0.116323 |
| RNF213 | 0.705734 | 0.067672 |
| PRDM10 | 0.705807 | 0.270292 |
| CCNK | 0.705891 | 0.007673 |
| TIGAR | 0.70601 | 0.097884 |
| DUT | 0.706028 | 0.002041 |
| RBM12B | 0.706074 | 0.189503 |
| FAM136A | 0.706135 | 0.250244 |
| KDM2B | 0.706184 | 0.119275 |
| DSCC1 | 0.706271 | 0.038166 |
| CD99 | 0.706303 | 0.577894 |
| ADAR | 0.70663 | 0.053307 |
| ITGAE | 0.706642 | 0.439676 |
| CFHR1 | 0.706693 | 0.271863 |

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| ANKRD12 | 0.706741 | 0.051268 |
| ZNF830 | 0.70687 | 0.140283 |
| STAT3 | 0.706884 | 0.788869 |
| FMO4 | 0.706924 | 0.048895 |
| SERPINB8 | 0.707133 | 0.243738 |
| MEF2D | 0.707154 | 0.207351 |
| NDUFA2 | 0.707205 | 0.550124 |
| CIAO2A | 0.707338 | 0.042969 |
| AP1S3 | 0.707354 | 0.075858 |
| TNFAIP2 | 0.707605 | 0.267492 |
| GON4L | 0.707685 | 0.30206 |
| MCTP2 | 0.707705 | 0.029089 |
| AGO1 | 0.707739 | 0.016993 |
| HSH2D | 0.707756 | 0.107822 |
| VAV2 | 0.707766 | 0.065168 |
| ZNF264 | 0.707784 | 0.59342 |
| ANKRD65 | 0.708049 | 0.283361 |
| CPEB3 | 0.708226 | 0.917508 |
| RAD51D | 0.708244 | 0.002655 |
| PRICKLE3 | 0.708299 | 0.631314 |
| ZNF451 | 0.708386 | 0.022184 |
| MIS18BP1 | 0.708506 | 0.34263 |
| PTCD3 | 0.708689 | 0.13177 |
| SKP2 | 0.708723 | 0.548711 |
| PANK3 | 0.708747 | 0.046541 |
| TTF2 | 0.708789 | 0.49488 |
| ADGRE5 | 0.708854 | 0.026087 |
| FCGR1A | 0.708897 | 0.554183 |

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| TSSC4 | 0.708996 | 0.025428 |
| CHST13 | 0.709033 | 0.019025 |
| HLA-DRB4 | 0.709061 | 0.170869 |
| NAA25 | 0.709091 | 0.019261 |
| MRPS10 | 0.709204 | 0.185662 |
| ANAPC5 | 0.709254 | 0.02314 |
| TMEM256-PLSCR3 | 0.709324 | 0.420811 |
| HLA-DRB1 | 0.709328 | 0.834237 |
| COX11 | 0.709354 | 0.139323 |
| SARAF | 0.709785 | 0.029426 |
| ACAT1 | 0.709789 | 0.076798 |
| SDR39U1 | 0.709807 | 0.04706 |
| TELO2 | 0.709818 | 0.020846 |
| SHCBP1 | 0.70985 | 0.02974 |
| ESS2 | 0.709865 | 0.071738 |
| URI1 | 0.709913 | 0.042623 |
| HDAC3 | 0.710102 | 0.063249 |
| RCCD1 | 0.710182 | 0.054491 |
| NDUFB1 | 0.710281 | 0.782658 |
| PIK3R4 | 0.710352 | 0.030321 |
| GM2A | 0.710353 | 0.232998 |
| RGS14 | 0.710362 | 0.646776 |
| XPC | 0.710386 | 0.821911 |
| ARHGEF11 | 0.71078 | 0.514454 |
| RPUSD1 | 0.710833 | 0.298941 |
| ELF2 | 0.710863 | 0.050354 |
| KARS1 | 0.710902 | 0.019922 |

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| DHPS | 0.710952 | 0.049953 |
| IFT46 | 0.710989 | 0.082306 |
| RPS21 | 0.711097 | 0.033218 |
| RBM33 | 0.711142 | 0.909168 |
| MRPS7 | 0.711153 | 0.060008 |
| ERCC8 | 0.711162 | 0.005314 |
| ZDHHC23 | 0.7112 | 0.332504 |
| ZNF331 | 0.711201 | 0.155816 |
| CTSS | 0.711372 | 0.615564 |
| INIP | 0.711469 | 0.283242 |
| TMEM259 | 0.711549 | 0.031985 |
| TMEM192 | 0.711725 | 0.161774 |
| ZNF592 | 0.711772 | 0.284093 |
| MT-CO2 | 0.711851 | 0.438745 |
| GSDMD | 0.711941 | 0.065962 |
| GPATCH2L | 0.712109 | 0.157482 |
| DDX39A | 0.712206 | 0.048887 |
| KCNAB2 | 0.712288 | 0.174357 |
| TRMT112 | 0.712318 | 0.017755 |
| PLXND1 | 0.712363 | 0.109429 |
| CCDC88A | 0.712371 | 0.029577 |
| CENPK | 0.712439 | 0.02375 |
| TET2 | 0.712441 | 0.019584 |
| KLHL11 | 0.712444 | 0.01264 |
| USP38 | 0.712529 | 0.001702 |
| RBM8A | 0.71254 | 0.049215 |
| CBFA2T3 | 0.712594 | 0.064765 |
| RPS17 | 0.7126 | 0.014272 |

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| CORO2A | 0.712674 | 0.1327 |
| MIER1 | 0.712706 | 0.026175 |
| TOR3A | 0.712715 | 0.102394 |
| RARS2 | 0.712856 | 0.055729 |
| HMG20B | 0.712976 | 0.116105 |
| RPS6KA5 | 0.712984 | 0.024305 |
| ITPKC | 0.713026 | 0.127349 |
| ASTE1 | 0.713063 | 0.009778 |
| OARD1 | 0.71309 | 0.285404 |
| HLTF | 0.713127 | 0.084058 |
| S100B | 0.713144 | 0.412066 |
| SMURF2 | 0.713145 | 0.51554 |
| ANKRD44 | 0.713155 | 0.055485 |
| BRD8 | 0.713218 | 0.303147 |
| PMF1 | 0.713262 | 0.03172 |
| TYW1 | 0.713305 | 0.067623 |
| APC | 0.713361 | 0.0161 |
| SAMHD1 | 0.713368 | 0.465194 |
| FANCL | 0.713375 | 0.090005 |
| ANAPC2 | 0.713443 | 0.021286 |
| COX6B1 | 0.713454 | 0.492097 |
| NOMO2 | 0.713454 | 0.628403 |
| ATP6V1G2 | 0.713473 | 0.181884 |
| RNASET2 | 0.713496 | 0.029953 |
| BTF3L4 | 0.713601 | 0.00294 |
| RNF181 | 0.713619 | 0.009847 |
| MARCKS | 0.713696 | 0.514222 |
| PDF | 0.71374 | 0.370794 |

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| HNRNPL | 0.713767 | 0.050811 |
| POLR2C | 0.713845 | 0.048455 |
| R3HDM1 | 0.713918 | 0.004026 |
| GPA33 | 0.71395 | 0.635987 |
| MRPS18A | 0.714081 | 0.184514 |
| DDX39B | 0.714217 | 0.257137 |
| SAFB2 | 0.71422 | 0.241491 |
| CAMK1D | 0.71432 | 0.101003 |
| PGPEP1 | 0.714323 | 0.006985 |
| ZFYVE26 | 0.714394 | 0.002352 |
| CASTOR2 | 0.714516 | 0.09247 |
| CHST14 | 0.714729 | 0.078307 |
| MRPL53 | 0.714824 | 0.344289 |
| CLEC10A | 0.714842 | 0.52796 |
| TENT4B | 0.714843 | 0.121398 |
| NACA | 0.714893 | 0.044096 |
| CSGALNACT2 | 0.7149 | 0.007141 |
| TNIP2 | 0.715068 | 0.023849 |
| CD74 | 0.715089 | 0.355055 |
| KDM2A | 0.715092 | 0.463702 |
| OGFOD1 | 0.715112 | 0.008381 |
| NBDY | 0.715132 | 0.072798 |
| ITPA | 0.715184 | 0.001993 |
| ORC2 | 0.715258 | 0.075038 |
| GGNBP2 | 0.715273 | 0.054165 |
| CD2BP2 | 0.715275 | 0.285697 |
| MVB12A | 0.715306 | 0.057643 |
| RAD51 | 0.715331 | 0.068528 |

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| HSPBP1 | 0.715363 | 0.000755 |
| WDR19 | 0.715396 | 0.008486 |
| DBR1 | 0.715426 | 0.06252 |
| CERCAM | 0.715438 | 0.423921 |
| TRO | 0.715559 | 0.880843 |
| ADH1A | 0.715601 | 0.330803 |
| FARS2 | 0.715631 | 0.032258 |
| STX3 | 0.715763 | 0.19129 |
| KIF15 | 0.715773 | 0.120486 |
| C17orf49 | 0.715799 | 0.339945 |
| FCHO1 | 0.715837 | 0.038667 |
| GPN1 | 0.715841 | 0.044273 |
| ATRIP | 0.715868 | 0.065946 |
| HPGDS | 0.715904 | 0.146199 |
| TPRKB | 0.715977 | 0.015666 |
| WASHC5 | 0.716027 | 0.016256 |
| UGCG | 0.716043 | 0.275587 |
| MANBA | 0.716444 | 0.050344 |
| ARHGAP9 | 0.716455 | 0.020658 |
| EIF3F | 0.716491 | 0.053504 |
| ULK1 | 0.716499 | 0.027012 |
| PPIL2 | 0.716561 | 0.023448 |
| PARP14 | 0.716654 | 0.279708 |
| ACACB | 0.71669 | 0.056928 |
| KLHL23 | 0.716751 | 0.118995 |
| ZSWIM9 | 0.716769 | 0.049677 |
| POLD2 | 0.71679 | 0.001471 |
| DCAF13 | 0.716872 | 0.026246 |

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| GCA | 0.716995 | 0.05215 |
| BRIP1 | 0.71702 | 0.037112 |
| MERTK | 0.717054 | 0.018328 |
| ZCCHC10 | 0.717093 | 0.137964 |
| PXMP2 | 0.717113 | 0.34065 |
| PRPF18 | 0.717137 | 0.008638 |
| CEP97 | 0.717145 | 0.044298 |
| TLR7 | 0.717153 | 0.563542 |
| KBTBD7 | 0.717315 | 0.078809 |
| DCAF10 | 0.717317 | 0.03744 |
| DENND4B | 0.717369 | 0.008562 |
| IKBKE | 0.717421 | 0.029927 |
| FCGBP | 0.71758 | 0.526338 |
| SPATA20 | 0.71758 | 0.040445 |
| IMP3 | 0.717605 | 0.142798 |
| CBX3 | 0.717662 | 0.210892 |
| BDH1 | 0.717703 | 0.264126 |
| TPCN2 | 0.71776 | 0.088028 |
| EIF3E | 0.717841 | 0.046384 |
| ALPK1 | 0.717929 | 0.006486 |
| ECT2 | 0.718047 | 0.215884 |
| RSRC1 | 0.718084 | 0.053027 |
| PTK6 | 0.718104 | 0.218397 |
| MFSD8 | 0.718136 | 0.075831 |
| PCGF6 | 0.718265 | 0.584188 |
| TIFAB | 0.71827 | 0.316251 |
| MED15 | 0.718276 | 0.001802 |
| RFC2 | 0.718287 | 0.004113 |

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| TCF12 | 0.718288 | 0.188248 |
| CYTH4 | 0.718399 | 0.212396 |
| ERF | 0.718402 | 0.055929 |
| PPT1 | 0.718572 | 0.097904 |
| NUDT15 | 0.718602 | 0.059794 |
| ZSWIM7 | 0.718636 | 0.024234 |
| FADS3 | 0.718678 | 0.775168 |
| SIRPB1 | 0.718703 | 0.380206 |
| SLC39A14 | 0.718717 | 0.151 |
| B3GLCT | 0.718812 | 0.008633 |
| BAZ1A | 0.718822 | 0.447765 |
| SNX14 | 0.718854 | 0.007661 |
| PWP1 | 0.718939 | 0.057494 |
| TOP2A | 0.719061 | 0.334034 |
| CCDC82 | 0.719099 | 0.20507 |
| ZNF384 | 0.719109 | 0.951772 |
| CCDC113 | 0.719263 | 0.056249 |
| PIKFYVE | 0.719325 | 0.022636 |
| FMNL1 | 0.719352 | 0.080922 |
| ZFP64 | 0.719366 | 0.865414 |
| PSMG3 | 0.719434 | 0.042292 |
| FMNL1 | 0.719468 | 0.155223 |
| TNFAIP8L2 | 0.719506 | 0.033245 |
| NCOR2 | 0.719527 | 0.28585 |
| CNOT1 | 0.719549 | 0.006898 |
| HLA-DRA | 0.71962 | 0.248491 |
| ECI1 | 0.719673 | 0.060751 |
| CHCHD7 | 0.719687 | 0.693984 |

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| CTU1 | 0.719803 | 0.035793 |
| PCK2 | 0.719806 | 0.025705 |
| ABCF2 | 0.719822 | 0.017028 |
| GSE1 | 0.719883 | 0.038957 |
| USP35 | 0.719915 | 0.121465 |
| POLRMT | 0.719951 | 0.044105 |
| YDJC | 0.720031 | 0.038904 |
| SPN | 0.720037 | 0.11124 |
| LILRA3 | 0.720123 | 0.892549 |
| ATP13A3 | 0.72014 | 0.147061 |
| PLAUR | 0.720207 | 0.586008 |
| TLR8 | 0.720245 | 0.465118 |
| KAT8 | 0.720255 | 0.049367 |
| KANSL3 | 0.720269 | 0.104605 |
| CALCOCO2 | 0.72027 | 0.038904 |
| RNF41 | 0.720304 | 0.176527 |
| ALOX5AP | 0.720477 | 0.233407 |
| KATNIP | 0.720543 | 0.014133 |
| SS18 | 0.720546 | 0.312706 |
| ZNF652 | 0.72063 | 0.160415 |
| ICE2 | 0.720727 | 0.028331 |
| DCAF4 | 0.720758 | 0.084418 |
| ARMCX5 | 0.720871 | 0.003874 |
| PLIN1 | 0.721122 | 0.503144 |
| RSBN1 | 0.721152 | 0.033845 |
| SLC9A7 | 0.721159 | 0.360147 |
| SUPV3L1 | 0.721247 | 0.084514 |
| RPAP2 | 0.721295 | 0.022612 |

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| NFYA | 0.721314 | 0.657247 |
| KEAP1 | 0.721494 | 0.021181 |
| UBE3A | 0.721517 | 0.023538 |
| SNX32 | 0.721535 | 0.404999 |
| ING3 | 0.721647 | 0.410578 |
| TBKBP1 | 0.721685 | 0.138834 |
| ENY2 | 0.721721 | 0.058156 |
| S100A11 | 0.721842 | 0.364045 |
| PRR14 | 0.721893 | 0.354823 |
| CIAO1 | 0.721926 | 0.000618 |
| USF2 | 0.722071 | 0.399449 |
| SESN2 | 0.722094 | 0.019209 |
| HDAC9 | 0.722191 | 0.223155 |
| HSPA8 | 0.722212 | 0.505859 |
| PRXL2A | 0.722227 | 0.956392 |
| EIF3L | 0.722228 | 0.049578 |
| INO80C | 0.722241 | 0.025923 |
| EEF1AKMT2 | 0.72229 | 0.02483 |
| KRT13 | 0.722408 | 0.61781 |
| MRPL19 | 0.72246 | 0.300477 |
| MICAL2 | 0.72258 | 0.194547 |
| TMEM160 | 0.72269 | 0.283545 |
| MEX3A | 0.722693 | 0.915506 |
| FMNL2 | 0.722716 | 0.086932 |
| RPL10 | 0.722801 | 0.098209 |
| ZNF598 | 0.722819 | 0.037007 |
| GOLPH3 | 0.722916 | 0.05271 |
| CCNT1 | 0.722935 | 0.084635 |

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| NAA38 | 0.723024 | 0.071028 |
| KCTD3 | 0.723229 | 0.061682 |
| FAM204A | 0.723292 | 0.058745 |
| TRIO | 0.723417 | 0.055542 |
| TCEANC2 | 0.72348 | 0.009139 |
| STYK1 | 0.723523 | 0.525126 |
| APPBP2 | 0.723548 | 0.036967 |
| AP1AR | 0.723568 | 0.146155 |
| RC3H2 | 0.723604 | 0.211224 |
| HARS2 | 0.723727 | 0.089764 |
| RBM12 | 0.72373 | 0.003751 |
| FBXO28 | 0.723744 | 0.229962 |
| MTHFD2 | 0.723775 | 0.094569 |
| CYBB | 0.723852 | 0.61695 |
| SAMD9L | 0.723984 | 0.153659 |
| IFTAP | 0.724044 | 0.21035 |
| FBH1 | 0.724059 | 0.017529 |
| DGUOK | 0.724111 | 0.020517 |
| ALDH7A1 | 0.724155 | 0.17706 |
| GMPS | 0.724296 | 0.000716 |
| ZUP1 | 0.724421 | 0.402992 |
| CHFR | 0.724447 | 0.178674 |
| SPC24 | 0.724458 | 0.063205 |
| SDHC | 0.724509 | 0.178781 |
| GMDS | 0.724541 | 0.023294 |
| AP5Z1 | 0.724637 | 0.006641 |
| ZNF512B | 0.724733 | 0.661504 |
| FCGR2B | 0.724744 | 0.256675 |

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| PPP2R1B | 0.724771 | 0.413679 |
| TTK | 0.724772 | 0.06841 |
| MRPS22 | 0.724776 | 0.099822 |
| GEMIN6 | 0.724798 | 0.018004 |
| AKAP11 | 0.724917 | 0.045037 |
| UBE3D | 0.725039 | 0.150779 |
| DDX52 | 0.725074 | 0.013299 |
| TRANK1 | 0.725098 | 0.012141 |
| INPP5D | 0.725117 | 0.104098 |
| WDR54 | 0.725181 | 0.246727 |
| DDX3X | 0.725267 | 0.023079 |
| DCUN1D5 | 0.725414 | 0.024787 |
| TXLNG | 0.725525 | 0.015315 |
| MYO9A | 0.725551 | 0.087159 |
| AGPAT5 | 0.725572 | 0.387046 |
| TREM1 | 0.725592 | 0.387764 |
| MPEG1 | 0.725688 | 0.420146 |
| ZEB2 | 0.725766 | 0.325555 |
| SERPINB1 | 0.725807 | 0.006452 |
| INVS | 0.725824 | 0.080747 |
| RASSF5 | 0.725856 | 0.24525 |
| PLIN3 | 0.725895 | 0.011719 |
| LRIF1 | 0.725998 | 0.404998 |
| PARS2 | 0.726077 | 0.03067 |
| MBOAT1 | 0.726182 | 0.148849 |
| IFT20 | 0.726231 | 0.108155 |
| LARS2 | 0.726377 | 0.062124 |
| TNFRSF1B | 0.726417 | 0.330173 |

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| MTG1 | 0.726454 | 0.203027 |
| LETMD1 | 0.726615 | 0.246999 |
| AMD1 | 0.726714 | 0.279389 |
| PXDC1 | 0.726728 | 0.390984 |
| RGS14 | 0.72685 | 0.323703 |
| STYX | 0.726852 | 0.16855 |
| MCCC1 | 0.727074 | 0.122364 |
| PLD3 | 0.727094 | 0.374495 |
| BRF1 | 0.727182 | 0.122497 |
| MTCH2 | 0.727243 | 0.578507 |
| BCS1L | 0.727287 | 0.232202 |
| NUB1 | 0.727304 | 0.094466 |
| RMDN1 | 0.727339 | 0.119196 |
| AFG3L2 | 0.72741 | 0.601682 |
| HDAC4 | 0.727431 | 0.071011 |
| RPS20 | 0.727501 | 0.015552 |
| KAT2A | 0.727518 | 0.132101 |
| FLYWCH2 | 0.727526 | 0.474794 |
| SPTLC2 | 0.72754 | 0.015522 |
| ECPAS | 0.727589 | 0.05687 |
| MPC2 | 0.727653 | 0.520671 |
| FBXO11 | 0.727765 | 0.109673 |
| RBBP9 | 0.727785 | 0.135144 |
| SRSF2 | 0.727817 | 0.184002 |
| GNPDA1 | 0.727819 | 0.07479 |
| PRPF4 | 0.72786 | 0.047162 |
| SNUPN | 0.728105 | 0.157158 |
| MTA3 | 0.728108 | 0.164309 |

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| WDR6 | 0.728118 | 0.002166 |
| TLE1 | 0.728378 | 0.432998 |
| ABL2 | 0.728412 | 0.405719 |
| HAUS1 | 0.728583 | 0.014585 |
| S1PR4 | 0.728597 | 0.386295 |
| PSENEN | 0.728667 | 0.220698 |
| NIBAN2 | 0.728705 | 0.447872 |
| FANCA | 0.728732 | 0.325842 |
| USP11 | 0.728784 | 0.006242 |
| PTGFRN | 0.728812 | 0.168036 |
| FASTKD2 | 0.728861 | 0.233879 |
| RAD51C | 0.729062 | 0.015085 |
| FOXJ3 | 0.729079 | 0.222354 |
| NDUFA13 | 0.729211 | 0.479271 |
| NUF2 | 0.729316 | 0.220601 |
| HBS1L | 0.729328 | 0.00134 |
| PLCD1 | 0.729411 | 0.374137 |
| MIPEP | 0.729463 | 0.043391 |
| NA | 0.729481 | 0.503956 |
| PGM2 | 0.729554 | 0.007153 |
| LTF | 0.729571 | 0.88874 |
| FBXL3 | 0.72958 | 0.005439 |
| NIN | 0.729796 | 0.070334 |
| LRRFIP1 | 0.729822 | 0.383666 |
| ICAM4 | 0.72995 | 0.616454 |
| HGSNAT | 0.729979 | 0.132871 |
| MRC2 | 0.730027 | 0.149003 |
| DNAJC30 | 0.730147 | 0.703529 |

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| STK11IP | 0.730412 | 0.09986 |
| FBXO46 | 0.7305 | 0.172759 |
| MRPS14 | 0.730577 | 0.070493 |
| SUMO2 | 0.730613 | 0.146398 |
| APOBEC3C | 0.730642 | 0.291645 |
| RCOR3 | 0.730673 | 0.047924 |
| SPC25 | 0.730679 | 0.18827 |
| UBXN2B | 0.730689 | 0.277873 |
| GEMIN5 | 0.730784 | 0.04747 |
| RCN1 | 0.730809 | 0.050313 |
| MRM1 | 0.730889 | 0.468115 |
| ANXA4 | 0.730898 | 0.246514 |
| LRPAP1 | 0.731001 | 0.105865 |
| IRF2BPL | 0.731102 | 0.031031 |
| IFNAR1 | 0.731133 | 0.123993 |
| ZNF618 | 0.731218 | 0.271661 |
| APOBEC3F | 0.731297 | 0.026299 |
| AP3M2 | 0.731306 | 0.017372 |
| TBC1D5 | 0.731355 | 0.088013 |
| EME1 | 0.731368 | 0.070145 |
| SSU72 | 0.731385 | 0.057145 |
| ZNF486 | 0.73164 | 0.38381 |
| ERICH1 | 0.731704 | 0.09696 |
| CAPN15 | 0.732016 | 0.003856 |
| LRMDA | 0.732274 | 0.042582 |
| ZNF845 | 0.732367 | 0.525491 |
| TTC39C | 0.732381 | 0.156281 |
| SIGLEC9 | 0.732467 | 0.67941 |

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|---|---|---|
| ZNF45 | 0.732471 | 0.320867 |
| HPS5 | 0.732479 | 0.030665 |
| CNOT7 | 0.732514 | 0.00275 |
| DIS3L | 0.732549 | 0.001148 |
| TRIM26 | 0.732646 | 0.158552 |
| UHMK1 | 0.732748 | 0.39503 |
| ETFRF1 | 0.732764 | 0.10017 |
| E2F4 | 0.732884 | 0.163063 |
| NUDT6 | 0.732884 | 0.158033 |
| PSAT1 | 0.732888 | 0.57961 |
| MFSD3 | 0.733017 | 0.266811 |
| CASP10 | 0.733076 | 0.041264 |
| TRAF3IP1 | 0.73313 | 0.10126 |
| CYFIP2 | 0.733213 | 0.145497 |
| ERCC6 | 0.733215 | 0.008725 |
| PRR5 | 0.733259 | 0.130791 |
| FAM117B | 0.733302 | 0.047876 |
| CSTF1 | 0.733472 | 0.04305 |
| DCAF12 | 0.733483 | 0.175013 |
| TMEM126A | 0.733654 | 0.443157 |
| C16orf91 | 0.73371 | 0.588545 |
| WNT11 | 0.733726 | 0.833902 |
| SORD | 0.733749 | 0.028507 |
| RRS1 | 0.733827 | 0.160006 |
| RPA3 | 0.733847 | 0.052536 |
| TRIM68 | 0.733924 | 0.0576 |
| PCMTD2 | 0.733985 | 0.05837 |
| TTC33 | 0.734184 | 0.040106 |

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| NAA16 | 0.734237 | 0.020774 |
| TXLNA | 0.734392 | 0.085463 |
| CDK5RAP2 | 0.734502 | 0.049776 |
| CUL9 | 0.734555 | 0.022603 |
| DUS2 | 0.734564 | 0.007356 |
| AFG1L | 0.734685 | 0.366271 |
| CNOT6L | 0.735101 | 0.00631 |
| FDFT1 | 0.735118 | 0.001817 |
| CCDC97 | 0.735138 | 0.048078 |
| RASSF4 | 0.735172 | 0.044723 |
| RFC3 | 0.735184 | 0.016114 |
| TBC1D8 | 0.735415 | 0.213929 |
| BICRAL | 0.735431 | 0.194366 |
| ECHDC1 | 0.735472 | 0.099554 |
| PIK3C3 | 0.735517 | 0.073138 |
| PRDX2 | 0.735575 | 0.712147 |
| SENP3 | 0.735582 | 0.147567 |
| DAGLB | 0.735588 | 0.028488 |
| APAF1 | 0.735598 | 0.173384 |
| NANS | 0.73572 | 0.004345 |
| WDR83 | 0.735775 | 0.002222 |
| ELP6 | 0.735801 | 0.031094 |
| HNRNPAB | 0.735886 | 0.12121 |
| PDCL | 0.735917 | 0.011661 |
| LSM12 | 0.73605 | 0.032039 |
| TSEN54 | 0.736059 | 0.044121 |
| LAPTM5 | 0.73614 | 0.742968 |
| HBM | 0.736245 | 0.781212 |

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| KBTBD4 | 0.736252 | 0.076129 |
| CAD | 0.736255 | 0.041024 |
| REPIN1 | 0.73637 | 0.010059 |
| NIT2 | 0.736567 | 0.105618 |
| ARHGAP19 | 0.736574 | 0.194292 |
| ZNF865 | 0.73661 | 0.207365 |
| RIOX1 | 0.736683 | 0.161183 |
| ARG1 | 0.736698 | 0.59626 |
| BPI | 0.736818 | 0.560845 |
| ZNF142 | 0.736907 | 0.469538 |
| DLC1 | 0.736928 | 0.286368 |
| SBNO2 | 0.736932 | 0.127359 |
| ARHGAP15 | 0.737024 | 0.036971 |
| UPF2 | 0.737085 | 0.004459 |
| TATDN1 | 0.737085 | 0.039093 |
| PTPN2 | 0.737133 | 0.045666 |
| BRD4 | 0.737226 | 0.409239 |
| SZT2 | 0.73751 | 0.017108 |
| CRYBG3 | 0.737587 | 0.108213 |
| SPNS1 | 0.737598 | 0.099605 |
| JMJD1C | 0.73763 | 0.116359 |
| JARID2 | 0.737658 | 0.260048 |
| TMEM263 | 0.737668 | 0.486801 |
| FMC1 | 0.737929 | 0.117328 |
| WDR25 | 0.737962 | 0.092475 |
| ADRM1 | 0.737968 | 0.122345 |
| IDH3G | 0.738021 | 0.451198 |
| KLHL9 | 0.738093 | 0.039771 |

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| GSTCD | 0.738111 | 0.065953 |
| PSMD8 | 0.738124 | 0.023618 |
| PXK | 0.73834 | 0.152047 |
| TTC7A | 0.738343 | 0.04758 |
| LYN | 0.738361 | 0.480828 |
| TYW3 | 0.7384 | 0.0296 |
| GPATCH1 | 0.738402 | 0.144896 |
| FPR2 | 0.738429 | 0.242027 |
| CR1 | 0.73865 | 0.29878 |
| FRA10AC1 | 0.738736 | 0.052568 |
| TMEM70 | 0.738833 | 0.340126 |
| ANXA2 | 0.738892 | 0.880259 |
| PXN | 0.739062 | 0.265485 |
| SLC35F5 | 0.739228 | 0.830336 |
| CSF3R | 0.739298 | 0.233363 |
| HAUS7 | 0.739317 | 0.280462 |
| CES2 | 0.739409 | 0.038442 |
| DLG5 | 0.739449 | 0.448303 |
| MRM3 | 0.739475 | 0.20222 |
| GANAB | 0.739484 | 0.026062 |
| RAD18 | 0.739528 | 0.295487 |
| FBXO22 | 0.739544 | 0.00079 |
| HDGFL3 | 0.739674 | 0.649901 |
| ANAPC15 | 0.739692 | 0.201035 |
| FEM1B | 0.739742 | 0.078284 |
| KDM3A | 0.73992 | 0.025334 |
| TRNT1 | 0.740061 | 0.052032 |
| CD180 | 0.740062 | 0.438819 |

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| ZNF428 | 0.740131 | 0.1083 |
| NDUFB10 | 0.74016 | 0.583035 |
| KRTCAP2 | 0.740195 | 0.570494 |
| ANKRD16 | 0.740261 | 0.007982 |
| HOOK3 | 0.740275 | 0.033935 |
| PSMA7 | 0.740599 | 0.592 |
| MB | 0.740657 | 0.780895 |
| KNL1 | 0.740703 | 0.005044 |
| PBRM1 | 0.740713 | 0.582779 |
| WDR46 | 0.740783 | 0.258364 |
| APOL2 | 0.740801 | 0.156784 |
| RTCB | 0.740913 | 0.011929 |
| CBX4 | 0.740914 | 0.305881 |
| OS9 | 0.740943 | 0.064288 |
| PARVG | 0.74098 | 0.095677 |
| ADPGK | 0.741046 | 0.001799 |
| OGFOD2 | 0.741046 | 0.059698 |
| PRKCSH | 0.741131 | 0.527374 |
| PINX1 | 0.741198 | 0.215558 |
| COX20 | 0.741321 | 0.282669 |
| RNF169 | 0.741337 | 0.159442 |
| HAUS3 | 0.741341 | 0.019575 |
| PGGT1B | 0.741369 | 0.036493 |
| GTF3C1 | 0.741415 | 0.117089 |
| TCN2 | 0.741425 | 0.292687 |
| DAP3 | 0.741497 | 0.125589 |
| AKAP13 | 0.741502 | 0.111299 |
| RNLS | 0.741666 | 0.103411 |

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| CTSG | 0.741689 | 0.355424 |
| DNAJC21 | 0.741739 | 0.119489 |
| RNF220 | 0.741759 | 0.119963 |
| INTS6L | 0.741893 | 0.192791 |
| PPIE | 0.741943 | 0.037067 |
| CFLAR | 0.741983 | 0.021631 |
| POLDIP2 | 0.74206 | 0.055014 |
| AFF3 | 0.742068 | 0.289948 |
| SIK3 | 0.742105 | 0.026552 |
| FAIM | 0.742106 | 0.062764 |
| MRPL23 | 0.742186 | 0.268011 |
| QPCT | 0.7423 | 0.910929 |
| ASB6 | 0.742346 | 0.039578 |
| DENND11 | 0.742414 | 0.028219 |
| XPO1 | 0.742477 | 0.027217 |
| MARCHF5 | 0.742596 | 0.199474 |
| TATDN3 | 0.742684 | 0.046987 |
| SLC37A2 | 0.742762 | 0.772299 |
| PER1 | 0.742796 | 0.063772 |
| LZTFL1 | 0.742862 | 0.173394 |
| BOLA1 | 0.742906 | 0.083024 |
| ST3GAL1 | 0.742955 | 0.072997 |
| STK26 | 0.743064 | 0.250824 |
| PPA1 | 0.74309 | 0.089877 |
| ACOT11 | 0.743149 | 0.184353 |
| NAA10 | 0.743179 | 0.027743 |
| MSANTD2 | 0.743216 | 0.071966 |
| SLC8B1 | 0.743308 | 0.521051 |

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| ADGRG5 | 0.74337 | 0.944423 |
| CEP85 | 0.743376 | 0.026236 |
| EEF1E1 | 0.743419 | 0.079789 |
| MRPS27 | 0.743521 | 0.174375 |
| DAPK1 | 0.743527 | 0.291923 |
| CCDC88B | 0.743532 | 0.234298 |
| PLOD3 | 0.743548 | 0.061629 |
| TRUB1 | 0.743659 | 0.068117 |
| ATM | 0.743671 | 0.19491 |
| AP5M1 | 0.743817 | 0.030079 |
| CEP83 | 0.743832 | 0.940218 |
| PRKX | 0.743979 | 0.052791 |
| RTRAF | 0.744038 | 0.053142 |
| SMN2 | 0.744224 | 0.234982 |
| LRRC20 | 0.744283 | 0.170962 |
| KLHL36 | 0.744289 | 0.009283 |
| TMEM44 | 0.744389 | 0.725035 |
| CGREF1 | 0.74439 | 0.454207 |
| SELL | 0.7445 | 0.360951 |
| MCAT | 0.744561 | 0.01902 |
| TOR1B | 0.744607 | 0.005281 |
| LCP1 | 0.744637 | 0.193036 |
| TXNDC15 | 0.744695 | 0.067485 |
| OGA | 0.744775 | 0.099236 |
| VPS35 | 0.744956 | 0.037202 |
| MNAT1 | 0.744995 | 0.067384 |
| APIP | 0.745026 | 0.033527 |
| TRAPPC5 | 0.7451 | 0.040271 |

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| DNAJC14 | 0.745187 | 0.023702 |
| PPIP5K1 | 0.745243 | 0.012817 |
| ADAM8 | 0.745314 | 0.156083 |
| DDX11 | 0.745335 | 0.16409 |
| SPTY2D1 | 0.745385 | 0.10394 |
| DNTTIP2 | 0.745531 | 0.478086 |
| HBG1 | 0.745578 | 0.68071 |
| DSTYK | 0.745579 | 0.006414 |
| ATAT1 | 0.745648 | 0.076896 |
| TFAP2E | 0.745681 | 0.568414 |
| CMTR2 | 0.745965 | 0.033409 |
| CWC27 | 0.746001 | 0.065236 |
| DEPDC5 | 0.746025 | 0.003167 |
| TSNAX | 0.746128 | 0.02477 |
| MRPL28 | 0.746136 | 0.313265 |
| KIF20B | 0.746265 | 0.064611 |
| SNRNP40 | 0.746342 | 0.038794 |
| MCL1 | 0.746365 | 0.074464 |
| CPPED1 | 0.746473 | 0.297877 |
| MRPL17 | 0.746521 | 0.222533 |
| AARS2 | 0.746529 | 0.197758 |
| FBXO38 | 0.746729 | 0.041463 |
| DCAF5 | 0.74677 | 0.084297 |
| PNKD | 0.746829 | 0.822321 |
| SAYSD1 | 0.747031 | 0.337537 |
| RPGR | 0.747084 | 0.248915 |
| HMGCR | 0.747113 | 0.103751 |
| ANKRD50 | 0.747117 | 0.025001 |

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|---|---|---|
| C1RL | 0.747167 | 0.253113 |
| ZNF627 | 0.747204 | 0.965423 |
| PLXNA3 | 0.747205 | 0.897051 |
| ZNF548 | 0.747214 | 0.82132 |
| GTPBP3 | 0.747267 | 0.058973 |
| DNAJB12 | 0.747362 | 0.102727 |
| SEC23B | 0.74743 | 0.002787 |
| FAM50B | 0.747513 | 0.026628 |
| HECA | 0.747598 | 0.0014 |
| SPATA5L1 | 0.747614 | 0.06475 |
| VPS35L | 0.747615 | 0.020896 |
| IFT140 | 0.74764 | 0.055765 |
| SETD9 | 0.747689 | 0.104259 |
| ABR | 0.747712 | 0.199348 |
| DDX58 | 0.747868 | 0.332103 |
| PSMD3 | 0.74788 | 0.06928 |
| CHCHD3 | 0.747949 | 0.964067 |
| ZNF562 | 0.747979 | 0.399452 |
| RC3H1 | 0.748053 | 0.051568 |
| MAK16 | 0.748073 | 0.525974 |
| SDHB | 0.748084 | 0.518541 |
| CLK3 | 0.748244 | 0.101757 |
| SUB1 | 0.748335 | 0.436512 |
| PEX12 | 0.748451 | 0.229596 |
| EHMT2 | 0.748492 | 0.182006 |
| MT-CYB | 0.748637 | 0.358616 |
| DAXX | 0.748679 | 0.2202 |
| FHIP1B | 0.748755 | 0.068211 |

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|---|---|---|
| SLC2A6 | 0.748781 | 0.47312 |
| TMEM147 | 0.748925 | 0.033283 |
| NA | 0.748973 | 0.019447 |
| ARSB | 0.749074 | 0.266882 |
| SPEN | 0.749077 | 0.395194 |
| AGR2 | 0.749176 | 0.310647 |
| DPH1 | 0.749341 | 0.147005 |
| CEBPB | 0.749364 | 0.846738 |
| NDUFS1 | 0.749393 | 0.611129 |
| AUTS2 | 0.749411 | 0.162589 |
| CIT | 0.749598 | 0.058937 |
| ASF1A | 0.749607 | 0.051106 |
| GMIP | 0.74964 | 0.113431 |
| RBL2 | 0.749656 | 0.048496 |
| AKR1A1 | 0.749879 | 0.006384 |
| PPAT | 0.749893 | 0.052151 |
| CLUAP1 | 0.749893 | 0.356247 |
| COLGALT2 | 0.749926 | 0.226735 |
| ELP5 | 0.74999 | 0.053282 |
| H2AC18 | 0.750035 | 0.880924 |
| TRMT13 | 0.750096 | 0.074107 |
| MRPL41 | 0.750133 | 0.461958 |
| PIM2 | 0.750193 | 0.424258 |
| EEF1AKMT1 | 0.750267 | 0.113514 |
| DUSP12 | 0.750305 | 0.003544 |
| LPGAT1 | 0.750383 | 0.301602 |
| ATXN10 | 0.750384 | 0.04676 |
| CCDC174 | 0.750392 | 0.069287 |

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|---|---|---|
| CCNC | 0.750395 | 0.299368 |
| TSN | 0.750442 | 0.007721 |
| ANKZF1 | 0.750448 | 0.045798 |
| ATL2 | 0.75046 | 0.128813 |
| MAP2K7 | 0.750484 | 0.017964 |
| THEMIS2 | 0.750489 | 0.158304 |
| MRPS6 | 0.750535 | 0.156511 |
| SETD3 | 0.75075 | 0.036592 |
| RAB39A | 0.75081 | 0.141849 |
| FAM120A | 0.750956 | 0.031516 |
| DBH | 0.751186 | 0.513421 |
| ATP5F1A | 0.751225 | 0.602845 |
| SQOR | 0.75125 | 0.484582 |
| CCNA2 | 0.751264 | 0.011964 |
| RANBP10 | 0.751382 | 0.230349 |
| RPAP3 | 0.751387 | 0.102889 |
| BICRA | 0.751406 | 0.380653 |
| PMPCB | 0.75142 | 0.062349 |
| NSMCE1 | 0.751526 | 0.099022 |
| ITFG2 | 0.751543 | 0.023782 |
| CFAP298 | 0.751703 | 0.056542 |
| TCF25 | 0.751755 | 0.11654 |
| EIF2D | 0.751786 | 0.045878 |
| PNPLA2 | 0.752072 | 0.038119 |
| TPRN | 0.752119 | 0.735012 |
| DLAT | 0.752259 | 0.196493 |
| SHD | 0.752401 | 0.865185 |
| RASAL3 | 0.752478 | 0.203978 |

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|---|---|---|
| CNPY3 | 0.752489 | 0.045307 |
| PHYH | 0.752519 | 0.043224 |
| NAB2 | 0.75259 | 0.107863 |
| HDAC7 | 0.752638 | 0.001407 |
| PIGM | 0.752683 | 0.207383 |
| GOT2 | 0.752719 | 0.176973 |
| GADD45GIP1 | 0.752808 | 0.286591 |
| CBX5 | 0.752847 | 0.524984 |
| AASDHPPT | 0.752878 | 0.068512 |
| ACAP1 | 0.753061 | 0.041629 |
| CD14 | 0.753063 | 0.979907 |
| WDR81 | 0.753103 | 0.009853 |
| CNOT9 | 0.753114 | 0.044991 |
| SNX33 | 0.753141 | 0.160874 |
| PDCD6 | 0.753284 | 0.22049 |
| FBP1 | 0.753346 | 0.737876 |
| TRPM2 | 0.753368 | 0.104174 |
| HEXA | 0.753394 | 0.162868 |
| NA | 0.753419 | 0.252021 |
| CHAF1A | 0.753489 | 0.094273 |
| VPS26A | 0.753587 | 0.02265 |
| PRRC2C | 0.753617 | 0.25883 |
| LRRK1 | 0.753695 | 0.01649 |
| RBX1 | 0.753769 | 0.588005 |
| RSF1 | 0.75377 | 0.777254 |
| SCAF1 | 0.753882 | 0.205436 |
| PSMG4 | 0.753926 | 0.174828 |
| GTPBP6 | 0.753951 | 0.276739 |

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|---|---|---|
| CIP2A | 0.754045 | 0.144449 |
| TANGO6 | 0.754078 | 0.075369 |
| MNDA | 0.754128 | 0.524969 |
| CCDC22 | 0.754144 | 0.034374 |
| TAFAZZIN | 0.754162 | 0.300559 |
| GFM1 | 0.754196 | 0.159681 |
| SMG1 | 0.754204 | 0.018945 |
| SHPRH | 0.75429 | 0.414887 |
| GNG7 | 0.75431 | 0.543033 |
| SELENBP1 | 0.754494 | 0.860685 |
| TRMT61B | 0.754629 | 0.28565 |
| SYNCRIP | 0.754712 | 0.700006 |
| NCOA6 | 0.754827 | 0.488143 |
| SCYL3 | 0.75486 | 0.079479 |
| GPSM1 | 0.75491 | 0.025794 |
| WDSUB1 | 0.75516 | 0.079911 |
| ECSIT | 0.755416 | 0.356002 |
| NUDCD1 | 0.755525 | 0.002106 |
| LPCAT4 | 0.755573 | 0.158216 |
| ERI3 | 0.755716 | 0.020598 |
| ABCE1 | 0.755925 | 0.003709 |
| VNN1 | 0.756059 | 0.36101 |
| ACSM3 | 0.75608 | 0.106251 |
| NR2C2AP | 0.756091 | 0.026564 |
| OBI1 | 0.756166 | 0.250309 |
| ZW10 | 0.75629 | 0.196335 |
| MOV10 | 0.756346 | 0.042486 |
| DYNC1I2 | 0.756405 | 0.023228 |

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|---|---|---|
| MTX1 | 0.756427 | 0.192115 |
| FANCB | 0.75647 | 0.022203 |
| RBM3 | 0.756516 | 0.454896 |
| CPSF3 | 0.756543 | 0.015802 |
| GALK2 | 0.756545 | 0.075598 |
| CCNH | 0.756568 | 0.064263 |
| SIGLEC1 | 0.75659 | 0.473149 |
| GRB14 | 0.756611 | 0.107494 |
| SNRPE | 0.756648 | 0.057325 |
| CHD7 | 0.756751 | 0.728662 |
| CARMIL2 | 0.756819 | 0.126317 |
| BAG1 | 0.756898 | 0.09225 |
| EDEM1 | 0.756915 | 0.200281 |
| C8orf76 | 0.756969 | 0.447281 |
| ATG13 | 0.75697 | 0.052497 |
| VAC14 | 0.757128 | 0.091971 |
| CDC23 | 0.757191 | 0.030017 |
| NA | 0.757263 | 0.94474 |
| WDR77 | 0.757455 | 0.015527 |
| TCEA2 | 0.757475 | 0.195879 |
| TUFM | 0.757509 | 0.028076 |
| TNFAIP8L1 | 0.757599 | 0.729332 |
| ETS2 | 0.757637 | 0.046553 |
| TERF2IP | 0.757679 | 0.305823 |
| LYST | 0.757726 | 0.168129 |
| ZNF274 | 0.757739 | 0.523589 |
| ALDH6A1 | 0.757869 | 0.148572 |
| SLC25A11 | 0.758001 | 0.80397 |

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|---|---|---|
| MAU2 | 0.758094 | 0.440511 |
| PYURF | 0.758269 | 0.060897 |
| BLVRB | 0.758331 | 0.675488 |
| MRPS28 | 0.758332 | 0.201757 |
| USP37 | 0.758342 | 0.032623 |
| TFR2 | 0.758403 | 0.408165 |
| MTRF1 | 0.758475 | 0.184576 |
| KRT4 | 0.758518 | 0.67704 |
| RTTN | 0.758528 | 0.011691 |
| MKLN1 | 0.758675 | 0.015195 |
| PATZ1 | 0.758745 | 0.533689 |
| NMRAL1 | 0.758787 | 0.181788 |
| FOXN3 | 0.758823 | 0.487903 |
| DCAF8 | 0.758862 | 0.166966 |
| CAMKMT | 0.758869 | 0.03372 |
| GLRX2 | 0.758873 | 0.083082 |
| SPART | 0.7589 | 0.146593 |
| TMEM161A | 0.758966 | 0.116582 |
| QARS1 | 0.75898 | 0.275104 |
| PIEZO1 | 0.758992 | 0.226909 |
| TMEM33 | 0.759102 | 0.191963 |
| BBS1 | 0.759112 | 0.367972 |
| ZMIZ1 | 0.75915 | 0.073464 |
| ABCB7 | 0.759161 | 0.441955 |
| FAHD2A | 0.759169 | 0.13168 |
| ITGB7 | 0.759208 | 0.479945 |
| CHIT1 | 0.759302 | 0.976206 |
| MRPL35 | 0.759378 | 0.941922 |

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|---|---|---|
| PKMYT1 | 0.759389 | 0.095661 |
| RFT1 | 0.759403 | 0.210423 |
| KIF14 | 0.759529 | 0.015492 |
| PDE4D | 0.75953 | 0.741807 |
| PARD6B | 0.759536 | 0.604557 |
| SCIN | 0.759738 | 0.618719 |
| SMG8 | 0.759757 | 0.053541 |
| EXOSC2 | 0.759763 | 0.005589 |
| BPGM | 0.759853 | 0.762383 |
| KDM4A | 0.759914 | 0.065992 |
| COLEC12 | 0.759921 | 0.311427 |
| NYNRIN | 0.760022 | 0.044005 |
| THNSL1 | 0.76006 | 0.147436 |
| C4B | 0.76009 | 0.733292 |
| SOGA1 | 0.76016 | 0.124128 |
| TOB2 | 0.760188 | 0.294363 |
| ORC6 | 0.76029 | 0.242905 |
| RBM4B | 0.760308 | 0.276574 |
| ABCD3 | 0.760327 | 0.11217 |
| TASP1 | 0.760344 | 0.05506 |
| ALKBH6 | 0.760378 | 0.169379 |
| RNFT1 | 0.760379 | 0.241621 |
| TRAF3 | 0.7605 | 0.190884 |
| MTERF3 | 0.760574 | 0.071697 |
| ACLY | 0.760583 | 0.134007 |
| WDR73 | 0.760585 | 0.032506 |
| MAML1 | 0.760631 | 0.224539 |
| CIAO2B | 0.760676 | 0.377701 |

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|---|---|---|
| CGAS | 0.760712 | 0.806688 |
| SH3RF1 | 0.760715 | 0.170076 |
| BCL7A | 0.760776 | 0.914836 |
| QTRT2 | 0.760817 | 0.039815 |
| MTO1 | 0.760836 | 0.090269 |
| HIP1 | 0.760927 | 0.487088 |
| NIP7 | 0.761028 | 0.102018 |
| MME | 0.761054 | 0.661738 |
| GNPTAB | 0.761093 | 0.032732 |
| LARP1 | 0.761107 | 0.11218 |
| SAMSN1 | 0.761198 | 0.031411 |
| UCHL5 | 0.761272 | 0.965829 |
| PUM1 | 0.761274 | 0.897115 |
| DENND5A | 0.761388 | 0.007662 |
| PDXP | 0.761398 | 0.028292 |
| IFT74 | 0.761507 | 0.110971 |
| HMG20A | 0.761531 | 0.107973 |
| STAB1 | 0.761534 | 0.650227 |
| NDUFS3 | 0.761617 | 0.424184 |
| BTRC | 0.761686 | 0.226735 |
| LBR | 0.761707 | 0.731633 |
| MIIP | 0.761715 | 0.341554 |
| BSPRY | 0.761726 | 0.031324 |
| DR1 | 0.761787 | 0.203497 |
| MARS1 | 0.761805 | 0.152657 |
| CPD | 0.761813 | 0.062477 |
| PLCB1 | 0.761875 | 0.004315 |
| CKAP4 | 0.761908 | 0.882535 |

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|---|---|---|
| RAB34 | 0.762001 | 0.089163 |
| LGALS3 | 0.76207 | 0.528688 |
| KDM4B | 0.762074 | 0.76433 |
| ACY3 | 0.762076 | 0.520863 |
| ZSCAN18 | 0.762186 | 0.113327 |
| LRRC47 | 0.762427 | 0.025563 |
| GIT2 | 0.762504 | 0.044076 |
| EIF4E3 | 0.76267 | 0.058039 |
| RFWD3 | 0.762711 | 0.070511 |
| USP46 | 0.762797 | 0.969499 |
| RIC8A | 0.762809 | 0.153496 |
| ESYT2 | 0.762946 | 0.251153 |
| TRIM16 | 0.763067 | 0.386135 |
| NVL | 0.763071 | 0.133389 |
| MED11 | 0.763073 | 0.151479 |
| NAGK | 0.763125 | 0.077114 |
| WDR41 | 0.763144 | 0.053595 |
| USP30 | 0.763145 | 0.129399 |
| TUBB6 | 0.763201 | 0.224819 |
| POGLUT3 | 0.763284 | 0.00911 |
| MAST3 | 0.763352 | 0.166993 |
| SLC39A1 | 0.763369 | 0.436305 |
| BABAM2 | 0.763426 | 0.080116 |
| ASS1 | 0.763503 | 0.869059 |
| TTC4 | 0.763508 | 0.125695 |
| GABPB2 | 0.763548 | 0.505887 |
| WDR35 | 0.763573 | 0.381809 |
| LRRC17 | 0.763797 | 0.776529 |

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|---|---|---|
| ATPAF2 | 0.763799 | 0.092638 |
| IFRD1 | 0.763909 | 0.082146 |
| DTNBP1 | 0.763961 | 0.088039 |
| TNKS1BP1 | 0.764075 | 0.237455 |
| ADCY9 | 0.764084 | 0.547276 |
| DNAJC12 | 0.764101 | 0.918219 |
| EIF1AY | 0.764167 | 0.961576 |
| NARS2 | 0.764554 | 0.036554 |
| SGF29 | 0.764584 | 0.121077 |
| FOXK2 | 0.764696 | 0.031296 |
| PDGFRB | 0.764751 | 0.532196 |
| ARFGEF1 | 0.764754 | 0.322158 |
| RBMS1 | 0.764812 | 0.133015 |
| WDR75 | 0.764966 | 0.274072 |
| GPT2 | 0.76497 | 0.395856 |
| RMI1 | 0.764997 | 0.111948 |
| ARRDC1 | 0.765092 | 0.194538 |
| EXD2 | 0.765108 | 0.016989 |
| NA | 0.765261 | 0.871829 |
| PCMTD1 | 0.765316 | 0.024156 |
| PLPPR3 | 0.765546 | 0.342094 |
| MCFD2 | 0.765603 | 0.850536 |
| SLC38A7 | 0.765621 | 0.322111 |
| GPN2 | 0.765796 | 0.082563 |
| UPF3B | 0.765805 | 0.101409 |
| GALNS | 0.765859 | 0.283695 |
| SPATS2L | 0.765878 | 0.420654 |
| UHRF2 | 0.765898 | 0.353375 |

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| AKT1S1 | 0.765948 | 0.230687 |
| PPHLN1 | 0.765988 | 0.480241 |
| LEMD3 | 0.765995 | 0.147773 |
| SYNGR2 | 0.766019 | 0.21526 |
| DHX36 | 0.766021 | 0.01036 |
| PYCR1 | 0.76604 | 0.233132 |
| S100A13 | 0.766116 | 0.950615 |
| MRPL1 | 0.766178 | 0.533083 |
| MTHFSD | 0.76618 | 0.057127 |
| MRPS11 | 0.766212 | 0.330169 |
| ANXA8L1 | 0.766251 | 0.83796 |
| COL23A1 | 0.766259 | 0.48784 |
| PBX2 | 0.766263 | 0.340955 |
| CEP63 | 0.766275 | 0.068836 |
| PPM1K | 0.766294 | 0.496026 |
| FARSB | 0.766352 | 0.059595 |
| TBC1D24 | 0.76636 | 0.088633 |
| TOX | 0.766392 | 0.626574 |
| F12 | 0.766536 | 0.986897 |
| EIF4A1 | 0.766544 | 0.812379 |
| TBC1D22B | 0.766555 | 0.100262 |
| NDUFA11 | 0.766575 | 0.526807 |
| SLC31A1 | 0.766629 | 0.510368 |
| SUMF2 | 0.766654 | 0.099241 |
| IFT122 | 0.76667 | 0.10889 |
| SLC38A9 | 0.766725 | 0.373254 |
| IPMK | 0.766794 | 0.133959 |
| TTC26 | 0.766869 | 0.20533 |

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|---|---|---|
| FOXJ2 | 0.766979 | 0.216884 |
| CNOT6 | 0.767095 | 0.127362 |
| TMPO | 0.767113 | 0.995477 |
| PYCR2 | 0.767257 | 0.12682 |
| ZNF146 | 0.767265 | 0.942705 |
| TBRG4 | 0.767271 | 0.322607 |
| RPL36AL | 0.767307 | 0.358725 |
| HSDL2 | 0.767388 | 0.124137 |
| CPT1A | 0.767403 | 0.05375 |
| GABRG2 | 0.767416 | 0.320136 |
| RXRB | 0.767427 | 0.109464 |
| KIF7 | 0.767433 | 0.951396 |
| ARID4A | 0.767434 | 0.774529 |
| TERF1 | 0.767465 | 0.332636 |
| PDHX | 0.767496 | 0.316519 |
| ATP5F1C | 0.767522 | 0.596931 |
| CCDC93 | 0.76754 | 0.095857 |
| IFI44 | 0.767723 | 0.662034 |
| OPA1 | 0.767806 | 0.163446 |
| CFAP97 | 0.767864 | 0.578223 |
| LIN9 | 0.76787 | 0.09489 |
| POTEJ | 0.767886 | 0.855739 |
| CCDC149 | 0.767889 | 0.456287 |
| KMT5B | 0.767915 | 0.40051 |
| KIF21A | 0.767934 | 0.8348 |
| GIGYF2 | 0.767993 | 0.054671 |
| TRDMT1 | 0.768031 | 0.551637 |
| BCL3 | 0.76807 | 0.287448 |

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|---|---|---|
| FASTK | 0.768084 | 0.593979 |
| PRKRIP1 | 0.768092 | 0.430796 |
| WDR53 | 0.768099 | 0.436245 |
| RPP21 | 0.768128 | 0.021025 |
| DNAJC9 | 0.768232 | 0.123602 |
| FTL | 0.768237 | 0.38373 |
| BBLN | 0.768241 | 0.139275 |
| CLN6 | 0.76825 | 0.693092 |
| GCLC | 0.768343 | 0.229902 |
| YAE1 | 0.768389 | 0.592995 |
| NADK2 | 0.768429 | 0.043063 |
| INSR | 0.768442 | 0.095753 |
| SMG7 | 0.768769 | 0.01949 |
| EEF1AKMT4 | 0.769007 | 0.090005 |
| CA1 | 0.769067 | 0.853183 |
| TOPBP1 | 0.76907 | 0.052401 |
| RAF1 | 0.76915 | 0.012909 |
| CELF1 | 0.769207 | 0.024505 |
| TYK2 | 0.769315 | 0.085679 |
| DHODH | 0.769488 | 0.508626 |
| HSP90AA1 | 0.769506 | 0.011111 |
| HCK | 0.769566 | 0.119677 |
| NACC1 | 0.769622 | 0.257796 |
| CYC1 | 0.769727 | 0.901032 |
| TRMT11 | 0.769992 | 0.021571 |
| NME6 | 0.770122 | 0.160907 |
| CCP110 | 0.77015 | 0.056755 |
| LTN1 | 0.770191 | 0.245575 |

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|---|---|---|
| NDUFA5 | 0.770245 | 0.612519 |
| SACS | 0.770284 | 0.124528 |
| RARS1 | 0.770424 | 0.066323 |
| ZXDC | 0.770426 | 0.298772 |
| EPN2 | 0.770469 | 0.792342 |
| CSNK1D | 0.770478 | 0.010703 |
| PTGES2 | 0.770488 | 0.017266 |
| RNASE3 | 0.770595 | 0.693955 |
| KLHL22 | 0.770632 | 0.26635 |
| IFIT2 | 0.770695 | 0.847335 |
| ASB7 | 0.770844 | 0.441558 |
| MOCS3 | 0.77091 | 0.02974 |
| CAST | 0.77092 | 0.493755 |
| DCUN1D4 | 0.770979 | 0.192177 |
| BATF | 0.771003 | 0.749088 |
| TRUB2 | 0.77111 | 0.460066 |
| PAPOLG | 0.771135 | 0.026217 |
| SELENOH | 0.771267 | 0.353745 |
| FAM3B | 0.77141 | 0.25631 |
| SCAP | 0.771412 | 0.326166 |
| UGT3A2 | 0.771413 | 0.908385 |
| CARM1 | 0.771495 | 0.049586 |
| JMJD8 | 0.771498 | 0.279902 |
| MBNL3 | 0.771622 | 0.677188 |
| NOCT | 0.771684 | 0.244545 |
| CPSF4 | 0.771719 | 0.063024 |
| IL4I1 | 0.771777 | 0.719357 |
| HNRNPF | 0.772061 | 0.059151 |

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|---|---|---|
| CTSZ | 0.772133 | 0.435017 |
| DEF6 | 0.772147 | 0.381968 |
| FPGS | 0.772169 | 0.105764 |
| TMEM161B | 0.772195 | 0.239259 |
| RPS5 | 0.77227 | 0.0447 |
| NOLC1 | 0.772404 | 0.31161 |
| NIBAN3 | 0.772404 | 0.699471 |
| SPAG1 | 0.772559 | 0.429494 |
| ZNF114 | 0.772616 | 0.78446 |
| MUL1 | 0.772653 | 0.134978 |
| DISC1 | 0.772722 | 0.277458 |
| EIF3H | 0.772843 | 0.046597 |
| GRAMD1B | 0.772938 | 0.412072 |
| ZNF691 | 0.773128 | 0.851177 |
| AGO2 | 0.773178 | 0.093358 |
| NPM3 | 0.77323 | 0.187359 |
| SDHAF3 | 0.773245 | 0.159777 |
| CLUH | 0.773364 | 0.135894 |
| IDH3A | 0.773412 | 0.273625 |
| THEM6 | 0.773426 | 0.144923 |
| MIS12 | 0.773455 | 0.31332 |
| TBC1D10C | 0.773489 | 0.174868 |
| NCOA1 | 0.773549 | 0.076143 |
| SPG7 | 0.77355 | 0.350135 |
| EIF6 | 0.773553 | 0.071932 |
| GYS2 | 0.77363 | 0.542047 |
| LYRM7 | 0.773654 | 0.046623 |
| RPSA | 0.773832 | 0.036527 |

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|---|---|---|
| BRD9 | 0.773832 | 0.226968 |
| CUX1 | 0.773856 | 0.727374 |
| CYRIB | 0.773862 | 0.218316 |
| TMCO4 | 0.773932 | 0.017512 |
| HSPA14 | 0.774005 | 0.055019 |
| FARSA | 0.774061 | 0.130188 |
| CARHSP1 | 0.774073 | 0.598417 |
| DNAJA1 | 0.774096 | 0.054818 |
| PSMG1 | 0.774128 | 0.35056 |
| DDX1 | 0.774128 | 0.042244 |
| CRTC1 | 0.774147 | 0.629014 |
| SLC25A16 | 0.774247 | 0.781435 |
| C6orf89 | 0.774314 | 0.2253 |
| GTF2H4 | 0.774357 | 0.075492 |
| SARDH | 0.774377 | 0.435024 |
| LCMT2 | 0.774383 | 0.153605 |
| PSMD5 | 0.774412 | 0.100482 |
| FADS1 | 0.774451 | 0.40652 |
| PLEKHM2 | 0.774465 | 0.044614 |
| ADAP1 | 0.774512 | 0.300443 |
| HELB | 0.774568 | 0.117014 |
| ZYG11B | 0.77457 | 0.041825 |
| PDE7A | 0.774731 | 0.499334 |
| SH2D4A | 0.774744 | 0.428587 |
| ITPRIP | 0.774815 | 0.255879 |
| MYSM1 | 0.774833 | 0.62964 |
| FOCAD | 0.774918 | 0.157528 |
| TRIM25 | 0.775084 | 0.017244 |

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|---|---|---|
| MRPL3 | 0.775084 | 0.3172 |
| PTAR1 | 0.775132 | 0.054406 |
| HNRNPH1 | 0.775134 | 0.171203 |
| RPTOR | 0.775367 | 0.034403 |
| ATG7 | 0.775433 | 0.095036 |
| POLR2I | 0.775501 | 0.031426 |
| RBPJ | 0.775507 | 0.363793 |
| UBL3 | 0.77555 | 0.623314 |
| GIGYF1 | 0.775648 | 0.220016 |
| DAZAP1 | 0.775661 | 0.076224 |
| CDC25C | 0.775745 | 0.092484 |
| HACL1 | 0.775937 | 0.09015 |
| RALGAPA2 | 0.776007 | 0.253702 |
| COPRS | 0.776035 | 0.722044 |
| SESN3 | 0.776084 | 0.414995 |
| HAUS4 | 0.776411 | 0.054867 |
| KATNA1 | 0.776434 | 0.022011 |
| MRPL21 | 0.776621 | 0.363489 |
| NA | 0.77663 | 0.548968 |
| SERPINB2 | 0.776714 | 0.884652 |
| PCBP2 | 0.776762 | 0.572598 |
| USP36 | 0.776792 | 0.181433 |
| DNAH2 | 0.776803 | 0.87218 |
| SEC24B | 0.776824 | 0.060495 |
| EXOSC7 | 0.776972 | 0.02759 |
| COX8A | 0.777078 | 0.343026 |
| ABTB2 | 0.777198 | 0.168842 |
| AIF1 | 0.777217 | 0.358892 |

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|---|---|---|
| SERBP1 | 0.777234 | 0.620173 |
| NDUFS8 | 0.777407 | 0.951834 |
| MTX2 | 0.77756 | 0.850097 |
| GGPS1 | 0.777562 | 0.025043 |
| EDEM2 | 0.777641 | 0.021898 |
| RFK | 0.777763 | 0.033473 |
| SLC35A2 | 0.777768 | 0.399016 |
| ATP2B4 | 0.7778 | 0.309711 |
| DOP1A | 0.777817 | 0.038744 |
| HADHA | 0.777834 | 0.257473 |
| SETD1B | 0.777839 | 0.082067 |
| ARFIP2 | 0.777909 | 0.150512 |
| DPAGT1 | 0.777989 | 0.228274 |
| SYVN1 | 0.778022 | 0.223885 |
| CEP192 | 0.778058 | 0.125714 |
| RNH1 | 0.778159 | 0.165533 |
| PDE4DIP | 0.778175 | 0.282681 |
| CCDC14 | 0.778269 | 0.382648 |
| BLOC1S4 | 0.77832 | 0.132565 |
| SIK2 | 0.778336 | 0.081741 |
| SLC7A6OS | 0.778428 | 0.364107 |
| TYSND1 | 0.778466 | 0.202073 |
| CDKN2AIPNL | 0.77862 | 0.066034 |
| ELP2 | 0.778633 | 0.083941 |
| TOMM7 | 0.77866 | 0.676951 |
| ERMP1 | 0.778678 | 0.103113 |
| CTBP2 | 0.778684 | 0.053391 |
| PSMD4 | 0.778698 | 0.647707 |

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|---|---|---|
| NUS1 | 0.778774 | 0.436231 |
| KLHDC10 | 0.778853 | 0.950749 |
| LIMK2 | 0.779019 | 0.017113 |
| ELP4 | 0.779128 | 0.134631 |
| DRAM2 | 0.779165 | 0.338069 |
| TAF1 | 0.77918 | 0.302844 |
| ACBD6 | 0.779199 | 0.152549 |
| NDUFAB1 | 0.779208 | 0.334226 |
| CYHR1 | 0.77923 | 0.394063 |
| SAP130 | 0.779247 | 0.672287 |
| VRK3 | 0.779273 | 0.618767 |
| SLFN5 | 0.779334 | 0.867619 |
| TOP3B | 0.779376 | 0.06908 |
| HAUS2 | 0.779394 | 0.078468 |
| GPNMB | 0.77948 | 0.795548 |
| CEP128 | 0.779484 | 0.429819 |
| CA5B | 0.779485 | 0.313093 |
| GCSH | 0.779547 | 0.489158 |
| ATXN1L | 0.779771 | 0.154742 |
| ACTL6A | 0.779784 | 0.235238 |
| STXBP4 | 0.779908 | 0.733915 |
| MDM4 | 0.780005 | 0.531672 |
| VPS18 | 0.780037 | 0.143912 |
| CA8 | 0.780094 | 0.53577 |
| RIC1 | 0.780095 | 0.406722 |
| ACAP3 | 0.780129 | 0.083442 |
| DPY19L3 | 0.780132 | 0.040624 |
| FGD2 | 0.78018 | 0.547956 |

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|---|---|---|
| AP1S2 | 0.780322 | 0.509916 |
| SNX19 | 0.780336 | 0.564194 |
| AGK | 0.780465 | 0.81515 |
| PPP2R5C | 0.780504 | 0.455825 |
| SPG21 | 0.780506 | 0.110742 |
| MTPAP | 0.780537 | 0.324436 |
| DIPK1B | 0.780622 | 0.204641 |
| FAM50A | 0.780667 | 0.185179 |
| POLI | 0.780829 | 0.139457 |
| ZC3H12D | 0.780939 | 0.205677 |
| FAM222B | 0.780946 | 0.979686 |
| USP9Y | 0.781044 | 0.422453 |
| SCAPER | 0.781059 | 0.062968 |
| RBM18 | 0.781119 | 0.190432 |
| NPAT | 0.781132 | 0.315176 |
| UBE4B | 0.78122 | 0.099762 |
| GPATCH2 | 0.781225 | 0.461507 |
| EPB41L1 | 0.781281 | 0.972474 |
| BCAT1 | 0.781517 | 0.422694 |
| QSOX2 | 0.781576 | 0.042337 |
| IGKV5-2 | 0.781626 | 0.077352 |
| SAMM50 | 0.781649 | 0.910273 |
| BTG1 | 0.781739 | 0.624966 |
| ERAL1 | 0.781829 | 0.2209 |
| MMS19 | 0.78184 | 0.191339 |
| AP2A2 | 0.781888 | 0.063674 |
| TRIM56 | 0.781907 | 0.03659 |
| KIF2C | 0.782029 | 0.700577 |

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|---|---|---|
| NMD3 | 0.782032 | 0.039612 |
| NFKB1 | 0.78211 | 0.175544 |
| SIPA1L2 | 0.782453 | 0.365774 |
| CYFIP1 | 0.782732 | 0.689308 |
| USP40 | 0.782798 | 0.093249 |
| ELOVL5 | 0.783019 | 0.217698 |
| MRFAP1 | 0.783103 | 0.459736 |
| FNIP1 | 0.783106 | 0.14738 |
| TNFAIP8 | 0.783225 | 0.88373 |
| HLA-DOA | 0.783231 | 0.426613 |
| IRAK3 | 0.783499 | 0.039198 |
| CRISP3 | 0.783573 | 0.847305 |
| TREX1 | 0.783658 | 0.475376 |
| HEXIM1 | 0.783742 | 0.346394 |
| APOBR | 0.783747 | 0.808727 |
| SPATA5 | 0.78382 | 0.088706 |
| URGCP | 0.783825 | 0.187815 |
| ACTN4 | 0.783853 | 0.773493 |
| COBLL1 | 0.783868 | 0.345247 |
| ZBED8 | 0.783878 | 0.088445 |
| SPINK2 | 0.783887 | 0.449849 |
| POLR1C | 0.784013 | 0.009599 |
| SAMD4B | 0.784128 | 0.133708 |
| ADAT1 | 0.784174 | 0.113862 |
| DBI | 0.784228 | 0.426663 |
| CD300A | 0.784236 | 0.449283 |
| RPL10 | 0.784379 | 0.746465 |
| ZDHHC20 | 0.784383 | 0.69934 |

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|---|---|---|
| RPS14 | 0.784411 | 0.081394 |
| CHPF2 | 0.784461 | 0.035689 |
| TTC14 | 0.784503 | 0.347695 |
| ADGRE1 | 0.784569 | 0.744079 |
| NCLN | 0.784712 | 0.052387 |
| TMEM260 | 0.784869 | 0.137318 |
| PEX3 | 0.785096 | 0.243147 |
| CCDC117 | 0.785102 | 0.141358 |
| GPN3 | 0.78517 | 0.022227 |
| CEP43 | 0.785213 | 0.149861 |
| UTP18 | 0.785283 | 0.271461 |
| FAAH | 0.785378 | 0.378622 |
| PHF23 | 0.78555 | 0.528873 |
| MAD2L1BP | 0.785636 | 0.512403 |
| FBXO45 | 0.78575 | 0.347485 |
| TLK1 | 0.785764 | 0.150184 |
| TPRG1L | 0.785917 | 0.06662 |
| PPP1R35 | 0.786034 | 0.996055 |
| NDUFAF7 | 0.786194 | 0.057381 |
| DDX60 | 0.786201 | 0.414121 |
| ETNK1 | 0.786216 | 0.204055 |
| LENG1 | 0.786251 | 0.585945 |
| BRCC3 | 0.786311 | 0.118284 |
| EIF3I | 0.786495 | 0.127603 |
| AK2 | 0.786522 | 0.097224 |
| KLHDC8B | 0.786572 | 0.71535 |
| RUNX2 | 0.786692 | 0.213774 |
| IRF2 | 0.786765 | 0.695387 |

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|---|---|---|
| HEBP2 | 0.786863 | 0.223317 |
| PSTPIP1 | 0.786909 | 0.572435 |
| ACAD9 | 0.787035 | 0.620349 |
| PICALM | 0.787217 | 0.519177 |
| YME1L1 | 0.787294 | 0.409277 |
| PHF1 | 0.787297 | 0.909378 |
| BUB1 | 0.787312 | 0.054307 |
| JRK | 0.787318 | 0.767363 |
| SLC26A2 | 0.787325 | 0.269387 |
| TRIQK | 0.787431 | 0.824081 |
| BTD | 0.787541 | 0.264617 |
| CNOT1 | 0.787544 | 0.082591 |
| EIF3B | 0.787635 | 0.122703 |
| TOPORS | 0.787653 | 0.073214 |
| PPP2R3C | 0.787665 | 0.058082 |
| MYD88 | 0.787709 | 0.205291 |
| TRADD | 0.787715 | 0.296157 |
| FIG4 | 0.787768 | 0.066967 |
| DPH2 | 0.787962 | 0.273591 |
| APLF | 0.788013 | 0.101537 |
| TFEB | 0.788085 | 0.523847 |
| LPIN2 | 0.78844 | 0.690914 |
| FBXW11 | 0.788454 | 0.061939 |
| CARD9 | 0.788477 | 0.232029 |
| MLYCD | 0.788487 | 0.339998 |
| DNAJC1 | 0.788531 | 0.380914 |
| PRSS21 | 0.788631 | 0.942836 |
| PLD4 | 0.788803 | 0.245458 |

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|---|---|---|
| CTSB | 0.78882 | 0.160757 |
| NOA1 | 0.788918 | 0.472921 |
| KIF23 | 0.788928 | 0.083883 |
| AFMID | 0.788966 | 0.086614 |
| BECN1 | 0.789051 | 0.392536 |
| NAA50 | 0.789066 | 0.067826 |
| MRI1 | 0.789075 | 0.001713 |
| MTHFD1 | 0.789151 | 0.07525 |
| EIF2B4 | 0.789173 | 0.19716 |
| CASK | 0.78918 | 0.404169 |
| TPGS1 | 0.789288 | 0.877269 |
| COQ6 | 0.789305 | 0.063247 |
| NKAP | 0.789433 | 0.24777 |
| POFUT1 | 0.7895 | 0.058351 |
| AGO3 | 0.789538 | 0.043124 |
| NCDN | 0.789549 | 0.237551 |
| HSD17B8 | 0.789629 | 0.165013 |
| SIRT6 | 0.789703 | 0.329048 |
| HAUS5 | 0.789744 | 0.050541 |
| ILF3 | 0.789755 | 0.282608 |
| PUS7L | 0.78977 | 0.023322 |
| GFER | 0.789786 | 0.459271 |
| C2orf68 | 0.789808 | 0.805476 |
| TM7SF2 | 0.789838 | 0.507756 |
| WASH6P | 0.789839 | 0.816645 |
| NA | 0.789847 | 0.373034 |
| PDXK | 0.789869 | 0.103268 |
| SMUG1 | 0.78989 | 0.317639 |

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|---|---|---|
| MYCBP2 | 0.789941 | 0.358245 |
| MRPS34 | 0.789964 | 0.128502 |
| AGO4 | 0.790005 | 0.04762 |
| ALKBH5 | 0.790053 | 0.189758 |
| UBE2Q2 | 0.790061 | 0.053407 |
| EPS8 | 0.79011 | 0.892436 |
| EEFSEC | 0.790148 | 0.080592 |
| FCRLA | 0.790175 | 0.210246 |
| BST2 | 0.790176 | 0.536804 |
| MAP3K4 | 0.790201 | 0.179759 |
| NFKBIL1 | 0.790208 | 0.031959 |
| PRKD3 | 0.790221 | 0.34261 |
| HAUS6 | 0.790302 | 0.017327 |
| SLC35C1 | 0.790336 | 0.593696 |
| CUL7 | 0.790344 | 0.090579 |
| DDAH2 | 0.790432 | 0.292982 |
| TULP3 | 0.790522 | 0.243672 |
| GART | 0.79055 | 0.040569 |
| SARM1 | 0.790633 | 0.167598 |
| TAX1BP1 | 0.790651 | 0.418888 |
| SNRPF | 0.790671 | 0.283783 |
| PSMD1 | 0.790691 | 0.172499 |
| CHD9 | 0.790806 | 0.462245 |
| PTGES3L-AARSD1 | 0.790807 | 0.179681 |
| ZFYVE16 | 0.790875 | 0.1398 |
| CTDSPL2 | 0.790984 | 0.896791 |
| TLR4 | 0.790994 | 0.307535 |

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|---|---|---|
| MTMR3 | 0.791093 | 0.12116 |
| CTF1 | 0.791116 | 0.775547 |
| HNRNPH1 | 0.791134 | 0.736076 |
| DXO | 0.791159 | 0.266498 |
| GRK3 | 0.791274 | 0.215744 |
| PRCP | 0.791298 | 0.266285 |
| STAU1 | 0.791395 | 0.06902 |
| HSD17B7 | 0.791556 | 0.117938 |
| TNRC6A | 0.791655 | 0.368076 |
| RPL22L1 | 0.791668 | 0.251506 |
| SNRNP25 | 0.791705 | 0.062799 |
| NMT2 | 0.791737 | 0.36366 |
| BAP1 | 0.791841 | 0.099985 |
| TPK1 | 0.791909 | 0.14779 |
| NPRL3 | 0.791948 | 0.01209 |
| MRPL10 | 0.791997 | 0.458857 |
| FAAP100 | 0.792004 | 0.05547 |
| GRAMD1A | 0.792041 | 0.084032 |
| ZBTB45 | 0.792074 | 0.385614 |
| CRYAB | 0.792198 | 0.883782 |
| UBFD1 | 0.792199 | 0.086356 |
| LAGE3 | 0.792214 | 0.260267 |
| CD70 | 0.792252 | 0.177297 |
| UFSP1 | 0.792255 | 0.324694 |
| ACSF2 | 0.792265 | 0.311659 |
| DUSP14 | 0.792277 | 0.22115 |
| WWP2 | 0.792303 | 0.141655 |
| TBC1D1 | 0.792409 | 0.073408 |

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|---|---|---|
| CBWD5 | 0.792439 | 0.843498 |
| NFRKB | 0.79245 | 0.872178 |
| SEH1L | 0.792535 | 0.068313 |
| COA4 | 0.792571 | 0.881286 |
| YIPF5 | 0.792675 | 0.751999 |
| DDX6 | 0.792759 | 0.056189 |
| SIDT2 | 0.792876 | 0.912196 |
| GGA2 | 0.792925 | 0.095156 |
| BLNK | 0.793157 | 0.45381 |
| USP7 | 0.793164 | 0.079536 |
| GAS7 | 0.793169 | 0.444032 |
| NA | 0.793202 | 0.641716 |
| PDHA1 | 0.793251 | 0.694634 |
| EPHX1 | 0.793255 | 0.396605 |
| AGPAT2 | 0.793259 | 0.43381 |
| ALDH5A1 | 0.793321 | 0.373801 |
| TNK1 | 0.793324 | 0.928354 |
| ARHGAP11A | 0.793326 | 0.161107 |
| RIPOR1 | 0.793455 | 0.085684 |
| MSI2 | 0.793523 | 0.570035 |
| EIF3K | 0.793965 | 0.374301 |
| MGME1 | 0.79401 | 0.195115 |
| TEFM | 0.794088 | 0.529838 |
| NARS1 | 0.794105 | 0.06612 |
| UVRAG | 0.794109 | 0.00216 |
| IQGAP3 | 0.79413 | 0.190656 |
| LENG9 | 0.794159 | 0.616599 |
| ARFIP1 | 0.794245 | 0.325375 |

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|---|---|---|
| SNX27 | 0.794258 | 0.147058 |
| EIF2A | 0.794321 | 0.28444 |
| CYSTM1 | 0.794345 | 0.908191 |
| NDUFB3 | 0.794371 | 0.989775 |
| TRIM14 | 0.794387 | 0.300917 |
| ZGPAT | 0.794443 | 0.317854 |
| ABRAXAS2 | 0.794533 | 0.369845 |
| FAM13B | 0.794537 | 0.854823 |
| PPIH | 0.794568 | 0.081117 |
| PLAGL1 | 0.794608 | 0.719872 |
| QRSL1 | 0.794696 | 0.425566 |
| PAFAH1B3 | 0.794696 | 0.074398 |
| CPM | 0.794711 | 0.539237 |
| ILF3 | 0.794768 | 0.2316 |
| CENPS | 0.794801 | 0.468884 |
| TRAP1 | 0.794973 | 0.293055 |
| KIF22 | 0.794994 | 0.422318 |
| ZNF318 | 0.795058 | 0.248252 |
| ARMC8 | 0.795247 | 0.246651 |
| AURKAIP1 | 0.795279 | 0.423968 |
| NDUFAF2 | 0.795417 | 0.337251 |
| MKRN2 | 0.795636 | 0.132997 |
| GRPEL1 | 0.795668 | 0.47151 |
| LSM14A | 0.795672 | 0.637793 |
| ZNHIT1 | 0.79572 | 0.695177 |
| EMB | 0.795756 | 0.920028 |
| MAEA | 0.795766 | 0.132961 |
| SUMO1 | 0.795905 | 0.572943 |

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|---|---|---|
| ANP32E | 0.795946 | 0.055045 |
| DNAJA3 | 0.796137 | 0.217027 |
| FAAP20 | 0.796159 | 0.375776 |
| KANSL2 | 0.79622 | 0.289852 |
| TUBGCP6 | 0.79627 | 0.142238 |
| WDR48 | 0.796312 | 0.085566 |
| IL1RAP | 0.79632 | 0.328303 |
| USP3 | 0.796362 | 0.822943 |
| ZNF688 | 0.796407 | 0.362807 |
| HELLS | 0.796502 | 0.167893 |
| ITGAM | 0.796548 | 0.751458 |
| ALDH18A1 | 0.796808 | 0.232085 |
| UQCRFS1 | 0.796896 | 0.923917 |
| COMMD10 | 0.797015 | 0.086748 |
| FRYL | 0.797015 | 0.305152 |
| SDSL | 0.797102 | 0.59668 |
| CDPF1 | 0.797102 | 0.922803 |
| ETFDH | 0.797294 | 0.506297 |
| CFD | 0.797526 | 0.194398 |
| PRODH | 0.797564 | 0.433151 |
| MATN2 | 0.797564 | 0.443575 |
| MAPK12 | 0.797597 | 0.328056 |
| TDRD7 | 0.797637 | 0.191931 |
| MRPL39 | 0.797662 | 0.589327 |
| FXR1 | 0.797664 | 0.025476 |
| FAM118A | 0.797688 | 0.461434 |
| FAM53B | 0.797721 | 0.930201 |
| TTC38 | 0.797845 | 0.331016 |

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|---|---|---|
| CELF2 | 0.79795 | 0.19487 |
| PSMB3 | 0.798001 | 0.082908 |
| TAF8 | 0.798066 | 0.126476 |
| NATD1 | 0.798097 | 0.50048 |
| TMEM62 | 0.798132 | 0.327088 |
| NDUFC2 | 0.798208 | 0.885423 |
| COX5B | 0.798212 | 0.693932 |
| TNPO3 | 0.798253 | 0.140929 |
| IL1RN | 0.798307 | 0.864268 |
| CRYBG1 | 0.79832 | 0.299423 |
| AP1G2 | 0.798324 | 0.149291 |
| NDUFA6 | 0.798326 | 0.87125 |
| MMGT1 | 0.798409 | 0.927729 |
| ATAD1 | 0.798465 | 0.380681 |
| HM13 | 0.798503 | 0.755566 |
| MRPL18 | 0.798504 | 0.458209 |
| RYBP | 0.798506 | 0.646784 |
| GLYR1 | 0.798637 | 0.829076 |
| COMMD9 | 0.798836 | 0.121734 |
| RAD1 | 0.79889 | 0.199661 |
| MBTD1 | 0.798937 | 0.627586 |
| MORC3 | 0.798942 | 0.479591 |
| SPIDR | 0.798955 | 0.83742 |
| RPS6KA3 | 0.799003 | 0.268117 |
| MCM3AP | 0.799026 | 0.442386 |
| SLC35B2 | 0.799095 | 0.341939 |
| MUC5B | 0.799127 | 0.544314 |
| IDH3B | 0.799137 | 0.359352 |

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|---|---|---|
| RUVBL1 | 0.799166 | 0.144272 |
| LAMP2 | 0.799206 | 0.323615 |
| SYPL1 | 0.79922 | 0.589951 |
| EMSY | 0.799253 | 0.983393 |
| LDAH | 0.799294 | 0.377144 |
| IL16 | 0.799452 | 0.620983 |
| SEC14L2 | 0.799535 | 0.688441 |
| DFFA | 0.799543 | 0.826619 |
| C18orf25 | 0.799658 | 0.976455 |
| LPXN | 0.799688 | 0.48945 |
| KDM8 | 0.799709 | 0.172773 |
| METTL13 | 0.79972 | 0.041114 |
| C11orf54 | 0.79975 | 0.163738 |
| RAN | 0.799772 | 0.074568 |
| PASK | 0.799813 | 0.160133 |
| FGD6 | 0.799823 | 0.666902 |
| BLM | 0.799839 | 0.258051 |
| RBM15B | 0.799854 | 0.320322 |
| GBA | 0.799953 | 0.191471 |
| ATP5PB | 0.800031 | 0.614081 |
| ATAD2B | 0.800039 | 0.854684 |
| TTC37 | 0.800086 | 0.37733 |
| ANXA6 | 0.800087 | 0.622691 |
| COPG2 | 0.800109 | 0.231135 |
| NEU1 | 0.800146 | 0.27345 |
| SEC63 | 0.800219 | 0.223091 |
| PRMT5 | 0.800236 | 0.030075 |
| TAF1B | 0.80029 | 0.333602 |

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|---|---|---|
| RNASE2 | 0.800314 | 0.763992 |
| ARHGEF39 | 0.800336 | 0.789318 |
| MAP3K3 | 0.800454 | 0.166223 |
| DSN1 | 0.800512 | 0.281098 |
| SNIP1 | 0.800514 | 0.283536 |
| SLC43A3 | 0.800698 | 0.298054 |
| MTMR1 | 0.800774 | 0.16652 |
| HDDC3 | 0.80091 | 0.283271 |
| TRAF4 | 0.800966 | 0.37797 |
| STN1 | 0.801094 | 0.119125 |
| DHX58 | 0.801132 | 0.370559 |
| POMT2 | 0.801183 | 0.218418 |
| CCDC15 | 0.801195 | 0.406226 |
| NUDT5 | 0.801238 | 0.209167 |
| EIF4E2 | 0.801308 | 0.192619 |
| KCNAB1 | 0.801333 | 0.228417 |
| MYEF2 | 0.801367 | 0.863165 |
| MRPS31 | 0.801451 | 0.36192 |
| NDE1 | 0.80147 | 0.207474 |
| CAT | 0.801514 | 0.323865 |
| HERC1 | 0.801535 | 0.137982 |
| RAPGEF6 | 0.801536 | 0.585212 |
| HUWE1 | 0.801606 | 0.148131 |
| COMMD2 | 0.801682 | 0.007046 |
| DNAJC2 | 0.801702 | 0.12298 |
| CDKL5 | 0.80172 | 0.777387 |
| CYRIA | 0.80177 | 0.627644 |
| MGRN1 | 0.8018 | 0.154015 |

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|---|---|---|
| CASP2 | 0.801833 | 0.202172 |
| AGTPBP1 | 0.801884 | 0.239987 |
| STK38L | 0.801893 | 0.017621 |
| GUSB | 0.802002 | 0.401414 |
| EIF3D | 0.802032 | 0.234408 |
| H3-4 | 0.802048 | 0.289354 |
| NUP43 | 0.802076 | 0.098542 |
| SIGLEC5 | 0.802144 | 0.965834 |
| C19orf54 | 0.802177 | 0.593987 |
| DDT | 0.802214 | 0.175893 |
| MRPL15 | 0.80222 | 0.386962 |
| POLR2M | 0.802227 | 0.782417 |
| UBE2A | 0.802242 | 0.065121 |
| PIH1D1 | 0.802333 | 0.040015 |
| TNPO1 | 0.80247 | 0.120714 |
| CDA | 0.80248 | 0.855144 |
| ARIH2 | 0.802511 | 0.110118 |
| VPS11 | 0.802512 | 0.121096 |
| CSNK1A1 | 0.802786 | 0.170301 |
| UPP1 | 0.8028 | 0.35837 |
| NAT9 | 0.802863 | 0.590263 |
| MX1 | 0.8029 | 0.45623 |
| ATP5PO | 0.802981 | 0.649843 |
| FAN1 | 0.803082 | 0.421386 |
| ZNF800 | 0.803118 | 0.62617 |
| ASNS | 0.803121 | 0.955392 |
| POLL | 0.803151 | 0.221504 |
| CDKAL1 | 0.803224 | 0.055515 |

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|---|---|---|
| TRIM32 | 0.803345 | 0.523606 |
| SLC29A1 | 0.803373 | 0.972862 |
| SEC14L1 | 0.80341 | 0.053828 |
| CHKA | 0.803475 | 0.057625 |
| TESMIN | 0.803577 | 0.480053 |
| NCAM1 | 0.80359 | 0.622714 |
| PCNT | 0.80363 | 0.112493 |
| BCL2L13 | 0.803633 | 0.160451 |
| SRPRB | 0.803878 | 0.206657 |
| SPATA13 | 0.80401 | 0.351395 |
| ATP10D | 0.80402 | 0.970246 |
| HECTD1 | 0.804089 | 0.230137 |
| LIMD2 | 0.804303 | 0.644387 |
| SLC38A2 | 0.804308 | 0.116262 |
| USP20 | 0.804393 | 0.197394 |
| CCDC88A | 0.804458 | 0.656309 |
| PTGES3 | 0.804472 | 0.115011 |
| CUL1 | 0.80448 | 0.163344 |
| TRIM37 | 0.804541 | 0.318498 |
| RUNDC1 | 0.804555 | 0.004759 |
| ZMIZ2 | 0.804606 | 0.167522 |
| USP16 | 0.804714 | 0.368731 |
| ATG101 | 0.804766 | 0.076587 |
| CACUL1 | 0.804787 | 0.105722 |
| IRF5 | 0.804836 | 0.487649 |
| MCM10 | 0.804839 | 0.894898 |
| MARF1 | 0.804852 | 0.121319 |
| NSD2 | 0.804857 | 0.78476 |

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|---|---|---|
| CBR4 | 0.804937 | 0.236785 |
| COX14 | 0.804963 | 0.334265 |
| PAN2 | 0.805097 | 0.100435 |
| IFT172 | 0.80512 | 0.199231 |
| SHMT2 | 0.805403 | 0.514968 |
| LONP2 | 0.805431 | 0.155886 |
| DHRS1 | 0.805462 | 0.377949 |
| NDUFS6 | 0.805465 | 0.862834 |
| SLC12A6 | 0.805648 | 0.167891 |
| MAP2K5 | 0.805738 | 0.203001 |
| TMPO | 0.805932 | 0.52273 |
| FBXO6 | 0.806008 | 0.233942 |
| MPV17 | 0.806113 | 0.688685 |
| HDDC2 | 0.806173 | 0.21445 |
| PLOD1 | 0.806319 | 0.054031 |
| GPHN | 0.806329 | 0.643721 |
| HELZ2 | 0.806346 | 0.782565 |
| CORO7 | 0.806438 | 0.612929 |
| MTAP | 0.806466 | 0.138954 |
| VPS8 | 0.806618 | 0.273173 |
| HSPE1 | 0.806649 | 0.568836 |
| NUDT16L1 | 0.806841 | 0.446596 |
| ECHDC2 | 0.806909 | 0.405176 |
| MTOR | 0.806956 | 0.202952 |
| TMEM19 | 0.806961 | 0.788617 |
| EFHD2 | 0.806969 | 0.494604 |
| NSA2 | 0.807058 | 0.839361 |
| SMG5 | 0.807113 | 0.014717 |

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|---|---|---|
| CHCHD6 | 0.807163 | 0.959335 |
| SMPD2 | 0.807193 | 0.261068 |
| PISD | 0.807233 | 0.414295 |
| MTF2 | 0.807399 | 0.932587 |
| ANXA3 | 0.807456 | 0.718349 |
| ICAM3 | 0.807565 | 0.557918 |
| EPB41 | 0.807625 | 0.490065 |
| EDC4 | 0.807855 | 0.188705 |
| CEP57 | 0.80791 | 0.987384 |
| KIZ | 0.808043 | 0.622806 |
| MAP4K1 | 0.808079 | 0.202953 |
| PLXNA1 | 0.808171 | 0.752117 |
| SLC25A5 | 0.80819 | 0.674618 |
| CLMN | 0.80823 | 0.549453 |
| SCAMP1 | 0.808266 | 0.532489 |
| ERAP1 | 0.808444 | 0.377293 |
| KIAA0319L | 0.808521 | 0.217579 |
| FAM172A | 0.808575 | 0.236487 |
| ARFGAP1 | 0.808623 | 0.154086 |
| PRMT7 | 0.80863 | 0.032833 |
| ATP5F1E | 0.808733 | 0.936638 |
| PLK1 | 0.80874 | 0.546598 |
| STOML2 | 0.808772 | 0.951607 |
| DNAJC10 | 0.808815 | 0.315387 |
| KIAA1549 | 0.80883 | 0.383515 |
| COMMD5 | 0.808867 | 0.305606 |
| ZNF655 | 0.808876 | 0.386278 |
| MOB3A | 0.808878 | 0.447723 |

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|---|---|---|
| NFKBIA | 0.808893 | 0.226861 |
| UROS | 0.8089 | 0.63081 |
| PRDX1 | 0.808926 | 0.170131 |
| NLRP3 | 0.809022 | 0.354736 |
| VARS1 | 0.80904 | 0.092369 |
| TMEM186 | 0.809059 | 0.803869 |
| DOCK11 | 0.809081 | 0.366558 |
| FUT4 | 0.809113 | 0.061819 |
| RELB | 0.809324 | 0.191368 |
| CEPT1 | 0.809361 | 0.276528 |
| MRPL24 | 0.809366 | 0.632208 |
| NDUFB4 | 0.809385 | 0.543723 |
| SLC39A10 | 0.809386 | 0.467715 |
| FAM120C | 0.809488 | 0.239069 |
| PSMC4 | 0.809584 | 0.155975 |
| NAGK | 0.80968 | 0.282469 |
| HEBP1 | 0.809748 | 0.298692 |
| UNK | 0.809819 | 0.143149 |
| HELZ | 0.809848 | 0.063858 |
| PTER | 0.809952 | 0.199203 |
| STEAP4 | 0.810042 | 0.826506 |
| PHF20L1 | 0.81018 | 0.772246 |
| ZCCHC17 | 0.810189 | 0.442083 |
| NDUFS5 | 0.810295 | 0.865525 |
| ATP1B1 | 0.81032 | 0.557217 |
| ADARB1 | 0.810382 | 0.523051 |
| XPO4 | 0.810417 | 0.127744 |
| OSBPL1A | 0.810445 | 0.620041 |

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|---|---|---|
| CLIC2 | 0.810471 | 0.626362 |
| RCBTB2 | 0.810517 | 0.431571 |
| PAN3 | 0.810537 | 0.121096 |
| OTUB2 | 0.810626 | 0.264282 |
| AHSP | 0.810635 | 0.767351 |
| RELL1 | 0.810742 | 0.883352 |
| NEDD4 | 0.810755 | 0.198773 |
| ASCC3 | 0.810787 | 0.173558 |
| PSMA6 | 0.810939 | 0.227277 |
| FNBP1 | 0.810945 | 0.818484 |
| LARP1B | 0.810954 | 0.37501 |
| RAE1 | 0.810987 | 0.252612 |
| PALLD | 0.811032 | 0.543525 |
| GLYR1 | 0.811051 | 0.782783 |
| TTC17 | 0.811093 | 0.240765 |
| MIDEAS | 0.811145 | 0.713681 |
| PSMC5 | 0.811268 | 0.163746 |
| TAF5 | 0.811273 | 0.654575 |
| REXO5 | 0.81134 | 0.576651 |
| STYXL2 | 0.811371 | 0.784116 |
| ZNF525 | 0.811439 | 0.51554 |
| PBDC1 | 0.811487 | 0.198762 |
| LSM6 | 0.811501 | 0.239975 |
| SMYD4 | 0.811532 | 0.577149 |
| HSCB | 0.811593 | 0.380137 |
| MROH1 | 0.811594 | 0.21944 |
| PFKL | 0.81162 | 0.13789 |
| LIG4 | 0.811666 | 0.142093 |

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|---|---|---|
| LRRC14 | 0.811754 | 0.158048 |
| PCGF5 | 0.811758 | 0.527068 |
| CTSD | 0.811789 | 0.457481 |
| TUBE1 | 0.811816 | 0.380209 |
| RAD51AP1 | 0.81192 | 0.413221 |
| PCBP3 | 0.811957 | 0.426832 |
| FBXO30 | 0.81219 | 0.411351 |
| CRP | 0.81235 | 0.902059 |
| CIAO3 | 0.812428 | 0.096958 |
| MAN2B1 | 0.812469 | 0.416905 |
| IPO5 | 0.812622 | 0.223169 |
| TMEM120A | 0.812646 | 0.251948 |
| NDUFA10 | 0.81268 | 0.8744 |
| GLUL | 0.812712 | 0.057383 |
| RBFA | 0.812845 | 0.31208 |
| H1-1 | 0.812878 | 0.545198 |
| NNMT | 0.812889 | 0.79328 |
| EZR | 0.813019 | 0.583228 |
| HMGXB3 | 0.813081 | 0.790229 |
| GAB2 | 0.813212 | 0.193941 |
| SMAD5 | 0.813485 | 0.227413 |
| MTRR | 0.813534 | 0.359122 |
| SPAG7 | 0.813577 | 0.295714 |
| ZHX2 | 0.813735 | 0.753919 |
| NLK | 0.813755 | 0.606582 |
| CTBP1 | 0.813759 | 0.04853 |
| ALKBH1 | 0.813809 | 0.424085 |
| PSMC2 | 0.813986 | 0.16364 |

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|---|---|---|
| RBM33 | 0.814094 | 0.511598 |
| POT1 | 0.81412 | 0.222272 |
| HBQ1 | 0.81423 | 0.897609 |
| LONP1 | 0.814348 | 0.340476 |
| HGF | 0.814368 | 0.386732 |
| ATP2B3 | 0.814382 | 0.330293 |
| HAGHL | 0.814399 | 0.76715 |
| ZDHHC17 | 0.814402 | 0.216964 |
| CIC | 0.814408 | 0.204572 |
| GATB | 0.814433 | 0.345445 |
| PIK3R5 | 0.814445 | 0.36412 |
| MAP1S | 0.814458 | 0.242715 |
| PTP4A1 | 0.814646 | 0.369083 |
| SLC39A6 | 0.814767 | 0.493557 |
| PSMF1 | 0.814788 | 0.178257 |
| MAPKBP1 | 0.814821 | 0.245338 |
| TADA3 | 0.81484 | 0.474019 |
| UBQLN2 | 0.814959 | 0.345663 |
| RANGAP1 | 0.814995 | 0.39936 |
| PYCR3 | 0.815029 | 0.228923 |
| SPATS2 | 0.815289 | 0.447245 |
| HMGXB4 | 0.81529 | 0.4837 |
| BROX | 0.815335 | 0.451122 |
| ZNF552 | 0.815341 | 0.758294 |
| CCDC127 | 0.815364 | 0.83815 |
| ACTR5 | 0.815432 | 0.107425 |
| STAMBPL1 | 0.815536 | 0.264365 |
| RNF126 | 0.815556 | 0.522726 |

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|---|---|---|
| CUL4A | 0.815568 | 0.263791 |
| ATP1B3 | 0.815641 | 0.66638 |
| DHTKD1 | 0.815656 | 0.355424 |
| HBE1 | 0.815668 | 0.930371 |
| KRT18 | 0.815803 | 0.297394 |
| ACSL1 | 0.815818 | 0.293578 |
| ARHGEF2 | 0.815825 | 0.42233 |
| TMEM68 | 0.815937 | 0.269195 |
| SUCLG1 | 0.816 | 0.551559 |
| SPAG9 | 0.816006 | 0.47381 |
| ING5 | 0.816032 | 0.591883 |
| PI4KB | 0.816074 | 0.061556 |
| IARS2 | 0.81608 | 0.452344 |
| DNMT3A | 0.816082 | 0.790449 |
| CENPP | 0.816087 | 0.701117 |
| DUS1L | 0.816159 | 0.421507 |
| AVEN | 0.816251 | 0.578271 |
| CHN2 | 0.816322 | 0.525896 |
| MRPL42 | 0.816361 | 0.593979 |
| ULK4 | 0.816379 | 0.102356 |
| PPP4R1 | 0.816409 | 0.365851 |
| HMOX2 | 0.816504 | 0.522437 |
| SLC25A6 | 0.816511 | 0.858645 |
| SEC24D | 0.816673 | 0.119018 |
| GAA | 0.816699 | 0.759284 |
| CEBPZOS | 0.816927 | 0.35209 |
| FAM107B | 0.817032 | 0.771468 |
| SMIM26 | 0.817048 | 0.276113 |

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|---|---|---|
| DOCK8 | 0.817189 | 0.264752 |
| CD86 | 0.817259 | 0.100818 |
| OFD1 | 0.817272 | 0.44924 |
| SEC11C | 0.817285 | 0.80926 |
| SPDL1 | 0.817354 | 0.550545 |
| PHPT1 | 0.817387 | 0.156963 |
| GTF2H5 | 0.817437 | 0.253913 |
| ATRX | 0.817453 | 0.402508 |
| TOMM20 | 0.817526 | 0.814086 |
| SASH3 | 0.817583 | 0.27242 |
| OLFML2A | 0.817586 | 0.529964 |
| PDPR | 0.817616 | 0.513535 |
| PEBP1 | 0.817842 | 0.29202 |
| PPP1R18 | 0.817848 | 0.526285 |
| NUDT8 | 0.817881 | 0.334572 |
| SLC27A3 | 0.817888 | 0.444145 |
| EIF1 | 0.81791 | 0.341655 |
| IFIT1 | 0.817921 | 0.645755 |
| HINT1 | 0.817996 | 0.100863 |
| OCLN | 0.818017 | 0.761177 |
| FCSK | 0.818071 | 0.225501 |
| CD300LF | 0.818084 | 0.422633 |
| RMND5A | 0.818119 | 0.267524 |
| XPO7 | 0.81813 | 0.679014 |
| MAD2L2 | 0.818155 | 0.196596 |
| N4BP2L2 | 0.818166 | 0.598358 |
| LYPLA2 | 0.818185 | 0.29783 |
| HAL | 0.818227 | 0.925758 |

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|---|---|---|
| C1orf131 | 0.818275 | 0.901285 |
| LDHAL6B | 0.81828 | 0.411235 |
| DUSP11 | 0.818304 | 0.13104 |
| GLOD4 | 0.818442 | 0.339014 |
| NUDT19 | 0.81851 | 0.417026 |
| B3GNTL1 | 0.818526 | 0.482108 |
| CTNNBIP1 | 0.818567 | 0.723201 |
| C15orf39 | 0.818601 | 0.354863 |
| DHRS11 | 0.818645 | 0.578838 |
| CD300E | 0.818678 | 0.862941 |
| CMPK2 | 0.818723 | 0.651444 |
| PAIP2 | 0.818921 | 0.740522 |
| PAXX | 0.818966 | 0.424593 |
| KLHDC3 | 0.818993 | 0.277806 |
| PRPF40A | 0.819081 | 0.772561 |
| ROBO1 | 0.819237 | 0.962195 |
| HEATR5B | 0.819371 | 0.378276 |
| CNNM3 | 0.819603 | 0.35648 |
| ACOT9 | 0.819637 | 0.762425 |
| ABHD6 | 0.819672 | 0.226243 |
| CDKN1C | 0.819715 | 0.405321 |
| REXO1 | 0.819765 | 0.951356 |
| PPP6R1 | 0.819773 | 0.45955 |
| DDB1 | 0.819779 | 0.055073 |
| P2RY2 | 0.819903 | 0.331169 |
| ADSL | 0.819915 | 0.063699 |
| BRD2 | 0.819927 | 0.777916 |
| PARG | 0.820026 | 0.204743 |

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|---|---|---|
| SLC25A12 | 0.82005 | 0.856934 |
| SEL1L | 0.82011 | 0.270764 |
| RB1CC1 | 0.820112 | 0.344736 |
| ZNF106 | 0.82014 | 0.598894 |
| DHRS13 | 0.820226 | 0.203308 |
| ITGAX | 0.820257 | 0.935506 |
| MTR | 0.820302 | 0.235181 |
| PLPP6 | 0.820488 | 0.437974 |
| UGDH | 0.820632 | 0.212162 |
| AP3S1 | 0.820636 | 0.348705 |
| APMAP | 0.820661 | 0.257949 |
| ZGRF1 | 0.820724 | 0.708008 |
| RNF146 | 0.820771 | 0.307694 |
| PAGE2 | 0.820831 | 0.921776 |
| NEDD4L | 0.820849 | 0.651837 |
| FAM185A | 0.820915 | 0.326801 |
| NR1H2 | 0.820937 | 0.198038 |
| ZNF101 | 0.821013 | 0.652248 |
| SNX13 | 0.821087 | 0.189891 |
| TMC6 | 0.821094 | 0.904565 |
| MRPL27 | 0.821095 | 0.428042 |
| GLIPR2 | 0.821182 | 0.963172 |
| NAPRT | 0.821184 | 0.163681 |
| TRAPPC11 | 0.821192 | 0.250364 |
| ZNF77 | 0.821317 | 0.751199 |
| SLC9A6 | 0.821328 | 0.097887 |
| AMBRA1 | 0.821338 | 0.227186 |
| SIPA1L1 | 0.82141 | 0.62021 |

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|---|---|---|
| IPO9 | 0.821441 | 0.289761 |
| CIRBP | 0.821468 | 0.44425 |
| TOR2A | 0.821476 | 0.274575 |
| AHSA1 | 0.821725 | 0.111049 |
| ALKBH7 | 0.821743 | 0.32873 |
| EXOC6 | 0.821865 | 0.398978 |
| COX5A | 0.821917 | 0.809587 |
| ALDH3A2 | 0.821991 | 0.544316 |
| DHX33 | 0.822031 | 0.56117 |
| NFATC2IP | 0.822053 | 0.187421 |
| DRAP1 | 0.82207 | 0.589052 |
| CCDC134 | 0.822071 | 0.429693 |
| MRPL16 | 0.822113 | 0.490464 |
| GNPAT | 0.822136 | 0.452429 |
| GRAP | 0.82221 | 0.41058 |
| SMG9 | 0.822282 | 0.115349 |
| NAALADL2 | 0.822304 | 0.888598 |
| JMJD4 | 0.822377 | 0.95353 |
| ASPSCR1 | 0.822417 | 0.204663 |
| ZFAND3 | 0.822482 | 0.256837 |
| NCBP2AS2 | 0.822518 | 0.18505 |
| HMOX1 | 0.822642 | 0.703192 |
| USP33 | 0.82266 | 0.47781 |
| MTERF1 | 0.822696 | 0.229452 |
| RUFY3 | 0.822797 | 0.284402 |
| AK3 | 0.822862 | 0.40127 |
| UPF1 | 0.82291 | 0.092648 |
| SULT1C4 | 0.822911 | 0.517609 |

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|---|---|---|
| THUMPD3 | 0.822911 | 0.397655 |
| PYROXD2 | 0.822928 | 0.31457 |
| B4GALT3 | 0.822962 | 0.281164 |
| PTMS | 0.822974 | 0.753833 |
| CCDC167 | 0.823017 | 0.931895 |
| WDR61 | 0.823097 | 0.313236 |
| IPO13 | 0.823109 | 0.446869 |
| SNRNP48 | 0.823169 | 0.491347 |
| ATIC | 0.82332 | 0.097873 |
| DALRD3 | 0.823341 | 0.281048 |
| ZFP92 | 0.823364 | 0.339373 |
| SLC12A4 | 0.823369 | 0.225302 |
| NA | 0.823432 | 0.74907 |
| NDUFS2 | 0.823574 | 0.686384 |
| TASOR | 0.823585 | 0.448119 |
| GRHPR | 0.823651 | 0.186167 |
| LDHA | 0.823718 | 0.292722 |
| TXNRD3 | 0.823759 | 0.788329 |
| ACADS | 0.82392 | 0.509266 |
| BPTF | 0.824038 | 0.935771 |
| HIBADH | 0.824228 | 0.459865 |
| UBE4A | 0.824259 | 0.127969 |
| KCTD18 | 0.824267 | 0.767527 |
| MRPL11 | 0.824406 | 0.701222 |
| TNIP1 | 0.824433 | 0.704453 |
| NA | 0.82455 | 0.567727 |
| PTEN | 0.824615 | 0.321495 |
| MRPL54 | 0.824748 | 0.78927 |

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|---|---|---|
| USP25 | 0.824783 | 0.184125 |
| METTL15 | 0.824846 | 0.241947 |
| FAM102B | 0.824868 | 0.268469 |
| GSTK1 | 0.824924 | 0.374793 |
| RBM47 | 0.824924 | 0.948459 |
| CEP350 | 0.825022 | 0.430125 |
| NCOA4 | 0.82516 | 0.414205 |
| HMBS | 0.825191 | 0.811675 |
| ADK | 0.825212 | 0.306663 |
| WIPI2 | 0.825368 | 0.411585 |
| POLR1G | 0.825409 | 0.287856 |
| CAND1 | 0.82545 | 0.463304 |
| MIOS | 0.825648 | 0.322819 |
| PAQR8 | 0.825651 | 0.445394 |
| SMPD4 | 0.825772 | 0.593635 |
| C17orf80 | 0.825853 | 0.882824 |
| TPMT | 0.825905 | 0.351854 |
| SEMA4A | 0.825985 | 0.706879 |
| PSMD6 | 0.825997 | 0.357733 |
| PIBF1 | 0.826054 | 0.45643 |
| ADHFE1 | 0.826059 | 0.44755 |
| MACROD1 | 0.82612 | 0.617311 |
| ABHD14B | 0.826121 | 0.501808 |
| HDLBP | 0.826156 | 0.145765 |
| KLHL26 | 0.82616 | 0.277301 |
| KANK3 | 0.826268 | 0.881548 |
| PSMG2 | 0.82627 | 0.226782 |
| NUDCD2 | 0.826349 | 0.177638 |

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|---|---|---|
| CEP76 | 0.82636 | 0.261511 |
| KYAT1 | 0.826376 | 0.428795 |
| ZNF362 | 0.82646 | 0.925555 |
| C1orf162 | 0.826532 | 0.609697 |
| AOC3 | 0.82667 | 0.838341 |
| MARCHF6 | 0.826677 | 0.578985 |
| PTRH2 | 0.826685 | 0.321874 |
| MLLT3 | 0.82676 | 0.985491 |
| WDR59 | 0.826882 | 0.41804 |
| ZC3H12A | 0.826918 | 0.423804 |
| OSGEPL1 | 0.826921 | 0.526457 |
| AP4S1 | 0.826987 | 0.306311 |
| PCBD1 | 0.827008 | 0.374526 |
| CLC | 0.827133 | 0.800824 |
| COL14A1 | 0.827203 | 0.826869 |
| USP18 | 0.827244 | 0.548029 |
| NDUFAF4 | 0.827246 | 0.549201 |
| DNAJB1 | 0.827261 | 0.159605 |
| RTP4 | 0.827341 | 0.41261 |
| CD38 | 0.827376 | 0.860421 |
| HNRNPH2 | 0.827439 | 0.466702 |
| PSMA2 | 0.827539 | 0.147125 |
| ATP5ME | 0.827568 | 0.981658 |
| SMG6 | 0.827713 | 0.372587 |
| SLC7A6 | 0.827725 | 0.464364 |
| NUDC | 0.827765 | 0.419589 |
| MAPK14 | 0.827799 | 0.13999 |
| USO1 | 0.827966 | 0.530022 |

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|---|---|---|
| SENP5 | 0.828159 | 0.632005 |
| SPOP | 0.82817 | 0.985247 |
| ZBTB43 | 0.828241 | 0.25441 |
| TBCD | 0.828261 | 0.473393 |
| THG1L | 0.828262 | 0.275016 |
| SLC14A1 | 0.82828 | 0.623872 |
| PEX1 | 0.828282 | 0.33338 |
| ZNF414 | 0.828288 | 0.583227 |
| PPP1R14B | 0.828332 | 0.652631 |
| MAP7D3 | 0.828334 | 0.697043 |
| TRAPPC1 | 0.82845 | 0.210582 |
| SMPD1 | 0.828519 | 0.759993 |
| SYS1 | 0.828561 | 0.327202 |
| CYP20A1 | 0.828619 | 0.69125 |
| BAHCC1 | 0.828643 | 0.747373 |
| ABHD10 | 0.828651 | 0.513741 |
| NARF | 0.828729 | 0.447101 |
| DERL1 | 0.828737 | 0.632013 |
| NIPSNAP1 | 0.8288 | 0.33932 |
| PTRH1 | 0.828843 | 0.462929 |
| GNS | 0.828853 | 0.672502 |
| CSDE1 | 0.828865 | 0.346342 |
| RHOG | 0.828916 | 0.474173 |
| RTN4 | 0.828925 | 0.594494 |
| ME3 | 0.829044 | 0.082628 |
| TIMM50 | 0.829079 | 0.76252 |
| L2HGDH | 0.829109 | 0.253996 |
| WDR62 | 0.829137 | 0.383087 |

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|---|---|---|
| MLF2 | 0.829328 | 0.482646 |
| KDELR2 | 0.829333 | 0.831031 |
| NDUFB7 | 0.829449 | 0.900999 |
| GNB2 | 0.829483 | 0.568757 |
| DDI2 | 0.829559 | 0.619957 |
| KYAT3 | 0.829565 | 0.708474 |
| TRAPPC8 | 0.829613 | 0.328963 |
| FNDC3A | 0.82969 | 0.381795 |
| FANCE | 0.829694 | 0.614004 |
| DYNC1LI1 | 0.829699 | 0.217494 |
| NEMF | 0.829752 | 0.338975 |
| USP4 | 0.829775 | 0.17736 |
| PGD | 0.82978 | 0.361577 |
| GLT1D1 | 0.829839 | 0.1905 |
| ORC1 | 0.829914 | 0.911333 |
| SLC25A3 | 0.82993 | 0.967578 |
| P4HTM | 0.829992 | 0.315191 |
| EPN1 | 0.830088 | 0.554046 |
| HMMR | 0.830225 | 0.473212 |
| TTC9 | 0.83027 | 0.830798 |
| NPRL2 | 0.830289 | 0.134758 |
| SLC9A3R2 | 0.830306 | 0.857697 |
| BACH1 | 0.830342 | 0.351139 |
| GBP3 | 0.830403 | 0.964468 |
| MCRS1 | 0.830414 | 0.608532 |
| FKBP3 | 0.830423 | 0.355946 |
| NDUFV1 | 0.830423 | 0.96562 |
| CSGALNACT1 | 0.830572 | 0.922378 |

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|---|---|---|
| G3BP2 | 0.830706 | 0.177967 |
| FABP4 | 0.830761 | 0.850764 |
| NAA35 | 0.830762 | 0.40369 |
| GPAM | 0.83089 | 0.248295 |
| EPG5 | 0.830894 | 0.208739 |
| MICAL1 | 0.831037 | 0.905366 |
| MID1IP1 | 0.831174 | 0.456338 |
| DNAJC25 | 0.831254 | 0.553227 |
| SECISBP2L | 0.83129 | 0.103317 |
| SNX1 | 0.831411 | 0.26911 |
| BLOC1S1 | 0.831451 | 0.056662 |
| ATP6V0C | 0.831505 | 0.616241 |
| POGLUT1 | 0.831557 | 0.626428 |
| MRPL37 | 0.831635 | 0.840568 |
| DIAPH3 | 0.831661 | 0.380445 |
| MAN2B2 | 0.831664 | 0.634067 |
| C12orf29 | 0.831812 | 0.548974 |
| ERG28 | 0.831883 | 0.872138 |
| CYB5R4 | 0.832303 | 0.152721 |
| MBNL2 | 0.832306 | 0.493259 |
| CSNK2A1 | 0.832444 | 0.029933 |
| PALB2 | 0.832502 | 0.582611 |
| APPL1 | 0.832554 | 0.172573 |
| ABCA13 | 0.832579 | 0.641541 |
| UQCC1 | 0.832608 | 0.702439 |
| TOMM40 | 0.832688 | 0.991458 |
| LTC4S | 0.832709 | 0.605885 |
| NDUFA3 | 0.832792 | 0.993719 |

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|---|---|---|
| LILRA5 | 0.832857 | 0.683239 |
| MEF2C | 0.832944 | 0.906581 |
| COL18A1 | 0.83298 | 0.954481 |
| ARIH1 | 0.833007 | 0.235185 |
| CTU2 | 0.833045 | 0.255338 |
| DNAJC7 | 0.833058 | 0.43471 |
| TMEM65 | 0.833065 | 0.335657 |
| RAD23A | 0.833067 | 0.379775 |
| COG5 | 0.833237 | 0.454246 |
| NEK4 | 0.833289 | 0.464984 |
| PANK1 | 0.833294 | 0.990793 |
| FERMT1 | 0.833382 | 0.972501 |
| MRPL49 | 0.833406 | 0.778729 |
| TCP11L2 | 0.833515 | 0.699462 |
| PSMD11 | 0.83353 | 0.397705 |
| ESYT1 | 0.833546 | 0.589021 |
| PLPBP | 0.83367 | 0.242746 |
| ENTPD7 | 0.83374 | 0.746455 |
| PCM1 | 0.833744 | 0.467935 |
| AAMDC | 0.833869 | 0.826775 |
| TP53BP2 | 0.833942 | 0.296206 |
| NDRG2 | 0.834098 | 0.737102 |
| OSBPL7 | 0.834099 | 0.048374 |
| LNPEP | 0.834102 | 0.367925 |
| PHF14 | 0.834171 | 0.944097 |
| SMYD2 | 0.834179 | 0.127923 |
| SLC25A30 | 0.834182 | 0.177787 |
| LIN54 | 0.834277 | 0.761096 |

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|---|---|---|
| PYM1 | 0.834352 | 0.646731 |
| TUBGCP5 | 0.834393 | 0.293431 |
| SECISBP2 | 0.834689 | 0.127394 |
| AIFM2 | 0.834827 | 0.5951 |
| CASP1 | 0.835 | 0.387077 |
| CD37 | 0.835007 | 0.381682 |
| HASPIN | 0.835009 | 0.489369 |
| GGCT | 0.835083 | 0.315462 |
| CENPQ | 0.835119 | 0.979798 |
| VPS33A | 0.835251 | 0.428344 |
| ELP5 | 0.835364 | 0.452658 |
| MLST8 | 0.835424 | 0.580736 |
| COMMD8 | 0.835678 | 0.02044 |
| KCTD21 | 0.835945 | 0.320064 |
| TTLL12 | 0.83595 | 0.181196 |
| CUL5 | 0.836038 | 0.348698 |
| SYTL2 | 0.836102 | 0.688784 |
| PDHB | 0.836106 | 0.825707 |
| TNFRSF10B | 0.836107 | 0.198937 |
| CEP78 | 0.836132 | 0.23459 |
| RMND1 | 0.836287 | 0.831211 |
| PSMD12 | 0.836332 | 0.480059 |
| SLC12A7 | 0.836373 | 0.751698 |
| COMMD7 | 0.836389 | 0.220211 |
| PRKCZ | 0.836466 | 0.757649 |
| ZFAND1 | 0.83661 | 0.66104 |
| NA | 0.836734 | 0.479212 |
| KBTBD2 | 0.836859 | 0.348012 |

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|---|---|---|
| MAN1B1 | 0.836861 | 0.209003 |
| KIAA0100 | 0.836875 | 0.290663 |
| LYRM1 | 0.836948 | 0.613532 |
| CCDC32 | 0.836968 | 0.544047 |
| POLM | 0.837038 | 0.391391 |
| LRRC40 | 0.837042 | 0.333107 |
| MAP3K1 | 0.837058 | 0.147963 |
| RBM41 | 0.837113 | 0.381483 |
| CYP2U1 | 0.837117 | 0.587281 |
| ZNFX1 | 0.837301 | 0.365855 |
| SNX18 | 0.837336 | 0.617899 |
| KIF21B | 0.837381 | 0.605518 |
| TAGAP | 0.837425 | 0.560277 |
| MED20 | 0.837743 | 0.371342 |
| COL5A1 | 0.837796 | 0.972354 |
| MEGF10 | 0.837814 | 0.750229 |
| POR | 0.837851 | 0.613346 |
| GGH | 0.837904 | 0.903344 |
| RRAGA | 0.837931 | 0.176213 |
| PTPN22 | 0.837938 | 0.687291 |
| DCP1A | 0.837995 | 0.218837 |
| NCKAP5L | 0.838011 | 0.269687 |
| NPC1 | 0.838032 | 0.498594 |
| HLA-DQA1 | 0.838092 | 0.747488 |
| PDPK1 | 0.838184 | 0.485297 |
| NUDT16 | 0.838276 | 0.249725 |
| PHKB | 0.838277 | 0.53834 |
| NEK9 | 0.838329 | 0.449183 |

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| ARHGEF17 | 0.838541 | 0.409023 |
| RNF167 | 0.838551 | 0.827883 |
| VWA8 | 0.838726 | 0.804486 |
| MRPL43 | 0.838808 | 0.881287 |
| JPT1 | 0.838934 | 0.976318 |
| MRPS33 | 0.839063 | 0.538475 |
| TSC1 | 0.839179 | 0.472698 |
| CASP7 | 0.83921 | 0.5997 |
| ST7 | 0.83921 | 0.93988 |
| SPTBN2 | 0.839217 | 0.78856 |
| RPL3L | 0.839332 | 0.857336 |
| FAM117A | 0.839337 | 0.542012 |
| BTBD1 | 0.839444 | 0.417848 |
| JUNB | 0.839594 | 0.39643 |
| KTI12 | 0.839607 | 0.397508 |
| MTMR4 | 0.839645 | 0.920363 |
| NEGR1 | 0.839689 | 0.92033 |
| EIF3J | 0.839736 | 0.728082 |
| CYTH3 | 0.839754 | 0.138078 |
| CEP162 | 0.839767 | 0.44861 |
| SULT1C2 | 0.839774 | 0.1635 |
| OMA1 | 0.840058 | 0.769451 |
| STT3A | 0.840079 | 0.351703 |
| NGLY1 | 0.840097 | 0.102964 |
| LRRK2 | 0.840142 | 0.818353 |
| GNB1L | 0.840145 | 0.153887 |
| ALS2 | 0.840148 | 0.444775 |
| PRPS1 | 0.840291 | 0.650049 |

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|---|---|---|
| NLRC3 | 0.840419 | 0.689373 |
| NA | 0.840458 | 0.865513 |
| MLLT1 | 0.840609 | 0.70774 |
| NPTN | 0.840636 | 0.745583 |
| WDR24 | 0.84078 | 0.985222 |
| NTMT1 | 0.840839 | 0.669044 |
| DAPK2 | 0.840844 | 0.980788 |
| AHCY | 0.841007 | 0.305452 |
| AMFR | 0.84105 | 0.416457 |
| ZNF480 | 0.841051 | 0.411271 |
| ATG3 | 0.841079 | 0.561074 |
| HTD2 | 0.841093 | 0.523444 |
| TMEM164 | 0.841194 | 0.916053 |
| COA1 | 0.841202 | 0.873782 |
| DNPEP | 0.841234 | 0.239693 |
| BCR | 0.841316 | 0.653226 |
| ALG8 | 0.841403 | 0.615153 |
| DVL2 | 0.841756 | 0.333856 |
| RHOT1 | 0.841845 | 0.566447 |
| NAA80 | 0.841847 | 0.747988 |
| ST3GAL4 | 0.841877 | 0.624345 |
| SELENOF | 0.842025 | 0.439174 |
| HDAC8 | 0.842035 | 0.347045 |
| USP1 | 0.842145 | 0.782096 |
| UBR4 | 0.842292 | 0.682643 |
| UCHL3 | 0.842307 | 0.370351 |
| ANAPC16 | 0.842356 | 0.990984 |
| SFXN4 | 0.842405 | 0.792087 |

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| PRMT3 | 0.842498 | 0.309538 |
| CALHM6 | 0.842545 | 0.386324 |
| CHPT1 | 0.8426 | 0.854803 |
| DEF8 | 0.842643 | 0.453364 |
| PSMB7 | 0.842645 | 0.557288 |
| PSPH | 0.842734 | 0.270618 |
| BCLAF1 | 0.842748 | 0.701095 |
| ATP6V1H | 0.842766 | 0.410518 |
| SYNE3 | 0.842837 | 0.759058 |
| CHMP1A | 0.842853 | 0.342566 |
| ABCA2 | 0.842927 | 0.615501 |
| FAHD2B | 0.842963 | 0.825454 |
| CENPF | 0.843042 | 0.567354 |
| CCDC51 | 0.84307 | 0.808804 |
| ADAL | 0.843172 | 0.25644 |
| RAPGEF1 | 0.843196 | 0.372105 |
| UBE2G1 | 0.843224 | 0.404683 |
| RTN4IP1 | 0.84339 | 0.489922 |
| MTERF4 | 0.843468 | 0.449026 |
| TSEN15 | 0.843547 | 0.3778 |
| CALCRL | 0.843551 | 0.950257 |
| CLTCL1 | 0.843574 | 0.907717 |
| NDST2 | 0.843603 | 0.368527 |
| ARHGAP17 | 0.843626 | 0.491221 |
| CSPP1 | 0.843681 | 0.520745 |
| FGL2 | 0.843815 | 0.948678 |
| PIK3C2B | 0.843854 | 0.458947 |
| DNAJB9 | 0.843861 | 0.450483 |

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|---|---|---|
| KCNQ5 | 0.843879 | 0.307008 |
| VCPIP1 | 0.843896 | 0.482241 |
| TSC2 | 0.844244 | 0.534797 |
| PSMA4 | 0.844297 | 0.404647 |
| SAMD9 | 0.8443 | 0.797666 |
| IDUA | 0.844305 | 0.94562 |
| ABHD18 | 0.844323 | 0.071803 |
| SCNM1 | 0.844347 | 0.716622 |
| TMEM179B | 0.844437 | 0.642215 |
| RABEPK | 0.844458 | 0.188298 |
| SCCPDH | 0.844473 | 0.332976 |
| COG6 | 0.84461 | 0.513699 |
| ZNF407 | 0.844735 | 0.622153 |
| ADPRS | 0.844807 | 0.390711 |
| PA2G4 | 0.844835 | 0.281228 |
| ANKRD54 | 0.844874 | 0.621021 |
| TRIM6-TRIM34 | 0.845065 | 0.552184 |
| SBF1 | 0.845085 | 0.371857 |
| UQCRC2 | 0.84513 | 0.929276 |
| VPS16 | 0.845322 | 0.543047 |
| C2orf76 | 0.845348 | 0.303258 |
| DICER1 | 0.845364 | 0.461008 |
| PARL | 0.845453 | 0.949795 |
| DAD1 | 0.845507 | 0.6902 |
| NDUFV2 | 0.845517 | 0.779221 |
| ANKRD52 | 0.845601 | 0.644977 |
| PTK7 | 0.845628 | 0.655818 |
| GSTP1 | 0.845747 | 0.573881 |

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|---|---|---|
| OTUD4 | 0.845759 | 0.223196 |
| RETREG2 | 0.845931 | 0.516143 |
| GNAI3 | 0.84598 | 0.869098 |
| HLA-B | 0.845989 | 0.942468 |
| CYB561 | 0.846043 | 0.818952 |
| NDUFB8 | 0.84605 | 0.714377 |
| SEPHS1 | 0.846131 | 0.285704 |
| LUZP1 | 0.846212 | 0.760586 |
| USP42 | 0.846387 | 0.630512 |
| SEC24C | 0.846417 | 0.390749 |
| TRMO | 0.84644 | 0.590474 |
| ZNF737 | 0.846554 | 0.821768 |
| SREBF2 | 0.846706 | 0.132643 |
| YIPF3 | 0.846764 | 0.295521 |
| GDAP2 | 0.846829 | 0.416722 |
| MARS2 | 0.84685 | 0.572596 |
| TMEM131 | 0.846987 | 0.344288 |
| COMMD4 | 0.846997 | 0.207586 |
| SCRIB | 0.84702 | 0.381876 |
| EIF4A1 | 0.847088 | 0.207304 |
| FKBPL | 0.847096 | 0.561895 |
| LAT2 | 0.847097 | 0.74499 |
| GNE | 0.847193 | 0.424943 |
| AUH | 0.847311 | 0.797575 |
| C9orf40 | 0.847311 | 0.832592 |
| RANGRF | 0.847312 | 0.429321 |
| KCMF1 | 0.847338 | 0.801424 |
| ZNF808 | 0.847355 | 0.426843 |

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| PHKA2 | 0.847436 | 0.485267 |
| MYO1D | 0.847549 | 0.843047 |
| CHMP7 | 0.847628 | 0.398658 |
| WDTC1 | 0.847651 | 0.35195 |
| MRPL9 | 0.847659 | 0.861525 |
| PSME1 | 0.84768 | 0.419498 |
| ADGRV1 | 0.847717 | 0.142025 |
| MTCH1 | 0.847754 | 0.817535 |
| PFAS | 0.847761 | 0.392005 |
| EIF5B | 0.847867 | 0.49076 |
| SKIV2L | 0.848015 | 0.542586 |
| NSUN4 | 0.848024 | 0.487843 |
| MBLAC1 | 0.848155 | 0.829946 |
| ARHGAP26 | 0.848182 | 0.631366 |
| HSBP1 | 0.848286 | 0.952353 |
| BIRC6 | 0.848319 | 0.386464 |
| SKP1 | 0.848326 | 0.2753 |
| RAB3IL1 | 0.848379 | 0.890619 |
| SEC61B | 0.848383 | 0.789539 |
| COG7 | 0.848474 | 0.604652 |
| NSD3 | 0.848486 | 0.676753 |
| ANGEL2 | 0.848539 | 0.429964 |
| GPD1 | 0.848541 | 0.767949 |
| MGA | 0.848552 | 0.767024 |
| MRPL46 | 0.848556 | 0.879069 |
| TMOD2 | 0.848563 | 0.80543 |
| IP6K1 | 0.848583 | 0.380666 |
| ANAPC4 | 0.848626 | 0.377942 |

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|---|---|---|
| TUBGCP2 | 0.848708 | 0.513236 |
| HSPH1 | 0.848726 | 0.732401 |
| VAV1 | 0.848745 | 0.79883 |
| TMEM97 | 0.848793 | 0.523278 |
| RABGAP1L | 0.848835 | 0.781876 |
| TMEM184C | 0.848854 | 0.878441 |
| GALK1 | 0.848897 | 0.28982 |
| ARMC7 | 0.848921 | 0.026696 |
| ADI1 | 0.848937 | 0.528501 |
| TCEAL5 | 0.848947 | 0.769909 |
| MYOF | 0.849004 | 0.94479 |
| ARHGEF1 | 0.849034 | 0.731204 |
| HERC2 | 0.849054 | 0.303484 |
| DTX3L | 0.849213 | 0.947 |
| UBXN4 | 0.849223 | 0.562065 |
| ANKHD1 | 0.84928 | 0.984701 |
| VIPAS39 | 0.849351 | 0.703495 |
| ATP6V1D | 0.849411 | 0.445862 |
| RP9 | 0.849411 | 0.407316 |
| MTIF3 | 0.849547 | 0.588464 |
| ZNF330 | 0.849874 | 0.958391 |
| MACROH2A2 | 0.850007 | 0.44486 |
| TRAK1 | 0.850028 | 0.556185 |
| ANKFY1 | 0.850126 | 0.830199 |
| POMT1 | 0.850247 | 0.633705 |
| FES | 0.850257 | 0.416218 |
| MFSD14B | 0.850342 | 0.822164 |
| TRIM11 | 0.85043 | 0.377334 |

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|---|---|---|
| MTFMT | 0.850436 | 0.602648 |
| CXorf38 | 0.850442 | 0.571721 |
| POLR3H | 0.850515 | 0.677159 |
| TBC1D9 | 0.85054 | 0.739927 |
| PPP2R5D | 0.850709 | 0.566736 |
| PRKCSH | 0.850714 | 0.962839 |
| NUDCD3 | 0.850778 | 0.578814 |
| PXDN | 0.850862 | 0.690883 |
| TIMM9 | 0.850892 | 0.975241 |
| BZW1 | 0.85094 | 0.765375 |
| SRGAP2 | 0.850954 | 0.625695 |
| PAK2 | 0.85102 | 0.358797 |
| SAMD1 | 0.851198 | 0.908083 |
| ODR4 | 0.851212 | 0.627744 |
| BCAT2 | 0.851331 | 0.384048 |
| BLOC1S5 | 0.851431 | 0.369037 |
| MRPL44 | 0.851459 | 0.978479 |
| DPYD | 0.851464 | 0.707624 |
| VCPKMT | 0.851876 | 0.576527 |
| ACLY | 0.852023 | 0.475877 |
| PYGO2 | 0.852078 | 0.72317 |
| C1QTNF4 | 0.85208 | 0.550836 |
| ETHE1 | 0.852094 | 0.725833 |
| RASA2 | 0.852168 | 0.619236 |
| TRAPPC2L | 0.852218 | 0.399053 |
| USP24 | 0.852257 | 0.610337 |
| COMMD6 | 0.852362 | 0.726589 |
| THAP4 | 0.852429 | 0.902003 |

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|---|---|---|
| PHRF1 | 0.852717 | 0.819461 |
| MRTFA | 0.852757 | 0.674872 |
| SLA | 0.852856 | 0.977584 |
| HLA-DMB | 0.852954 | 0.739281 |
| NFKBIB | 0.853001 | 0.795916 |
| PSMD2 | 0.853219 | 0.298959 |
| GTPBP8 | 0.85335 | 0.870836 |
| HPDL | 0.853385 | 0.397645 |
| CENPU | 0.853413 | 0.931999 |
| FBXW2 | 0.853467 | 0.521863 |
| FBXO33 | 0.853475 | 0.61231 |
| CCDC186 | 0.853583 | 0.670578 |
| MYL4 | 0.853815 | 0.868232 |
| TRIM38 | 0.853842 | 0.294388 |
| NEK3 | 0.853959 | 0.301532 |
| CTH | 0.854119 | 0.968937 |
| MAIP1 | 0.854125 | 0.846152 |
| TTL | 0.854152 | 0.332055 |
| PSMC1 | 0.854242 | 0.519606 |
| PSMB2 | 0.854464 | 0.37888 |
| SPICE1 | 0.854503 | 0.607374 |
| MAX | 0.854519 | 0.988196 |
| ERGIC1 | 0.854531 | 0.569569 |
| CRPPA | 0.854552 | 0.385213 |
| GNPTG | 0.854556 | 0.303025 |
| UBE2S | 0.854647 | 0.532876 |
| IFT81 | 0.854745 | 0.756719 |
| MRPL20 | 0.854846 | 0.649611 |

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|---|---|---|
| NA | 0.854868 | 0.831096 |
| PKLR | 0.854879 | 0.808107 |
| SNAPIN | 0.854898 | 0.533637 |
| CA2 | 0.855039 | 0.709187 |
| PEX14 | 0.855185 | 0.949375 |
| PYHIN1 | 0.855302 | 0.977679 |
| LSM2 | 0.855418 | 0.494082 |
| ITPK1 | 0.855421 | 0.589148 |
| GLRX | 0.855429 | 0.487316 |
| MTDH | 0.855517 | 0.650994 |
| MAN1A2 | 0.855558 | 0.627422 |
| LYRM4 | 0.855663 | 0.746243 |
| NFYB | 0.855701 | 0.93321 |
| NFAM1 | 0.855829 | 0.858061 |
| SCARB2 | 0.855888 | 0.847848 |
| PDE8A | 0.856006 | 0.654122 |
| VPS29 | 0.856017 | 0.393742 |
| C3orf38 | 0.856018 | 0.451478 |
| KPTN | 0.856077 | 0.196918 |
| SEC14L4 | 0.856147 | 0.888664 |
| APH1A | 0.856205 | 0.992024 |
| ERGIC2 | 0.856216 | 0.207181 |
| SUCLG2 | 0.856293 | 0.922081 |
| NAV1 | 0.856361 | 0.773813 |
| ILVBL | 0.856428 | 0.443347 |
| HLA-B | 0.856442 | 0.634597 |
| SLC25A46 | 0.856456 | 0.926076 |
| HOMEZ | 0.85651 | 0.548679 |

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| PPIP5K2 | 0.856512 | 0.422902 |
| QPCTL | 0.856529 | 0.381691 |
| GNL1 | 0.856532 | 0.379295 |
| GFUS | 0.856574 | 0.717104 |
| CINP | 0.856625 | 0.564534 |
| ELMO2 | 0.856641 | 0.897731 |
| CRTC2 | 0.856678 | 0.910995 |
| ST8SIA4 | 0.856706 | 0.367834 |
| CEBPA | 0.856809 | 0.633123 |
| NUDT1 | 0.856811 | 0.682426 |
| TRAPPC13 | 0.856849 | 0.527247 |
| MYCBP2 | 0.856937 | 0.743577 |
| GNG10 | 0.857011 | 0.528271 |
| ATG16L2 | 0.857215 | 0.493027 |
| TTC21B | 0.857284 | 0.459971 |
| INPP1 | 0.8574 | 0.357812 |
| ACBD5 | 0.857436 | 0.707099 |
| PHACTR4 | 0.857438 | 0.617944 |
| TXNDC11 | 0.857513 | 0.489531 |
| ABL1 | 0.857576 | 0.478934 |
| TOM1 | 0.857758 | 0.839499 |
| PODXL | 0.857787 | 0.830015 |
| LILRB2 | 0.857811 | 0.963048 |
| YRDC | 0.857819 | 0.570226 |
| TMC8 | 0.857825 | 0.73859 |
| SEC16A | 0.858085 | 0.600388 |
| TICAM1 | 0.858148 | 0.586752 |
| SRPRA | 0.85825 | 0.633942 |

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| PARP4 | 0.858303 | 0.628657 |
| TBC1D7 | 0.858409 | 0.594348 |
| C9orf64 | 0.85841 | 0.480433 |
| MIA3 | 0.858496 | 0.679797 |
| MRPS30 | 0.858608 | 0.879764 |
| N4BP2L1 | 0.858621 | 0.530721 |
| SLC25A20 | 0.858639 | 0.926701 |
| SUMO3 | 0.858674 | 0.775039 |
| PSMB5 | 0.858833 | 0.566635 |
| RAB28 | 0.858834 | 0.377986 |
| NKIRAS2 | 0.858881 | 0.488422 |
| EEF1D | 0.859153 | 0.592468 |
| HBZ | 0.859175 | 0.984773 |
| SOS2 | 0.859267 | 0.709963 |
| LSM3 | 0.859321 | 0.618534 |
| NT5C2 | 0.859324 | 0.569367 |
| B3GALT6 | 0.859345 | 0.577741 |
| TPX2 | 0.859349 | 0.368835 |
| RING1 | 0.859405 | 0.846141 |
| CCZ1B | 0.859411 | 0.330927 |
| DLGAP5 | 0.859521 | 0.915134 |
| RNF25 | 0.859654 | 0.255255 |
| PHKG2 | 0.859676 | 0.569416 |
| VPS39 | 0.859689 | 0.784215 |
| RAP2C | 0.85972 | 0.936384 |
| NDUFC1 | 0.859893 | 0.741708 |
| TBL2 | 0.859931 | 0.751243 |
| SCAMP3 | 0.859993 | 0.81673 |

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|---|---|---|
| LDHD | 0.860038 | 0.594188 |
| DDOST | 0.860094 | 0.581624 |
| APOOL | 0.860111 | 0.718031 |
| OCIAD1 | 0.860125 | 0.944074 |
| CSAD | 0.86025 | 0.613039 |
| EIF5 | 0.860341 | 0.598486 |
| COQ3 | 0.860381 | 0.582722 |
| ATG4B | 0.860592 | 0.590212 |
| MTFR1L | 0.8606 | 0.734047 |
| SLC25A13 | 0.860699 | 0.967563 |
| ATP23 | 0.860736 | 0.392937 |
| GPX4 | 0.860751 | 0.07415 |
| BRD7 | 0.860772 | 0.901176 |
| PAIP2B | 0.860801 | 0.65428 |
| DNAJC19 | 0.860814 | 0.895767 |
| SSR3 | 0.860901 | 0.914873 |
| GTSE1 | 0.860921 | 0.234802 |
| CLPB | 0.86108 | 0.50988 |
| COG3 | 0.86121 | 0.695845 |
| ATP2B1 | 0.861223 | 0.928338 |
| PPM1D | 0.861354 | 0.789112 |
| MAFG | 0.861391 | 0.451179 |
| PGM2L1 | 0.861425 | 0.751865 |
| TMEM43 | 0.861454 | 0.731933 |
| KLHL8 | 0.861474 | 0.692029 |
| ALKBH4 | 0.861603 | 0.646316 |
| RNF13 | 0.861689 | 0.849233 |
| RBBP8 | 0.861731 | 0.374854 |

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|---|---|---|
| SIRT5 | 0.861787 | 0.63854 |
| GORAB | 0.861815 | 0.815852 |
| PIGO | 0.861882 | 0.575529 |
| IGLV3-19 | 0.861973 | 0.609755 |
| UHRF1BP1L | 0.862077 | 0.728727 |
| NT5C3B | 0.862111 | 0.756102 |
| FBXL17 | 0.862158 | 0.851254 |
| ARFGAP3 | 0.862209 | 0.935578 |
| TMEM87A | 0.862282 | 0.767953 |
| SPTLC1 | 0.862293 | 0.447876 |
| PSMA7 | 0.862317 | 0.639883 |
| ATAD3A | 0.862562 | 0.843255 |
| NDUFA7 | 0.862576 | 0.612094 |
| PSMD13 | 0.862673 | 0.624499 |
| ALG9 | 0.862703 | 0.864924 |
| TANK | 0.8628 | 0.709753 |
| DDHD1 | 0.862865 | 0.279424 |
| HLA-DRB1 | 0.862875 | 0.784715 |
| MFSD5 | 0.862882 | 0.620938 |
| RPS6KB2 | 0.862884 | 0.75463 |
| POFUT2 | 0.86304 | 0.503431 |
| CHSY1 | 0.863063 | 0.627649 |
| ATOX1 | 0.863242 | 0.624193 |
| SHANK3 | 0.863298 | 0.857447 |
| IRF9 | 0.863408 | 0.814868 |
| USP28 | 0.863582 | 0.669987 |
| DNAJB14 | 0.863637 | 0.858184 |
| DHRS7 | 0.863773 | 0.662255 |

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|---|---|---|
| CHD8 | 0.863775 | 0.652411 |
| VPS50 | 0.863885 | 0.854191 |
| WDR7 | 0.864008 | 0.589817 |
| POMK | 0.86411 | 0.74957 |
| EXT2 | 0.864135 | 0.580625 |
| SIGIRR | 0.864371 | 0.994202 |
| CYP1B1 | 0.86438 | 0.679013 |
| ITPR3 | 0.864401 | 0.888705 |
| CD101 | 0.864425 | 0.752182 |
| WHAMM | 0.864737 | 0.93839 |
| FCGR3A | 0.864787 | 0.856557 |
| OGFOD3 | 0.864833 | 0.596431 |
| PCCA | 0.864982 | 0.972814 |
| SPTBN4 | 0.865058 | 0.445429 |
| VAMP8 | 0.865126 | 0.921314 |
| P4HA1 | 0.865162 | 0.794734 |
| SNAPC5 | 0.865209 | 0.883852 |
| C1orf109 | 0.865211 | 0.606638 |
| CPT2 | 0.865217 | 0.585417 |
| OTUB1 | 0.865241 | 0.426312 |
| PPA2 | 0.865294 | 0.631848 |
| ARFGAP2 | 0.865362 | 0.795072 |
| ZHX1 | 0.865471 | 0.431443 |
| CTSL | 0.865483 | 0.564835 |
| ZDHHC6 | 0.865522 | 0.769674 |
| CFAP70 | 0.865542 | 0.976123 |
| SMIM7 | 0.865544 | 0.725896 |
| GALC | 0.865615 | 0.699593 |

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|---|---|---|
| DDX42 | 0.865647 | 0.911668 |
| PFKFB3 | 0.865648 | 0.827374 |
| RBM43 | 0.865658 | 0.957037 |
| ATP5PD | 0.865721 | 0.78051 |
| TIMM21 | 0.865817 | 0.60846 |
| TMF1 | 0.865841 | 0.515478 |
| APOL3 | 0.86592 | 0.695595 |
| NDUFV3 | 0.865967 | 0.82183 |
| PEDS1 | 0.866037 | 0.930989 |
| TXNL4A | 0.866072 | 0.648815 |
| XRN1 | 0.866138 | 0.163629 |
| MVK | 0.866159 | 0.654013 |
| MMAA | 0.866207 | 0.734366 |
| UAP1L1 | 0.866309 | 0.529315 |
| MATK | 0.86643 | 0.707862 |
| S100A4 | 0.866485 | 0.913047 |
| CMC2 | 0.866554 | 0.670593 |
| GDPGP1 | 0.866556 | 0.436036 |
| HSD17B12 | 0.866558 | 0.693059 |
| PRKCE | 0.866661 | 0.788645 |
| WDR55 | 0.866685 | 0.721543 |
| MRPL40 | 0.866697 | 0.844121 |
| IGLV9-49 | 0.86674 | 0.911487 |
| NA | 0.866743 | 0.792644 |
| NDUFAF3 | 0.866766 | 0.902357 |
| HEXB | 0.866897 | 0.840025 |
| SIN3B | 0.866924 | 0.727417 |
| VMAC | 0.867137 | 0.840334 |

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| C3AR1 | 0.867149 | 0.711719 |
| TAMM41 | 0.867176 | 0.803678 |
| ZSWIM1 | 0.867206 | 0.873681 |
| NARS1 | 0.867253 | 0.361362 |
| IDNK | 0.867278 | 0.551775 |
| IFIT5 | 0.867286 | 0.751637 |
| CBFA2T2 | 0.867314 | 0.336906 |
| NSUN6 | 0.867399 | 0.484975 |
| LIPE | 0.867447 | 0.908377 |
| EIF2S3 | 0.867449 | 0.636438 |
| HTT | 0.867547 | 0.220668 |
| IREB2 | 0.867547 | 0.424967 |
| TSPAN3 | 0.867549 | 0.690972 |
| ZNF324 | 0.867595 | 0.987721 |
| HUS1 | 0.867621 | 0.62745 |
| ARID4B | 0.867708 | 0.856956 |
| ZNF668 | 0.867839 | 0.621805 |
| CLIC6 | 0.867874 | 0.650955 |
| HERPUD1 | 0.867902 | 0.874755 |
| ATXN7 | 0.867932 | 0.456252 |
| GTF3C5 | 0.867945 | 0.310239 |
| CA3 | 0.868064 | 0.756125 |
| RCHY1 | 0.868115 | 0.94615 |
| ATP1A1 | 0.868243 | 0.802534 |
| CTDNEP1 | 0.868272 | 0.589972 |
| NUTF2 | 0.86835 | 0.455996 |
| ASB1 | 0.868404 | 0.975316 |
| CDC16 | 0.868439 | 0.876189 |

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| SSR4 | 0.868505 | 0.937023 |
| ST18 | 0.868608 | 0.49325 |
| SLC3A2 | 0.86868 | 0.664164 |
| R3HCC1L | 0.868741 | 0.955204 |
| GALNT6 | 0.868884 | 0.589701 |
| ARMC1 | 0.868973 | 0.651048 |
| AP2M1 | 0.868976 | 0.749208 |
| MTIF2 | 0.86904 | 0.904418 |
| TIGD2 | 0.869179 | 0.646598 |
| CENPI | 0.869272 | 0.771461 |
| CPVL | 0.869298 | 0.706993 |
| FNTA | 0.869383 | 0.591297 |
| LRP1 | 0.869565 | 0.944479 |
| STS | 0.869702 | 0.973405 |
| SLC25A29 | 0.86972 | 0.328851 |
| SSH2 | 0.869789 | 0.929818 |
| LHPP | 0.869817 | 0.799053 |
| OAT | 0.86985 | 0.502481 |
| TNS1 | 0.869956 | 0.90016 |
| ACOX3 | 0.869962 | 0.87091 |
| PLEKHA2 | 0.870102 | 0.644857 |
| PRR30 | 0.870161 | 0.77534 |
| UBE2M | 0.870161 | 0.689406 |
| MAP3K11 | 0.870423 | 0.52762 |
| TEP1 | 0.870426 | 0.809861 |
| ABHD12 | 0.870482 | 0.774559 |
| SLC12A9 | 0.870541 | 0.871259 |
| TTC28 | 0.870543 | 0.870092 |

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|---|---|---|
| MFHAS1 | 0.87066 | 0.752462 |
| NUBP2 | 0.87068 | 0.567275 |
| PDZK1IP1 | 0.87086 | 0.566607 |
| PLXNC1 | 0.870892 | 0.680612 |
| NA | 0.870942 | 0.869418 |
| TRIP6 | 0.871027 | 0.923594 |
| GRSF1 | 0.871035 | 0.930939 |
| TUT7 | 0.87104 | 0.557642 |
| MRPL4 | 0.87105 | 0.98298 |
| MSRB2 | 0.87106 | 0.954378 |
| MRPL47 | 0.871071 | 0.973032 |
| FLCN | 0.871146 | 0.781712 |
| KHNYN | 0.871158 | 0.519412 |
| PRKCH | 0.871264 | 0.644674 |
| FARP2 | 0.871319 | 0.993479 |
| N4BP1 | 0.871398 | 0.759983 |
| PAXIP1 | 0.871449 | 0.895807 |
| XIAP | 0.871468 | 0.658565 |
| HYPK | 0.871507 | 0.902108 |
| WASHC2A | 0.871518 | 0.945792 |
| GALNT2 | 0.871558 | 0.847808 |
| DNAJC11 | 0.871698 | 0.887964 |
| FHIT | 0.871718 | 0.713287 |
| COG1 | 0.871795 | 0.879557 |
| SLC26A6 | 0.871922 | 0.550167 |
| FGR | 0.871937 | 0.811538 |
| TIMM44 | 0.872136 | 0.95739 |
| CLPTM1L | 0.872175 | 0.682594 |

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| PSMD14 | 0.872177 | 0.876056 |
| GUF1 | 0.872383 | 0.820565 |
| COPB1 | 0.872412 | 0.706733 |
| BCL10 | 0.872441 | 0.718962 |
| ZPR1 | 0.872446 | 0.758378 |
| GCAT | 0.872472 | 0.948662 |
| CEP135 | 0.872562 | 0.965228 |
| JADE2 | 0.872692 | 0.981522 |
| TOMM34 | 0.872696 | 0.836607 |
| DNASE2 | 0.87273 | 0.909164 |
| ZNF770 | 0.87297 | 0.680414 |
| MFSD9 | 0.87308 | 0.76104 |
| BPNT1 | 0.873123 | 0.817153 |
| PSEN1 | 0.873173 | 0.782997 |
| TNRC6C | 0.873211 | 0.786179 |
| VARS2 | 0.873253 | 0.602119 |
| DPH5 | 0.873287 | 0.750216 |
| OSBPL9 | 0.873316 | 0.616091 |
| CCPG1 | 0.873327 | 0.891702 |
| KIAA2013 | 0.873371 | 0.375627 |
| UBE2R2 | 0.873412 | 0.583756 |
| ISG15 | 0.873492 | 0.897494 |
| UFSP2 | 0.873497 | 0.831955 |
| ST14 | 0.87354 | 0.467969 |
| MARK3 | 0.873595 | 0.991977 |
| MRPL51 | 0.873608 | 0.943606 |
| RAB43 | 0.873646 | 0.929385 |
| PPP5C | 0.873717 | 0.770822 |

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| RTCA | 0.873741 | 0.816487 |
| GID8 | 0.873803 | 0.95037 |
| ADPRM | 0.873837 | 0.924707 |
| GMIP | 0.873871 | 0.792337 |
| UBR3 | 0.873873 | 0.75953 |
| C20orf27 | 0.873878 | 0.731877 |
| ZNF76 | 0.873918 | 0.298997 |
| NCAPH2 | 0.873925 | 0.851265 |
| TNRC18 | 0.873981 | 0.336397 |
| PSMA3 | 0.874018 | 0.563572 |
| SGSM3 | 0.874075 | 0.619658 |
| GNG2 | 0.874124 | 0.92971 |
| VPS25 | 0.87415 | 0.811094 |
| KLC4 | 0.874227 | 0.736027 |
| BLOC1S6 | 0.874459 | 0.64264 |
| ASCC1 | 0.874528 | 0.761647 |
| PPM1H | 0.874557 | 0.906007 |
| CRY1 | 0.874585 | 0.522444 |
| ACSL3 | 0.874614 | 0.810303 |
| CEP41 | 0.874668 | 0.836986 |
| PTPN23 | 0.874796 | 0.518615 |
| VPS51 | 0.874814 | 0.854908 |
| SYTL1 | 0.874951 | 0.895778 |
| MAP3K2 | 0.875013 | 0.83196 |
| MECR | 0.87516 | 0.754621 |
| PRDM15 | 0.875226 | 0.432233 |
| PDCL3 | 0.875376 | 0.921453 |
| RAP1GAP | 0.875392 | 0.765798 |

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| IFT88 | 0.875401 | 0.963259 |
| SNRK | 0.875436 | 0.493005 |
| ACACA | 0.875467 | 0.825566 |
| FSD1L | 0.875475 | 0.921477 |
| COG8 | 0.875532 | 0.738019 |
| SUN1 | 0.875569 | 0.681028 |
| DOHH | 0.875699 | 0.884257 |
| LMF2 | 0.876043 | 0.719815 |
| MBL2 | 0.876051 | 0.867843 |
| CCDC121 | 0.876078 | 0.719239 |
| ARFIP1 | 0.876086 | 0.961412 |
| GIMAP8 | 0.876153 | 0.875118 |
| MT-ND4 | 0.876257 | 0.908508 |
| RALGPS2 | 0.876279 | 0.991337 |
| C9orf72 | 0.876343 | 0.994845 |
| RMC1 | 0.876443 | 0.729315 |
| PEF1 | 0.876519 | 0.991747 |
| TLR1 | 0.876548 | 0.392129 |
| SPPL2B | 0.876601 | 0.800468 |
| BRCA1 | 0.876706 | 0.796726 |
| GPS1 | 0.876712 | 0.994471 |
| IL6R | 0.876818 | 0.117415 |
| PARP9 | 0.876875 | 0.921768 |
| FAM111A | 0.876952 | 0.973149 |
| MRPL38 | 0.876962 | 0.868341 |
| LRRC1 | 0.87697 | 0.900558 |
| CDC42EP3 | 0.876981 | 0.939905 |
| NCSTN | 0.877042 | 0.72524 |

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|---|---|---|
| C1QBP | 0.877048 | 0.904529 |
| PSME2 | 0.877133 | 0.734918 |
| SUCLA2 | 0.877152 | 0.889919 |
| GMNN | 0.877166 | 0.752649 |
| TMEM208 | 0.877188 | 0.72864 |
| HEMK1 | 0.877208 | 0.921362 |
| COL9A2 | 0.877215 | 0.330065 |
| TMEM135 | 0.877298 | 0.965542 |
| DPM3 | 0.877338 | 0.994886 |
| LRSAM1 | 0.877365 | 0.773732 |
| FPGT | 0.877467 | 0.643647 |
| CBL | 0.877534 | 0.72173 |
| TAPBPL | 0.877542 | 0.942273 |
| WASHC3 | 0.877584 | 0.910128 |
| UFL1 | 0.877654 | 0.9809 |
| IL18 | 0.877758 | 0.648044 |
| PREPL | 0.877797 | 0.484854 |
| SLC2A1 | 0.877799 | 0.741581 |
| LIPT1 | 0.87786 | 0.817978 |
| PYROXD1 | 0.877876 | 0.689894 |
| ITGA1 | 0.877881 | 0.754131 |
| BUD23 | 0.877901 | 0.841095 |
| TDRD3 | 0.878042 | 0.903619 |
| GPS1 | 0.878064 | 0.871821 |
| ATF6B | 0.878176 | 0.642043 |
| OASL | 0.878213 | 0.789735 |
| USP54 | 0.878364 | 0.335257 |
| FCHSD1 | 0.878365 | 0.792151 |

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|---|---|---|
| CCN2 | 0.878481 | 0.168571 |
| CHID1 | 0.878638 | 0.883377 |
| RAB19 | 0.878705 | 0.751923 |
| FBXL18 | 0.878873 | 0.773042 |
| CLN5 | 0.878886 | 0.834074 |
| POC1B | 0.878889 | 0.877982 |
| ACYP1 | 0.878907 | 0.721984 |
| GOSR1 | 0.878951 | 0.86245 |
| TMEM167A | 0.878989 | 0.619632 |
| RNF123 | 0.879027 | 0.878928 |
| EDC3 | 0.87905 | 0.728071 |
| ENO1 | 0.879058 | 0.776135 |
| WRAP73 | 0.879063 | 0.602543 |
| SNF8 | 0.879066 | 0.999267 |
| CDC26 | 0.87908 | 0.992296 |
| HERC6 | 0.879184 | 0.850295 |
| PLEKHM1 | 0.879213 | 0.729411 |
| PTK2B | 0.879313 | 0.838802 |
| SMARCB1 | 0.879374 | 0.823196 |
| ATF1 | 0.879375 | 0.837703 |
| IDI1 | 0.879449 | 0.593626 |
| NFS1 | 0.879494 | 0.792468 |
| PRR14L | 0.879593 | 0.733877 |
| HADHB | 0.879596 | 0.974257 |
| MRPL52 | 0.879635 | 0.875515 |
| TRAF2 | 0.879772 | 0.752981 |
| NRM | 0.879777 | 0.833039 |
| CFAP36 | 0.879948 | 0.97646 |

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|---|---|---|
| PYCARD | 0.879965 | 0.811259 |
| FGL1 | 0.879969 | 0.725642 |
| MRPL14 | 0.879973 | 0.909944 |
| FXR2 | 0.87998 | 0.96579 |
| NDUFA12 | 0.880034 | 0.756087 |
| UEVLD | 0.880058 | 0.986591 |
| NDUFB9 | 0.880133 | 0.57895 |
| MACC1 | 0.880185 | 0.981558 |
| FCHO2 | 0.880228 | 0.613648 |
| ZNF773 | 0.880277 | 0.704657 |
| NDFIP1 | 0.88033 | 0.768697 |
| CEP295 | 0.880436 | 0.590567 |
| E2F3 | 0.880495 | 0.698431 |
| PSMC3IP | 0.880517 | 0.856343 |
| TRABD | 0.880601 | 0.842556 |
| LIMD1 | 0.880673 | 0.756902 |
| SPARCL1 | 0.880834 | 0.992997 |
| UQCRC1 | 0.880839 | 0.813368 |
| IGFLR1 | 0.880855 | 0.849079 |
| FKBP11 | 0.880866 | 0.913395 |
| NECAB3 | 0.881007 | 0.789443 |
| ADCY7 | 0.881099 | 0.71044 |
| TNFSF13B | 0.881348 | 0.821121 |
| ZER1 | 0.881353 | 0.634434 |
| DNMBP | 0.881375 | 0.852586 |
| EEF1A2 | 0.881419 | 0.953302 |
| MZT2B | 0.881428 | 0.937944 |
| RGP1 | 0.881496 | 0.856337 |

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|---|---|---|
| ZNF131 | 0.881531 | 0.665366 |
| EXTL2 | 0.881601 | 0.797315 |
| CSTF2 | 0.881711 | 0.90405 |
| F8 | 0.88173 | 0.492137 |
| ITGAL | 0.881783 | 0.981101 |
| C18orf32 | 0.88179 | 0.86902 |
| RABL3 | 0.881799 | 0.863889 |
| REEP4 | 0.881826 | 0.896173 |
| PJA2 | 0.88185 | 0.982115 |
| PPP1R27 | 0.881988 | 0.993364 |
| PPME1 | 0.882074 | 0.80198 |
| MAPKAPK5 | 0.882155 | 0.502634 |
| RPN2 | 0.882181 | 0.932605 |
| SLC19A1 | 0.882204 | 0.296451 |
| DMAC2L | 0.882286 | 0.954924 |
| RRAGC | 0.882381 | 0.558305 |
| NUDT22 | 0.882416 | 0.530037 |
| ACAA1 | 0.88244 | 0.987876 |
| ACADM | 0.882519 | 0.931827 |
| INPP4A | 0.882532 | 0.991754 |
| IKBKB | 0.882567 | 0.862864 |
| CDK14 | 0.882579 | 0.958129 |
| LRRFIP1 | 0.882663 | 0.88841 |
| NA | 0.88277 | 0.432525 |
| RPE | 0.882774 | 0.634392 |
| SAT2 | 0.882781 | 0.943485 |
| CPOX | 0.88285 | 0.790932 |
| PMPCA | 0.882881 | 0.838856 |

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|---|---|---|
| TRIM4 | 0.882934 | 0.986261 |
| POLG | 0.882965 | 0.989693 |
| RFXANK | 0.883159 | 0.762334 |
| TMEM131L | 0.883262 | 0.995649 |
| REPS1 | 0.883277 | 0.815155 |
| LSM14B | 0.883302 | 0.771186 |
| CABLES2 | 0.883453 | 0.401341 |
| KDM5C | 0.883473 | 0.75506 |
| TSPYL1 | 0.883489 | 0.689022 |
| NMT1 | 0.883509 | 0.789398 |
| ORMDL2 | 0.883547 | 0.801626 |
| CHORDC1 | 0.883558 | 0.978684 |
| MPI | 0.883705 | 0.756994 |
| VIM | 0.883719 | 0.718361 |
| VRK2 | 0.883853 | 0.952234 |
| GNB4 | 0.883887 | 0.898035 |
| NAA40 | 0.884021 | 0.809299 |
| ESPN | 0.884036 | 0.793997 |
| TAF11 | 0.884075 | 0.412968 |
| TMEM101 | 0.884076 | 0.832323 |
| PSMC6 | 0.884095 | 0.718467 |
| KNSTRN | 0.884166 | 0.178272 |
| LSM8 | 0.884246 | 0.93975 |
| VPS13B | 0.884328 | 0.862219 |
| PKP4 | 0.884357 | 0.250216 |
| ALKBH8 | 0.884366 | 0.812097 |
| COQ10B | 0.884424 | 0.949291 |
| PAICS | 0.88451 | 0.889866 |

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|---|---|---|
| TXNDC17 | 0.884523 | 0.82932 |
| FSTL3 | 0.884602 | 0.355336 |
| GFI1 | 0.884621 | 0.792774 |
| MAPK9 | 0.884686 | 0.915213 |
| NCALD | 0.884693 | 0.771719 |
| UBA6 | 0.884724 | 0.734109 |
| AGA | 0.884753 | 0.834865 |
| EFL1 | 0.884797 | 0.813456 |
| SHANK1 | 0.884804 | 0.137427 |
| HBP1 | 0.884827 | 0.914713 |
| WASF3 | 0.884829 | 0.937587 |
| KLHL7 | 0.884898 | 0.804798 |
| DENND1B | 0.884987 | 0.901139 |
| AP3B1 | 0.885004 | 0.936351 |
| LTBR | 0.885062 | 0.275245 |
| BCL7B | 0.885127 | 0.772978 |
| VPS4A | 0.885138 | 0.937344 |
| FABP3 | 0.885246 | 0.414479 |
| MAP4 | 0.885321 | 0.936237 |
| CLK2 | 0.885367 | 0.949134 |
| TSFM | 0.885488 | 0.961781 |
| GASK1B | 0.885609 | 0.978907 |
| ARL5B | 0.885696 | 0.987366 |
| TBC1D9B | 0.885727 | 0.843294 |
| ALG2 | 0.885774 | 0.98193 |
| AQP1 | 0.885879 | 0.653754 |
| AIMP1 | 0.885969 | 0.862526 |
| SLC5A6 | 0.886054 | 0.792394 |

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|---|---|---|
| PIGA | 0.886068 | 0.974192 |
| PITRM1 | 0.886087 | 0.65258 |
| IFT52 | 0.886149 | 0.980329 |
| LRRC8A | 0.88622 | 0.973299 |
| VPS53 | 0.886263 | 0.952478 |
| CNOT3 | 0.886278 | 0.819918 |
| SPIN4 | 0.886335 | 0.311226 |
| SON | 0.886389 | 0.952082 |
| SEPSECS | 0.886414 | 0.726121 |
| DCAF7 | 0.886438 | 0.775385 |
| RBM48 | 0.886465 | 0.099508 |
| UMPS | 0.886516 | 0.618751 |
| RIPK3 | 0.886617 | 0.999911 |
| OTULIN | 0.886647 | 0.955081 |
| LPCAT1 | 0.886678 | 0.987533 |
| NEDD1 | 0.886707 | 0.879171 |
| NECAP2 | 0.886792 | 0.741223 |
| ABT1 | 0.886926 | 0.780896 |
| IFT22 | 0.88724 | 0.933653 |
| IRF8 | 0.887313 | 0.401475 |
| CCDC77 | 0.887372 | 0.814809 |
| HLA-DQA1 | 0.887492 | 0.361375 |
| STX5 | 0.887627 | 0.856015 |
| TIAL1 | 0.88765 | 0.513239 |
| RPS6KB1 | 0.887687 | 0.726389 |
| TUBA4B | 0.887714 | 0.792708 |
| COX4I1 | 0.887766 | 0.64492 |
| RNF214 | 0.887842 | 0.926932 |

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|---|---|---|
| AFTPH | 0.88785 | 0.880503 |
| MYO9B | 0.887878 | 0.903393 |
| FIGNL1 | 0.888118 | 0.905165 |
| MSL1 | 0.888159 | 0.478213 |
| MAP3K6 | 0.888209 | 0.932256 |
| TMEM209 | 0.888218 | 0.621432 |
| RXRA | 0.888254 | 0.922462 |
| ANGPTL6 | 0.888329 | 0.521664 |
| PAFAH2 | 0.888392 | 0.941762 |
| SEC23IP | 0.888592 | 0.919222 |
| RFXAP | 0.888661 | 0.70704 |
| TUSC1 | 0.888663 | 0.694069 |
| MTFP1 | 0.888798 | 0.781742 |
| EIF1AD | 0.888869 | 0.950188 |
| NNT | 0.888952 | 0.892501 |
| FAF2 | 0.889014 | 0.928642 |
| PEX11B | 0.889027 | 0.842749 |
| GCLC | 0.889221 | 0.775459 |
| RFX7 | 0.889321 | 0.937468 |
| RBL1 | 0.889336 | 0.981418 |
| REEP6 | 0.88945 | 0.928333 |
| KCTD5 | 0.889452 | 0.776716 |
| AP3M1 | 0.889531 | 0.929475 |
| ZDHHC2 | 0.889628 | 0.759127 |
| COPA | 0.889815 | 0.967691 |
| P2RX7 | 0.889824 | 0.405448 |
| DSE | 0.88984 | 0.965964 |
| CNOT4 | 0.889857 | 0.75401 |

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|---|---|---|
| ACOX1 | 0.88989 | 0.65575 |
| FDX1 | 0.889915 | 0.983568 |
| PI4K2B | 0.889978 | 0.892094 |
| ADCY5 | 0.8902 | 0.269453 |
| AAK1 | 0.890267 | 0.936561 |
| DOLK | 0.89028 | 0.986271 |
| BAALC | 0.890325 | 0.63602 |
| GALNT11 | 0.89033 | 0.967129 |
| GNA14 | 0.89043 | 0.551423 |
| EDARADD | 0.890435 | 0.880142 |
| TXNRD2 | 0.890504 | 0.938018 |
| TXNDC5 | 0.890734 | 0.972167 |
| PDAP1 | 0.890814 | 0.892235 |
| SYT10 | 0.89087 | 0.808794 |
| SSH3 | 0.890988 | 0.924854 |
| SEC13 | 0.891028 | 0.90042 |
| CSTB | 0.891106 | 0.94689 |
| ZNF587B | 0.891228 | 0.734448 |
| KCTD6 | 0.891278 | 0.972864 |
| USB1 | 0.891279 | 0.939937 |
| AMACR | 0.891403 | 0.791429 |
| PLXNB2 | 0.891408 | 0.567751 |
| TMEM167B | 0.891444 | 0.812994 |
| RNF10 | 0.891647 | 0.72249 |
| GSPT2 | 0.891677 | 0.861223 |
| SULT1A2 | 0.891692 | 0.594289 |
| XYLB | 0.891701 | 0.989499 |
| TSR2 | 0.891835 | 0.92505 |

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|---|---|---|
| MRPL48 | 0.891899 | 0.848152 |
| MSTO1 | 0.891908 | 0.987718 |
| GIMAP6 | 0.891938 | 0.882533 |
| AREL1 | 0.892185 | 0.824995 |
| RINT1 | 0.892258 | 0.962558 |
| COX6A1 | 0.892325 | 0.895458 |
| DDRGK1 | 0.892333 | 0.484949 |
| PIGN | 0.892366 | 0.953915 |
| VPS72 | 0.892435 | 0.349706 |
| MARK3 | 0.892447 | 0.85412 |
| IQSEC1 | 0.892488 | 0.906774 |
| LSM5 | 0.892541 | 0.98727 |
| CTNNAL1 | 0.892799 | 0.770306 |
| DUSP23 | 0.892809 | 0.894594 |
| UBN2 | 0.892839 | 0.747898 |
| ARMT1 | 0.892859 | 0.992106 |
| CSNK2B | 0.892879 | 0.958911 |
| POMGNT1 | 0.892992 | 0.950108 |
| TCP11L1 | 0.893039 | 0.90344 |
| SIPA1 | 0.893068 | 0.939249 |
| IQSEC2 | 0.893106 | 0.79909 |
| BCCIP | 0.89313 | 0.967557 |
| PAG1 | 0.893175 | 0.735376 |
| GOLGA7 | 0.893223 | 0.716343 |
| SELENOO | 0.893258 | 0.866875 |
| MLKL | 0.893384 | 0.782114 |
| NOTCH2 | 0.893502 | 0.866134 |
| UBIAD1 | 0.893669 | 0.782917 |

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|---|---|---|
| WWOX | 0.893729 | 0.956861 |
| MCRIP1 | 0.893811 | 0.796263 |
| MOSPD2 | 0.893854 | 0.843448 |
| CARS2 | 0.893867 | 0.846735 |
| TBC1D15 | 0.893895 | 0.934322 |
| TRIM23 | 0.893995 | 0.852807 |
| DCAF6 | 0.894092 | 0.945589 |
| BLOC1S2 | 0.894123 | 0.786277 |
| DPP7 | 0.894132 | 0.797963 |
| CAMLG | 0.894146 | 0.666431 |
| SLC7A1 | 0.894261 | 0.777296 |
| ACOT4 | 0.894326 | 0.781138 |
| ZMAT1 | 0.894338 | 0.492886 |
| TXNDC16 | 0.894344 | 0.875154 |
| ZNF280C | 0.894359 | 0.714702 |
| ACO2 | 0.894418 | 0.874415 |
| FNTB | 0.894493 | 0.932971 |
| SQSTM1 | 0.894495 | 0.958453 |
| JAML | 0.894556 | 0.665082 |
| ADD2 | 0.894612 | 0.797497 |
| TTYH2 | 0.894794 | 0.949653 |
| EIF4B | 0.89505 | 0.94065 |
| PKN2 | 0.895094 | 0.891804 |
| EIF3K | 0.895262 | 0.730347 |
| EIF2B5 | 0.895266 | 0.72886 |
| ATL3 | 0.895296 | 0.800892 |
| PSMA5 | 0.895444 | 0.916939 |
| C2CD5 | 0.895529 | 0.661317 |

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|---|---|---|
| GIPC2 | 0.895568 | 0.633693 |
| PLEKHG4 | 0.895605 | 0.600457 |
| APOBEC3D | 0.895605 | 0.923427 |
| MGAT1 | 0.895655 | 0.848186 |
| MTMR14 | 0.895743 | 0.883105 |
| SLC40A1 | 0.895827 | 0.815133 |
| LRRC8C | 0.895951 | 0.871426 |
| CFHR3 | 0.895957 | 0.452069 |
| TRIP13 | 0.895958 | 0.958373 |
| ZC3HAV1 | 0.895996 | 0.974437 |
| SH2B2 | 0.89604 | 0.81978 |
| TMEM106A | 0.896196 | 0.905343 |
| ANKRD13D | 0.89629 | 0.893168 |
| VDAC2 | 0.896322 | 0.678927 |
| NA | 0.896416 | 0.98164 |
| UBR2 | 0.896433 | 0.920866 |
| VPS33B | 0.896492 | 0.906336 |
| KLRG2 | 0.896518 | 0.308013 |
| NAB1 | 0.896547 | 0.89393 |
| ZC3H3 | 0.896624 | 0.650072 |
| GID4 | 0.896635 | 0.976045 |
| BAZ2B | 0.896689 | 0.422927 |
| CHP1 | 0.896946 | 0.642634 |
| DPEP2 | 0.897003 | 0.653145 |
| CEACAM21 | 0.89706 | 0.55366 |
| PRDX3 | 0.897246 | 0.98378 |
| ADH5 | 0.897259 | 0.862558 |
| CBX1 | 0.897364 | 0.776388 |

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|---|---|---|
| ATP1B2 | 0.897399 | 0.568371 |
| TLR5 | 0.897426 | 0.710195 |
| BLOC1S3 | 0.897501 | 0.984724 |
| SLC4A1 | 0.897523 | 0.657322 |
| MYG1 | 0.897532 | 0.987874 |
| SEC31A | 0.897594 | 0.894073 |
| SLC38A10 | 0.897617 | 0.595932 |
| NBAS | 0.897744 | 0.919277 |
| SLC35B3 | 0.897766 | 0.81053 |
| DNPH1 | 0.897773 | 0.940739 |
| RNF166 | 0.897826 | 0.718325 |
| MIX23 | 0.897892 | 0.964572 |
| PPP6C | 0.897977 | 0.795315 |
| CCDC125 | 0.897989 | 0.235395 |
| BIN3 | 0.898008 | 0.82871 |
| RHEX | 0.898058 | 0.5495 |
| TRIM44 | 0.898142 | 0.774829 |
| TUBGCP3 | 0.898242 | 0.977515 |
| DPCD | 0.898274 | 0.83576 |
| HELQ | 0.898306 | 0.338447 |
| AZU1 | 0.898309 | 0.691361 |
| PSMB8 | 0.898407 | 0.971492 |
| MDH1 | 0.898689 | 0.809041 |
| CLASP1 | 0.89873 | 0.48564 |
| TXNRD1 | 0.898748 | 0.956805 |
| RUVBL2 | 0.898781 | 0.913866 |
| PDXDC1 | 0.89923 | 0.949829 |
| CST3 | 0.899386 | 0.813412 |

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|---|---|---|
| NFATC3 | 0.89941 | 0.964759 |
| SMYD5 | 0.899515 | 0.937291 |
| LRRC57 | 0.899528 | 0.733526 |
| HACE1 | 0.899552 | 0.913382 |
| OR1M1 | 0.899562 | 0.954794 |
| CRCP | 0.899583 | 0.711343 |
| SLC7A5 | 0.899694 | 0.174577 |
| HENMT1 | 0.899745 | 0.767471 |
| ATP5IF1 | 0.899839 | 0.952328 |
| DESI2 | 0.899958 | 0.945934 |
| VDAC1 | 0.900005 | 0.652716 |
| CD4 | 0.900115 | 0.980452 |
| CEP20 | 0.900182 | 0.938271 |
| SDHAF1 | 0.900228 | 0.684489 |
| COX15 | 0.900354 | 0.827142 |
| NIPA2 | 0.90044 | 0.939131 |
| VPS4B | 0.900523 | 0.961837 |
| DBT | 0.900705 | 0.822968 |
| CHMP2B | 0.900729 | 0.985781 |
| LILRB3 | 0.900754 | 0.747299 |
| CCT6B | 0.900934 | 0.757877 |
| NUDT9 | 0.900969 | 0.902716 |
| DIABLO | 0.901024 | 0.87472 |
| TMEM127 | 0.901121 | 0.839596 |
| CLCN7 | 0.901229 | 0.883507 |
| ARHGAP27 | 0.901437 | 0.71114 |
| PRPSAP1 | 0.901532 | 0.904612 |
| SLC22A18 | 0.901566 | 0.504785 |

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|---|---|---|
| CHMP4B | 0.901575 | 0.950483 |
| NISCH | 0.901643 | 0.906122 |
| DPH7 | 0.901777 | 0.916603 |
| ATF6 | 0.901816 | 0.622904 |
| FUCA1 | 0.901865 | 0.827868 |
| ARHGAP22 | 0.901894 | 0.688011 |
| GOLIM4 | 0.901905 | 0.878144 |
| ITGB1BP1 | 0.901929 | 0.936362 |
| CARD8 | 0.901948 | 0.934859 |
| RIN1 | 0.902001 | 0.825554 |
| FBXL4 | 0.902006 | 0.907698 |
| SSBP1 | 0.90201 | 0.77433 |
| AACS | 0.902032 | 0.787108 |
| MYF6 | 0.902109 | 0.915071 |
| PGLS | 0.902241 | 0.86906 |
| ERBIN | 0.902374 | 0.796043 |
| HSPD1 | 0.902708 | 0.976897 |
| RIPK2 | 0.902784 | 0.991197 |
| IL1R2 | 0.902803 | 0.91229 |
| PIGB | 0.902854 | 0.887096 |
| SYNE1 | 0.903131 | 0.731129 |
| ZNRD2 | 0.90323 | 0.984462 |
| SH2D1B | 0.903449 | 0.966551 |
| ATP11A | 0.903519 | 0.68288 |
| HTRA2 | 0.903682 | 0.98053 |
| LMAN2L | 0.903698 | 0.879283 |
| WARS2 | 0.903726 | 0.892262 |
| ISCU | 0.903815 | 0.988112 |

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|---|---|---|
| SEPHS2 | 0.903929 | 0.935718 |
| GSTP1 | 0.904059 | 0.646332 |
| PPP1R3G | 0.904114 | 0.694383 |
| PDE12 | 0.904146 | 0.963633 |
| UBA1 | 0.904167 | 0.994132 |
| DARS2 | 0.904227 | 0.860342 |
| UBE2G2 | 0.904254 | 0.719683 |
| ASB8 | 0.904275 | 0.936122 |
| RPN1 | 0.90428 | 0.776267 |
| RIN3 | 0.904292 | 0.96595 |
| SLC8A1 | 0.904378 | 0.499621 |
| DCP2 | 0.904449 | 0.846114 |
| ARAP2 | 0.904505 | 0.430358 |
| ANKH | 0.904515 | 0.733184 |
| FLG | 0.904544 | 0.484613 |
| MAP2K1 | 0.904712 | 0.703953 |
| TMEM134 | 0.904867 | 0.85219 |
| DYM | 0.904876 | 0.726039 |
| CAPN7 | 0.904879 | 0.803219 |
| TIPRL | 0.904902 | 0.937107 |
| CALR | 0.904919 | 0.905358 |
| VNN2 | 0.904998 | 0.562125 |
| SENP2 | 0.904999 | 0.9879 |
| SEC24A | 0.905023 | 0.890547 |
| KCTD2 | 0.905065 | 0.712742 |
| ADSS1 | 0.905118 | 0.689761 |
| CKMT2 | 0.905519 | 0.377791 |
| TLR10 | 0.905526 | 0.503665 |

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|---|---|---|
| TLK2 | 0.90556 | 0.639908 |
| CBLL1 | 0.905906 | 0.698157 |
| HAUS8 | 0.90592 | 0.704671 |
| CES1 | 0.905948 | 0.329162 |
| SCFD2 | 0.906047 | 0.842533 |
| TNFAIP6 | 0.906325 | 0.931994 |
| NA | 0.906422 | 0.819049 |
| ZNF267 | 0.906449 | 0.93157 |
| PES1 | 0.906532 | 0.92962 |
| PIK3CA | 0.906596 | 0.874804 |
| GFM2 | 0.906612 | 0.881486 |
| PPIL3 | 0.906614 | 0.648731 |
| SPRYD3 | 0.906651 | 0.82757 |
| STIM2 | 0.906716 | 0.86848 |
| ACY1 | 0.906783 | 0.804146 |
| RPIA | 0.906831 | 0.704754 |
| RANBP9 | 0.906846 | 0.730737 |
| UBL7 | 0.906938 | 0.657586 |
| YEATS2 | 0.906939 | 0.739703 |
| MCUR1 | 0.90694 | 0.743309 |
| CUL2 | 0.907057 | 0.981884 |
| UBQLN4 | 0.907059 | 0.974864 |
| UBE2Q1 | 0.907212 | 0.810039 |
| AP3D1 | 0.90726 | 0.627 |
| AP2S1 | 0.907339 | 0.735453 |
| DERA | 0.90734 | 0.868955 |
| FRRS1 | 0.90737 | 0.548158 |
| IFIT3 | 0.907661 | 0.688422 |

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|---|---|---|
| NEK1 | 0.907777 | 0.856376 |
| CSNK1A1L | 0.907862 | 0.533653 |
| FANCF | 0.907911 | 0.63183 |
| HLA-A | 0.907914 | 0.814059 |
| METAP1D | 0.908026 | 0.859027 |
| FGD3 | 0.90805 | 0.802701 |
| PSMC3 | 0.908148 | 0.856358 |
| HADH | 0.908161 | 0.947659 |
| SNX5 | 0.908182 | 0.73226 |
| DIS3L2 | 0.908217 | 0.800476 |
| SPTA1 | 0.908263 | 0.617628 |
| NAXE | 0.908332 | 0.991899 |
| ICA1L | 0.908503 | 0.226127 |
| SNX15 | 0.908506 | 0.970972 |
| ARMC6 | 0.908694 | 0.785517 |
| MRPL58 | 0.908707 | 0.631544 |
| FIBP | 0.908744 | 0.762519 |
| NEDD9 | 0.90875 | 0.974982 |
| PNPT1 | 0.9088 | 0.872566 |
| CARD6 | 0.908861 | 0.855941 |
| C22orf39 | 0.908981 | 0.483035 |
| OTUD1 | 0.909185 | 0.513325 |
| SEC31A | 0.909238 | 0.683381 |
| ARFGAP3 | 0.909241 | 0.900817 |
| GPI | 0.90928 | 0.801034 |
| BMPR2 | 0.909339 | 0.760648 |
| PLEKHA1 | 0.909391 | 0.765684 |
| NUMB | 0.909402 | 0.850073 |

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|---|---|---|
| CFAP410 | 0.909459 | 0.856227 |
| PSMB9 | 0.909558 | 0.959639 |
| FBXO42 | 0.909591 | 0.975883 |
| ZFPL1 | 0.909633 | 0.807541 |
| NUSAP1 | 0.909658 | 0.790424 |
| HSPA4 | 0.909752 | 0.898314 |
| PGK2 | 0.909778 | 0.981521 |
| SLC35E1 | 0.909824 | 0.686474 |
| PGP | 0.909903 | 0.731672 |
| HIBCH | 0.910076 | 0.884887 |
| XAF1 | 0.910082 | 0.716489 |
| PREP | 0.910096 | 0.774517 |
| GALNT1 | 0.910113 | 0.841153 |
| ILRUN | 0.910238 | 0.923353 |
| JPT2 | 0.910338 | 0.932139 |
| ARHGAP24 | 0.910411 | 0.553647 |
| CRTC3 | 0.910437 | 0.894537 |
| PSMB6 | 0.910482 | 0.811442 |
| AP5S1 | 0.910518 | 0.668556 |
| GPX7 | 0.910537 | 0.817828 |
| CCT6A | 0.910552 | 0.928779 |
| ECHS1 | 0.910561 | 0.924119 |
| UPF3A | 0.910575 | 0.741953 |
| ANKMY2 | 0.91088 | 0.562451 |
| FAR1 | 0.911038 | 0.839649 |
| SPRYD4 | 0.911083 | 0.854462 |
| PEX6 | 0.911086 | 0.993286 |
| BAZ2A | 0.911187 | 0.919044 |

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|---|---|---|
| FKBP7 | 0.911447 | 0.927253 |
| DLST | 0.911453 | 0.746908 |
| GUCD1 | 0.911466 | 0.765394 |
| LPCAT3 | 0.911472 | 0.736177 |
| EPHB4 | 0.911538 | 0.452756 |
| BPIFB1 | 0.91165 | 0.510288 |
| DHRS4 | 0.911785 | 0.912577 |
| DESI1 | 0.911842 | 0.955561 |
| HIPK1 | 0.911881 | 0.839879 |
| ABHD3 | 0.911975 | 0.580953 |
| WDR26 | 0.911999 | 0.655933 |
| NT5DC2 | 0.912219 | 0.595801 |
| SNX6 | 0.91223 | 0.782118 |
| CRYBB1 | 0.912345 | 0.56028 |
| FLAD1 | 0.91236 | 0.978552 |
| PSMA1 | 0.912593 | 0.773221 |
| PET117 | 0.912739 | 0.453153 |
| MICALL1 | 0.912744 | 0.789537 |
| ADGRG1 | 0.912822 | 0.696721 |
| CXXC5 | 0.912875 | 0.84158 |
| CENPB | 0.912887 | 0.647947 |
| KMT2C | 0.912889 | 0.885486 |
| LACTB | 0.912962 | 0.733443 |
| EIF4EBP2 | 0.913161 | 0.825149 |
| PPM1N | 0.913199 | 0.277785 |
| NA | 0.913262 | 0.85267 |
| SCO2 | 0.91335 | 0.716568 |
| ATP12A | 0.91349 | 0.461744 |

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|---|---|---|
| PSME4 | 0.913497 | 0.945285 |
| TP53I11 | 0.913591 | 0.543713 |
| IAH1 | 0.913728 | 0.798639 |
| VPS36 | 0.913729 | 0.510742 |
| IDE | 0.913743 | 0.895536 |
| GAB3 | 0.913859 | 0.747967 |
| CTNNA1 | 0.914016 | 0.852195 |
| LBP | 0.914022 | 0.653322 |
| TMEM231 | 0.914025 | 0.649172 |
| FBXO2 | 0.91407 | 0.332354 |
| NA | 0.914121 | 0.730788 |
| OXSM | 0.914179 | 0.920474 |
| AIP | 0.914193 | 0.685894 |
| KCTD13 | 0.914275 | 0.365624 |
| HSD17B10 | 0.914446 | 0.924912 |
| ASAP2 | 0.914559 | 0.673451 |
| ALDH4A1 | 0.91464 | 0.610754 |
| SH3BP1 | 0.914646 | 0.703289 |
| CPNE1 | 0.914661 | 0.862604 |
| EIF2S1 | 0.914669 | 0.768244 |
| TMTC3 | 0.914679 | 0.673333 |
| SERGEF | 0.914733 | 0.848605 |
| COG4 | 0.914757 | 0.835375 |
| OXNAD1 | 0.914982 | 0.822346 |
| ANKRD49 | 0.915102 | 0.808232 |
| ATG4C | 0.915169 | 0.73868 |
| CORO1A | 0.915177 | 0.405892 |
| ZMYND8 | 0.915279 | 0.650829 |

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|---|---|---|
| PATL1 | 0.915323 | 0.794147 |
| MARVELD1 | 0.915333 | 0.838741 |
| NADSYN1 | 0.915409 | 0.812769 |
| NDUFB6 | 0.915479 | 0.533866 |
| ZKSCAN8 | 0.915488 | 0.436704 |
| SELENON | 0.915496 | 0.847899 |
| SEMG2 | 0.915512 | 0.955433 |
| HPRT1 | 0.915563 | 0.802244 |
| PPIL1 | 0.915595 | 0.883508 |
| CLCN6 | 0.915631 | 0.830653 |
| RTN4 | 0.915669 | 0.740017 |
| CCT3 | 0.91573 | 0.836649 |
| UBE2Z | 0.915784 | 0.654866 |
| ESD | 0.915918 | 0.835708 |
| FCER1A | 0.91592 | 0.716344 |
| BCL2L11 | 0.916073 | 0.608729 |
| RUSF1 | 0.9161 | 0.475996 |
| ASB9 | 0.916116 | 0.810936 |
| STARD7 | 0.916155 | 0.736994 |
| NUCB2 | 0.916253 | 0.770145 |
| RALGAPB | 0.916702 | 0.779564 |
| MGAT2 | 0.916893 | 0.721862 |
| CDK5RAP3 | 0.916933 | 0.310165 |
| ZBTB8OS | 0.916949 | 0.83716 |
| TBCK | 0.917014 | 0.691981 |
| RNF149 | 0.91702 | 0.990811 |
| URM1 | 0.91704 | 0.622216 |
| LEMD2 | 0.917107 | 0.472425 |

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|---|---|---|
| MRPL45 | 0.91721 | 0.602217 |
| TMOD1 | 0.917225 | 0.557597 |
| UBE2N | 0.9173 | 0.802364 |
| EPPK1 | 0.917342 | 0.744131 |
| CNDP1 | 0.917366 | 0.567471 |
| TMEM245 | 0.917423 | 0.69731 |
| LZTS2 | 0.917474 | 0.42191 |
| SCP2 | 0.917487 | 0.886585 |
| FOS | 0.917511 | 0.52557 |
| BABAM1 | 0.917603 | 0.71648 |
| ANKRD11 | 0.91763 | 0.998637 |
| NMNAT3 | 0.917799 | 0.362774 |
| TTC9C | 0.917801 | 0.643524 |
| PSD4 | 0.917814 | 0.661407 |
| SH2D3C | 0.91789 | 0.754116 |
| IGHV3-72 | 0.917907 | 0.340889 |
| STK35 | 0.918214 | 0.576191 |
| AKT1 | 0.918247 | 0.711861 |
| GLG1 | 0.918247 | 0.835177 |
| TRMU | 0.918298 | 0.569167 |
| CNIH4 | 0.918306 | 0.584818 |
| CDCA2 | 0.918345 | 0.633657 |
| POU2F1 | 0.918347 | 0.734748 |
| NANP | 0.918404 | 0.674117 |
| SLC25A17 | 0.918408 | 0.890914 |
| CYP7B1 | 0.918597 | 0.502328 |
| DHRS3 | 0.918668 | 0.698853 |
| FIZ1 | 0.918764 | 0.415401 |

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|---|---|---|
| CDC34 | 0.91885 | 0.905821 |
| MAP4K4 | 0.918954 | 0.633143 |
| ATP13A1 | 0.918957 | 0.551071 |
| FGGY | 0.919232 | 0.999255 |
| USP53 | 0.919455 | 0.579055 |
| CHMP4A | 0.919573 | 0.910918 |
| ANKRD27 | 0.919715 | 0.518702 |
| TEPSIN | 0.919729 | 0.675713 |
| NPEPPS | 0.919749 | 0.654447 |
| TPP1 | 0.919775 | 0.690268 |
| ALDH9A1 | 0.919788 | 0.848658 |
| NINJ1 | 0.919849 | 0.130436 |
| ERCC6L | 0.919907 | 0.508423 |
| PPP6R2 | 0.919916 | 0.642192 |
| TRAPPC12 | 0.920007 | 0.499692 |
| MSRB3 | 0.920035 | 0.90814 |
| ANXA5 | 0.920247 | 0.584196 |
| NDUFS4 | 0.920259 | 0.620746 |
| COPS6 | 0.920333 | 0.491072 |
| ALG12 | 0.920393 | 0.691603 |
| NDUFB5 | 0.920411 | 0.792545 |
| ATP6V1G1 | 0.920427 | 0.69236 |
| TWSG1 | 0.920515 | 0.94022 |
| TRAPPC4 | 0.920565 | 0.656761 |
| RNF141 | 0.920585 | 0.484627 |
| RICTOR | 0.920619 | 0.607022 |
| MT-CO1 | 0.920679 | 0.819449 |
| HDAC10 | 0.920727 | 0.624613 |

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|---|---|---|
| KLHL42 | 0.920748 | 0.731505 |
| RSPH1 | 0.920866 | 0.598827 |
| AP1S2 | 0.920891 | 0.521738 |
| CYREN | 0.920957 | 0.735995 |
| MDH2 | 0.921367 | 0.802236 |
| RXYLT1 | 0.92141 | 0.305693 |
| ABTB1 | 0.921617 | 0.639291 |
| STT3B | 0.921631 | 0.556344 |
| TXN | 0.921697 | 0.831274 |
| CUL3 | 0.921704 | 0.59058 |
| UBE2D3 | 0.921866 | 0.34478 |
| CLASP2 | 0.921916 | 0.455493 |
| USP8 | 0.921958 | 0.525621 |
| PKN1 | 0.921966 | 0.698974 |
| ARMH3 | 0.922027 | 0.658729 |
| CHD6 | 0.922054 | 0.307545 |
| SCAMP2 | 0.922088 | 0.884806 |
| CEP250 | 0.922107 | 0.585951 |
| RDH13 | 0.922235 | 0.810249 |
| ZDHHC21 | 0.922262 | 0.866149 |
| SUFU | 0.922441 | 0.734655 |
| TBC1D22A | 0.922597 | 0.49102 |
| CEP120 | 0.922627 | 0.571217 |
| TOR1A | 0.922642 | 0.500334 |
| C16orf54 | 0.922687 | 0.53239 |
| UBXN1 | 0.922694 | 0.833994 |
| WASHC2C | 0.922764 | 0.827757 |
| SP140 | 0.922789 | 0.363101 |

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|---|---|---|
| NDRG3 | 0.922809 | 0.562864 |
| ACADVL | 0.922857 | 0.503594 |
| SEMA4C | 0.923048 | 0.382671 |
| HINT3 | 0.923061 | 0.960584 |
| MYO18A | 0.923196 | 0.554351 |
| TNFAIP3 | 0.923276 | 0.635714 |
| HSPA13 | 0.923281 | 0.701307 |
| PLAA | 0.923315 | 0.538779 |
| GIMAP1 | 0.923332 | 0.920968 |
| WDFY2 | 0.923339 | 0.673725 |
| PDZD11 | 0.923545 | 0.787387 |
| AKAP1 | 0.923567 | 0.169558 |
| FAM151B | 0.923572 | 0.5881 |
| DENND2D | 0.923759 | 0.389612 |
| PPL | 0.923791 | 0.843432 |
| H2AX | 0.923855 | 0.982456 |
| RIC8B | 0.923924 | 0.502406 |
| MRPL22 | 0.924055 | 0.3641 |
| PEX5 | 0.924107 | 0.504718 |
| SNX2 | 0.924145 | 0.673054 |
| ZFYVE1 | 0.924255 | 0.796439 |
| RNF14 | 0.924433 | 0.698757 |
| COG2 | 0.924565 | 0.686833 |
| NRBF2 | 0.924585 | 0.49079 |
| NUDT7 | 0.924589 | 0.629349 |
| FAHD1 | 0.924653 | 0.764636 |
| MED19 | 0.924664 | 0.198637 |
| PARP8 | 0.924748 | 0.59451 |

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|---|---|---|
| PHC3 | 0.925038 | 0.753168 |
| SH2B1 | 0.925041 | 0.703967 |
| CYB5D2 | 0.92515 | 0.310979 |
| B3GAT3 | 0.925186 | 0.548512 |
| GLMP | 0.925238 | 0.18153 |
| IDH1 | 0.925291 | 0.699486 |
| AS3MT | 0.925413 | 0.796009 |
| PTPRC | 0.925461 | 0.98532 |
| TNPO2 | 0.925585 | 0.724513 |
| CYBC1 | 0.925602 | 0.417068 |
| DMXL1 | 0.925767 | 0.532541 |
| PSTK | 0.925807 | 0.248555 |
| NA | 0.925813 | 0.523713 |
| DNM2 | 0.9259 | 0.952169 |
| TCP1 | 0.925991 | 0.70802 |
| PSMB10 | 0.92601 | 0.721008 |
| GMFG | 0.926222 | 0.403201 |
| WWC3 | 0.926265 | 0.606198 |
| PEX16 | 0.926279 | 0.319022 |
| EIF2B3 | 0.926357 | 0.414574 |
| EXOC4 | 0.926364 | 0.738398 |
| ABCD1 | 0.926495 | 0.637295 |
| PGK1 | 0.926535 | 0.762538 |
| SYK | 0.926546 | 0.716836 |
| TMEM53 | 0.926686 | 0.681746 |
| STK26 | 0.92672 | 0.276575 |
| SUGT1 | 0.926761 | 0.83779 |
| USP32 | 0.92691 | 0.488714 |

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|---|---|---|
| IRAK1 | 0.92692 | 0.661343 |
| TBK1 | 0.926989 | 0.76031 |
| VAPA | 0.92715 | 0.958089 |
| TRAPPC10 | 0.927163 | 0.766438 |
| DTYMK | 0.927457 | 0.660864 |
| BPNT1 | 0.92749 | 0.733496 |
| PUSL1 | 0.927609 | 0.586481 |
| LXN | 0.92799 | 0.774325 |
| TRIM41 | 0.92799 | 0.948986 |
| SEC23A | 0.928015 | 0.757616 |
| CDH6 | 0.928101 | 0.420613 |
| LCLAT1 | 0.928102 | 0.402814 |
| ASPH | 0.928111 | 0.748422 |
| NAA30 | 0.928124 | 0.504566 |
| ACOT8 | 0.928151 | 0.753205 |
| SMAP2 | 0.928225 | 0.768635 |
| ASPRV1 | 0.92829 | 0.692304 |
| IGHV3OR16-12 | 0.928654 | 0.201726 |
| GOT1 | 0.928687 | 0.517858 |
| JAK1 | 0.92883 | 0.603394 |
| KLF13 | 0.928911 | 0.737148 |
| SARS2 | 0.928939 | 0.480038 |
| TNFSF8 | 0.928964 | 0.930013 |
| B4GAT1 | 0.928969 | 0.650121 |
| OXLD1 | 0.929164 | 0.645799 |
| ELMOD2 | 0.929217 | 0.517394 |
| PICK1 | 0.929219 | 0.543329 |
| SLC35E2B | 0.929244 | 0.600887 |

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|---|---|---|
| UCKL1 | 0.929398 | 0.684335 |
| NA | 0.929422 | 0.946119 |
| TMUB1 | 0.929476 | 0.382467 |
| ZDHHC5 | 0.92954 | 0.690301 |
| IFI44L | 0.929654 | 0.320766 |
| SQLE | 0.92969 | 0.662389 |
| RAC3 | 0.929702 | 0.74271 |
| MYDGF | 0.929715 | 0.778521 |
| CHCHD4 | 0.929828 | 0.7233 |
| DERL2 | 0.929892 | 0.291787 |
| NES | 0.929997 | 0.285747 |
| RUNX3 | 0.930158 | 0.677618 |
| SDF4 | 0.930179 | 0.590565 |
| SCAI | 0.930462 | 0.517054 |
| S100A6 | 0.930475 | 0.462678 |
| DHRSX | 0.930571 | 0.839693 |
| MASP1 | 0.930706 | 0.280347 |
| SMAD4 | 0.930882 | 0.654963 |
| PUM1 | 0.930955 | 0.324384 |
| NA | 0.93103 | 0.805393 |
| FAM114A2 | 0.931123 | 0.626953 |
| GDI2 | 0.931124 | 0.459416 |
| TIA1 | 0.931372 | 0.533194 |
| CREB5 | 0.931379 | 0.088363 |
| S100A16 | 0.931391 | 0.504424 |
| PSMB1 | 0.931409 | 0.553321 |
| GBE1 | 0.93142 | 0.67226 |
| OSBPL11 | 0.93153 | 0.502524 |

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|---|---|---|
| PITPNM1 | 0.931536 | 0.581398 |
| COMMD1 | 0.931637 | 0.332142 |
| VMP1 | 0.931721 | 0.526052 |
| PNPLA6 | 0.931833 | 0.438037 |
| ELOVL4 | 0.931891 | 0.361195 |
| CDYL2 | 0.931898 | 0.978256 |
| C12orf4 | 0.931939 | 0.566244 |
| DYNC1LI2 | 0.932011 | 0.697203 |
| ASPM | 0.93203 | 0.844884 |
| ANKRD13A | 0.932052 | 0.590596 |
| ARSD | 0.932066 | 0.629543 |
| MRPL13 | 0.93208 | 0.527754 |
| EIF4A2 | 0.932144 | 0.414971 |
| C11orf68 | 0.932251 | 0.730504 |
| CLPTM1 | 0.932328 | 0.539505 |
| DNLZ | 0.932337 | 0.24887 |
| FASTKD3 | 0.932383 | 0.878805 |
| RASSF7 | 0.932496 | 0.825135 |
| ASCC2 | 0.932515 | 0.349134 |
| ALG1 | 0.932566 | 0.288256 |
| MAP2K3 | 0.932605 | 0.817327 |
| IVD | 0.932834 | 0.630936 |
| GYS1 | 0.932848 | 0.632468 |
| AKIRIN2 | 0.932853 | 0.67411 |
| SFXN2 | 0.932886 | 0.772887 |
| UBE2B | 0.932888 | 0.50722 |
| NSF | 0.93303 | 0.354082 |
| NTAQ1 | 0.933089 | 0.627172 |

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|---|---|---|
| SPAST | 0.933089 | 0.19732 |
| IGHV3-49 | 0.933099 | 0.312547 |
| PRXL2C | 0.933274 | 0.618637 |
| DOCK11 | 0.933326 | 0.698321 |
| TUBGCP4 | 0.933335 | 0.810802 |
| DGKA | 0.933364 | 0.700161 |
| ALDH1A1 | 0.933456 | 0.41277 |
| HACD3 | 0.933494 | 0.625549 |
| SCYL1 | 0.933662 | 0.615824 |
| CCT7 | 0.933807 | 0.599438 |
| MATR3 | 0.934005 | 0.138838 |
| MTRFR | 0.934023 | 0.86383 |
| ZNF616 | 0.934034 | 0.496349 |
| ZNF302 | 0.934099 | 0.787651 |
| ITCH | 0.934106 | 0.144419 |
| INPP5F | 0.934308 | 0.504597 |
| TUBB8 | 0.934367 | 0.75127 |
| ATG12 | 0.934383 | 0.441576 |
| TRIP11 | 0.934459 | 0.590853 |
| HDHD3 | 0.934764 | 0.696585 |
| ADCK1 | 0.934775 | 0.549901 |
| SPATA2 | 0.934863 | 0.168726 |
| PPP2R5C | 0.934864 | 0.577804 |
| PABPC1 | 0.935145 | 0.561584 |
| IGBP1 | 0.935152 | 0.491288 |
| GNB1 | 0.935185 | 0.785052 |
| ACAP2 | 0.9352 | 0.336184 |
| KLHL6 | 0.935352 | 0.810888 |

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|---|---|---|
| NECAP1 | 0.935419 | 0.70167 |
| NIF3L1 | 0.935425 | 0.756138 |
| PRRC2A | 0.935551 | 0.519049 |
| MNT | 0.935601 | 0.66628 |
| C5orf24 | 0.935621 | 0.923826 |
| TRAF1 | 0.935735 | 0.971683 |
| TRAK2 | 0.935784 | 0.462164 |
| FEM1C | 0.935804 | 0.292845 |
| PGM3 | 0.935923 | 0.34992 |
| FMR1 | 0.935968 | 0.382038 |
| SKI | 0.935998 | 0.615252 |
| CARD19 | 0.936007 | 0.853567 |
| ARAF | 0.93603 | 0.644738 |
| IL27RA | 0.936191 | 0.328309 |
| MAP1LC3B | 0.936288 | 0.701452 |
| MFN1 | 0.936353 | 0.411197 |
| EPSTI1 | 0.936384 | 0.514313 |
| FRMD3 | 0.936402 | 0.880865 |
| SLC35A3 | 0.936421 | 0.854706 |
| TKFC | 0.936437 | 0.518842 |
| KIFBP | 0.936475 | 0.274192 |
| ADAR | 0.9365 | 0.816339 |
| GOLGA3 | 0.93654 | 0.476736 |
| PDCD6IP | 0.936578 | 0.427138 |
| IGFBP2 | 0.936607 | 0.792161 |
| NCEH1 | 0.936617 | 0.398574 |
| HCCS | 0.936696 | 0.513423 |
| LST1 | 0.936763 | 0.277515 |

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| MFF | 0.936769 | 0.61713 |
| LANCL1 | 0.936771 | 0.635414 |
| TRPV2 | 0.936832 | 0.584112 |
| GAK | 0.936869 | 0.47307 |
| MELTF | 0.936991 | 0.452649 |
| HCLS1 | 0.937187 | 0.899709 |
| NAE1 | 0.937213 | 0.355031 |
| UNC119B | 0.937214 | 0.512515 |
| AKNA | 0.937276 | 0.56084 |
| SCLT1 | 0.937293 | 0.272884 |
| PSMD7 | 0.937343 | 0.294557 |
| TRIP4 | 0.937373 | 0.253095 |
| ARSA | 0.937559 | 0.827111 |
| PIN4 | 0.937763 | 0.530835 |
| DNAJA4 | 0.937796 | 0.493544 |
| ASMTL | 0.937822 | 0.459272 |
| CDV3 | 0.937932 | 0.655615 |
| IMPACT | 0.937977 | 0.318767 |
| MAPKAP1 | 0.93817 | 0.463435 |
| PGS1 | 0.938186 | 0.35327 |
| COPS2 | 0.938198 | 0.29093 |
| MRPS26 | 0.938344 | 0.222714 |
| CAPN5 | 0.938432 | 0.345502 |
| TRAPPC14 | 0.93847 | 0.629506 |
| EXO5 | 0.938511 | 0.304593 |
| RCC1L | 0.938523 | 0.269652 |
| TMCO3 | 0.938553 | 0.611958 |
| GFPT1 | 0.938601 | 0.491217 |

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| GNAS | 0.93865 | 0.356459 |
| RFX2 | 0.938704 | 0.823011 |
| RNF31 | 0.93872 | 0.515561 |
| MON2 | 0.938903 | 0.620406 |
| LATS1 | 0.938923 | 0.581361 |
| HYAL3 | 0.939021 | 0.427799 |
| RAB11FIP5 | 0.939024 | 0.48475 |
| NME3 | 0.939069 | 0.643959 |
| PSMD10 | 0.939082 | 0.385266 |
| TOMM40L | 0.939125 | 0.546982 |
| DDX19B | 0.939174 | 0.493626 |
| GCNT1 | 0.93919 | 0.501883 |
| PECR | 0.939207 | 0.463835 |
| CERT1 | 0.939212 | 0.500585 |
| PDK3 | 0.939376 | 0.36955 |
| TMEM128 | 0.939379 | 0.936709 |
| ZRANB1 | 0.939385 | 0.618662 |
| SPAG9 | 0.939523 | 0.923477 |
| CIB1 | 0.939641 | 0.452276 |
| TPD52L2 | 0.939658 | 0.935157 |
| GBF1 | 0.939698 | 0.438632 |
| SBF2 | 0.939703 | 0.535245 |
| USP9X | 0.939773 | 0.523937 |
| PIGG | 0.939831 | 0.541358 |
| PYGL | 0.939906 | 0.607357 |
| SLK | 0.939906 | 0.606727 |
| EVI5 | 0.939976 | 0.351193 |
| NRROS | 0.940096 | 0.51234 |

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| YY2 | 0.940301 | 0.395982 |
| DPM1 | 0.940446 | 0.515472 |
| VGLL4 | 0.940599 | 0.706907 |
| LRCH4 | 0.940674 | 0.233329 |
| ATG2B | 0.940729 | 0.344028 |
| ARFGEF2 | 0.940793 | 0.307315 |
| LILRA2 | 0.940803 | 0.433874 |
| MON1B | 0.940837 | 0.343672 |
| CAPS | 0.940965 | 0.766403 |
| UBE2T | 0.940979 | 0.639787 |
| ESRRA | 0.941003 | 0.759784 |
| MARK2 | 0.94108 | 0.278817 |
| TMEM109 | 0.941095 | 0.302995 |
| LMTK2 | 0.941155 | 0.434865 |
| HSPA1A | 0.94118 | 0.693929 |
| SIGMAR1 | 0.941205 | 0.323932 |
| RHAG | 0.94131 | 0.633711 |
| ZNF280D | 0.941356 | 0.855799 |
| MTDH | 0.941462 | 0.336186 |
| MAP2K4 | 0.941572 | 0.407767 |
| EMC4 | 0.941789 | 0.428121 |
| STK25 | 0.941956 | 0.371764 |
| PICALM | 0.942002 | 0.611973 |
| LRRC45 | 0.942093 | 0.429693 |
| KPNB1 | 0.942153 | 0.200224 |
| PPFIBP2 | 0.942175 | 0.377931 |
| PIK3R2 | 0.942203 | 0.280391 |
| EPC2 | 0.942334 | 0.988237 |

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|---|---|---|
| CDO1 | 0.942359 | 0.646707 |
| PNPLA8 | 0.942449 | 0.485599 |
| SMCR8 | 0.942555 | 0.311404 |
| SEC11A | 0.942564 | 0.589919 |
| B4GALT7 | 0.942572 | 0.638339 |
| AGMAT | 0.942588 | 0.659487 |
| PRICKLE2 | 0.942605 | 0.973133 |
| IPO7 | 0.942787 | 0.493952 |
| MAPK7 | 0.942953 | 0.372315 |
| TMEM168 | 0.942965 | 0.592331 |
| GTPBP1 | 0.942973 | 0.497723 |
| C1orf122 | 0.943024 | 0.360961 |
| ANXA11 | 0.943108 | 0.309724 |
| EIF2AK1 | 0.943186 | 0.998055 |
| CPNE3 | 0.943225 | 0.204439 |
| JMJD7 | 0.94334 | 0.456661 |
| CBWD2 | 0.94336 | 0.461328 |
| WDR47 | 0.9434 | 0.338314 |
| FRY | 0.943447 | 0.501275 |
| DDAH1 | 0.943624 | 0.324076 |
| CSNK1G1 | 0.943636 | 0.403912 |
| EXOC8 | 0.94366 | 0.472028 |
| MIA2 | 0.9439 | 0.560833 |
| MYH11 | 0.943951 | 0.393274 |
| NUBP1 | 0.943982 | 0.445149 |
| CHCHD10 | 0.944038 | 0.648514 |
| FIS1 | 0.944183 | 0.464337 |
| MON1A | 0.944238 | 0.482556 |

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|---|---|---|
| GALT | 0.94428 | 0.589836 |
| DOT1L | 0.944301 | 0.779059 |
| NIPSNAP2 | 0.94433 | 0.619834 |
| NXT2 | 0.944661 | 0.114935 |
| NNT | 0.944816 | 0.41575 |
| SHFL | 0.944824 | 0.673447 |
| ANKLE2 | 0.944827 | 0.276772 |
| LRCH3 | 0.94494 | 0.21 |
| TBC1D17 | 0.944968 | 0.469085 |
| GFOD2 | 0.944989 | 0.358158 |
| RSPRY1 | 0.94499 | 0.33549 |
| LMO7 | 0.944996 | 0.556097 |
| PEX19 | 0.945078 | 0.610625 |
| BORCS5 | 0.945103 | 0.257967 |
| ENOPH1 | 0.945143 | 0.550703 |
| C17orf75 | 0.945263 | 0.382469 |
| AP1S2 | 0.945436 | 0.957999 |
| UBA3 | 0.945553 | 0.475216 |
| EPB41 | 0.945596 | 0.536615 |
| DNAJA2 | 0.945747 | 0.348413 |
| PPP2R5E | 0.945874 | 0.370678 |
| CTDSP2 | 0.945885 | 0.880761 |
| SLC4A7 | 0.946031 | 0.569262 |
| PLBD2 | 0.94605 | 0.56853 |
| PLEKHA5 | 0.946052 | 0.495833 |
| UVSSA | 0.946292 | 0.314629 |
| PRDX5 | 0.946469 | 0.387033 |
| DPP3 | 0.94647 | 0.288108 |

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|---|---|---|
| MTHFD1L | 0.946685 | 0.667889 |
| LATS2 | 0.946705 | 0.533839 |
| EIF2B2 | 0.946753 | 0.221118 |
| FUT7 | 0.946761 | 0.166471 |
| TMEM258 | 0.946766 | 0.628097 |
| DTD2 | 0.946768 | 0.567659 |
| LYPLA1 | 0.946808 | 0.669104 |
| BRMS1L | 0.946896 | 0.766977 |
| WDR45 | 0.946972 | 0.432998 |
| CALR3 | 0.947063 | 0.660452 |
| FBXW8 | 0.947064 | 0.573219 |
| ZC3H7A | 0.947105 | 0.425994 |
| C1orf43 | 0.947198 | 0.629782 |
| AURKA | 0.947277 | 0.652359 |
| PAGR1 | 0.947338 | 0.233715 |
| VPS52 | 0.94737 | 0.506766 |
| FDX2 | 0.947459 | 0.527609 |
| GPR89A | 0.947538 | 0.544873 |
| TSKS | 0.947552 | 0.94934 |
| ZNF614 | 0.947587 | 0.012275 |
| C9orf85 | 0.947598 | 0.381176 |
| STAT5B | 0.947609 | 0.788408 |
| ETFA | 0.947644 | 0.520481 |
| DHRS4L2 | 0.947728 | 0.37731 |
| ANKRD28 | 0.947748 | 0.698688 |
| RDH14 | 0.947752 | 0.33072 |
| SIPA1L3 | 0.947753 | 0.309853 |
| EXOC1 | 0.947782 | 0.565812 |

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|---|---|---|
| HSPB6 | 0.947805 | 0.730302 |
| THBS3 | 0.94786 | 0.138079 |
| CRYGD | 0.947951 | 0.349209 |
| DEGS1 | 0.948096 | 0.238604 |
| SLC35F2 | 0.948109 | 0.61443 |
| USP6NL | 0.948237 | 0.281864 |
| ICA1 | 0.94825 | 0.513735 |
| SLC30A6 | 0.948319 | 0.622002 |
| TACC3 | 0.94842 | 0.526297 |
| RELA | 0.94862 | 0.26158 |
| NT5C | 0.948884 | 0.675976 |
| FUNDC2 | 0.948889 | 0.350943 |
| RETREG3 | 0.948937 | 0.386672 |
| PEX10 | 0.948938 | 0.383982 |
| FCN1 | 0.948973 | 0.197909 |
| CLEC1A | 0.949045 | 0.865139 |
| CPNE2 | 0.949095 | 0.331224 |
| TUBB | 0.949113 | 0.503252 |
| UBR2 | 0.949208 | 0.48795 |
| COX19 | 0.949248 | 0.76984 |
| AVL9 | 0.949291 | 0.377699 |
| DHX32 | 0.949355 | 0.331387 |
| DNAJC24 | 0.949465 | 0.470627 |
| NAGA | 0.949532 | 0.429086 |
| ENTPD6 | 0.949534 | 0.43428 |
| FBXO4 | 0.949589 | 0.47854 |
| MGAT4A | 0.949729 | 0.819965 |
| PCYOX1 | 0.949732 | 0.444753 |

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|---|---|---|
| CPQ | 0.949791 | 0.609243 |
| GNG5 | 0.949849 | 0.364103 |
| CAPN2 | 0.950031 | 0.500437 |
| SCPEP1 | 0.950186 | 0.282856 |
| LAMTOR1 | 0.950209 | 0.242141 |
| EFCAB14 | 0.950506 | 0.334286 |
| ZNF573 | 0.950641 | 0.74458 |
| MKKS | 0.950724 | 0.572671 |
| EML3 | 0.950808 | 0.626182 |
| COPS4 | 0.950903 | 0.158562 |
| PRELID3B | 0.950955 | 0.558691 |
| CTNND1 | 0.951039 | 0.397425 |
| ATG4A | 0.951056 | 0.498809 |
| CCDC90B | 0.95106 | 0.363023 |
| SMAD3 | 0.951243 | 0.671893 |
| CLDND1 | 0.951285 | 0.174944 |
| UBR3 | 0.951404 | 0.071719 |
| GPAT4 | 0.951417 | 0.488484 |
| NA | 0.951444 | 0.716179 |
| FUCA2 | 0.951496 | 0.534568 |
| GNAI1 | 0.9515 | 0.442819 |
| PBK | 0.951542 | 0.878619 |
| NEK6 | 0.951608 | 0.556771 |
| MXRA7 | 0.951668 | 0.999547 |
| TPRA1 | 0.951868 | 0.91144 |
| PCBP1 | 0.951872 | 0.110192 |
| BCL9L | 0.952 | 0.775327 |
| GXYLT1 | 0.952013 | 0.585516 |

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|---|---|---|
| ATN1 | 0.952021 | 0.819138 |
| OAF | 0.95216 | 0.270602 |
| RRBP1 | 0.952461 | 0.475447 |
| FUT10 | 0.953029 | 0.363624 |
| FN3KRP | 0.953131 | 0.579775 |
| SSR1 | 0.953141 | 0.223753 |
| KPNA6 | 0.953151 | 0.437647 |
| TRIM10 | 0.953195 | 0.601302 |
| ENOSF1 | 0.953264 | 0.535088 |
| KLHL12 | 0.953265 | 0.612101 |
| HNRNPH1 | 0.953285 | 0.569913 |
| HGFAC | 0.953448 | 0.434597 |
| TARS1 | 0.953529 | 0.567141 |
| SH2D1A | 0.953577 | 0.959494 |
| FBXL6 | 0.953665 | 0.32846 |
| GOLM2 | 0.95369 | 0.173551 |
| BRAF | 0.953711 | 0.418256 |
| WDFY1 | 0.953724 | 0.207968 |
| IBA57 | 0.953786 | 0.30343 |
| EIF2S2 | 0.953902 | 0.429627 |
| PPOX | 0.953912 | 0.311443 |
| ACP6 | 0.953929 | 0.447617 |
| TSPAN31 | 0.95401 | 0.588382 |
| BLVRA | 0.954206 | 0.447594 |
| HERC4 | 0.95426 | 0.345851 |
| ZNF689 | 0.95427 | 0.2578 |
| SYNE1 | 0.954335 | 0.913447 |
| ARHGEF7 | 0.954554 | 0.457073 |

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| ZNF174 | 0.954598 | 0.864599 |
| RUFY2 | 0.954641 | 0.130561 |
| RNASE4 | 0.954724 | 0.386949 |
| MFN2 | 0.954739 | 0.307318 |
| MAST4 | 0.954957 | 0.551557 |
| PLCL2 | 0.954989 | 0.30019 |
| BTBD2 | 0.954993 | 0.464949 |
| TFRC | 0.95503 | 0.948038 |
| RASSF1 | 0.95505 | 0.36181 |
| TBCC | 0.955583 | 0.158212 |
| ZC3H7B | 0.955689 | 0.239302 |
| SNX29 | 0.955948 | 0.409436 |
| FEM1A | 0.956091 | 0.483946 |
| NFIA | 0.956153 | 0.554243 |
| TTC3 | 0.956195 | 0.515522 |
| APEH | 0.956229 | 0.232375 |
| DVL3 | 0.956335 | 0.19046 |
| SGTA | 0.956489 | 0.429954 |
| EIF4G1 | 0.956495 | 0.270863 |
| ATG2A | 0.95666 | 0.21442 |
| CEP104 | 0.956714 | 0.459166 |
| ADAM17 | 0.956726 | 0.368298 |
| EI24 | 0.956814 | 0.637534 |
| UBE2D1 | 0.956821 | 0.681873 |
| ZNF212 | 0.956849 | 0.941405 |
| MANEA | 0.956855 | 0.283025 |
| ZC3HAV1L | 0.957047 | 0.665628 |
| PIGX | 0.957134 | 0.749111 |

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|---|---|---|
| SCO1 | 0.957221 | 0.464749 |
| AP2A1 | 0.957248 | 0.404505 |
| MACF1 | 0.957478 | 0.814405 |
| TTC13 | 0.957507 | 0.268828 |
| LIX1L | 0.957655 | 0.333607 |
| B3GALNT2 | 0.957792 | 0.096261 |
| TIMM22 | 0.957906 | 0.748481 |
| FAM91A1 | 0.958011 | 0.41746 |
| HNMT | 0.958057 | 0.481973 |
| RPS6KA1 | 0.95807 | 0.527174 |
| TUBG1 | 0.958104 | 0.32288 |
| SON | 0.958514 | 0.11978 |
| SNX16 | 0.958522 | 0.620864 |
| RAB5IF | 0.958576 | 0.346043 |
| EPB41 | 0.95861 | 0.973589 |
| XXYLT1 | 0.958684 | 0.234309 |
| ATG7 | 0.958697 | 0.900709 |
| HIVEP2 | 0.958753 | 0.664203 |
| CSRP3 | 0.958774 | 0.837063 |
| IFI35 | 0.958775 | 0.699168 |
| MCEE | 0.958781 | 0.359005 |
| STRADA | 0.958999 | 0.509705 |
| BCHE | 0.959083 | 0.604328 |
| RHCE | 0.959096 | 0.287466 |
| TK2 | 0.95919 | 0.271809 |
| BEND3 | 0.959387 | 0.962643 |
| PPID | 0.959389 | 0.298493 |
| TEX2 | 0.959451 | 0.457094 |

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| CCDC88C | 0.959493 | 0.222965 |
| MIB2 | 0.959599 | 0.201863 |
| JMY | 0.959767 | 0.301215 |
| PAQR7 | 0.959922 | 0.473182 |
| KIF16B | 0.959962 | 0.221979 |
| FECH | 0.960039 | 0.547491 |
| ETS1 | 0.960107 | 0.778055 |
| TBX21 | 0.960233 | 0.539438 |
| ALKBH3 | 0.960353 | 0.395394 |
| OGDH | 0.960361 | 0.338164 |
| EXOC3 | 0.960372 | 0.555889 |
| MKRN1 | 0.960398 | 0.337373 |
| EIF4H | 0.960529 | 0.714786 |
| PEX26 | 0.96057 | 0.607456 |
| COPG1 | 0.960587 | 0.316727 |
| ANKRD39 | 0.960672 | 0.314484 |
| TAOK2 | 0.96076 | 0.230541 |
| ANAPC13 | 0.9608 | 0.330642 |
| GON7 | 0.961 | 0.23434 |
| PGAM5 | 0.96118 | 0.387703 |
| VPS13D | 0.961194 | 0.152112 |
| VAT1L | 0.961224 | 0.897636 |
| DYRK1A | 0.961447 | 0.249445 |
| STARD9 | 0.961523 | 0.04964 |
| PLCH1 | 0.961731 | 0.424547 |
| NHEJ1 | 0.961832 | 0.231544 |
| ALG14 | 0.961883 | 0.26696 |
| AUP1 | 0.961976 | 0.363625 |

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|---|---|---|
| CTSE | 0.962057 | 0.218131 |
| SLC9A6 | 0.962136 | 0.676551 |
| FUT11 | 0.962162 | 0.422665 |
| ZNF644 | 0.962203 | 0.914192 |
| FAM110C | 0.962207 | 0.911485 |
| EXOC2 | 0.962237 | 0.462032 |
| CLEC16A | 0.962249 | 0.6529 |
| LLGL1 | 0.962263 | 0.197943 |
| DPP8 | 0.96245 | 0.166728 |
| RGS19 | 0.962536 | 0.356551 |
| ERGIC3 | 0.962574 | 0.067721 |
| TRIM21 | 0.962581 | 0.084446 |
| SPCS3 | 0.962689 | 0.392237 |
| CSNK2A2 | 0.962793 | 0.162994 |
| ABI3 | 0.962847 | 0.384916 |
| KLHL18 | 0.962863 | 0.296732 |
| ABCB8 | 0.96287 | 0.229839 |
| ATP6V1C1 | 0.963157 | 0.462531 |
| DNAJC5 | 0.963175 | 0.208186 |
| UBTD2 | 0.963261 | 0.47058 |
| GLO1 | 0.963346 | 0.337416 |
| CTBS | 0.963414 | 0.529384 |
| AP1G1 | 0.963439 | 0.361989 |
| TMUB2 | 0.963598 | 0.289586 |
| TCAF2 | 0.963634 | 0.619475 |
| TMEM120B | 0.963658 | 0.745974 |
| EMC1 | 0.963671 | 0.312578 |
| GEMIN7 | 0.96369 | 0.586721 |

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|---|---|---|
| SH3KBP1 | 0.963738 | 0.22743 |
| RNF139 | 0.963754 | 0.227644 |
| GALE | 0.963975 | 0.207603 |
| PGAP2 | 0.964196 | 0.384158 |
| ESYT1 | 0.96424 | 0.25886 |
| SDF2 | 0.964361 | 0.404558 |
| SYNJ2BP-COX16 | 0.964431 | 0.340181 |
| ABHD17B | 0.964439 | 0.382749 |
| PACC1 | 0.964468 | 0.477909 |
| TTPAL | 0.964729 | 0.509983 |
| PARP10 | 0.964796 | 0.399041 |
| PRMT9 | 0.964809 | 0.351205 |
| SCRN2 | 0.96483 | 0.415429 |
| MYL6B | 0.964874 | 0.225571 |
| TOMM70 | 0.964916 | 0.169735 |
| TIMM10 | 0.964925 | 0.612275 |
| KPNA4 | 0.964971 | 0.237243 |
| ACE | 0.965061 | 0.828644 |
| PELO | 0.96533 | 0.159383 |
| NT5DC1 | 0.965401 | 0.441695 |
| FAH | 0.965478 | 0.633685 |
| PSMD9 | 0.965521 | 0.282985 |
| COPS3 | 0.965616 | 0.242659 |
| RFTN1 | 0.965691 | 0.326094 |
| MAPK13 | 0.965808 | 0.741502 |
| LAMTOR4 | 0.965844 | 0.301536 |
| GATAD1 | 0.96613 | 0.305112 |
| MEX3C | 0.966135 | 0.897735 |

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|---|---|---|
| NBR1 | 0.966215 | 0.083864 |
| NQO1 | 0.966393 | 0.265043 |
| PMM2 | 0.96643 | 0.349341 |
| HBS1L | 0.966445 | 0.261948 |
| SLC30A7 | 0.966489 | 0.453066 |
| LETM1 | 0.966551 | 0.191944 |
| FAM8A1 | 0.966707 | 0.576322 |
| BAK1 | 0.966707 | 0.287006 |
| RABGEF1 | 0.966785 | 0.273705 |
| SUGT1 | 0.96683 | 0.252945 |
| MRPL12 | 0.966959 | 0.865697 |
| ETF1 | 0.966978 | 0.407137 |
| PCCB | 0.967101 | 0.283705 |
| OXSR1 | 0.96734 | 0.118388 |
| GNA11 | 0.967572 | 0.49651 |
| RWDD4 | 0.967656 | 0.198289 |
| ZDHHC18 | 0.967763 | 0.612078 |
| OTUD6B | 0.967774 | 0.23513 |
| METTL17 | 0.967844 | 0.231204 |
| DYRK1B | 0.96791 | 0.906529 |
| ALDH16A1 | 0.967932 | 0.298216 |
| IFT27 | 0.967956 | 0.342614 |
| APRT | 0.968062 | 0.419976 |
| FBXL8 | 0.96815 | 0.233316 |
| TMEM94 | 0.96816 | 0.313352 |
| IKZF1 | 0.968182 | 0.476094 |
| TENT5C | 0.968239 | 0.602085 |
| SEPTIN9 | 0.968521 | 0.189405 |

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|---|---|---|
| LNX2 | 0.968643 | 0.266916 |
| AP1M1 | 0.96869 | 0.405951 |
| ARHGAP12 | 0.968751 | 0.113148 |
| PPP1R7 | 0.968829 | 0.162376 |
| USE1 | 0.968869 | 0.075061 |
| RABEP2 | 0.968876 | 0.386636 |
| GLS | 0.968895 | 0.490581 |
| SLC46A1 | 0.96893 | 0.120057 |
| NEURL4 | 0.968938 | 0.291606 |
| CCDC18 | 0.968948 | 0.323025 |
| R3HDM2 | 0.969124 | 0.32244 |
| PKN3 | 0.969287 | 0.946404 |
| ATG16L1 | 0.969457 | 0.259762 |
| MEA1 | 0.969524 | 0.269453 |
| PSMD4 | 0.969545 | 0.690095 |
| ZNF503 | 0.969712 | 0.914999 |
| MACO1 | 0.969788 | 0.20437 |
| UBAC2 | 0.969877 | 0.323553 |
| ZNF121 | 0.969962 | 0.944125 |
| ACAD8 | 0.969994 | 0.249734 |
| EIF4ENIF1 | 0.97008 | 0.476108 |
| PARP12 | 0.970237 | 0.309849 |
| APOBEC3G | 0.97039 | 0.861027 |
| RFESD | 0.970535 | 0.487049 |
| TECPR1 | 0.970643 | 0.117088 |
| GTF2A2 | 0.970695 | 0.760563 |
| KPNA3 | 0.970733 | 0.102016 |
| TAF3 | 0.970788 | 0.851104 |

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|---|---|---|
| ZDHHC3 | 0.970831 | 0.150593 |
| DCAF11 | 0.970921 | 0.313145 |
| UQCR10 | 0.970953 | 0.615767 |
| ATP9B | 0.970971 | 0.324668 |
| TIMM8A | 0.971016 | 0.517931 |
| TRPM7 | 0.97103 | 0.115616 |
| CEBPD | 0.971281 | 0.614429 |
| MYO18B | 0.971308 | 0.425029 |
| EXOC7 | 0.971463 | 0.41334 |
| GCHFR | 0.971475 | 0.535337 |
| UBE3C | 0.971591 | 0.404989 |
| STXBP5L | 0.971766 | 0.021068 |
| TPP2 | 0.971781 | 0.465131 |
| ZMYND8 | 0.971963 | 0.58065 |
| PURB | 0.972025 | 0.227427 |
| CCDC102A | 0.972067 | 0.360007 |
| RANBP1 | 0.972202 | 0.973349 |
| VPS13C | 0.972212 | 0.197487 |
| MAP2K2 | 0.972291 | 0.340498 |
| UGP2 | 0.972403 | 0.51664 |
| OGDHL | 0.972442 | 0.994732 |
| ZNF655 | 0.972522 | 0.269018 |
| CENPN | 0.972567 | 0.821019 |
| GET3 | 0.972601 | 0.188712 |
| RACK1 | 0.972705 | 0.827687 |
| RNF115 | 0.972766 | 0.322925 |
| PTGR1 | 0.97301 | 0.403026 |
| SIGLEC7 | 0.973073 | 0.197415 |

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|---|---|---|
| NOTCH3 | 0.973078 | 0.300434 |
| STRIP1 | 0.97308 | 0.240304 |
| ENSA | 0.973139 | 0.719091 |
| TPI1 | 0.973376 | 0.450702 |
| SFI1 | 0.973597 | 0.555737 |
| FAM241A | 0.973785 | 0.321132 |
| PLXNB1 | 0.973894 | 0.904878 |
| IGF2R | 0.973909 | 0.429126 |
| LAMP1 | 0.973949 | 0.335483 |
| IGBP1P2 | 0.974273 | 0.856792 |
| COL6A1 | 0.974276 | 0.337052 |
| JMJD6 | 0.974283 | 0.11485 |
| TLCD4 | 0.974395 | 0.713609 |
| CACYBP | 0.974466 | 0.359791 |
| LSM14A | 0.974573 | 0.50992 |
| UQCRB | 0.975095 | 0.528017 |
| EPB42 | 0.97511 | 0.518938 |
| SEC22A | 0.975145 | 0.29154 |
| SAA1 | 0.975327 | 0.252857 |
| RIPOR2 | 0.975646 | 0.551394 |
| MRPS36 | 0.975787 | 0.249653 |
| FAS | 0.976071 | 0.554427 |
| CLCN3 | 0.976364 | 0.330679 |
| PHOSPHO1 | 0.97646 | 0.70141 |
| PSMB4 | 0.976567 | 0.255289 |
| FTSJ1 | 0.976587 | 0.120644 |
| STAT1 | 0.976645 | 0.384489 |
| RNPEPL1 | 0.976701 | 0.139068 |

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|---|---|---|
| ATP5F1B | 0.976795 | 0.213543 |
| SLC20A2 | 0.976829 | 0.406987 |
| OSTF1 | 0.976992 | 0.239827 |
| BTBD9 | 0.977047 | 0.366911 |
| TGFBR2 | 0.977163 | 0.255073 |
| DAPK3 | 0.977321 | 0.345432 |
| SERPINE2 | 0.977357 | 0.235097 |
| NOL4L | 0.97736 | 0.731069 |
| FICD | 0.977461 | 0.253614 |
| NDUFAF5 | 0.977551 | 0.277226 |
| CCNYL1 | 0.977589 | 0.26937 |
| STRADB | 0.977598 | 0.385892 |
| BLZF1 | 0.97772 | 0.214169 |
| RSAD2 | 0.977922 | 0.250615 |
| EXOC5 | 0.977953 | 0.349667 |
| RAB29 | 0.977987 | 0.757769 |
| NSDHL | 0.978113 | 0.323809 |
| WDR45B | 0.97824 | 0.242063 |
| PPP1R21 | 0.978405 | 0.125944 |
| SLC29A3 | 0.978444 | 0.981689 |
| STK11 | 0.978523 | 0.167664 |
| AMMECR1 | 0.97871 | 0.234369 |
| NIPAL3 | 0.978806 | 0.542044 |
| BAX | 0.978862 | 0.119602 |
| PGBD1 | 0.979049 | 0.905733 |
| MR1 | 0.979113 | 0.141664 |
| UQCC2 | 0.979131 | 0.126762 |
| AGAP2 | 0.979161 | 0.084865 |

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|---|---|---|
| STARD13 | 0.979164 | 0.410992 |
| CARD11 | 0.979177 | 0.910199 |
| CTPS1 | 0.979244 | 0.131621 |
| EMC7 | 0.979366 | 0.190203 |
| NAT1 | 0.979608 | 0.222456 |
| PPP2R2A | 0.979614 | 0.15151 |
| PANK4 | 0.979727 | 0.095009 |
| DKK2 | 0.979735 | 0.383836 |
| DHCR24 | 0.979836 | 0.61986 |
| TYW5 | 0.9799 | 0.177762 |
| RIPK1 | 0.979922 | 0.087689 |
| GBP5 | 0.979937 | 0.981875 |
| MCOLN1 | 0.980075 | 0.910197 |
| ASPHD2 | 0.980087 | 0.097292 |
| RABGGTA | 0.980291 | 0.236683 |
| PPTC7 | 0.980471 | 0.280879 |
| PADI4 | 0.980487 | 0.944259 |
| ZNF784 | 0.980508 | 0.346359 |
| EHHADH | 0.980509 | 0.36802 |
| BIRC2 | 0.980528 | 0.134147 |
| FDPS | 0.980646 | 0.172804 |
| RCN2 | 0.980773 | 0.470501 |
| CEP68 | 0.981041 | 0.910918 |
| DLD | 0.981128 | 0.205984 |
| HSPA9 | 0.981146 | 0.308358 |
| SEL1L3 | 0.981162 | 0.356993 |
| FAM78A | 0.981242 | 0.176496 |
| TMX1 | 0.98128 | 0.365068 |

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|---|---|---|
| STX18 | 0.981351 | 0.054677 |
| RPS15A | 0.981365 | 0.226865 |
| MAST2 | 0.981381 | 0.134243 |
| UFM1 | 0.981458 | 0.20004 |
| UFC1 | 0.981506 | 0.200339 |
| NMI | 0.981532 | 0.333717 |
| TTC30A | 0.981834 | 0.442555 |
| STK32C | 0.981858 | 0.215355 |
| SF1 | 0.981861 | 0.094612 |
| SELPLG | 0.982014 | 0.496401 |
| RBCK1 | 0.982027 | 0.369045 |
| SLC25A35 | 0.982229 | 0.47975 |
| OSBPL8 | 0.982244 | 0.022507 |
| MILR1 | 0.982519 | 0.315325 |
| FAM98C | 0.982544 | 0.21605 |
| CCM2 | 0.98256 | 0.173431 |
| TEN1 | 0.98265 | 0.874039 |
| CBR1 | 0.982658 | 0.289592 |
| BACH2 | 0.982811 | 0.983125 |
| ZNF511 | 0.982951 | 0.21186 |
| MOB1A | 0.982997 | 0.377189 |
| SLC39A7 | 0.983239 | 0.339043 |
| MYADM | 0.983416 | 0.503852 |
| MGST2 | 0.98348 | 0.333872 |
| GET1 | 0.98356 | 0.210669 |
| UBE2D2 | 0.983724 | 0.151353 |
| PUDP | 0.983884 | 0.496736 |
| BICD1 | 0.983978 | 0.205617 |

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|---|---|---|
| BMP2K | 0.984092 | 0.19932 |
| HDHD2 | 0.984095 | 0.237623 |
| MYOM2 | 0.984162 | 0.954844 |
| APOBEC3A | 0.984227 | 0.23947 |
| MEMO1 | 0.984278 | 0.280345 |
| CD53 | 0.984391 | 0.582876 |
| MED26 | 0.984416 | 0.222994 |
| PPP2R1A | 0.984426 | 0.034745 |
| SH3BP2 | 0.984444 | 0.529458 |
| LIME1 | 0.984473 | 0.808325 |
| VMA21 | 0.984492 | 0.345829 |
| DCXR | 0.984553 | 0.374413 |
| FBXL19 | 0.984748 | 0.255506 |
| GARRE1 | 0.984828 | 0.987526 |
| MLX | 0.984831 | 0.39433 |
| ANAPC10 | 0.985013 | 0.202611 |
| MKNK2 | 0.985046 | 0.085031 |
| ZAP70 | 0.985068 | 0.874997 |
| CRTAP | 0.985135 | 0.337834 |
| SNX17 | 0.985186 | 0.094339 |
| ZFYVE9 | 0.985188 | 0.986761 |
| CTPS2 | 0.985427 | 0.22754 |
| USP5 | 0.985564 | 0.134308 |
| EBP | 0.985857 | 0.145427 |
| PITHD1 | 0.985874 | 0.076599 |
| GHDC | 0.986048 | 0.206284 |
| EIF4EBP1 | 0.986153 | 0.11888 |
| NFE2 | 0.986157 | 0.13496 |

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|---|---|---|
| SERPINB3 | 0.986211 | 0.303593 |
| ZCCHC2 | 0.986217 | 0.241684 |
| RHOU | 0.986254 | 0.898398 |
| OSCAR | 0.986283 | 0.314544 |
| CTSH | 0.986451 | 0.485475 |
| SIRT3 | 0.986507 | 0.59203 |
| SESN1 | 0.986528 | 0.224237 |
| PABIR2 | 0.986569 | 0.165182 |
| OGFRL1 | 0.986588 | 0.143827 |
| CDK3 | 0.986608 | 0.26996 |
| FRMD4A | 0.986921 | 0.255015 |
| PPHLN1 | 0.98693 | 0.264851 |
| TRIM62 | 0.986963 | 0.24255 |
| ZFYVE19 | 0.986998 | 0.263129 |
| CAB39L | 0.987016 | 0.17819 |
| SLC12A2 | 0.987069 | 0.13858 |
| ATP6AP2 | 0.987144 | 0.222478 |
| SOCS2 | 0.987305 | 0.35842 |
| ADO | 0.987544 | 0.298963 |
| TUBA1C | 0.987549 | 0.214538 |
| METTL23 | 0.987651 | 0.995118 |
| PTPN14 | 0.987692 | 0.970646 |
| COPS5 | 0.987726 | 0.169144 |
| ELAC1 | 0.987727 | 0.194876 |
| MTMR6 | 0.987979 | 0.031751 |
| GIT2 | 0.988042 | 0.129957 |
| DARS1 | 0.988299 | 0.216464 |
| ABCA7 | 0.988314 | 0.275727 |

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|---|---|---|
| FAF1 | 0.988398 | 0.217034 |
| C8orf82 | 0.988471 | 0.263504 |
| NF1 | 0.98851 | 0.296997 |
| NAXD | 0.9888 | 0.185679 |
| IGSF8 | 0.98889 | 0.24764 |
| LRBA | 0.988907 | 0.958914 |
| CNTLN | 0.989073 | 0.376414 |
| BET1L | 0.989148 | 0.554112 |
| CBLB | 0.989159 | 0.103778 |
| FRYL | 0.989168 | 0.436131 |
| PPFIBP1 | 0.989177 | 0.323208 |
| SIAH1 | 0.989239 | 0.370746 |
| SLC37A4 | 0.989263 | 0.417227 |
| IRF2BP2 | 0.989363 | 0.906822 |
| KIF13A | 0.98948 | 0.302143 |
| NCS1 | 0.989608 | 0.435848 |
| RAB9A | 0.989713 | 0.051267 |
| PREB | 0.989879 | 0.164916 |
| CCNB2 | 0.989899 | 0.172085 |
| TXNDC12 | 0.989933 | 0.216575 |
| PEX13 | 0.989964 | 0.133668 |
| ERP29 | 0.989982 | 0.1891 |
| EIPR1 | 0.990083 | 0.088492 |
| FBXW5 | 0.990118 | 0.046442 |
| SHARPIN | 0.990126 | 0.256632 |
| TARS3 | 0.990154 | 0.333251 |
| ZDHHC4 | 0.990162 | 0.143019 |
| ALOX15B | 0.99019 | 0.889167 |

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|---|---|---|
| MTRES1 | 0.990251 | 0.381098 |
| CHML | 0.990294 | 0.179659 |
| CRYZ | 0.990565 | 0.723712 |
| ARCN1 | 0.99058 | 0.151409 |
| RHOT2 | 0.991327 | 0.148897 |
| MIF | 0.991404 | 0.207452 |
| ADAP2 | 0.991481 | 0.935842 |
| BIN1 | 0.991523 | 0.979431 |
| MAPKAPK3 | 0.991569 | 0.298868 |
| ITGA5 | 0.991683 | 0.335518 |
| C6orf136 | 0.991742 | 0.915012 |
| IKZF1 | 0.991878 | 0.768058 |
| HLA-A | 0.992024 | 0.485 |
| GET4 | 0.992331 | 0.129584 |
| MAFK | 0.992374 | 0.638073 |
| ZNF124 | 0.992406 | 0.993288 |
| STBD1 | 0.99241 | 0.130732 |
| PPP6R3 | 0.992451 | 0.1522 |
| WBP1L | 0.992476 | 0.482799 |
| P4HB | 0.992489 | 0.256823 |
| CARD16 | 0.992734 | 0.286129 |
| UBAC1 | 0.992884 | 0.249144 |
| GSTM1 | 0.993052 | 0.256489 |
| CD81 | 0.993088 | 0.437329 |
| ISCA2 | 0.993181 | 0.098256 |
| CPTP | 0.993417 | 0.161553 |
| DUSP22 | 0.993596 | 0.033462 |
| PRMT2 | 0.993727 | 0.172241 |

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|---|---|---|
| PRF1 | 0.993965 | 0.745353 |
| RUBCN | 0.994049 | 0.052702 |
| FBXO9 | 0.994186 | 0.234523 |
| HLCS | 0.994223 | 0.151973 |
| PAFAH1B1 | 0.994224 | 0.208573 |
| SERPINA12 | 0.994229 | 0.786144 |
| CNPY4 | 0.994252 | 0.154339 |
| COPB2 | 0.99426 | 0.072545 |
| PTPRS | 0.994265 | 0.269141 |
| CD48 | 0.994371 | 0.787469 |
| ACSS2 | 0.994606 | 0.263942 |
| SLC35B4 | 0.994668 | 0.534821 |
| FAM98A | 0.994677 | 0.229362 |
| NA | 0.994683 | 0.258555 |
| ARL2 | 0.994694 | 0.179361 |
| NIPSNAP3A | 0.99473 | 0.35657 |
| TTC27 | 0.994843 | 0.30255 |
| ARHGEF2 | 0.994956 | 0.766184 |
| EPM2A | 0.995063 | 0.106585 |
| MYCBP | 0.995066 | 0.176154 |
| SLC39A8 | 0.995071 | 0.30371 |
| MBLAC2 | 0.995108 | 0.331628 |
| CIAPIN1 | 0.99544 | 0.257064 |
| YPEL5 | 0.995496 | 0.133683 |
| HCFC2 | 0.995503 | 0.819584 |
| ZSCAN31 | 0.995632 | 0.212888 |
| PEAK1 | 0.995704 | 0.124039 |
| SPAG7 | 0.995993 | 0.233396 |

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|---|---|---|
| CFHR2 | 0.996203 | 0.246589 |
| VAV3 | 0.996237 | 0.389693 |
| CNP | 0.996403 | 0.12125 |
| RAB24 | 0.996573 | 0.225556 |
| ACD | 0.99668 | 0.047085 |
| CAD | 0.996941 | 0.298101 |
| CHUK | 0.997072 | 0.280124 |
| EPN1 | 0.997119 | 0.083868 |
| TSC22D4 | 0.997178 | 0.453901 |
| JKAMP | 0.997218 | 0.655565 |
| CDIPT | 0.997312 | 0.261567 |
| NDEL1 | 0.997367 | 0.170143 |
| DPP9 | 0.997415 | 0.077236 |
| MZT1 | 0.997422 | 0.175329 |
| TBC1D10A | 0.997616 | 0.137271 |
| BORCS6 | 0.997751 | 0.163379 |
| RANBP1 | 0.997761 | 0.985551 |
| NME1 | 0.997782 | 0.133372 |
| PWWP2B | 0.998003 | 0.036254 |
| PKD2 | 0.998082 | 0.279738 |
| PCGF1 | 0.998198 | 0.86272 |
| GAPVD1 | 0.998206 | 0.13989 |
| SYNRG | 0.998379 | 0.394232 |
| CX3CR1 | 0.998423 | 0.291107 |
| HEMGN | 0.99847 | 0.555073 |
| SDHA | 0.998561 | 0.148949 |
| UTRN | 0.998637 | 0.323935 |
| PITPNA | 0.998738 | 0.172701 |

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|---|---|---|
| PIK3R1 | 0.998814 | 0.07941 |
| MRPL50 | 0.998912 | 0.087254 |
| FOSL2 | 0.998957 | 0.74338 |
| SLTM | 0.999094 | 0.98376 |
| HDAC5 | 0.999116 | 0.154645 |
| PBX1 | 0.999235 | 0.860843 |
| CHMP1B | 0.999457 | 0.189264 |
| PI4KA | 0.999516 | 0.297471 |
| GNG12 | 0.999628 | 0.030856 |
| LGALS3BP | 0.999684 | 0.493539 |
| ACO1 | 0.999702 | 0.169102 |
| ITPRIPL2 | 0.999716 | 0.278779 |
| TPBG | 0.999775 | 0.051404 |
| TMPO | 1.00008 | 0.792907 |
| PPIAL4A | 1.000174 | 0.238981 |
| SVIL | 1.000448 | 0.29549 |
| GTF3C6 | 1.000507 | 0.06822 |
| SFXN3 | 1.000705 | 0.169224 |
| ACSS1 | 1.000735 | 0.167245 |
| PTDSS2 | 1.000745 | 0.292134 |
| NOTCH1 | 1.00076 | 0.204812 |
| ZNF816 | 1.001146 | 0.473681 |
| CNTROB | 1.00123 | 0.171207 |
| CNDP2 | 1.001231 | 0.151605 |
| ATF7-NPFF | 1.001343 | 0.456839 |
| EXD3 | 1.001403 | 0.967236 |
| FAM135A | 1.001687 | 0.977641 |
| OTUD3 | 1.001845 | 0.983694 |

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|---|---|---|
| FH | 1.001901 | 0.174088 |
| CISD2 | 1.00192 | 0.196735 |
| EPM2AIP1 | 1.001921 | 0.062672 |
| COASY | 1.001942 | 0.11882 |
| UBAP1 | 1.001968 | 0.310384 |
| JCHAIN | 1.002103 | 0.7702 |
| KIF20A | 1.002174 | 0.75304 |
| TMEM175 | 1.002209 | 0.266166 |
| MAN1A1 | 1.002395 | 0.238737 |
| MFF | 1.002474 | 0.175063 |
| NRDC | 1.002649 | 0.113134 |
| SLC30A9 | 1.002685 | 0.287978 |
| MRTFB | 1.002686 | 0.306721 |
| IER3IP1 | 1.002801 | 0.535178 |
| AP4B1 | 1.003072 | 0.205936 |
| NLRC5 | 1.003162 | 0.150491 |
| C3 | 1.00321 | 0.22236 |
| CLTC | 1.003334 | 0.344543 |
| SNAP47 | 1.003347 | 0.134291 |
| PHF12 | 1.003404 | 0.138242 |
| STIP1 | 1.003435 | 0.257457 |
| FUNDC1 | 1.003557 | 0.138296 |
| HS1BP3 | 1.003652 | 0.121411 |
| MAGT1 | 1.003717 | 0.228442 |
| ABCA5 | 1.003866 | 0.861556 |
| PPFIA1 | 1.003992 | 0.17411 |
| AKAP9 | 1.004268 | 0.756348 |
| CCNDBP1 | 1.004581 | 0.28364 |

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|---|---|---|
| RTKN | 1.004639 | 0.324808 |
| TRAF7 | 1.004887 | 0.129548 |
| CCT4 | 1.004994 | 0.120379 |
| AP4E1 | 1.005052 | 0.151874 |
| PGAM1 | 1.005112 | 0.029479 |
| NOD1 | 1.005166 | 0.963824 |
| CTSC | 1.005204 | 0.215391 |
| SURF4 | 1.005228 | 0.202652 |
| GSKIP | 1.005423 | 0.071852 |
| NFKB2 | 1.0056 | 0.264275 |
| AGFG1 | 1.005614 | 0.164672 |
| D2HGDH | 1.005688 | 0.15282 |
| DNAJB4 | 1.005794 | 0.218677 |
| CHMP5 | 1.005875 | 0.29229 |
| BORCS8 | 1.006033 | 0.110046 |
| JAGN1 | 1.006225 | 0.177574 |
| ACSL4 | 1.006233 | 0.192581 |
| TAP2 | 1.006619 | 0.33067 |
| IGHV1-2 | 1.006796 | 0.779076 |
| AP1B1 | 1.007005 | 0.037884 |
| TAGLN | 1.007231 | 0.31022 |
| SLITRK4 | 1.007391 | 0.33114 |
| ICE1 | 1.007391 | 0.864627 |
| PFDN2 | 1.007493 | 0.161228 |
| ANXA7 | 1.007594 | 0.050016 |
| ACAD11 | 1.00765 | 0.42585 |
| ATP11C | 1.007736 | 0.083768 |
| PRPS2 | 1.00774 | 0.305552 |

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|---|---|---|
| TBC1D14 | 1.007805 | 0.086389 |
| ZNF566 | 1.00791 | 0.512766 |
| KANSL1 | 1.008062 | 0.752088 |
| WARS1 | 1.008067 | 0.119794 |
| CCDC43 | 1.008086 | 0.599818 |
| ABCB1 | 1.008102 | 0.211631 |
| LGALS1 | 1.008166 | 0.145785 |
| ST13 | 1.008178 | 0.211898 |
| NFAT5 | 1.008259 | 0.202146 |
| BIRC5 | 1.008269 | 0.217017 |
| PRPSAP2 | 1.008315 | 0.168445 |
| NLRX1 | 1.008383 | 0.407769 |
| ALG10 | 1.008407 | 0.236287 |
| ZNF710 | 1.008414 | 0.948204 |
| SLC33A1 | 1.008479 | 0.262734 |
| LYN | 1.008746 | 0.202351 |
| PTPN6 | 1.008799 | 0.038125 |
| RAPGEF2 | 1.009198 | 0.441938 |
| NUDT18 | 1.009296 | 0.034227 |
| GPX3 | 1.009335 | 0.294941 |
| PAFAH1B2 | 1.009481 | 0.162714 |
| RPS6KA1 | 1.009614 | 0.059512 |
| ZBTB34 | 1.009626 | 0.789968 |
| ANKRD28 | 1.009646 | 0.205466 |
| PPP2R5B | 1.009691 | 0.214142 |
| IGHM | 1.009729 | 0.59765 |
| SP100 | 1.009762 | 0.702013 |
| SHANK3 | 1.009793 | 0.299188 |

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| ATG5 | 1.009825 | 0.030169 |
| WDR20 | 1.009938 | 0.013309 |
| CASP14 | 1.009952 | 0.190792 |
| ARHGAP32 | 1.010155 | 0.393448 |
| ATP5F1D | 1.01017 | 0.19363 |
| TRAFD1 | 1.010246 | 0.262271 |
| TPCN1 | 1.010286 | 0.155743 |
| PRRC1 | 1.010295 | 0.245633 |
| SCAMP4 | 1.010318 | 0.162393 |
| ITGA7 | 1.010342 | 0.778489 |
| ATAD5 | 1.010357 | 0.784371 |
| CLCN5 | 1.010867 | 0.962109 |
| SLC46A3 | 1.010925 | 0.112199 |
| CHST11 | 1.010998 | 0.185374 |
| AP2B1 | 1.011125 | 0.058676 |
| IGLV3-25 | 1.011127 | 0.17339 |
| NAPEPLD | 1.01116 | 0.028578 |
| DCAKD | 1.011329 | 0.175115 |
| THTPA | 1.011386 | 0.048904 |
| PIP4P1 | 1.011402 | 0.2187 |
| RALBP1 | 1.011451 | 0.055999 |
| NUDT12 | 1.011458 | 0.485751 |
| PEX7 | 1.011597 | 0.289523 |
| WDR37 | 1.011763 | 0.14262 |
| ITPRIPL1 | 1.012035 | 0.151385 |
| RNF170 | 1.012085 | 0.157123 |
| YTHDC2 | 1.01213 | 0.123179 |
| ZMYND11 | 1.012146 | 0.828531 |

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|---|---|---|
| WASL | 1.012246 | 0.150065 |
| HMGCS1 | 1.012252 | 0.163903 |
| DOCK6 | 1.012314 | 0.272877 |
| FKBP15 | 1.01238 | 0.102951 |
| ELOC | 1.012462 | 0.235273 |
| KLRB1 | 1.012664 | 0.945086 |
| CZIB | 1.012774 | 0.142635 |
| TRAPPC2 | 1.012917 | 0.057782 |
| NA | 1.013082 | 0.174899 |
| NME1-NME2 | 1.013121 | 0.25163 |
| JAK2 | 1.01321 | 0.324705 |
| SGSH | 1.013223 | 0.58064 |
| IFI30 | 1.013408 | 0.167429 |
| KIFAP3 | 1.013492 | 0.116303 |
| PPP2R2D | 1.013539 | 0.061679 |
| BNIP1 | 1.013661 | 0.047209 |
| WDFY3 | 1.013772 | 0.155511 |
| IGHG3 | 1.014101 | 0.232359 |
| HIP1R | 1.014135 | 0.598127 |
| AKAP10 | 1.014338 | 0.083323 |
| ACYP2 | 1.014384 | 0.375185 |
| HSP90B1 | 1.01463 | 0.163641 |
| XPNPEP3 | 1.014786 | 0.143917 |
| ZSCAN26 | 1.014943 | 0.795042 |
| ATP6V0A2 | 1.014963 | 0.226743 |
| EMC10 | 1.014974 | 0.217496 |
| GORASP2 | 1.014977 | 0.505779 |
| CDC27 | 1.015266 | 0.291759 |

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|---|---|---|
| FBXL15 | 1.015432 | 0.025859 |
| IST1 | 1.015622 | 0.03213 |
| TAL1 | 1.015768 | 0.222802 |
| GAPDH | 1.01582 | 0.152138 |
| PSME2 | 1.015966 | 0.122445 |
| ECI2 | 1.015989 | 0.114536 |
| EIF4G2 | 1.016148 | 0.016622 |
| TSTD1 | 1.016218 | 0.268882 |
| SURF1 | 1.016323 | 0.239433 |
| SMAD1 | 1.01636 | 0.182804 |
| TM9SF3 | 1.016362 | 0.064221 |
| UBE2V2 | 1.016364 | 0.19528 |
| ADD3 | 1.01639 | 0.598899 |
| PHACTR2 | 1.016397 | 0.458689 |
| PGGHG | 1.016477 | 0.344036 |
| CDADC1 | 1.016526 | 0.872957 |
| GNA12 | 1.016593 | 0.154771 |
| GMPR2 | 1.016631 | 0.158332 |
| TXN2 | 1.016654 | 0.138801 |
| PGM5 | 1.016855 | 0.760597 |
| TBCE | 1.016879 | 0.136787 |
| NEK7 | 1.016948 | 0.096265 |
| FKBP8 | 1.016959 | 0.055931 |
| FBXO44 | 1.016986 | 0.062913 |
| PLCG2 | 1.016988 | 0.062627 |
| COPS8 | 1.017034 | 0.10208 |
| NA | 1.017056 | 0.073539 |
| EMC3 | 1.017074 | 0.144947 |

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|---|---|---|
| SPCS2 | 1.017093 | 0.083711 |
| TLE3 | 1.017242 | 0.15446 |
| ATXN2 | 1.017293 | 0.1816 |
| GOLGA5 | 1.017361 | 0.008573 |
| CUL4A | 1.01744 | 0.94678 |
| BBS4 | 1.017459 | 0.59899 |
| LDAF1 | 1.017523 | 0.146553 |
| TARBP2 | 1.017563 | 0.037446 |
| RCE1 | 1.017575 | 0.36891 |
| GLB1 | 1.017823 | 0.199885 |
| PES1 | 1.017875 | 0.729625 |
| SLC30A5 | 1.01798 | 0.289451 |
| SORBS1 | 1.018079 | 0.197298 |
| ARHGEF37 | 1.018234 | 0.382544 |
| MFSD11 | 1.01825 | 0.169129 |
| ABCC1 | 1.018276 | 0.214798 |
| RTN3 | 1.018346 | 0.178592 |
| CAMSAP1 | 1.018422 | 0.181993 |
| SETD5 | 1.018457 | 0.816646 |
| PDP2 | 1.018519 | 0.243359 |
| C10orf88 | 1.018589 | 0.018999 |
| IRF3 | 1.018592 | 0.04738 |
| CLCC1 | 1.018819 | 0.140146 |
| EOGT | 1.018861 | 0.203723 |
| IKZF2 | 1.018897 | 0.237882 |
| KIF13B | 1.018916 | 0.85013 |
| KCTD20 | 1.019097 | 0.255026 |
| GZMB | 1.019101 | 0.637338 |

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|---|---|---|
| MACIR | 1.019155 | 0.141116 |
| C21orf91 | 1.019419 | 0.064054 |
| LYPLAL1 | 1.019432 | 0.116701 |
| EVL | 1.019448 | 0.983745 |
| KPRP | 1.019645 | 0.070954 |
| AAGAB | 1.019647 | 0.006531 |
| ABHD5 | 1.01996 | 0.273718 |
| AIFM1 | 1.020001 | 0.110201 |
| EIF5A | 1.020017 | 0.020951 |
| TMEM17 | 1.020031 | 0.235808 |
| CLEC11A | 1.020055 | 0.123595 |
| RIN2 | 1.020101 | 0.938408 |
| HSPG2 | 1.020291 | 0.208498 |
| SLC2A8 | 1.020316 | 0.362717 |
| NHSL2 | 1.020334 | 0.365401 |
| MDP1 | 1.020345 | 0.205871 |
| TUBB3 | 1.020522 | 0.283926 |
| ZC3H13 | 1.02072 | 0.868398 |
| C1QA | 1.020846 | 0.265649 |
| UBL5 | 1.020876 | 0.100165 |
| SRA1 | 1.020911 | 0.042262 |
| RAB39B | 1.020991 | 0.125783 |
| SDF2L1 | 1.021132 | 0.078064 |
| MVP | 1.021169 | 0.224657 |
| RETREG1 | 1.021296 | 0.908939 |
| SMOX | 1.021468 | 0.296488 |
| CORO6 | 1.021491 | 0.674074 |
| BLMH | 1.021494 | 0.139168 |

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|---|---|---|
| MINPP1 | 1.021637 | 0.285647 |
| GAPDH | 1.02168 | 0.241398 |
| DDO | 1.021687 | 0.304033 |
| IGLV6-57 | 1.02181 | 0.169147 |
| TAP1 | 1.021854 | 0.341704 |
| SMPD4 | 1.021862 | 0.125089 |
| CCN1 | 1.021906 | 0.012473 |
| LZTR1 | 1.0221 | 0.030725 |
| STARD3NL | 1.022159 | 0.147754 |
| MTMR10 | 1.022195 | 0.081472 |
| IFITM2 | 1.022251 | 0.160571 |
| C6orf47 | 1.022334 | 0.390728 |
| SEC22B | 1.022352 | 0.031149 |
| COX18 | 1.022616 | 0.824917 |
| CENPJ | 1.022936 | 0.705876 |
| ECHDC3 | 1.023007 | 0.033131 |
| TRIP12 | 1.023015 | 0.081524 |
| TRAM1 | 1.023051 | 0.141516 |
| ZSWIM8 | 1.023304 | 0.084885 |
| CUX1 | 1.023434 | 0.105958 |
| IKBKG | 1.023516 | 0.14325 |
| MT-ATP8 | 1.023713 | 0.348898 |
| APH1B | 1.023746 | 0.76408 |
| PCBD2 | 1.023818 | 0.173847 |
| ARHGAP1 | 1.023914 | 0.146917 |
| OXR1 | 1.02392 | 0.71674 |
| CRBN | 1.024094 | 0.106778 |
| SNAPC3 | 1.024253 | 0.01235 |

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|---|---|---|
| RAB5B | 1.024276 | 0.143133 |
| GLA | 1.024326 | 0.191257 |
| TUBB4B | 1.024422 | 0.273298 |
| PIP5K1A | 1.024697 | 0.038723 |
| TMED3 | 1.02473 | 0.137898 |
| CEP290 | 1.025001 | 0.039412 |
| CCDC47 | 1.025006 | 0.057019 |
| NINL | 1.025016 | 0.633981 |
| PLSCR1 | 1.0251 | 0.122669 |
| COPZ1 | 1.025133 | 0.01424 |
| TMPPE | 1.025137 | 0.296609 |
| RHOQ | 1.025225 | 0.135693 |
| ABCB10 | 1.025332 | 0.47546 |
| FAM120B | 1.025435 | 0.062997 |
| IL17RA | 1.025437 | 0.074329 |
| KIF1C | 1.025517 | 0.118595 |
| ARHGAP23 | 1.025557 | 0.169893 |
| DNAJC16 | 1.025745 | 0.14841 |
| SPECC1L | 1.025775 | 0.067796 |
| JUP | 1.026291 | 0.006619 |
| GSTM2 | 1.0264 | 0.109599 |
| NIPSNAP3B | 1.026512 | 0.321048 |
| PLA2G4C | 1.026516 | 0.235212 |
| PRKD2 | 1.026518 | 0.228371 |
| PFN2 | 1.026526 | 0.245622 |
| RER1 | 1.026611 | 0.133028 |
| RCN3 | 1.026613 | 0.050286 |
| SPATA2L | 1.026934 | 0.147515 |

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|---|---|---|
| ETFB | 1.026965 | 0.090214 |
| CHKB | 1.02717 | 0.089644 |
| YIF1B | 1.027342 | 0.193411 |
| PEX11G | 1.027381 | 0.19514 |
| TECPR2 | 1.027417 | 0.0779 |
| VPS41 | 1.02765 | 0.137645 |
| EIF4E | 1.027667 | 0.040591 |
| EEF1D | 1.027699 | 0.193481 |
| PFDN5 | 1.027764 | 0.136163 |
| C19orf25 | 1.02795 | 0.366413 |
| SLC66A2 | 1.028028 | 0.129968 |
| CHMP3 | 1.028247 | 0.373241 |
| ZNF292 | 1.028427 | 0.785675 |
| BSDC1 | 1.028551 | 0.224457 |
| PTRHD1 | 1.028604 | 0.013569 |
| TMEM41B | 1.02862 | 0.118702 |
| PIK3C2A | 1.028638 | 0.009364 |
| GABARAPL2 | 1.028882 | 0.254624 |
| RABEP1 | 1.028941 | 0.176828 |
| ATRN | 1.029095 | 0.292998 |
| ACO2 | 1.029279 | 0.12954 |
| CCDC50 | 1.029356 | 0.181059 |
| PLEKHG2 | 1.029375 | 0.068007 |
| C12orf73 | 1.02947 | 0.867302 |
| MMUT | 1.029533 | 0.190264 |
| PRKAB1 | 1.029683 | 0.115905 |
| TMED1 | 1.029729 | 0.133688 |
| GPT | 1.029745 | 0.175052 |

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|---|---|---|
| UBR1 | 1.029756 | 0.178618 |
| OLR1 | 1.029789 | 0.173564 |
| KXD1 | 1.029798 | 0.142791 |
| ISG20 | 1.029802 | 0.723088 |
| PPP1R13L | 1.02985 | 0.305463 |
| NF2 | 1.030186 | 0.015951 |
| IL10RB | 1.030311 | 0.069002 |
| LCMT1 | 1.030386 | 0.029696 |
| ATP6V1B2 | 1.030684 | 0.12168 |
| SH3BGRL | 1.030863 | 0.030126 |
| CTTNBP2NL | 1.030949 | 0.180369 |
| ALAD | 1.030965 | 0.171483 |
| TBL1X | 1.03102 | 0.036657 |
| ORAI2 | 1.031029 | 0.375066 |
| SLC66A1 | 1.031029 | 0.728371 |
| ALG11 | 1.031201 | 0.098075 |
| FEZ2 | 1.031274 | 0.747046 |
| HRC | 1.031291 | 0.226502 |
| ATP6V0D1 | 1.031349 | 0.088007 |
| GYPA | 1.031497 | 0.13169 |
| LRRC75A | 1.031641 | 0.259095 |
| FASTKD5 | 1.031683 | 0.228945 |
| HGS | 1.031738 | 0.08025 |
| RPL37 | 1.031758 | 0.911593 |
| BAG6 | 1.031961 | 0.029157 |
| CCDC69 | 1.032136 | 0.088996 |
| C1orf50 | 1.032144 | 0.238213 |
| SFXN1 | 1.032295 | 0.156061 |

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|---|---|---|
| PELI1 | 1.03245 | 0.035389 |
| ARL1 | 1.032748 | 0.163839 |
| GOSR2 | 1.032897 | 0.241047 |
| NGRN | 1.032906 | 0.543791 |
| RWDD2B | 1.032967 | 0.127824 |
| TAPBP | 1.033244 | 0.019975 |
| UBA52 | 1.033315 | 0.942887 |
| PRR11 | 1.033582 | 0.265867 |
| DDHD2 | 1.033653 | 0.028984 |
| CBFB | 1.033755 | 0.096336 |
| CASD1 | 1.033779 | 0.226448 |
| ANKIB1 | 1.033794 | 0.038188 |
| IDH2 | 1.033845 | 0.083012 |
| SNTB2 | 1.033903 | 0.118245 |
| FOXO3 | 1.034091 | 0.35872 |
| DENND4C | 1.034202 | 0.060351 |
| AHCYL1 | 1.034287 | 0.038453 |
| BCKDK | 1.034354 | 0.197996 |
| PNPO | 1.034422 | 0.032612 |
| NCKAP1L | 1.034428 | 0.24099 |
| STK10 | 1.034436 | 0.027595 |
| TAPT1 | 1.034633 | 0.110274 |
| LNPK | 1.034698 | 0.098653 |
| IGF1R | 1.034759 | 0.161847 |
| USP14 | 1.034798 | 0.104683 |
| DRG2 | 1.03485 | 0.06445 |
| UNC45A | 1.034927 | 0.227987 |
| MIB1 | 1.035131 | 0.037879 |

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| ULK3 | 1.035162 | 0.102527 |
| ITFG1 | 1.035162 | 0.164572 |
| ASAH1 | 1.035246 | 0.218306 |
| DYNLL1 | 1.035392 | 0.047579 |
| PPP1R11 | 1.035479 | 0.226865 |
| RWDD3 | 1.035546 | 0.007331 |
| AKR1B1 | 1.035567 | 0.109069 |
| LMNA | 1.035595 | 0.150759 |
| THAP3 | 1.035616 | 0.701682 |
| HIKESHI | 1.035734 | 0.080082 |
| SNX8 | 1.035934 | 0.338117 |
| KIF1B | 1.036148 | 0.109171 |
| CEBPE | 1.036275 | 0.389325 |
| STARD3 | 1.036355 | 0.051837 |
| QDPR | 1.036387 | 0.051637 |
| NTAN1 | 1.036463 | 0.018882 |
| ANK3 | 1.036502 | 0.341854 |
| TRAPPC9 | 1.036539 | 0.103552 |
| VPS54 | 1.036556 | 0.138212 |
| BRAP | 1.03674 | 0.013864 |
| PPIA | 1.036766 | 0.063285 |
| CCT2 | 1.036788 | 0.079546 |
| RELT | 1.036889 | 0.493345 |
| TOMM6 | 1.036924 | 0.820744 |
| MASP1 | 1.036994 | 0.128291 |
| NOS1AP | 1.037017 | 0.113865 |
| ARF6 | 1.03704 | 0.039135 |
| ADAT3 | 1.037086 | 0.163814 |

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| STARD8 | 1.037384 | 0.524673 |
| ZNF852 | 1.037402 | 0.116727 |
| SERPINA1 | 1.037407 | 0.626873 |
| IGKV1-17 | 1.037425 | 0.733343 |
| PDK1 | 1.037585 | 0.212501 |
| CCT8 | 1.037594 | 0.118983 |
| PTPN7 | 1.037614 | 0.072199 |
| FXN | 1.037708 | 0.04899 |
| SIGLEC10 | 1.03771 | 0.082996 |
| NIT1 | 1.037864 | 0.063257 |
| PFDN6 | 1.037871 | 0.113456 |
| KLHL2 | 1.038024 | 0.012521 |
| GPRIN3 | 1.038114 | 0.250202 |
| F8A2 | 1.038199 | 0.093146 |
| ZNF335 | 1.038226 | 0.683566 |
| CEP164 | 1.038227 | 0.679932 |
| HEATR5A | 1.038286 | 0.262506 |
| CYLD | 1.038507 | 0.047373 |
| LLGL2 | 1.038765 | 0.138926 |
| CERS5 | 1.038807 | 0.574088 |
| AMOT | 1.038915 | 0.037252 |
| CD247 | 1.039165 | 0.84848 |
| KATNBL1 | 1.039239 | 0.023186 |
| ACHE | 1.03924 | 0.755668 |
| ANKLE1 | 1.039349 | 0.226186 |
| KLC2 | 1.039392 | 0.078596 |
| GMPPA | 1.039536 | 0.072648 |
| QSER1 | 1.039731 | 0.920307 |

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| TRAPPC3 | 1.03986 | 0.063656 |
| VBP1 | 1.039931 | 0.066401 |
| CD96 | 1.040121 | 0.125991 |
| ITPR2 | 1.04022 | 0.271155 |
| FPR1 | 1.040449 | 0.673263 |
| FAM20B | 1.040454 | 0.008916 |
| ARL6 | 1.040501 | 0.023584 |
| RAB2A | 1.040527 | 0.147784 |
| HSPA8 | 1.040558 | 0.28567 |
| ZBTB2 | 1.040649 | 0.823987 |
| IGLV1-51 | 1.040845 | 0.656144 |
| B3GNT2 | 1.040995 | 0.05124 |
| SHOC2 | 1.041085 | 0.075389 |
| GMFB | 1.041096 | 0.042865 |
| NAP1L4 | 1.041403 | 0.111712 |
| ALPL | 1.04141 | 0.360833 |
| PACSIN1 | 1.041412 | 0.161874 |
| LIAS | 1.041549 | 0.047584 |
| BNIP3L | 1.041561 | 0.406578 |
| THAP9 | 1.041563 | 0.857837 |
| ATP6V1E1 | 1.041701 | 0.071884 |
| NDOR1 | 1.041753 | 0.154693 |
| CDC37 | 1.041758 | 0.169415 |
| PFKFB4 | 1.041888 | 0.10963 |
| C2orf69 | 1.041893 | 0.018925 |
| PALS1 | 1.04217 | 0.075575 |
| LAP3 | 1.042222 | 0.199953 |
| RAB31 | 1.042259 | 0.197074 |

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| TNRC6B | 1.042295 | 0.199302 |
| LY75 | 1.042382 | 0.153721 |
| CYTH1 | 1.042462 | 0.206422 |
| CCDC115 | 1.04251 | 0.013978 |
| MAPK3 | 1.042608 | 0.026565 |
| UBL4A | 1.042621 | 0.104412 |
| BTN2A1 | 1.042927 | 0.045514 |
| FTSJ1 | 1.043038 | 0.56726 |
| EVA1B | 1.043314 | 0.525831 |
| NDUFV3 | 1.043642 | 0.094441 |
| TPST1 | 1.043662 | 0.109188 |
| MSRA | 1.043703 | 0.091027 |
| CNN3 | 1.043837 | 0.727769 |
| POMGNT2 | 1.04398 | 0.088763 |
| RAB3GAP2 | 1.044417 | 0.075667 |
| ACBD3 | 1.044506 | 0.137865 |
| GNPNAT1 | 1.044812 | 0.172916 |
| NA | 1.044892 | 0.588972 |
| PPA2 | 1.045151 | 0.45678 |
| GLRX5 | 1.045189 | 0.052543 |
| GOLT1B | 1.045327 | 0.116756 |
| ALG5 | 1.045756 | 0.040461 |
| OXR1 | 1.046176 | 0.095668 |
| STAT4 | 1.046177 | 0.744918 |
| SYNJ1 | 1.046201 | 0.032901 |
| TPP2 | 1.046244 | 0.151262 |
| NAAA | 1.046319 | 0.543191 |
| GRPEL2 | 1.046323 | 0.470813 |

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| TMX3 | 1.046543 | 0.055357 |
| MPRIP | 1.046579 | 0.516217 |
| GSDMA | 1.046597 | 0.74465 |
| RNF34 | 1.046779 | 0.179026 |
| SMS | 1.046819 | 0.027184 |
| CUTA | 1.046885 | 0.059728 |
| PDE6D | 1.047035 | 0.041249 |
| RAB17 | 1.04705 | 0.634291 |
| TPD52L2 | 1.047114 | 0.310685 |
| ARL8B | 1.047155 | 0.031226 |
| CDR2 | 1.047328 | 0.860383 |
| GNAS | 1.047341 | 0.056068 |
| ZNF521 | 1.04743 | 0.799526 |
| AKR7A3 | 1.047472 | 0.050891 |
| ATP6V1F | 1.047758 | 0.033822 |
| GIT1 | 1.047822 | 0.099827 |
| FHIP2B | 1.047907 | 0.046008 |
| NA | 1.047949 | 0.501796 |
| SZRD1 | 1.048036 | 0.383416 |
| PCYT2 | 1.048063 | 0.074505 |
| CCNY | 1.048406 | 0.261485 |
| CD82 | 1.048425 | 0.08227 |
| GUK1 | 1.048446 | 0.018978 |
| STX8 | 1.048457 | 0.015303 |
| DHRS7B | 1.048486 | 0.270029 |
| ECH1 | 1.048552 | 0.093045 |
| CCT5 | 1.0487 | 0.050674 |
| SLC35A5 | 1.048863 | 0.071388 |

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| ANAPC7 | 1.048935 | 0.273538 |
| TFAP4 | 1.049081 | 0.256709 |
| TCAF1 | 1.0492 | 0.0228 |
| UBQLN1 | 1.049541 | 0.070416 |
| LRCH1 | 1.049725 | 0.069536 |
| SP4 | 1.049819 | 0.075301 |
| UROD | 1.049894 | 0.223897 |
| LACTB2 | 1.050047 | 0.1619 |
| FTH1 | 1.050116 | 0.024663 |
| MRPL55 | 1.050134 | 0.050958 |
| GATD1 | 1.050212 | 0.085661 |
| SHMT1 | 1.050259 | 0.135702 |
| WNK1 | 1.050345 | 0.05718 |
| TBCA | 1.050347 | 0.028105 |
| WFS1 | 1.050348 | 0.781754 |
| KDM5C | 1.050453 | 0.156503 |
| AP1S1 | 1.05049 | 0.058326 |
| ST3GAL2 | 1.050635 | 0.203445 |
| YWHAB | 1.050648 | 0.067648 |
| DNAL1 | 1.05065 | 0.046976 |
| PDP1 | 1.050654 | 0.094764 |
| GPD1L | 1.050699 | 0.030597 |
| RWDD1 | 1.050944 | 0.078052 |
| CROCC | 1.050994 | 0.00624 |
| TACO1 | 1.051038 | 0.030984 |
| KLC1 | 1.051153 | 0.552321 |
| ATP6V0D2 | 1.05138 | 0.185545 |
| IGHA1 | 1.051434 | 0.449846 |

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| PANK2 | 1.051463 | 0.133891 |
| CMC4 | 1.051495 | 0.790911 |
| CANT1 | 1.051513 | 0.061555 |
| UBXN6 | 1.051662 | 0.160389 |
| PLS1 | 1.05178 | 0.068414 |
| GOSR2 | 1.051894 | 0.099337 |
| USP31 | 1.051898 | 0.219377 |
| PHKA1 | 1.052091 | 0.30771 |
| RABGGTB | 1.052093 | 0.009979 |
| NCOA7 | 1.052503 | 0.22045 |
| SUOX | 1.052843 | 0.221551 |
| VDR | 1.053083 | 0.864081 |
| DYNC2H1 | 1.053237 | 0.392291 |
| TBC1D4 | 1.053314 | 0.104105 |
| CTNNB1 | 1.053528 | 0.293016 |
| P3H1 | 1.053545 | 0.170122 |
| P4HB | 1.05384 | 0.204145 |
| LAMTOR3 | 1.053903 | 0.089832 |
| CGRRF1 | 1.053955 | 0.829381 |
| FAM104A | 1.054295 | 0.660967 |
| REN | 1.054323 | 0.605345 |
| VEZT | 1.054398 | 0.019426 |
| FBXO3 | 1.05442 | 0.017809 |
| AFDN | 1.054509 | 0.254064 |
| LMAN1 | 1.054562 | 0.04351 |
| ALCAM | 1.054581 | 0.260224 |
| STX10 | 1.054656 | 0.0031 |
| CDKN1B | 1.055001 | 0.524618 |

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| NAGPA | 1.055035 | 0.010221 |
| HARS1 | 1.055215 | 0.054365 |
| FBXL20 | 1.055243 | 0.123374 |
| EIF2B1 | 1.055269 | 0.035246 |
| ZNF395 | 1.055365 | 0.032393 |
| LRG1 | 1.055443 | 0.193368 |
| OTUD5 | 1.055632 | 0.031815 |
| LAX1 | 1.05581 | 0.574035 |
| UGGT1 | 1.055994 | 0.017163 |
| TJAP1 | 1.056029 | 0.037713 |
| ABHD13 | 1.056263 | 0.095954 |
| RILP | 1.056406 | 0.137007 |
| ZNF526 | 1.056457 | 0.911783 |
| SLK | 1.056619 | 0.673879 |
| PHAF1 | 1.056622 | 0.068709 |
| BARD1 | 1.056653 | 0.589966 |
| ITSN1 | 1.056717 | 0.215722 |
| PAIP1 | 1.05679 | 0.097535 |
| ISCA1 | 1.056852 | 0.187469 |
| SUMF1 | 1.056922 | 0.051281 |
| MTHFS | 1.057007 | 0.05984 |
| RBSN | 1.057107 | 0.019241 |
| AMDHD2 | 1.057145 | 0.050989 |
| PRR5L | 1.057158 | 0.15323 |
| MITD1 | 1.057313 | 0.036543 |
| DMPK | 1.057395 | 0.657809 |
| HOOK1 | 1.057447 | 0.530595 |
| DPEP1 | 1.057466 | 0.57183 |

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| LILRB1 | 1.057589 | 0.204065 |
| MFGE8 | 1.057683 | 0.741434 |
| GBP4 | 1.058334 | 0.085206 |
| DNAJB6 | 1.058434 | 0.968664 |
| HP | 1.058463 | 0.202844 |
| TP53I3 | 1.058515 | 0.179283 |
| UBA5 | 1.058717 | 0.210629 |
| MTX3 | 1.058913 | 0.752914 |
| EFR3A | 1.059037 | 0.089953 |
| DNAJB11 | 1.059147 | 0.030689 |
| RAB33B | 1.059163 | 0.013265 |
| ARPP19 | 1.059166 | 0.202545 |
| CDC42EP4 | 1.059328 | 0.369368 |
| EIF5AL1 | 1.059348 | 0.655948 |
| NRAS | 1.05943 | 0.209156 |
| EEA1 | 1.059487 | 0.185889 |
| FAM83D | 1.05957 | 0.107678 |
| BET1 | 1.059604 | 0.171729 |
| FDXR | 1.059678 | 0.432795 |
| SH3GLB2 | 1.059723 | 0.057923 |
| ACTR1B | 1.059745 | 0.023865 |
| KIDINS220 | 1.059896 | 0.089522 |
| IGKV1-5 | 1.059953 | 0.2518 |
| CACNA1F | 1.059965 | 0.758497 |
| JOSD1 | 1.060074 | 0.000887 |
| PDIA4 | 1.060075 | 0.213313 |
| CABLES1 | 1.060424 | 0.145087 |
| MITF | 1.060609 | 0.150468 |

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| RABL6 | 1.060706 | 0.089514 |
| STK17A | 1.06072 | 0.182251 |
| SMIM15 | 1.060794 | 0.124113 |
| DECR1 | 1.061147 | 0.002805 |
| GSTM4 | 1.061203 | 0.130869 |
| LIPT2 | 1.061204 | 0.086453 |
| OSBP | 1.061275 | 0.031157 |
| CHM | 1.061288 | 0.019664 |
| BPIFA1 | 1.061363 | 0.146849 |
| APBA2 | 1.061643 | 0.117182 |
| TSC22D1 | 1.061663 | 0.979929 |
| WDR11 | 1.061727 | 0.080185 |
| CCDC171 | 1.061842 | 0.363734 |
| CPEB4 | 1.061859 | 0.200589 |
| TUBB2A | 1.061886 | 0.237035 |
| SH3BP5L | 1.062058 | 0.16628 |
| SPPL2A | 1.062335 | 0.704685 |
| SERPING1 | 1.062435 | 0.162058 |
| PTK2B | 1.062526 | 0.451381 |
| KTN1 | 1.062567 | 0.121287 |
| COL6A2 | 1.062729 | 0.587091 |
| CCDC91 | 1.062893 | 0.102262 |
| DCUN1D1 | 1.06295 | 0.084557 |
| COPE | 1.062964 | 0.00309 |
| IRGQ | 1.063056 | 0.015857 |
| ANK1 | 1.063106 | 0.806169 |
| PRX | 1.063365 | 0.92614 |
| UPRT | 1.063443 | 0.017878 |

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| GAB1 | 1.063581 | 0.240291 |
| TMED9 | 1.063695 | 0.049992 |
| RILPL2 | 1.063695 | 0.053405 |
| BORCS7-ASMT | 1.063881 | 0.016983 |
| FLOT1 | 1.064176 | 0.08074 |
| HSPB11 | 1.064454 | 0.004026 |
| LRRC32 | 1.064566 | 0.113406 |
| DMAC1 | 1.064651 | 0.147678 |
| PDCD2L | 1.065027 | 0.089069 |
| BCAP29 | 1.06511 | 0.553879 |
| TRIM5 | 1.065133 | 0.084373 |
| NSFL1C | 1.065167 | 0.107284 |
| PAAF1 | 1.065353 | 0.147498 |
| PEG3 | 1.065771 | 0.414346 |
| EEF1G | 1.065802 | 0.068463 |
| NUMBL | 1.065957 | 0.125773 |
| ATP6AP1 | 1.065978 | 0.030787 |
| EXOG | 1.065984 | 0.027873 |
| LMBRD2 | 1.066057 | 0.069376 |
| CARS1 | 1.066181 | 0.049761 |
| UBTD1 | 1.066203 | 0.831509 |
| PFDN1 | 1.06647 | 0.041876 |
| VAMP2 | 1.066679 | 0.210053 |
| LPIN2 | 1.06668 | 0.1577 |
| FLOT2 | 1.066684 | 0.071761 |
| UBB | 1.066887 | 0.470752 |
| HBB | 1.066888 | 0.647602 |
| CSPG4 | 1.066903 | 0.476828 |

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| BIK | 1.067038 | 0.747006 |
| SEMA7A | 1.067211 | 0.134071 |
| CENPT | 1.067244 | 0.449401 |
| VCAN | 1.067335 | 0.318073 |
| KLHL5 | 1.067389 | 0.038994 |
| SBNO1 | 1.06764 | 0.560855 |
| AGPAT4 | 1.067876 | 0.051716 |
| MTMR9 | 1.068171 | 0.002424 |
| GSS | 1.068204 | 0.067879 |
| PITPNB | 1.068356 | 0.115112 |
| DECR2 | 1.068747 | 0.129808 |
| CETN2 | 1.068757 | 0.061531 |
| SEPTIN1 | 1.06876 | 0.752455 |
| RGL2 | 1.068868 | 0.023479 |
| DYNLL2 | 1.06926 | 0.025238 |
| MAP2K6 | 1.069268 | 0.037518 |
| PVR | 1.069352 | 0.162803 |
| NFATC1 | 1.069395 | 0.054398 |
| CCDC9 | 1.069473 | 0.030888 |
| ARHGDIB | 1.069715 | 0.211235 |
| MPIG6B | 1.069725 | 0.156638 |
| TMED2 | 1.070001 | 0.07068 |
| TGOLN2 | 1.070004 | 0.063431 |
| ZBED4 | 1.070118 | 0.587687 |
| IMMT | 1.070206 | 0.189594 |
| TM9SF4 | 1.070331 | 0.021856 |
| GOLGA4 | 1.070498 | 0.049824 |
| CYB5A | 1.070504 | 0.056192 |

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| ARL5A | 1.070542 | 0.044644 |
| STK4 | 1.070566 | 0.043275 |
| TMSB10 | 1.070649 | 0.191934 |
| CNNM4 | 1.070893 | 0.062332 |
| GZMM | 1.070932 | 0.946916 |
| MTSS2 | 1.071023 | 0.192339 |
| TSSK4 | 1.071054 | 0.826371 |
| METTL26 | 1.07106 | 0.068744 |
| PLCG1 | 1.071139 | 0.358329 |
| TMEM9B | 1.071346 | 0.161272 |
| ARL3 | 1.071412 | 0.044519 |
| KIAA1191 | 1.071448 | 0.153294 |
| ACTR3B | 1.07154 | 0.003209 |
| PFKFB2 | 1.07167 | 0.050301 |
| TBC1D25 | 1.07174 | 0.053738 |
| ITSN2 | 1.071744 | 0.022869 |
| TNFRSF13C | 1.071797 | 0.790196 |
| KIF3B | 1.071876 | 0.068898 |
| DNAJB6 | 1.071981 | 0.150992 |
| GBP2 | 1.072345 | 0.490631 |
| RAB22A | 1.072394 | 0.058857 |
| PRKCD | 1.072536 | 0.125344 |
| RAB3A | 1.072581 | 0.108994 |
| ADCY3 | 1.072759 | 0.03941 |
| UHRF1BP1 | 1.072888 | 0.063095 |
| RFFL | 1.073056 | 0.009976 |
| KMT2E | 1.073081 | 0.119908 |
| TBCEL | 1.073183 | 0.05211 |

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| FAXDC2 | 1.073244 | 0.669768 |
| TMX4 | 1.073346 | 0.029129 |
| MLXIP | 1.073365 | 0.139606 |
| METTL6 | 1.073393 | 0.041125 |
| SNX11 | 1.073581 | 0.045833 |
| POLH | 1.073886 | 0.059803 |
| GOLPH3L | 1.074003 | 0.017403 |
| HS2ST1 | 1.074059 | 0.061703 |
| ACSL6 | 1.074131 | 0.502549 |
| IDS | 1.074141 | 0.648624 |
| NCOA7 | 1.074187 | 0.214548 |
| SAC3D1 | 1.074188 | 0.008417 |
| SHC1 | 1.074202 | 0.025774 |
| INPP5K | 1.074203 | 0.030785 |
| ATP2A3 | 1.074318 | 0.073296 |
| WASHC1 | 1.074367 | 0.019799 |
| ARPC5L | 1.075181 | 0.155088 |
| LRRC7 | 1.075259 | 0.026052 |
| RABIF | 1.075349 | 0.003744 |
| BCAS3 | 1.07555 | 0.068149 |
| NQO2 | 1.075704 | 0.14152 |
| RPS6KC1 | 1.075725 | 0.058099 |
| SERINC3 | 1.075785 | 0.159765 |
| DCUN1D3 | 1.07602 | 0.045983 |
| MRRF | 1.076056 | 0.095768 |
| DENND6A | 1.076115 | 0.036898 |
| RAB5C | 1.076435 | 0.019487 |
| PHETA1 | 1.076561 | 0.07893 |

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| C15orf40 | 1.076708 | 0.036662 |
| IGHV2-70D | 1.077011 | 0.201942 |
| EMC8 | 1.077079 | 0.02717 |
| CADM1 | 1.077119 | 0.432026 |
| ASRGL1 | 1.077225 | 0.098616 |
| ADGRG6 | 1.077386 | 0.688158 |
| HACD4 | 1.077402 | 0.204577 |
| GCC1 | 1.077712 | 0.026804 |
| CTSW | 1.077828 | 0.061441 |
| SHPK | 1.077995 | 0.014685 |
| OVCA2 | 1.078934 | 0.010339 |
| METAP1 | 1.079236 | 0.003386 |
| SRI | 1.079754 | 0.000694 |
| TSC22D2 | 1.079817 | 0.213586 |
| CHAC2 | 1.079917 | 0.098073 |
| PRELID3A | 1.080057 | 0.811855 |
| PTPN11 | 1.080119 | 0.009528 |
| COLEC11 | 1.080172 | 0.27034 |
| STIMATE | 1.080271 | 0.496221 |
| RLIM | 1.080377 | 0.097256 |
| MKNK1 | 1.080633 | 0.073074 |
| LDLR | 1.080842 | 0.186495 |
| SLC25A4 | 1.080963 | 0.078519 |
| SERPINB6 | 1.081196 | 0.033721 |
| TUBB4A | 1.081214 | 0.712836 |
| YARS1 | 1.081387 | 0.05849 |
| CEP152 | 1.0814 | 0.005586 |
| SLC39A3 | 1.081445 | 0.114659 |

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| IMPDH1 | 1.081583 | 0.13689 |
| ERP44 | 1.081651 | 0.030041 |
| DCTN5 | 1.081877 | 0.023208 |
| RILPL1 | 1.081914 | 0.06559 |
| CTNNA2 | 1.081965 | 0.621837 |
| ENG | 1.082767 | 0.126069 |
| PPCS | 1.082942 | 0.024928 |
| CDC37L1 | 1.082959 | 0.058501 |
| ZNF219 | 1.083003 | 0.657787 |
| TCHP | 1.083055 | 0.525495 |
| UBE2W | 1.083217 | 0.022067 |
| TRAPPC6B | 1.083456 | 0.011843 |
| PDK2 | 1.083466 | 0.025477 |
| TMEM102 | 1.083601 | 0.070456 |
| GNAI2 | 1.083627 | 0.02114 |
| GBP1 | 1.083645 | 0.57294 |
| COMP | 1.083736 | 0.213177 |
| KSR1 | 1.083813 | 0.148089 |
| SDC1 | 1.084009 | 0.125526 |
| SERPINA3 | 1.084013 | 0.085804 |
| TNK2 | 1.084079 | 0.001534 |
| APBA3 | 1.084092 | 0.064053 |
| ERLEC1 | 1.084097 | 0.013707 |
| LMBRD1 | 1.084175 | 0.001296 |
| ACTL8 | 1.08427 | 0.062181 |
| NRBP1 | 1.084327 | 0.086917 |
| PML | 1.08454 | 0.751121 |
| SHTN1 | 1.084724 | 0.063693 |

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| AP4M1 | 1.084788 | 0.02456 |
| GOLM1 | 1.08497 | 0.113951 |
| HECTD4 | 1.085295 | 0.133575 |
| CYB561A3 | 1.085307 | 0.020699 |
| CLPP | 1.085408 | 0.009486 |
| AARS1 | 1.085463 | 0.014945 |
| LAMTOR5 | 1.085597 | 0.046554 |
| FAM13A | 1.085633 | 0.124008 |
| FITM2 | 1.085721 | 0.090819 |
| SH3GLB1 | 1.085725 | 0.094577 |
| MAP3K7 | 1.085727 | 0.011464 |
| CTSF | 1.085744 | 0.168289 |
| KCTD9 | 1.085939 | 0.023762 |
| SPCS1 | 1.085941 | 0.037518 |
| PCNX3 | 1.085965 | 0.009246 |
| GSK3A | 1.08601 | 0.026628 |
| HNRNPC | 1.086107 | 0.019935 |
| FAM221A | 1.086165 | 0.12186 |
| PKM | 1.086235 | 0.023013 |
| VTI1A | 1.086251 | 0.00829 |
| IGHV4-28 | 1.086405 | 0.140015 |
| RPRD2 | 1.086538 | 0.524422 |
| TNKS | 1.086699 | 0.032523 |
| GLTP | 1.086784 | 0.018598 |
| FDXACB1 | 1.086939 | 0.462298 |
| ACP5 | 1.086961 | 0.029355 |
| ATAD3B | 1.086985 | 0.645794 |
| NUCB1 | 1.087063 | 0.083277 |

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| ALAS2 | 1.087163 | 0.312008 |
| CD5L | 1.087484 | 0.281708 |
| RP2 | 1.087517 | 0.021417 |
| GGA1 | 1.087534 | 0.014357 |
| ZFYVE27 | 1.08767 | 0.065037 |
| ZNF185 | 1.0878 | 0.382322 |
| KATNAL2 | 1.087828 | 0.217448 |
| SYNE2 | 1.087854 | 0.228137 |
| PHF19 | 1.087942 | 0.820124 |
| SNX2 | 1.088132 | 0.423802 |
| MAPK14 | 1.088146 | 0.012317 |
| ATP5PF | 1.088165 | 0.035581 |
| GOLGB1 | 1.08818 | 0.01631 |
| TMED5 | 1.08839 | 0.029213 |
| SND1 | 1.088401 | 0.007091 |
| GSTT1 | 1.088449 | 0.215148 |
| ARHGDIA | 1.088624 | 0.089282 |
| PPM1M | 1.088641 | 0.023524 |
| BSCL2 | 1.08868 | 0.00195 |
| MIEN1 | 1.08895 | 0.073307 |
| UNC119 | 1.088975 | 0.023191 |
| CASKIN2 | 1.089131 | 0.090711 |
| USP28 | 1.089188 | 0.062743 |
| KRT23 | 1.089296 | 0.080962 |
| YIPF1 | 1.089438 | 0.009922 |
| RUFY1 | 1.089472 | 0.070146 |
| CAMK2G | 1.089496 | 0.043917 |
| ARFGAP2 | 1.089578 | 0.262856 |

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| GNLY | 1.089786 | 0.79201 |
| E4F1 | 1.090008 | 0.099319 |
| HMGCL | 1.090257 | 0.072859 |
| UCHL1 | 1.090385 | 0.03129 |
| RTL8C | 1.090442 | 0.346672 |
| OLA1 | 1.090503 | 0.037515 |
| CDR2L | 1.090756 | 0.059686 |
| BCAM | 1.090767 | 0.320062 |
| IGHV3-7 | 1.090831 | 0.091935 |
| MPIG6B | 1.090849 | 0.148384 |
| PLEKHF1 | 1.090984 | 0.327796 |
| CCNY | 1.091174 | 0.655748 |
| TMEM106B | 1.091176 | 0.141635 |
| CRACR2A | 1.091199 | 0.05678 |
| TMED10 | 1.09124 | 0.021686 |
| UBXN2A | 1.091408 | 0.09133 |
| TWNK | 1.091422 | 0.399626 |
| RAB3GAP1 | 1.091426 | 0.016314 |
| BPNT2 | 1.091579 | 0.018815 |
| BMP1 | 1.091581 | 0.071475 |
| NUDT3 | 1.091658 | 0.191408 |
| AKAP7 | 1.091773 | 0.007716 |
| RASGRP3 | 1.092023 | 0.022767 |
| GPCPD1 | 1.092343 | 0.010538 |
| NAGLU | 1.092502 | 0.116046 |
| ATP6V1A | 1.092617 | 0.006629 |
| VASN | 1.092624 | 0.009328 |
| MTRF1L | 1.09274 | 0.019146 |

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| CTSO | 1.09276 | 0.43302 |
| TXNDC9 | 1.093044 | 0.008941 |
| SECTM1 | 1.09306 | 0.037713 |
| PC | 1.093387 | 0.079578 |
| OXER1 | 1.093415 | 0.930303 |
| HAGH | 1.09351 | 0.148735 |
| EMC6 | 1.093638 | 0.014695 |
| CCND3 | 1.09368 | 0.102956 |
| ERMAP | 1.093702 | 0.164575 |
| C5orf51 | 1.093705 | 0.002283 |
| VPS26B | 1.093742 | 0.006236 |
| TSTD1 | 1.09401 | 0.692876 |
| ARMCX3 | 1.094101 | 0.05611 |
| FASN | 1.094266 | 0.042084 |
| NBEAL1 | 1.09434 | 0.046861 |
| GOPC | 1.094462 | 0.07655 |
| PTPN11 | 1.094511 | 0.026519 |
| SLC4A2 | 1.094798 | 0.037259 |
| TRIM3 | 1.094844 | 0.01254 |
| LDHB | 1.094851 | 0.020591 |
| STAM | 1.09487 | 0.086403 |
| CS | 1.094971 | 0.053323 |
| TAB2 | 1.095475 | 0.040064 |
| MOB1B | 1.095541 | 0.382912 |
| TBCB | 1.095568 | 0.062416 |
| DHX29 | 1.095573 | 0.064841 |
| CPT1B | 1.095689 | 0.099241 |
| ANKRD40 | 1.095722 | 0.014221 |

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|---|---|---|
| RHOBTB1 | 1.095776 | 0.068883 |
| NDRG2 | 1.095821 | 0.64441 |
| MAPKAPK2 | 1.095861 | 0.040481 |
| TMED4 | 1.095966 | 0.020559 |
| HLA-A | 1.096002 | 0.910176 |
| SNX22 | 1.096041 | 0.70359 |
| IRAK4 | 1.096155 | 0.061631 |
| SOD3 | 1.096279 | 0.191742 |
| BCAP31 | 1.096389 | 0.074158 |
| MAN2C1 | 1.096407 | 0.071758 |
| GRB10 | 1.09641 | 0.069695 |
| SLC35A4 | 1.096512 | 0.029366 |
| MAPK15 | 1.096651 | 0.406891 |
| VAMP4 | 1.0969 | 0.07797 |
| IGLV7-46 | 1.097078 | 0.087384 |
| CES1 | 1.097241 | 0.024104 |
| CRTC2 | 1.097406 | 0.036116 |
| CD28 | 1.097461 | 0.969766 |
| MST1 | 1.097704 | 0.155982 |
| KIF3A | 1.097835 | 0.005847 |
| EBAG9 | 1.097854 | 0.498593 |
| PFN2 | 1.098035 | 0.063286 |
| DOCK7 | 1.098054 | 0.030021 |
| SRGAP3 | 1.098104 | 0.032341 |
| RALGAPA1 | 1.098312 | 0.044944 |
| APOC4-APOC2 | 1.098465 | 0.063641 |
| UCHL5 | 1.098494 | 0.597594 |
| GPLD1 | 1.098501 | 0.076325 |

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|---|---|---|
| SMIM4 | 1.098631 | 0.597897 |
| SUCO | 1.098744 | 0.037643 |
| IGHV3-35 | 1.099013 | 0.415796 |
| KATNB1 | 1.099203 | 0.014802 |
| PPM1B | 1.09921 | 0.037891 |
| PEA15 | 1.099284 | 0.038502 |
| C2CD2 | 1.0996 | 0.043821 |
| ERN1 | 1.09963 | 0.038761 |
| SCGB2A1 | 1.099725 | 0.045643 |
| SLC25A25 | 1.100038 | 0.5496 |
| GCC2 | 1.100255 | 0.022596 |
| MYH10 | 1.100277 | 0.026669 |
| SNCG | 1.100321 | 0.131566 |
| SFN | 1.100355 | 0.009175 |
| EEF1A1 | 1.10044 | 0.138732 |
| ZNF646 | 1.100631 | 0.493675 |
| SFT2D2 | 1.10077 | 0.04964 |
| NFU1 | 1.101359 | 0.065972 |
| CSNK1G3 | 1.101721 | 0.09622 |
| NECTIN1 | 1.101734 | 0.135983 |
| AGPAT3 | 1.10176 | 0.110437 |
| PIP | 1.101822 | 0.044558 |
| REXO2 | 1.101878 | 0.049119 |
| USP15 | 1.101911 | 0.017242 |
| DCD | 1.102028 | 0.099136 |
| CHL1 | 1.102055 | 0.250796 |
| SCFD1 | 1.10232 | 0.006128 |
| PURA | 1.102408 | 0.028853 |

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|---|---|---|
| PDLIM2 | 1.102566 | 0.67521 |
| POGLUT2 | 1.102941 | 0.031009 |
| SRXN1 | 1.103009 | 0.231139 |
| EPDR1 | 1.10302 | 0.207931 |
| GAMT | 1.103177 | 0.136103 |
| TMEM199 | 1.10334 | 0.010361 |
| LAMTOR2 | 1.103593 | 0.028999 |
| FBXO21 | 1.103684 | 0.128633 |
| LMAN2 | 1.103733 | 0.009404 |
| APCS | 1.103917 | 0.143078 |
| MOSPD1 | 1.103925 | 0.033357 |
| STARD10 | 1.104119 | 0.154439 |
| S100A14 | 1.104221 | 0.102514 |
| IL18R1 | 1.104228 | 0.043199 |
| EMC2 | 1.104242 | 0.015647 |
| GPX1 | 1.104532 | 0.055841 |
| HYOU1 | 1.104701 | 0.045603 |
| OPA3 | 1.10474 | 0.054929 |
| RHOA | 1.104809 | 0.099166 |
| YKT6 | 1.104924 | 0.034461 |
| TBC1D10B | 1.105586 | 0.067732 |
| GSTM3 | 1.105606 | 0.204055 |
| TRBC1 | 1.106194 | 0.147527 |
| SIRPG | 1.10638 | 0.953003 |
| UTY | 1.106401 | 0.896643 |
| SLC39A11 | 1.106401 | 0.534837 |
| RAB11FIP4 | 1.106613 | 0.498032 |
| PELI2 | 1.106671 | 0.019908 |

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|---|---|---|
| CLGN | 1.106693 | 0.010438 |
| ARHGEF10 | 1.10706 | 0.05641 |
| TAX1BP3 | 1.107129 | 0.053388 |
| GPX4 | 1.107304 | 0.015509 |
| MPST | 1.107327 | 0.016437 |
| ZC2HC1A | 1.107443 | 0.105771 |
| IGF2 | 1.107447 | 0.18234 |
| DPH6 | 1.107458 | 0.023848 |
| SSH1 | 1.10757 | 0.068973 |
| MICA | 1.107606 | 0.128056 |
| AHCYL2 | 1.107754 | 0.270237 |
| STXBP3 | 1.10776 | 0.009897 |
| SLC17A5 | 1.10793 | 0.011857 |
| PHC1 | 1.108046 | 0.379663 |
| STRAP | 1.108093 | 0.003153 |
| RHOT1 | 1.108124 | 0.229801 |
| SEMA4B | 1.108211 | 0.029781 |
| TMED7-TICAM2 | 1.108528 | 0.062951 |
| STAMBP | 1.108601 | 0.031911 |
| ZFPM1 | 1.108613 | 0.054045 |
| PLEKHA3 | 1.108617 | 0.010356 |
| RAD23B | 1.108837 | 0.031947 |
| STAM2 | 1.108927 | 0.078291 |
| YWHAQ | 1.109118 | 0.016045 |
| TNFSF13 | 1.109378 | 0.025473 |
| PPP2R5A | 1.109473 | 0.014655 |
| PDIA6 | 1.109618 | 0.023265 |
| ATG14 | 1.109628 | 0.047921 |

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| APOL6 | 1.109723 | 0.842454 |
| NA | 1.109892 | 0.229858 |
| LIPA | 1.109897 | 0.175442 |
| CALR | 1.110011 | 0.877491 |
| ERC1 | 1.11014 | 0.058191 |
| C19orf12 | 1.110185 | 0.427474 |
| PGRMC2 | 1.11023 | 0.027933 |
| GPSM3 | 1.110452 | 0.086574 |
| MGAT5 | 1.110763 | 0.060803 |
| FHIP2A | 1.110866 | 0.030484 |
| LSM1 | 1.111048 | 0.021014 |
| CD93 | 1.11111 | 0.058364 |
| CFAP418 | 1.111221 | 0.153784 |
| SEC62 | 1.111234 | 0.006316 |
| PTPN4 | 1.111658 | 0.330467 |
| SMAD2 | 1.11167 | 0.026077 |
| PLEKHG3 | 1.111763 | 0.054619 |
| VTA1 | 1.111789 | 0.103697 |
| GSTZ1 | 1.11196 | 0.116719 |
| DNMT3B | 1.112292 | 0.61233 |
| PIP5K1B | 1.112559 | 0.026441 |
| GLRX3 | 1.112588 | 0.015034 |
| OSBPL3 | 1.112791 | 0.012635 |
| PALM2AKAP2 | 1.113214 | 0.14421 |
| PGAM2 | 1.113218 | 0.291486 |
| PON3 | 1.11326 | 0.865195 |
| TMEM40 | 1.113468 | 0.155843 |
| CCDC90B | 1.114128 | 0.774159 |

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|---|---|---|
| NRP2 | 1.114202 | 0.431853 |
| DLG3 | 1.114362 | 0.118251 |
| ZNF660 | 1.114417 | 0.485094 |
| TTC5 | 1.114483 | 0.024882 |
| ORM1 | 1.114542 | 0.084027 |
| SASH1 | 1.114626 | 0.024636 |
| KIAA1109 | 1.115113 | 0.0134 |
| DEPDC1B | 1.115265 | 0.166355 |
| ANO8 | 1.115268 | 0.277096 |
| EHBP1L1 | 1.115279 | 0.005837 |
| MAPK1 | 1.115423 | 0.027533 |
| AKAP12 | 1.115693 | 0.045602 |
| MSN | 1.115716 | 0.032748 |
| MIEF1 | 1.116247 | 0.002543 |
| PACS2 | 1.116266 | 0.08041 |
| FKBP1A | 1.116342 | 0.017253 |
| UBE3B | 1.116489 | 0.084754 |
| PACS1 | 1.116682 | 0.010717 |
| SNX25 | 1.116704 | 0.564222 |
| TMEM234 | 1.116708 | 0.118613 |
| RCAN3 | 1.116788 | 0.02585 |
| SLAMF7 | 1.116937 | 0.674665 |
| B3GAT1 | 1.117914 | 0.054592 |
| PARK7 | 1.117931 | 0.02301 |
| GDE1 | 1.118057 | 0.011057 |
| MEGF9 | 1.118246 | 0.199148 |
| PDZD8 | 1.11826 | 0.014701 |
| UBE2K | 1.118276 | 0.003023 |

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|---|---|---|
| PPP3CA | 1.118488 | 0.481382 |
| KBTBD8 | 1.118551 | 0.009315 |
| IRAG2 | 1.11864 | 0.012713 |
| PSAP | 1.118911 | 0.087284 |
| WDR13 | 1.118987 | 0.016532 |
| NME7 | 1.119072 | 0.009664 |
| PKP2 | 1.119187 | 0.017026 |
| STEAP3 | 1.119224 | 0.04409 |
| AVPR1A | 1.119402 | 0.118641 |
| STUB1 | 1.119518 | 0.002442 |
| CDK17 | 1.119538 | 0.015666 |
| PDK4 | 1.119649 | 0.860829 |
| ACTR2 | 1.119737 | 0.004131 |
| SKA2 | 1.120221 | 0.337829 |
| DIPK2A | 1.120299 | 0.056988 |
| RELCH | 1.12035 | 0.040303 |
| CASP9 | 1.120388 | 0.00649 |
| SARS1 | 1.120723 | 0.014206 |
| KRT2 | 1.120783 | 0.053404 |
| FAM114A1 | 1.120873 | 0.070442 |
| ATP11B | 1.121048 | 0.019611 |
| LPL | 1.121059 | 0.036892 |
| AGT | 1.121332 | 0.122356 |
| SOD1 | 1.121366 | 0.013648 |
| PEDS1-UBE2V1 | 1.121531 | 0.048512 |
| SYNCRIP | 1.121549 | 0.202608 |
| PMVK | 1.12167 | 0.016699 |
| TMCC1 | 1.121928 | 0.002063 |

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|---|---|---|
| SPSB3 | 1.122159 | 0.364309 |
| TRGC1 | 1.122347 | 0.606355 |
| HLA-A | 1.122727 | 0.260595 |
| PIR | 1.122934 | 0.109686 |
| PGM1 | 1.122954 | 0.040623 |
| TM9SF2 | 1.123104 | 0.045121 |
| SVBP | 1.123145 | 0.724736 |
| KEL | 1.123354 | 0.157739 |
| PROSER3 | 1.123425 | 0.60446 |
| FMO5 | 1.123872 | 0.074218 |
| RIOK3 | 1.123954 | 0.029982 |
| PIP4K2B | 1.124347 | 0.00809 |
| MTHFD2L | 1.124791 | 0.031775 |
| IPP | 1.124963 | 0.596562 |
| AKT2 | 1.125169 | 0.015444 |
| DHCR7 | 1.125309 | 0.095034 |
| ACAT2 | 1.125544 | 0.115143 |
| SYAP1 | 1.125581 | 0.082374 |
| HAGH | 1.125648 | 0.365806 |
| NCK1 | 1.12613 | 0.022303 |
| GLCCI1 | 1.126143 | 0.242479 |
| PRKAR2A | 1.126459 | 0.014489 |
| CDH1 | 1.126637 | 0.142675 |
| EIF4G3 | 1.126649 | 0.025235 |
| CCDC25 | 1.126736 | 0.001371 |
| NSD1 | 1.126739 | 0.863381 |
| EIF2AK3 | 1.126759 | 0.009542 |
| SLC16A3 | 1.12691 | 0.040445 |

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|---|---|---|
| CC2D1B | 1.126932 | 0.0045 |
| CLEC16A | 1.127187 | 0.020887 |
| PIGH | 1.127207 | 0.003829 |
| PPP1CA | 1.127518 | 0.014877 |
| SAR1B | 1.127535 | 0.007229 |
| TIAM1 | 1.127669 | 0.034941 |
| IKBIP | 1.12773 | 0.053979 |
| STXBP5 | 1.127873 | 0.067892 |
| GGCX | 1.128115 | 0.235989 |
| RALGDS | 1.128265 | 0.307284 |
| GOSR1 | 1.128425 | 0.002199 |
| FADD | 1.128571 | 0.002022 |
| PDIA4 | 1.128576 | 0.097442 |
| MYO1E | 1.128582 | 0.033084 |
| PYGM | 1.128682 | 0.128511 |
| SLC9A9 | 1.128685 | 0.042106 |
| GDPD1 | 1.129083 | 0.030218 |
| FSIP1 | 1.129434 | 0.199887 |
| CANX | 1.129461 | 0.052778 |
| NUDT2 | 1.130047 | 0.078414 |
| PPP1R37 | 1.130093 | 0.156557 |
| LANCL2 | 1.130203 | 0.007472 |
| RNF130 | 1.130279 | 0.021714 |
| ARHGEF3 | 1.130439 | 0.019907 |
| GYG1 | 1.130527 | 0.046533 |
| ARV1 | 1.130665 | 0.083559 |
| INPPL1 | 1.13075 | 0.008782 |
| GEMIN2 | 1.131239 | 0.118709 |

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|---|---|---|
| RAPGEF2 | 1.131416 | 0.155617 |
| ABRACL | 1.131532 | 0.041301 |
| ORAI1 | 1.131846 | 0.072107 |
| SDHAF4 | 1.132002 | 0.02599 |
| MXRA7 | 1.13232 | 0.183517 |
| DST | 1.132538 | 0.075328 |
| MAP4K2 | 1.132807 | 0.038557 |
| KIF5B | 1.132842 | 0.025663 |
| PDGFA | 1.132924 | 0.526746 |
| PEPD | 1.132925 | 0.002744 |
| RINL | 1.133026 | 0.023462 |
| STX2 | 1.133055 | 0.001556 |
| KIF13B | 1.133163 | 0.024651 |
| CEACAM5 | 1.1333 | 0.233591 |
| ARFRP1 | 1.133328 | 0.030669 |
| POTEF | 1.133444 | 0.055659 |
| ARL8A | 1.133472 | 0.050606 |
| AMZ2 | 1.133794 | 0.113269 |
| SAG | 1.133858 | 0.48006 |
| LGALS8 | 1.134086 | 0.016162 |
| DCTD | 1.134119 | 0.066546 |
| SCRN3 | 1.134315 | 0.047177 |
| ICAM5 | 1.134772 | 0.701723 |
| TMEM30A | 1.134799 | 0.00754 |
| ZBTB7A | 1.134801 | 0.087429 |
| SPINT1 | 1.135296 | 8.08E-05 |
| CCDC6 | 1.135654 | 0.034064 |
| L3HYPDH | 1.135961 | 0.036768 |

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|---|---|---|
| FLG2 | 1.136112 | 0.033115 |
| WAS | 1.136124 | 0.137926 |
| DEFA4 | 1.136194 | 0.884022 |
| VDAC3 | 1.136839 | 0.358182 |
| HLA-B | 1.137155 | 0.102253 |
| PPP3CC | 1.13741 | 0.047878 |
| SIRT2 | 1.137527 | 0.023214 |
| ME2 | 1.13756 | 0.010366 |
| TAB3 | 1.13772 | 0.029656 |
| THY1 | 1.138084 | 0.407297 |
| AGPS | 1.138438 | 0.009656 |
| VCP | 1.138551 | 0.034826 |
| PRKAG1 | 1.138653 | 0.004713 |
| RALA | 1.138665 | 0.060213 |
| MCTS1 | 1.138734 | 0.065716 |
| OBSL1 | 1.138758 | 0.016475 |
| PROCR | 1.138835 | 0.630691 |
| ABLIM3 | 1.138848 | 0.066957 |
| MPZL1 | 1.138964 | 0.598173 |
| VCP | 1.139063 | 0.039061 |
| PIP4P2 | 1.139178 | 0.018055 |
| PRDX6 | 1.139179 | 0.020211 |
| PRSS1 | 1.139238 | 0.00351 |
| KLC1 | 1.139342 | 0.418822 |
| ALS2CL | 1.139346 | 0.02652 |
| LSS | 1.139589 | 0.123144 |
| ENO3 | 1.139894 | 0.004801 |
| RHOB | 1.140343 | 0.019966 |

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| EHBP1 | 1.140445 | 0.045552 |
| IGHV1-18 | 1.140482 | 0.152511 |
| GYPC | 1.140514 | 0.074603 |
| IQGAP2 | 1.140561 | 0.051169 |
| APOB | 1.140624 | 0.088422 |
| CAB39 | 1.140834 | 7.38E-05 |
| UNC13D | 1.140858 | 0.0424 |
| NOMO1 | 1.141024 | 0.482256 |
| AXIN1 | 1.141052 | 0.069328 |
| GPR107 | 1.14109 | 0.048396 |
| UBE2F | 1.141116 | 0.022076 |
| FCN2 | 1.141193 | 0.14587 |
| ZZEF1 | 1.141348 | 0.034656 |
| PRKAG2 | 1.14147 | 0.010098 |
| UTRN | 1.141577 | 0.002822 |
| RASIP1 | 1.141616 | 0.342997 |
| BMX | 1.141621 | 0.479112 |
| KSR2 | 1.142062 | 0.332099 |
| ZNF516 | 1.142274 | 0.288492 |
| CPN1 | 1.142379 | 0.179553 |
| PPM1F | 1.142611 | 0.022954 |
| MCAM | 1.142816 | 0.163157 |
| ZBP1 | 1.142845 | 0.12568 |
| MOCS2 | 1.142868 | 0.033612 |
| ARPC2 | 1.142897 | 0.009154 |
| LAMB2 | 1.143002 | 0.019471 |
| CCDC92 | 1.143094 | 0.031964 |
| TTC1 | 1.143119 | 0.034025 |

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| HTATIP2 | 1.143421 | 0.188805 |
| AOC1 | 1.143785 | 0.476569 |
| CYB5B | 1.143858 | 0.014768 |
| MYLK4 | 1.143877 | 0.009742 |
| FAM3A | 1.143955 | 0.023385 |
| ROCK1 | 1.144045 | 0.016519 |
| FAM169A | 1.144181 | 0.393401 |
| GALNT10 | 1.144215 | 0.008148 |
| TBC1D31 | 1.144299 | 0.092618 |
| SPAST | 1.144654 | 0.100472 |
| PRXL2B | 1.144705 | 0.132546 |
| STX17 | 1.144851 | 0.025172 |
| CHST12 | 1.145063 | 0.032349 |
| LIMK1 | 1.145137 | 0.002794 |
| MEF2C | 1.145227 | 0.116047 |
| PLTP | 1.145302 | 0.074798 |
| MICALL2 | 1.145351 | 0.027485 |
| FYCO1 | 1.145816 | 0.031307 |
| ABCC5 | 1.146054 | 0.018615 |
| CYP27A1 | 1.146085 | 0.103738 |
| STARD5 | 1.146377 | 0.138522 |
| MARCHF7 | 1.146704 | 0.022519 |
| KRT77 | 1.146962 | 0.009342 |
| RAPH1 | 1.146974 | 0.790312 |
| EMC9 | 1.147019 | 0.062516 |
| LCN1 | 1.147021 | 0.002631 |
| FRMD8 | 1.14716 | 0.001743 |
| TRIP12 | 1.147604 | 0.521691 |

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|---|---|---|
| SERPINA1 | 1.147681 | 0.029697 |
| SLC35B1 | 1.148023 | 0.027191 |
| PARD3 | 1.148289 | 0.313473 |
| HSPA1L | 1.148327 | 0.008275 |
| SETD2 | 1.148399 | 0.170384 |
| RHBDD1 | 1.148481 | 0.038141 |
| CD320 | 1.148989 | 0.0046 |
| DOCK9 | 1.149166 | 0.216863 |
| GNPDA2 | 1.149214 | 0.052156 |
| TAB1 | 1.149429 | 0.004841 |
| CD244 | 1.149692 | 0.098131 |
| RGS3 | 1.149833 | 0.468854 |
| TGM3 | 1.150011 | 0.002853 |
| RAB11B | 1.150053 | 0.011467 |
| CD22 | 1.150188 | 0.462208 |
| GPR180 | 1.150488 | 0.13277 |
| CSF2RB | 1.150505 | 0.199067 |
| LYSMD3 | 1.150622 | 0.082345 |
| SERPINI1 | 1.150642 | 0.070783 |
| SMYD3 | 1.151059 | 0.080656 |
| PORCN | 1.151383 | 0.091023 |
| HECTD3 | 1.151423 | 0.022526 |
| ATXN1 | 1.151482 | 0.014797 |
| DOCK5 | 1.151685 | 0.114632 |
| HS6ST1 | 1.151821 | 0.755919 |
| ACRBP | 1.152022 | 0.440258 |
| ATP6V0C | 1.152222 | 0.489031 |
| KRT10 | 1.152324 | 0.027803 |

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| SNX3 | 1.152329 | 0.027617 |
| BID | 1.152421 | 0.003608 |
| GSN | 1.152643 | 0.305625 |
| KBTBD6 | 1.152696 | 0.443545 |
| GIMAP4 | 1.152873 | 0.526198 |
| ENTPD5 | 1.15292 | 0.026123 |
| WIPF2 | 1.153128 | 0.063252 |
| VPS45 | 1.153161 | 0.010246 |
| CD72 | 1.153448 | 0.805877 |
| SNX21 | 1.153517 | 0.056159 |
| PPP1R9A | 1.153611 | 0.115187 |
| RAB6A | 1.153837 | 0.054302 |
| CXCL12 | 1.154156 | 0.051922 |
| HINT2 | 1.154438 | 0.006024 |
| UBE2L3 | 1.154448 | 0.002394 |
| VCAM1 | 1.154591 | 0.007072 |
| PPP1R12B | 1.15478 | 0.003144 |
| UBOX5 | 1.15526 | 0.011683 |
| LAMA5 | 1.155517 | 0.026417 |
| SIKE1 | 1.156075 | 0.072944 |
| FKRP | 1.15649 | 0.406507 |
| PIK3CB | 1.156586 | 0.070456 |
| RAI1 | 1.156724 | 0.18591 |
| PAPSS2 | 1.156891 | 0.014652 |
| SELENOW | 1.157387 | 0.011971 |
| PPP3CB | 1.157471 | 0.022631 |
| ZDHHC24 | 1.157518 | 0.008641 |
| CRELD2 | 1.157521 | 0.116746 |

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| PLGRKT | 1.157787 | 0.230942 |
| CRADD | 1.157874 | 0.00239 |
| MDM1 | 1.158032 | 0.070349 |
| FKBP2 | 1.15845 | 0.034365 |
| ELOB | 1.158855 | 0.009405 |
| MGMT | 1.15886 | 0.106096 |
| DAP | 1.15895 | 0.320857 |
| PRKAA1 | 1.159002 | 0.001363 |
| ADAM22 | 1.159108 | 0.010522 |
| GSPT1 | 1.159302 | 0.018746 |
| TBC1D13 | 1.159548 | 0.018182 |
| DCUN1D2 | 1.159643 | 0.445544 |
| OCRL | 1.159756 | 0.007427 |
| FUT1 | 1.159836 | 0.030421 |
| TRIM13 | 1.159964 | 0.00206 |
| DYNC1I1 | 1.160003 | 0.03884 |
| ADAT2 | 1.160075 | 0.028343 |
| DAPL1 | 1.160331 | 0.632917 |
| ABHD17A | 1.160464 | 0.010808 |
| THBD | 1.160711 | 0.021087 |
| BCAP31 | 1.161167 | 0.104181 |
| RAB20 | 1.161263 | 0.004077 |
| PLEKHO2 | 1.161664 | 0.027239 |
| VWF | 1.161719 | 0.110049 |
| ARRB1 | 1.161964 | 0.067747 |
| YWHAE | 1.162085 | 0.009514 |
| DSC1 | 1.162347 | 0.003947 |
| ARRB1 | 1.162494 | 0.034981 |

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| PIN1 | 1.162528 | 0.008865 |
| HSD17B4 | 1.162577 | 0.026033 |
| REEP5 | 1.162658 | 0.073098 |
| TFG | 1.162729 | 0.009829 |
| CDC42SE2 | 1.162754 | 0.93637 |
| CD200R1 | 1.162998 | 0.150869 |
| G6PD | 1.163004 | 0.012069 |
| ATP7A | 1.163054 | 0.007119 |
| MYL12B | 1.163136 | 0.00906 |
| DNASE1L1 | 1.163325 | 0.014832 |
| ACTA2 | 1.163335 | 0.04026 |
| PRG4 | 1.163656 | 0.041557 |
| GATM | 1.163718 | 0.06895 |
| SPTB | 1.163983 | 0.800866 |
| DMWD | 1.164238 | 0.275189 |
| PFKP | 1.164252 | 0.030093 |
| ARHGAP35 | 1.164254 | 0.001686 |
| HSPA5 | 1.164405 | 0.02761 |
| SBSN | 1.164522 | 0.004406 |
| MMAB | 1.164817 | 0.229812 |
| ARPIN-AP3S2 | 1.165126 | 0.017521 |
| PPP1R3D | 1.165272 | 0.016527 |
| BTN3A3 | 1.165408 | 0.196247 |
| TOR1AIP2 | 1.165419 | 0.02328 |
| FAM126B | 1.165619 | 0.01374 |
| OSTM1 | 1.165642 | 0.132983 |
| SLC30A1 | 1.166156 | 0.007869 |
| TOR4A | 1.166486 | 0.035355 |

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| BAG5 | 1.166561 | 0.006361 |
| NRCAM | 1.166748 | 0.100838 |
| SLC9A3R1 | 1.166762 | 0.058607 |
| PROC | 1.166767 | 0.071598 |
| POLR2B | 1.166883 | 0.599358 |
| LCOR | 1.167013 | 0.325306 |
| KPNA1 | 1.167268 | 0.010503 |
| WIPF1 | 1.16759 | 0.045195 |
| PTPRCAP | 1.167734 | 0.383851 |
| IGHV4-59 | 1.168106 | 0.03364 |
| NFATC2 | 1.168111 | 0.091974 |
| TESK2 | 1.168132 | 0.020427 |
| TLE3 | 1.168194 | 0.02863 |
| CHPF | 1.168415 | 0.294303 |
| ARL13B | 1.168436 | 0.00675 |
| EHD4 | 1.168476 | 0.024327 |
| C2 | 1.169624 | 0.085388 |
| E2F8 | 1.169677 | 0.427171 |
| ADD1 | 1.169688 | 0.018473 |
| MCUB | 1.169769 | 0.054374 |
| CAND2 | 1.170085 | 0.058662 |
| TIMP2 | 1.170128 | 0.082226 |
| PTPRO | 1.170202 | 0.018073 |
| PLSCR3 | 1.17024 | 0.031209 |
| HEXIM2 | 1.170406 | 0.006747 |
| ANKRD46 | 1.170492 | 0.656336 |
| B4GALT1 | 1.170505 | 0.014373 |
| DSG1 | 1.170623 | 0.013185 |

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| PRKACG | 1.170687 | 0.001325 |
| XPNPEP1 | 1.171278 | 0.010359 |
| HTT | 1.171519 | 0.061601 |
| CEP131 | 1.171532 | 0.005668 |
| ANO10 | 1.171885 | 0.039503 |
| ENPEP | 1.171902 | 0.559632 |
| NA | 1.172281 | 0.054187 |
| B2M | 1.172317 | 0.143131 |
| ALDH3A2 | 1.172461 | 0.260783 |
| PTS | 1.172534 | 0.502402 |
| MYO5A | 1.173062 | 0.055458 |
| APOL1 | 1.173202 | 0.120279 |
| NBEA | 1.173321 | 0.057196 |
| RELCH | 1.17343 | 0.034758 |
| ERP44 | 1.17359 | 0.195776 |
| ZNF785 | 1.173903 | 0.00655 |
| SLC25A51 | 1.17411 | 0.384073 |
| IGKV3D-20 | 1.174565 | 0.02939 |
| EPC1 | 1.17474 | 0.655275 |
| REEP3 | 1.175032 | 0.053136 |
| ZNRF2 | 1.175118 | 0.034085 |
| TRBV20-1 | 1.175222 | 0.655552 |
| AAK1 | 1.175313 | 0.018418 |
| GLS | 1.175321 | 0.005456 |
| MFNG | 1.175875 | 0.012275 |
| KRT80 | 1.175994 | 0.011022 |
| KRT78 | 1.175996 | 0.014285 |
| ARR3 | 1.176001 | 0.039367 |

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| BOLA3 | 1.176208 | 0.027922 |
| CRISPLD1 | 1.176308 | 0.020033 |
| FURIN | 1.17633 | 0.009558 |
| FZR1 | 1.176361 | 0.271863 |
| CHURC1 | 1.176487 | 0.41231 |
| LRRC59 | 1.176508 | 0.009332 |
| KIF5C | 1.176718 | 0.678196 |
| CFL1 | 1.176754 | 0.001225 |
| SNN | 1.176794 | 0.13512 |
| MPPED2 | 1.176807 | 0.02422 |
| EML4 | 1.177294 | 0.004806 |
| PLEC | 1.177365 | 0.006561 |
| DOK3 | 1.177487 | 0.089475 |
| DUSP19 | 1.177607 | 0.110873 |
| SNX12 | 1.17763 | 0.029721 |
| SELENOM | 1.177833 | 0.340993 |
| RBP7 | 1.177833 | 0.020578 |
| STX16 | 1.177907 | 0.090993 |
| MFSD4B | 1.178162 | 0.690126 |
| DSC3 | 1.178188 | 0.236462 |
| ARPC4 | 1.17845 | 0.003433 |
| HDAC6 | 1.178565 | 0.00905 |
| CASP4 | 1.178958 | 0.059803 |
| CHMP6 | 1.179142 | 0.011075 |
| UNC13D | 1.179273 | 0.00971 |
| RAB32 | 1.17982 | 0.020044 |
| SERPINA10 | 1.179899 | 0.026866 |
| ACCS | 1.180192 | 0.046121 |

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| UBE2O | 1.180316 | 0.030005 |
| PLEC | 1.180386 | 0.003514 |
| TRAT1 | 1.180613 | 0.516957 |
| ACSL5 | 1.18079 | 0.019169 |
| PPP1CB | 1.181134 | 0.004405 |
| GRK6 | 1.181263 | 0.007244 |
| HIF1AN | 1.181302 | 0.019364 |
| RASGRP2 | 1.181416 | 0.130378 |
| IMPA1 | 1.181745 | 0.042998 |
| FAM126A | 1.181963 | 0.015899 |
| ACTN1 | 1.182587 | 0.033787 |
| GARS1 | 1.182661 | 0.011325 |
| TMEM115 | 1.182742 | 0.039581 |
| POC1B-GALNT4 | 1.182853 | 0.00816 |
| SERPINH1 | 1.182956 | 0.039894 |
| CBR3 | 1.183117 | 0.016807 |
| SCRN1 | 1.183177 | 0.033451 |
| CDC42 | 1.183298 | 0.004898 |
| DNAJC3 | 1.183413 | 0.011828 |
| BTBD8 | 1.183728 | 0.309714 |
| ATXN3L | 1.183854 | 0.018826 |
| ABHD11 | 1.184123 | 0.030387 |
| CDS2 | 1.184187 | 0.041951 |
| CNNM2 | 1.184275 | 0.064938 |
| HLA-G | 1.184764 | 0.015274 |
| PIP4K2A | 1.18495 | 0.054632 |
| PTPN18 | 1.185012 | 0.013089 |
| CCSER2 | 1.185191 | 0.058496 |

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| KAT2B | 1.185276 | 0.417069 |
| RABGAP1 | 1.185792 | 0.025105 |
| NUDT4 | 1.185813 | 0.075211 |
| IGLV3-21 | 1.186065 | 0.044264 |
| MAP4K5 | 1.186121 | 0.014447 |
| ARF5 | 1.186239 | 0.022696 |
| SULT1A1 | 1.186458 | 0.122093 |
| CD2AP | 1.186469 | 0.012939 |
| PLA2G15 | 1.18651 | 0.02137 |
| MCF2L | 1.18652 | 0.022515 |
| DUSP22 | 1.186707 | 0.188716 |
| NAP1L5 | 1.186756 | 0.054647 |
| PRKACB | 1.186768 | 0.019067 |
| UBAP2L | 1.186775 | 0.314991 |
| RET | 1.187071 | 0.152295 |
| GMPPB | 1.1871 | 0.015286 |
| FAM3C | 1.187144 | 0.035217 |
| LACRT | 1.187228 | 0.009472 |
| SV2A | 1.18737 | 0.00404 |
| GNG8 | 1.187447 | 0.227628 |
| ATP13A2 | 1.187676 | 0.016194 |
| AMT | 1.187862 | 0.043455 |
| GIMAP7 | 1.187888 | 0.398385 |
| LRRFIP2 | 1.187955 | 0.081202 |
| RHBDF2 | 1.188029 | 0.06108 |
| RRBP1 | 1.188159 | 0.022191 |
| GSR | 1.188229 | 0.008033 |
| XPR1 | 1.188634 | 0.007591 |

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| SNX4 | 1.188845 | 0.002239 |
| AIDA | 1.189122 | 0.011193 |
| IGHV1OR15-1 | 1.189602 | 0.177751 |
| HOOK3 | 1.18962 | 0.009083 |
| LY9 | 1.189634 | 0.031341 |
| TOLLIP | 1.189876 | 0.012384 |
| WLS | 1.189913 | 0.384421 |
| TSPYL5 | 1.189921 | 0.283447 |
| ZBTB7B | 1.190375 | 0.096019 |
| NAP1L1 | 1.190392 | 0.035846 |
| OTUD7B | 1.190505 | 0.00924 |
| ARHGAP5 | 1.190734 | 0.012721 |
| TESK1 | 1.190803 | 0.022147 |
| LRRC8B | 1.191524 | 0.105818 |
| CDK16 | 1.191569 | 0.01028 |
| UXS1 | 1.191581 | 0.01959 |
| NME4 | 1.19159 | 0.000652 |
| PRKACB | 1.191738 | 0.012556 |
| CRELD1 | 1.191836 | 0.022501 |
| PPCDC | 1.191839 | 0.003807 |
| MADD | 1.192003 | 0.263957 |
| KAT6B | 1.192036 | 0.325269 |
| NT5C3A | 1.192099 | 0.041457 |
| VAMP7 | 1.192471 | 0.026814 |
| GAN | 1.192666 | 0.002586 |
| SBDS | 1.192783 | 0.005099 |
| EEF1B2 | 1.192873 | 0.018702 |
| DGKZ | 1.193011 | 0.243176 |

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| SIMC1 | 1.193298 | 0.08998 |
| AMY1C | 1.193342 | 0.080726 |
| ATP8B2 | 1.193424 | 0.004493 |
| PLCB2 | 1.193539 | 0.020157 |
| LZIC | 1.193751 | 0.013518 |
| PFDN4 | 1.193757 | 0.007078 |
| B2M | 1.193863 | 0.022848 |
| MOB3B | 1.19399 | 0.876358 |
| PNP | 1.194043 | 0.015643 |
| PCTP | 1.194077 | 0.037655 |
| MVD | 1.194235 | 0.005248 |
| NPL | 1.194267 | 0.034523 |
| RAB9B | 1.194295 | 0.053546 |
| MEAK7 | 1.194378 | 0.003994 |
| LGALS12 | 1.195132 | 0.045413 |
| UBXN11 | 1.195261 | 0.22 |
| MYL6 | 1.195349 | 0.021162 |
| TFCP2 | 1.195563 | 0.021208 |
| IGLV1-36 | 1.195702 | 0.707747 |
| RPH3AL | 1.195814 | 0.092961 |
| LBH | 1.195891 | 0.011587 |
| LEPROT | 1.19593 | 0.283921 |
| SMIM1 | 1.196137 | 0.082949 |
| MYB | 1.196327 | 0.304476 |
| PROZ | 1.196501 | 0.051831 |
| AMN1 | 1.196516 | 0.017884 |
| MIF4GD | 1.196626 | 0.002978 |
| UBN1 | 1.196757 | 0.052143 |

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| STX4 | 1.196913 | 0.004492 |
| BAHD1 | 1.196925 | 0.070107 |
| GGACT | 1.197028 | 0.011692 |
| PPP1CC | 1.197059 | 0.004979 |
| TRAF6 | 1.197086 | 0.016258 |
| GLB1L | 1.1971 | 0.313842 |
| PLEKHF2 | 1.197403 | 0.021214 |
| ARL6IP5 | 1.197415 | 0.00876 |
| SLC25A15 | 1.197457 | 0.062285 |
| NUAK2 | 1.197678 | 0.54307 |
| CROT | 1.197748 | 0.025446 |
| TSG101 | 1.198295 | 0.006601 |
| OTC | 1.198492 | 0.160101 |
| PCMT1 | 1.198561 | 0.010638 |
| APOM | 1.198742 | 0.015643 |
| BCAR1 | 1.198943 | 0.010265 |
| TXNL1 | 1.198966 | 0.008517 |
| TNS1 | 1.199454 | 0.070304 |
| SUCNR1 | 1.199798 | 0.113472 |
| ARPC1A | 1.19988 | 0.008717 |
| VKORC1L1 | 1.200349 | 0.0266 |
| EIF5A2 | 1.20041 | 0.050047 |
| PFKM | 1.200495 | 0.050464 |
| TVP23C | 1.200656 | 0.003421 |
| LRP12 | 1.200817 | 0.004252 |
| CLTB | 1.200831 | 0.007831 |
| SELENOT | 1.201077 | 0.006142 |
| C4orf33 | 1.201123 | 0.406434 |

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| HPR | 1.201169 | 0.177975 |
| AKR7A2 | 1.201518 | 0.034593 |
| HYI | 1.201617 | 0.000709 |
| BCL7A | 1.202084 | 0.148484 |
| PDIA3 | 1.202361 | 0.012311 |
| ARL4C | 1.202911 | 0.178374 |
| DENND3 | 1.203406 | 0.03671 |
| HSDL1 | 1.203484 | 0.044459 |
| LCK | 1.203498 | 0.383461 |
| HLA-DRB3 | 1.203818 | 0.069814 |
| HSPA2 | 1.204183 | 0.010468 |
| GDAP1 | 1.20445 | 0.015868 |
| IGLV2-8 | 1.204507 | 0.374833 |
| KMT5A | 1.204597 | 0.799226 |
| FAM234A | 1.204708 | 0.007462 |
| HSPA6 | 1.204912 | 0.007055 |
| DGKQ | 1.205175 | 0.01453 |
| CASP3 | 1.205185 | 0.008779 |
| SCOC | 1.205273 | 0.102202 |
| CD276 | 1.205356 | 0.0518 |
| PLEKHA8 | 1.20539 | 0.010768 |
| SNTB1 | 1.205533 | 0.003573 |
| PAK4 | 1.205791 | 0.001546 |
| GOLGA2 | 1.205803 | 0.008264 |
| CAPN3 | 1.206336 | 0.267302 |
| UCK1 | 1.206374 | 0.002596 |
| DOLPP1 | 1.206512 | 0.09722 |
| PNKD | 1.206521 | 0.034097 |

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| GRIPAP1 | 1.207134 | 0.02303 |
| SACM1L | 1.207135 | 0.018994 |
| SERPINF2 | 1.207398 | 0.009273 |
| XYLT1 | 1.207672 | 0.814083 |
| DSP | 1.207811 | 0.010021 |
| COPS7A | 1.207878 | 0.00118 |
| C7 | 1.207906 | 0.065589 |
| HLA-A | 1.209366 | 0.255239 |
| VSIR | 1.209727 | 0.039386 |
| RAP2A | 1.210015 | 0.012692 |
| JAK3 | 1.210121 | 0.027503 |
| MAPRE3 | 1.210405 | 0.000781 |
| DBNL | 1.210424 | 0.037596 |
| COPS9 | 1.210899 | 0.063921 |
| RAB5A | 1.210921 | 0.008195 |
| NUDT14 | 1.21136 | 0.011026 |
| VPS28 | 1.211363 | 0.002227 |
| CETP | 1.211817 | 0.044224 |
| ACTN4 | 1.211861 | 0.00791 |
| SAMD13 | 1.211965 | 0.119248 |
| IGHV6-1 | 1.21243 | 0.060876 |
| VPS37A | 1.212872 | 0.008116 |
| SMAP1 | 1.213145 | 0.034357 |
| ARHGAP45 | 1.213467 | 0.001831 |
| SH3TC2 | 1.213643 | 0.030303 |
| PPP3R1 | 1.213751 | 0.005925 |
| IGLV3-10 | 1.213958 | 0.219865 |
| BAD | 1.214213 | 0.006862 |

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| AASS | 1.214249 | 0.082126 |
| KRT1 | 1.214374 | 0.01398 |
| MYL6 | 1.214634 | 0.026191 |
| ATP7B | 1.215079 | 0.001528 |
| CRLF3 | 1.215084 | 0.001256 |
| AP1M1 | 1.215094 | 0.020097 |
| CRYL1 | 1.215665 | 0.002168 |
| ITSN1 | 1.216089 | 0.010496 |
| FRK | 1.216366 | 0.19033 |
| HLA-DRB1 | 1.216375 | 0.054141 |
| PLAAT3 | 1.216784 | 0.001229 |
| DGKD | 1.216825 | 0.001497 |
| CLIP4 | 1.216902 | 0.01088 |
| ARPC3 | 1.217029 | 0.00496 |
| PIGR | 1.217041 | 0.514321 |
| YWHAG | 1.217815 | 0.006027 |
| ZNF768 | 1.217974 | 0.909701 |
| RABAC1 | 1.218273 | 0.360556 |
| HABP2 | 1.218317 | 0.019357 |
| ANGEL1 | 1.21834 | 4.84E-05 |
| IGKV2-30 | 1.218571 | 0.030232 |
| ACTN1 | 1.21865 | 0.188036 |
| PZP | 1.218893 | 0.05775 |
| SLC11A2 | 1.218926 | 0.485325 |
| USP6 | 1.21902 | 0.010648 |
| GKAP1 | 1.219028 | 0.179517 |
| SLAMF1 | 1.219108 | 0.535812 |
| ALDOC | 1.219481 | 0.00881 |

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| SLC50A1 | 1.219581 | 0.110234 |
| AGPAT1 | 1.219868 | 0.004853 |
| PRKCQ | 1.219972 | 0.020513 |
| DCTN1 | 1.220067 | 0.00309 |
| KCTD10 | 1.220257 | 0.006258 |
| SCYL2 | 1.22044 | 0.009444 |
| OPTN | 1.220488 | 0.25362 |
| CSK | 1.220767 | 0.001828 |
| EPS15 | 1.220995 | 0.021813 |
| SPINT2 | 1.222061 | 0.100913 |
| C1QC | 1.222942 | 0.120856 |
| IKBIP | 1.22317 | 0.011911 |
| APOD | 1.223646 | 0.054892 |
| RAB35 | 1.224116 | 0.001273 |
| CASP6 | 1.224136 | 0.032973 |
| CAPNS1 | 1.224295 | 0.001352 |
| ACTN2 | 1.224701 | 0.016313 |
| CAMK4 | 1.224887 | 0.454411 |
| ITPRID2 | 1.22494 | 0.073445 |
| PLEKHJ1 | 1.224995 | 0.00321 |
| DUSP7 | 1.225461 | 0.001317 |
| C1GALT1C1 | 1.22566 | 0.001878 |
| CALM2 | 1.225699 | 0.0018 |
| TREML1 | 1.225789 | 0.042447 |
| CAMK2B | 1.226235 | 0.24937 |
| IGLV4-69 | 1.226622 | 0.004736 |
| ATG9A | 1.226701 | 0.011605 |
| PPP1R2 | 1.226863 | 0.3301 |

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| CYCS | 1.226984 | 0.011054 |
| MACF1 | 1.227085 | 0.008972 |
| FAM186B | 1.227095 | 0.158319 |
| CD63 | 1.22741 | 0.039571 |
| TMIGD2 | 1.227865 | 0.114313 |
| GIMAP1-GIMAP5 | 1.227867 | 0.109939 |
| GZMA | 1.227888 | 0.403972 |
| ITIH3 | 1.228048 | 0.040906 |
| BBOF1 | 1.228155 | 0.005038 |
| AGRN | 1.228311 | 0.026736 |
| RNASEL | 1.228385 | 0.018035 |
| AHCYL2 | 1.228529 | 0.212278 |
| MICAL3 | 1.229032 | 0.000278 |
| POLR2F | 1.229204 | 0.179337 |
| RMDN3 | 1.229519 | 0.042351 |
| TBC1D23 | 1.229735 | 0.002598 |
| DLGAP4 | 1.22981 | 0.01085 |
| CD55 | 1.230541 | 0.011354 |
| ARAP1 | 1.230668 | 0.004985 |
| ARMC3 | 1.230696 | 0.069208 |
| SELENOI | 1.23071 | 0.042696 |
| HMCN1 | 1.230816 | 0.124307 |
| CRYZL1 | 1.230827 | 0.014922 |
| SH2D2A | 1.231096 | 0.031239 |
| CORO1B | 1.231327 | 0.014345 |
| CD46 | 1.231473 | 0.021686 |
| DOCK1 | 1.231484 | 0.062343 |

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|---|---|---|
| DOK3 | 1.231569 | 0.221207 |
| TWF2 | 1.232002 | 0.001339 |
| ISOC1 | 1.23208 | 0.019862 |
| RAB3IP | 1.232125 | 0.016113 |
| CD99L2 | 1.232677 | 0.031263 |
| SLX4 | 1.232858 | 0.227379 |
| ARVCF | 1.232971 | 0.312775 |
| C4BPA | 1.233109 | 0.028451 |
| PIK3CG | 1.233168 | 0.004121 |
| CD8A | 1.233359 | 0.926298 |
| MOCS2 | 1.233474 | 0.012825 |
| FKBP9 | 1.233523 | 0.012964 |
| ATPAF1 | 1.233574 | 0.007793 |
| FEZ2 | 1.233708 | 0.001761 |
| TMEM123 | 1.233937 | 0.108198 |
| SLC9A1 | 1.234007 | 0.040576 |
| SOS1 | 1.234084 | 0.000196 |
| CLINT1 | 1.234104 | 0.003352 |
| ADPRH | 1.234508 | 0.02356 |
| BNIP2 | 1.234664 | 0.020566 |
| RNF19A | 1.234873 | 0.200601 |
| ACP1 | 1.235232 | 0.002606 |
| TPT1 | 1.235584 | 0.002781 |
| DDX3Y | 1.235596 | 0.055874 |
| UNC13B | 1.23617 | 0.030728 |
| PPIC | 1.236707 | 0.039715 |
| LRRC8D | 1.236722 | 0.016263 |
| IGHV2-26 | 1.236722 | 0.278511 |

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|---|---|---|
| JOSD2 | 1.236959 | 0.006166 |
| S100A7 | 1.237098 | 0.014701 |
| ABCA3 | 1.237176 | 0.02065 |
| TMCC2 | 1.237237 | 0.107889 |
| MOB2 | 1.23737 | 0.004379 |
| TMEM87B | 1.23744 | 0.172314 |
| STXBP2 | 1.237564 | 0.008972 |
| PSIP1 | 1.237576 | 0.384983 |
| A1BG | 1.238184 | 0.005261 |
| UBE2J1 | 1.238527 | 0.008756 |
| MVB12B | 1.238603 | 0.000901 |
| MAN2A1 | 1.239301 | 0.017794 |
| ITPR1 | 1.240077 | 0.009973 |
| HPX | 1.240253 | 0.010403 |
| CAPZA1 | 1.240281 | 0.000459 |
| ASL | 1.24069 | 0.008551 |
| OPLAH | 1.240964 | 0.017401 |
| GFOD1 | 1.241234 | 0.056117 |
| SKAP1 | 1.241413 | 0.340599 |
| AGL | 1.24155 | 0.025054 |
| EGFL6 | 1.241719 | 0.041505 |
| EVI5L | 1.241862 | 0.003313 |
| TBC1D12 | 1.242042 | 0.048962 |
| SGMS1 | 1.242077 | 0.01483 |
| APOA2 | 1.242155 | 0.065512 |
| RASGRP2 | 1.242176 | 0.00461 |
| UGGT2 | 1.242705 | 0.339511 |
| TEC | 1.242806 | 0.018128 |

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|---|---|---|
| KANK2 | 1.242822 | 0.012017 |
| ABCC10 | 1.243196 | 0.249587 |
| STX6 | 1.243488 | 0.000101 |
| TSKU | 1.24352 | 0.427273 |
| SERPINB9 | 1.243734 | 0.005273 |
| EIF4B | 1.243833 | 0.01686 |
| BICD2 | 1.24402 | 0.009497 |
| NEXN | 1.244022 | 0.058714 |
| ITPKA | 1.244238 | 0.268902 |
| RNF121 | 1.24511 | 0.096045 |
| VPS37C | 1.245243 | 0.007035 |
| TTN | 1.24528 | 0.039676 |
| ORM2 | 1.245327 | 0.026447 |
| NPLOC4 | 1.245347 | 0.00309 |
| NRBP2 | 1.245543 | 0.00572 |
| CTDSP1 | 1.246006 | 0.004673 |
| INHBC | 1.24603 | 0.010469 |
| RBM38 | 1.246184 | 0.003304 |
| SLAIN2 | 1.246416 | 0.070101 |
| DOK1 | 1.246559 | 0.041435 |
| FAM53C | 1.246631 | 0.232478 |
| PRUNE2 | 1.246737 | 0.162002 |
| PRKCB | 1.24682 | 0.024268 |
| KRT14 | 1.24709 | 0.013478 |
| CCND2 | 1.247379 | 0.044712 |
| CRK | 1.248006 | 0.006135 |
| IGLC7 | 1.248091 | 0.208462 |
| VPS9D1 | 1.248596 | 0.010904 |

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|---|---|---|
| PRNP | 1.248887 | 0.005503 |
| AMOTL1 | 1.249131 | 0.008618 |
| ACVR1 | 1.249219 | 0.033047 |
| TMEM165 | 1.249245 | 0.006545 |
| SPR | 1.249324 | 0.031245 |
| UMAD1 | 1.249594 | 0.126742 |
| PLEC | 1.249796 | 0.014725 |
| SDC2 | 1.249833 | 0.23701 |
| ANKS1A | 1.250369 | 0.010157 |
| GORASP1 | 1.250555 | 0.002827 |
| UFD1 | 1.250597 | 0.067202 |
| LMF1 | 1.250647 | 0.134162 |
| RAB8B | 1.250792 | 0.00044 |
| DUS4L-BCAP29 | 1.25089 | 0.045762 |
| SPRYD7 | 1.25129 | 0.007494 |
| NEURL2 | 1.251889 | 0.017163 |
| LSP1 | 1.252139 | 0.284038 |
| ATP6V0A1 | 1.252598 | 0.012292 |
| ARPC1B | 1.253118 | 0.01804 |
| HRNR | 1.253158 | 0.037766 |
| PPIB | 1.253161 | 0.008742 |
| GOLGA1 | 1.253353 | 0.001108 |
| RAP1A | 1.254077 | 0.001762 |
| DENR | 1.254253 | 0.030502 |
| RAB21 | 1.254296 | 0.002989 |
| TMED8 | 1.254351 | 0.007965 |
| VCP | 1.254528 | 0.007683 |
| STK38 | 1.254588 | 0.00036 |

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|---|---|---|
| ITM2B | 1.254643 | 0.054254 |
| DCTN6 | 1.255451 | 0.008249 |
| HPS4 | 1.255558 | 0.003088 |
| ALDOA | 1.255981 | 0.01274 |
| C2orf88 | 1.256138 | 0.02206 |
| MAN2A2 | 1.256267 | 0.00851 |
| LRRFIP2 | 1.256309 | 0.012057 |
| RIT1 | 1.256618 | 0.004068 |
| STK3 | 1.256694 | 0.003465 |
| PHYKPL | 1.257093 | 0.006551 |
| SNX30 | 1.25713 | 0.001205 |
| MAP3K5 | 1.257722 | 0.012403 |
| ACTR3 | 1.258188 | 0.000374 |
| CAVIN1 | 1.258293 | 0.034636 |
| ACTRT1 | 1.258453 | 0.572949 |
| CEMIP2 | 1.258625 | 0.016278 |
| PLXDC2 | 1.258677 | 0.019626 |
| NAPB | 1.258734 | 0.000113 |
| ABI2 | 1.258879 | 0.027977 |
| HPS1 | 1.258889 | 0.004287 |
| DGKE | 1.259014 | 0.006234 |
| TMEM222 | 1.259369 | 0.002813 |
| S100A2 | 1.259581 | 0.067364 |
| PON2 | 1.259914 | 0.031547 |
| TMEM41A | 1.260131 | 0.010795 |
| IGKV2D-28 | 1.260273 | 0.05468 |
| SERPINA7 | 1.26079 | 0.019129 |
| VAMP3 | 1.260985 | 0.040158 |

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|---|---|---|
| ZZZ3 | 1.261238 | 0.118318 |
| COPZ2 | 1.261333 | 0.009603 |
| PTPA | 1.261434 | 0.027216 |
| VPS37B | 1.261642 | 0.017068 |
| TINF2 | 1.261905 | 0.157253 |
| PIP4K2C | 1.261962 | 0.001736 |
| GLCE | 1.262178 | 0.015496 |
| NEDD8 | 1.262332 | 0.435658 |
| TRDC | 1.262351 | 0.944304 |
| PI4K2A | 1.262569 | 0.004223 |
| LRP8 | 1.262929 | 0.040518 |
| ALG13 | 1.26293 | 0.02379 |
| STAT3 | 1.264263 | 0.004695 |
| USP47 | 1.264596 | 0.012516 |
| AK1 | 1.264598 | 0.028165 |
| ALDH1L2 | 1.26486 | 0.007575 |
| LAT | 1.265403 | 0.036767 |
| RAB7A | 1.265497 | 0.000376 |
| SESTD1 | 1.265507 | 0.003395 |
| PHTF2 | 1.266373 | 0.012832 |
| MESD | 1.266406 | 0.017851 |
| KIAA0586 | 1.266476 | 0.778254 |
| SLC35D2 | 1.266935 | 0.029046 |
| TEKT1 | 1.266984 | 0.005184 |
| PTP4A3 | 1.267229 | 0.038246 |
| ARHGAP17 | 1.267622 | 0.092867 |
| HDAC11 | 1.267891 | 0.058373 |
| CERS2 | 1.268482 | 0.010172 |

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|---|---|---|
| RAB18 | 1.268954 | 0.003919 |
| STUM | 1.269031 | 0.025878 |
| TCL1A | 1.269233 | 0.874198 |
| ATP8A1 | 1.269466 | 0.00951 |
| IGKC | 1.269951 | 0.018655 |
| VTI1B | 1.270096 | 0.001791 |
| ENKUR | 1.270308 | 0.239993 |
| NBEAL2 | 1.270446 | 0.019857 |
| ATP9A | 1.270447 | 0.249648 |
| BAG2 | 1.270743 | 0.012193 |
| RASA1 | 1.270825 | 0.002749 |
| CD68 | 1.270839 | 0.233084 |
| AGFG2 | 1.271344 | 0.003418 |
| HLA-E | 1.271347 | 0.006393 |
| VTN | 1.271368 | 0.004025 |
| MINK1 | 1.271647 | 0.001041 |
| ZFYVE21 | 1.271989 | 0.01513 |
| PMM1 | 1.272487 | 0.000681 |
| STRN | 1.272536 | 0.005498 |
| KRAS | 1.272562 | 0.002694 |
| POF1B | 1.272648 | 0.097943 |
| TAOK3 | 1.272934 | 0.01641 |
| TEX264 | 1.272967 | 0.012809 |
| PIGP | 1.273018 | 0.613082 |
| EML2 | 1.273647 | 0.002138 |
| ZFAND2B | 1.273707 | 0.047863 |
| NXPE3 | 1.273709 | 0.208018 |
| ACOT1 | 1.274026 | 0.027062 |

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|---|---|---|
| IFI27L2 | 1.274071 | 0.15413 |
| HSPA8 | 1.275952 | 0.06268 |
| IGHV5-51 | 1.276269 | 0.008891 |
| TUBAL3 | 1.276291 | 0.081408 |
| SULT1A3 | 1.276693 | 0.006955 |
| BTN3A1 | 1.276785 | 0.014941 |
| RECK | 1.27681 | 0.021129 |
| HSPA4L | 1.277127 | 0.014871 |
| TACC1 | 1.277222 | 0.015861 |
| MGAT4B | 1.277551 | 0.007857 |
| KRT9 | 1.278027 | 0.007851 |
| APLP2 | 1.278067 | 0.009547 |
| SLC2A13 | 1.278578 | 0.011144 |
| APOC4-APOC2 | 1.278707 | 0.114394 |
| GZMK | 1.278847 | 0.185426 |
| SERPINA6 | 1.278878 | 0.011127 |
| TRIOBP | 1.27902 | 0.006535 |
| SENP1 | 1.279095 | 0.061449 |
| FCN3 | 1.279378 | 0.005437 |
| TANGO2 | 1.279405 | 0.004519 |
| ARF3 | 1.279494 | 0.005743 |
| CMTM3 | 1.279628 | 0.017296 |
| CXCL3 | 1.279661 | 0.103485 |
| PTPRF | 1.279917 | 0.002336 |
| GAPVD1 | 1.280397 | 0.416313 |
| PRDX4 | 1.280513 | 0.023201 |
| PRKAR1A | 1.280547 | 0.001359 |
| BANK1 | 1.28123 | 0.022111 |

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|---|---|---|
| TPST2 | 1.281357 | 0.006776 |
| NCCRP1 | 1.281605 | 0.320015 |
| FHL3 | 1.281676 | 0.024799 |
| MYO6 | 1.281696 | 0.007887 |
| LPIN3 | 1.282001 | 0.34653 |
| MARCHF2 | 1.282121 | 0.011237 |
| GRB2 | 1.282523 | 0.000131 |
| REPS2 | 1.282572 | 0.026573 |
| CPXM1 | 1.283454 | 0.008851 |
| GJA4 | 1.283707 | 0.028233 |
| SERPINC1 | 1.283707 | 0.005609 |
| DENND6B | 1.283931 | 0.002507 |
| ENPP4 | 1.284192 | 0.03426 |
| CYP4V2 | 1.28438 | 0.021842 |
| EZH1 | 1.284584 | 0.170756 |
| C1R | 1.28538 | 0.003356 |
| ANK1 | 1.285674 | 0.013317 |
| MAP1LC3A | 1.286087 | 0.007484 |
| ARF4 | 1.28723 | 0.009936 |
| MAP1A | 1.287254 | 0.034136 |
| TESC | 1.287269 | 0.004184 |
| RASAL2 | 1.288147 | 0.007816 |
| IGKV2D-29 | 1.288469 | 0.002541 |
| F10 | 1.288533 | 0.00187 |
| LOXL3 | 1.288779 | 0.001412 |
| PCLO | 1.288821 | 0.102107 |
| PNMA5 | 1.288881 | 0.004035 |
| SIKE1 | 1.288902 | 0.141468 |

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|---|---|---|
| OXCT1 | 1.288959 | 0.002845 |
| IL7R | 1.288979 | 0.303476 |
| GSTT2 | 1.288987 | 0.481343 |
| BCORL1 | 1.289145 | 0.348842 |
| PGAP4 | 1.289501 | 0.240718 |
| PLEKHO1 | 1.289645 | 0.003942 |
| PWWP3A | 1.290133 | 0.179556 |
| CHMP2A | 1.290199 | 0.003725 |
| DOCK10 | 1.290763 | 0.006221 |
| EXOC6B | 1.290823 | 0.020668 |
| AFM | 1.292096 | 0.004229 |
| TRAM2 | 1.292144 | 0.00514 |
| DCTN4 | 1.292385 | 0.006934 |
| SUSD3 | 1.292629 | 0.017779 |
| NA | 1.292833 | 0.267392 |
| CLCN4 | 1.29294 | 0.008673 |
| EFCC1 | 1.293073 | 0.038032 |
| TMEM63A | 1.293413 | 0.013944 |
| GPR108 | 1.293735 | 0.005335 |
| CAPN1 | 1.293794 | 0.002766 |
| STK39 | 1.294114 | 0.000587 |
| THEM4 | 1.294276 | 0.081844 |
| CAPZB | 1.294539 | 0.008286 |
| CTIF | 1.294775 | 0.006452 |
| FLVCR1 | 1.294874 | 0.106799 |
| AMPD2 | 1.29503 | 0.012955 |
| GALNT12 | 1.295037 | 0.002059 |
| HBG2 | 1.295187 | 0.372521 |

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|---|---|---|
| USP47 | 1.296253 | 0.02587 |
| IGHG2 | 1.296584 | 0.004001 |
| CPNE8 | 1.29673 | 0.005356 |
| CADM4 | 1.296843 | 0.089963 |
| RAB12 | 1.29692 | 0.004264 |
| S100A7A | 1.29726 | 0.731327 |
| UBASH3A | 1.297524 | 0.064397 |
| APOE | 1.29764 | 0.025891 |
| PPP1R12A | 1.297759 | 0.005637 |
| KRT5 | 1.297769 | 0.009404 |
| STRN4 | 1.29784 | 0.012532 |
| TRIM40 | 1.297857 | 0.020724 |
| KRAS | 1.298274 | 0.01267 |
| PEX2 | 1.298405 | 0.042037 |
| CCS | 1.298932 | 0.017997 |
| EFHC2 | 1.299055 | 0.081924 |
| CYB5R2 | 1.299266 | 0.115496 |
| ADAM9 | 1.299331 | 0.060124 |
| SLC44A1 | 1.299934 | 0.007531 |
| C8orf88 | 1.30006 | 0.023879 |
| MAPK8IP3 | 1.300169 | 0.021463 |
| FLNC | 1.30033 | 0.018371 |
| MBP | 1.300705 | 0.051355 |
| WWP1 | 1.300796 | 0.042775 |
| MGAT3 | 1.30086 | 0.005779 |
| DZIP3 | 1.30093 | 0.03779 |
| MOSPD3 | 1.30131 | 0.007088 |
| ZMPSTE24 | 1.301404 | 0.002881 |

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|---|---|---|
| DNAJB2 | 1.301537 | 0.002787 |
| SSX2IP | 1.301706 | 0.076091 |
| SLAMF6 | 1.301987 | 0.040388 |
| FYN | 1.302056 | 0.026114 |
| YOD1 | 1.302201 | 0.013392 |
| HPCAL1 | 1.302233 | 0.002713 |
| DPP4 | 1.302579 | 0.229449 |
| STX7 | 1.30269 | 0.005564 |
| MTM1 | 1.303167 | 0.002714 |
| TGM1 | 1.303212 | 0.041887 |
| SLC8A3 | 1.303484 | 0.000327 |
| OSBPL2 | 1.303609 | 0.018043 |
| CAPZA2 | 1.304405 | 0.002458 |
| PLEKHA7 | 1.306295 | 0.003613 |
| CDKN1A | 1.306621 | 0.111469 |
| C6 | 1.306746 | 0.003948 |
| VANGL1 | 1.306782 | 0.055472 |
| NEK5 | 1.306845 | 0.131443 |
| ZG16B | 1.306988 | 0.095733 |
| STX1A | 1.307296 | 0.041369 |
| GSK3B | 1.307408 | 0.003127 |
| KRT33B | 1.307426 | 0.098679 |
| PKM | 1.307618 | 0.007565 |
| CFL2 | 1.307731 | 0.009436 |
| CD58 | 1.308412 | 0.017546 |
| ZFP62 | 1.308649 | 0.516774 |
| TSPAN2 | 1.309094 | 0.012487 |
| RALGAPB | 1.309793 | 0.036761 |

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|---|---|---|
| WASF2 | 1.309967 | 0.004348 |
| EXOC3L4 | 1.310588 | 0.008388 |
| SPTBN1 | 1.311907 | 0.012342 |
| SPHK2 | 1.312059 | 0.166001 |
| ABAT | 1.312251 | 0.015995 |
| SAR1A | 1.312312 | 0.001475 |
| ATE1 | 1.312412 | 0.104379 |
| CDNF | 1.312645 | 0.024812 |
| SMIM8 | 1.312709 | 0.071599 |
| PKP1 | 1.313177 | 0.009733 |
| FOXO1 | 1.313738 | 0.132679 |
| COL4A2 | 1.313739 | 0.122792 |
| SERPIND1 | 1.314371 | 0.002271 |
| DCTN2 | 1.314483 | 0.006474 |
| DIAPH1 | 1.315416 | 0.011949 |
| GNA13 | 1.315558 | 0.005884 |
| PRKAB2 | 1.316062 | 0.021425 |
| RAB14 | 1.316368 | 0.008434 |
| TBC1D20 | 1.317109 | 0.000521 |
| C8B | 1.31712 | 0.002627 |
| CD7 | 1.317932 | 0.016551 |
| IGLC2 | 1.318239 | 0.015186 |
| WBP2 | 1.318287 | 0.239031 |
| APOH | 1.319614 | 0.003125 |
| CALU | 1.319741 | 0.024305 |
| MYH14 | 1.320745 | 0.002276 |
| BSG | 1.320919 | 0.001115 |
| MASP2 | 1.321116 | 0.419849 |

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|---|---|---|
| GTDC1 | 1.321368 | 0.004717 |
| TTC7B | 1.321536 | 0.005992 |
| IRS2 | 1.321548 | 0.008616 |
| CD3D | 1.322165 | 0.389929 |
| MFSD1 | 1.32232 | 0.007621 |
| SH3BGRL3 | 1.322463 | 0.000756 |
| TGFBI | 1.323595 | 0.019283 |
| STX16 | 1.323611 | 0.01037 |
| MGLL | 1.324064 | 0.010293 |
| DCTN3 | 1.324075 | 0.002258 |
| EXOC3L2 | 1.324138 | 0.005703 |
| CTSA | 1.324149 | 0.008333 |
| C8A | 1.32446 | 0.001194 |
| MTMR2 | 1.324537 | 0.000396 |
| PLEK2 | 1.325269 | 0.463491 |
| ZNF33B | 1.326456 | 0.048782 |
| PPP2CB | 1.326751 | 0.078109 |
| TPD52 | 1.326834 | 0.052581 |
| FAM162A | 1.327306 | 0.006427 |
| TYMP | 1.327387 | 0.0015 |
| MYCT1 | 1.327857 | 0.041893 |
| FKBP10 | 1.327995 | 0.021435 |
| WBP2 | 1.328033 | 0.000453 |
| EPB41L2 | 1.328099 | 0.000961 |
| RACK1 | 1.328109 | 0.566572 |
| THEMIS | 1.328144 | 0.432797 |
| FAM89B | 1.328155 | 0.085006 |
| ABCC4 | 1.328313 | 0.013101 |

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|---|---|---|
| BAG3 | 1.328604 | 0.010701 |
| LANCL3 | 1.328944 | 0.039259 |
| CD2 | 1.329166 | 0.958753 |
| ATE1 | 1.329635 | 0.004467 |
| NAPA | 1.330085 | 0.000437 |
| PIP5K1C | 1.330869 | 0.016618 |
| NDST1 | 1.331234 | 0.005973 |
| ABHD16A | 1.331279 | 0.006734 |
| ATL1 | 1.331634 | 0.007607 |
| F9 | 1.331665 | 0.000238 |
| CLIC1 | 1.331704 | 0.002515 |
| SERPINF1 | 1.332574 | 0.00386 |
| RAB37 | 1.33263 | 0.011354 |
| F2RL3 | 1.333176 | 0.011735 |
| CLTA | 1.333656 | 0.008214 |
| BRK1 | 1.333851 | 0.000693 |
| YIPF2 | 1.33392 | 0.001936 |
| C1GALT1 | 1.333963 | 0.003351 |
| PARVB | 1.334422 | 0.019448 |
| MFAP3L | 1.335244 | 0.004288 |
| RAP1GDS1 | 1.335621 | 0.000799 |
| TMEM181 | 1.335925 | 0.012642 |
| CLIC3 | 1.336343 | 0.214036 |
| DBNL | 1.33673 | 0.123036 |
| SH2B3 | 1.336875 | 0.000461 |
| WWC2 | 1.337144 | 0.522684 |
| MAML2 | 1.337459 | 0.532954 |
| IGKV2D-24 | 1.337495 | 0.027655 |

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|---|---|---|
| PTPRG | 1.337772 | 0.066635 |
| RASSF1 | 1.337862 | 0.115739 |
| BLK | 1.338612 | 0.392102 |
| NAP1L1 | 1.339157 | 0.012826 |
| RDX | 1.339451 | 0.0081 |
| CRAT | 1.339821 | 0.008155 |
| SLC6A6 | 1.340214 | 0.014282 |
| ACADSB | 1.340449 | 0.006925 |
| ITK | 1.341583 | 0.130581 |
| PPP1R2 | 1.341666 | 0.313502 |
| TF | 1.342517 | 0.008301 |
| TSC22D3 | 1.342608 | 0.031896 |
| PPM1A | 1.342669 | 0.130556 |
| LHFPL2 | 1.342743 | 0.007668 |
| FILIP1L | 1.343192 | 0.006003 |
| CYB5R1 | 1.343318 | 0.002463 |
| PTPN12 | 1.343574 | 0.002298 |
| ACTR1A | 1.343594 | 0.002014 |
| ITPR1 | 1.343782 | 0.047368 |
| M6PR | 1.343941 | 0.012156 |
| SGTB | 1.344266 | 0.001477 |
| COL4A5 | 1.344282 | 0.032147 |
| PLP2 | 1.344557 | 0.001864 |
| PTPN1 | 1.344805 | 0.000881 |
| RAP1GDS1 | 1.345014 | 0.00076 |
| C5 | 1.345448 | 0.001471 |
| ACTBL2 | 1.345611 | 0.003185 |
| PRKACA | 1.345639 | 0.000454 |

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|---|---|---|
| TLN2 | 1.346089 | 0.001201 |
| C2orf80 | 1.346409 | 0.269049 |
| KLKB1 | 1.346563 | 0.001334 |
| EMD | 1.346732 | 0.059642 |
| GCLM | 1.347716 | 0.006689 |
| UTS2 | 1.347741 | 0.498222 |
| CMPK1 | 1.347972 | 0.001152 |
| GNAQ | 1.348019 | 0.004475 |
| PCYOX1L | 1.348299 | 0.007217 |
| MINDY3 | 1.348717 | 0.005934 |
| FAM110A | 1.349563 | 0.102325 |
| SERPINB12 | 1.350204 | 0.008509 |
| CENPW | 1.350986 | 0.160231 |
| ITGB1BP2 | 1.351166 | 0.036046 |
| HPN | 1.35161 | 0.135094 |
| TRBC2 | 1.351968 | 0.060445 |
| NOL3 | 1.352664 | 0.026286 |
| AMBP | 1.352811 | 0.002059 |
| HACD1 | 1.353308 | 0.293979 |
| PTPRA | 1.353406 | 0.000896 |
| ME1 | 1.353575 | 0.004812 |
| GZMH | 1.353644 | 0.71252 |
| TRAV19 | 1.35384 | 0.239331 |
| RHEB | 1.354969 | 0.013314 |
| GSAP | 1.355142 | 0.009243 |
| ADD3 | 1.355365 | 0.070879 |
| SNX24 | 1.355484 | 0.009913 |
| HLA-DQB1 | 1.355705 | 0.045102 |

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|---|---|---|
| UBA7 | 1.355874 | 0.004914 |
| SIT1 | 1.356277 | 0.224164 |
| EIF4H | 1.356467 | 0.002905 |
| ACTN3 | 1.357152 | 0.002858 |
| IGHG1 | 1.357643 | 0.003673 |
| RAB2B | 1.357826 | 0.000695 |
| DNAJC6 | 1.358515 | 0.005139 |
| VAMP5 | 1.358794 | 0.00775 |
| TWF1 | 1.359082 | 0.000407 |
| GUCY1A1 | 1.359205 | 0.006383 |
| RAB6A | 1.359614 | 0.012056 |
| ACTR10 | 1.359754 | 0.003563 |
| SNAP29 | 1.360496 | 0.027854 |
| GC | 1.36054 | 0.005457 |
| CPB2 | 1.36135 | 0.000367 |
| SLC16A7 | 1.361372 | 0.014171 |
| CES3 | 1.361434 | 0.203337 |
| MAP2 | 1.36329 | 0.03829 |
| CLSTN1 | 1.363537 | 0.003884 |
| MGARP | 1.363635 | 0.077308 |
| HRAS | 1.363982 | 0.011087 |
| NUDT10 | 1.364538 | 0.093795 |
| SPECC1 | 1.364549 | 0.00101 |
| PECAM1 | 1.36527 | 0.018211 |
| RAB13 | 1.365335 | 0.003646 |
| ARPC5 | 1.365424 | 0.001209 |
| POTEI | 1.365462 | 0.003892 |
| ACP2 | 1.365512 | 0.013601 |

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|---|---|---|
| TTC30B | 1.365907 | 0.087974 |
| CNN1 | 1.366003 | 0.003167 |
| PLA2G4A | 1.366279 | 0.000987 |
| HSPB1 | 1.36661 | 0.024498 |
| WDR1 | 1.366823 | 0.000999 |
| DPYSL2 | 1.367673 | 0.001529 |
| C1QB | 1.367809 | 0.000345 |
| BDNF | 1.3684 | 0.011775 |
| IGFALS | 1.3686 | 0.00825 |
| C4BPB | 1.369706 | 0.108386 |
| CRKL | 1.370977 | 0.006753 |
| KLC3 | 1.371278 | 0.330251 |
| EPS15L1 | 1.372783 | 0.00751 |
| CLASP1 | 1.37279 | 0.18613 |
| VAPA | 1.373211 | 0.006296 |
| UBE2D4 | 1.373478 | 0.049982 |
| ADIPOQ | 1.373596 | 0.231858 |
| MOB3C | 1.37385 | 0.002792 |
| TBXAS1 | 1.373853 | 0.004453 |
| NAPG | 1.373854 | 0.003351 |
| PFN1 | 1.374327 | 0.00135 |
| CACHD1 | 1.374518 | 0.038919 |
| MCFD2 | 1.374694 | 0.027633 |
| MAP3K7CL | 1.374723 | 0.010451 |
| RAB11A | 1.374807 | 0.102223 |
| PRKAR1B | 1.374863 | 0.001127 |
| PON1 | 1.374905 | 0.004886 |
| NT5C3A | 1.375171 | 0.005419 |

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|---|---|---|
| STX11 | 1.375762 | 0.01048 |
| IGHV1-46 | 1.376073 | 0.383673 |
| CP | 1.376208 | 0.009007 |
| MOB4 | 1.376219 | 0.000393 |
| CKAP5 | 1.376234 | 0.025828 |
| TTR | 1.376793 | 0.004699 |
| SGPP1 | 1.377464 | 0.001768 |
| PTGS1 | 1.377553 | 0.005403 |
| RAB1A | 1.377886 | 0.002896 |
| CD84 | 1.378043 | 0.008552 |
| ITGA6 | 1.378209 | 0.018051 |
| MTMR12 | 1.378622 | 0.009466 |
| DAG1 | 1.378801 | 0.011621 |
| C8G | 1.380128 | 0.001239 |
| UGP2 | 1.381309 | 0.163611 |
| LTK | 1.381599 | 0.051219 |
| KRT16 | 1.381936 | 0.007151 |
| LGMN | 1.382302 | 0.00242 |
| ADAM10 | 1.382328 | 0.004446 |
| C1S | 1.382722 | 0.002085 |
| EFEMP1 | 1.382962 | 0.021963 |
| YWHAH | 1.383038 | 0.000639 |
| GLYCTK | 1.383238 | 0.25617 |
| ZC3H12C | 1.384254 | 0.001395 |
| ACBD4 | 1.384339 | 0.00124 |
| HLA-F | 1.384637 | 0.347861 |
| TGFB2 | 1.385041 | 0.006527 |
| GSTO1 | 1.385149 | 0.002261 |

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|---|---|---|
| SLC2A9 | 1.385345 | 0.003991 |
| ARHGAP10 | 1.386035 | 0.021527 |
| CDKN2D | 1.38604 | 0.002813 |
| PIK3R6 | 1.386149 | 0.014846 |
| DAPP1 | 1.386499 | 0.005659 |
| ASAP1 | 1.386799 | 0.001728 |
| PEAR1 | 1.386989 | 0.039564 |
| CFH | 1.387126 | 0.000891 |
| PRKCA | 1.387497 | 0.00274 |
| PDLIM7 | 1.388049 | 0.069345 |
| RTN2 | 1.388322 | 0.006101 |
| NENF | 1.38836 | 0.013555 |
| C7orf25 | 1.388516 | 0.0037 |
| CYTH2 | 1.388726 | 0.002688 |
| UBP1 | 1.388911 | 0.006365 |
| MPP7 | 1.38917 | 0.003838 |
| ATP2A3 | 1.389257 | 0.282424 |
| AFAP1L2 | 1.390778 | 0.071795 |
| COL6A3 | 1.391211 | 0.003724 |
| SLC52A2 | 1.391432 | 0.598471 |
| USP12 | 1.391503 | 0.000133 |
| CALU | 1.392016 | 0.017562 |
| SCP2 | 1.392034 | 0.02277 |
| DGKI | 1.392268 | 0.010638 |
| ABCC3 | 1.392659 | 0.014902 |
| RBPMS2 | 1.392678 | 0.007971 |
| TAGLN3 | 1.392734 | 0.039129 |
| PARD3 | 1.393062 | 0.028032 |

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|---|---|---|
| PLCB3 | 1.393408 | 0.003564 |
| MBOAT2 | 1.393415 | 0.00537 |
| PAM | 1.393539 | 0.006888 |
| FBLN1 | 1.394007 | 0.000441 |
| SYNM | 1.394984 | 0.004083 |
| GET4 | 1.395224 | 0.007278 |
| RRAS2 | 1.395765 | 0.019341 |
| AZGP1 | 1.396134 | 0.00102 |
| ERO1B | 1.396622 | 0.003837 |
| NCKIPSD | 1.396637 | 0.002567 |
| MAGED2 | 1.39757 | 0.002788 |
| MYO1C | 1.397818 | 0.006418 |
| POC5 | 1.397887 | 0.414144 |
| FKBP14 | 1.398358 | 0.005819 |
| ECM1 | 1.398425 | 0.004524 |
| STX12 | 1.398517 | 0.001778 |
| GPD2 | 1.398519 | 0.004696 |
| SPRED2 | 1.398531 | 0.001407 |
| IGLL5 | 1.398676 | 0.007308 |
| FGD4 | 1.399768 | 0.001158 |
| CMTM5 | 1.400317 | 0.003827 |
| KHK | 1.400406 | 0.001754 |
| DGKG | 1.400838 | 0.003133 |
| TMOD3 | 1.401286 | 0.001548 |
| IL21R | 1.401363 | 0.000756 |
| KIF3C | 1.4014 | 0.04586 |
| CLU | 1.401517 | 0.005256 |
| LIN7C | 1.401985 | 0.001498 |

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|---|---|---|
| CDC42BPA | 1.402246 | 0.003899 |
| ITIH4 | 1.40283 | 0.001919 |
| XK | 1.403458 | 0.007519 |
| LCP2 | 1.404256 | 0.001169 |
| SEPTIN2 | 1.404606 | 0.002898 |
| HABP4 | 1.404935 | 0.024807 |
| SEMA4D | 1.404972 | 0.025283 |
| DPYSL4 | 1.405079 | 0.004982 |
| SCARF1 | 1.405652 | 0.044617 |
| ABCB6 | 1.405857 | 0.002415 |
| PTP4A2 | 1.406518 | 0.000411 |
| CCRL2 | 1.406683 | 0.026501 |
| DLG4 | 1.407236 | 0.001068 |
| LRBA | 1.407634 | 0.089618 |
| PACSIN2 | 1.408912 | 0.0016 |
| TRDV2 | 1.409049 | 0.084698 |
| SAA2-SAA4 | 1.409083 | 0.134705 |
| LRCH4 | 1.409232 | 0.30034 |
| MPL | 1.409648 | 0.040267 |
| IGHG4 | 1.409712 | 0.062023 |
| CXCR4 | 1.409778 | 0.006843 |
| PSD3 | 1.409972 | 0.000383 |
| RALB | 1.41008 | 0.004021 |
| ABHD4 | 1.410134 | 0.004769 |
| DAAM1 | 1.410492 | 0.01003 |
| VEGFC | 1.410797 | 0.009674 |
| GCNT4 | 1.410824 | 0.005463 |
| ARG2 | 1.411911 | 0.006835 |

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|---|---|---|
| CFI | 1.412492 | 0.001566 |
| RAP2B | 1.413048 | 0.003109 |
| COTL1 | 1.413055 | 0.000245 |
| RTN1 | 1.413102 | 0.018128 |
| TMEM104 | 1.413198 | 0.001414 |
| INPP4B | 1.413329 | 0.003025 |
| YIPF6 | 1.413488 | 3.19E-05 |
| C3 | 1.414592 | 0.002365 |
| CPN2 | 1.414931 | 0.004909 |
| BTLA | 1.415166 | 0.555696 |
| CNST | 1.415442 | 0.032932 |
| WIPI1 | 1.415981 | 0.005416 |
| TST | 1.416201 | 0.000858 |
| SCMH1 | 1.416522 | 0.160877 |
| SNX9 | 1.417133 | 0.019587 |
| ATP2A2 | 1.418045 | 0.003095 |
| EPB41L3 | 1.418152 | 0.002512 |
| GALM | 1.418279 | 0.008868 |
| SMIM29 | 1.419181 | 0.079966 |
| HLA-C | 1.42085 | 0.041673 |
| MYH9 | 1.421042 | 0.001617 |
| ZBTB40 | 1.421374 | 0.079148 |
| PDE4DIP | 1.421971 | 0.000866 |
| CAP1 | 1.422304 | 0.00142 |
| MTHFR | 1.422755 | 0.004337 |
| MICU2 | 1.422804 | 0.004921 |
| ERN2 | 1.422818 | 0.247708 |
| CDH5 | 1.422857 | 0.004653 |

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|---|---|---|
| VEPH1 | 1.423269 | 0.004067 |
| CYFIP1 | 1.423337 | 0.014842 |
| ALB | 1.423436 | 0.003094 |
| LASP1 | 1.423518 | 0.079271 |
| NMRK1 | 1.42366 | 0.004752 |
| MINDY2 | 1.423917 | 0.008213 |
| PHLDB1 | 1.424351 | 0.006951 |
| PCYT1B | 1.425016 | 0.003441 |
| GIPC1 | 1.425292 | 0.004676 |
| CALML5 | 1.426025 | 0.006293 |
| OSBP2 | 1.426271 | 0.019946 |
| INF2 | 1.426478 | 0.006266 |
| ADAMDEC1 | 1.426819 | 0.004546 |
| VPS13A | 1.427724 | 0.001147 |
| BTN3A2 | 1.427994 | 0.003964 |
| GOSR2 | 1.428303 | 0.637966 |
| PLG | 1.428412 | 0.002605 |
| NXN | 1.428448 | 0.001389 |
| PHACTR1 | 1.428641 | 0.013026 |
| QSOX1 | 1.428841 | 0.003643 |
| VIL1 | 1.428994 | 0.003636 |
| TUBG2 | 1.429345 | 0.003525 |
| SIAE | 1.429638 | 0.01141 |
| FSTL1 | 1.429937 | 0.008678 |
| MFSD6 | 1.429979 | 0.028638 |
| DGKH | 1.430178 | 0.006058 |
| GBA2 | 1.430297 | 0.001462 |
| PCM1 | 1.430326 | 0.025516 |

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| TC2N | 1.430691 | 0.009772 |
| IGLV2-11 | 1.430723 | 0.021694 |
| FRMD4B | 1.431316 | 0.006015 |
| MPRIP | 1.431377 | 0.001191 |
| ITGA2 | 1.431561 | 0.010988 |
| RAB1B | 1.431619 | 0.002273 |
| TMEM163 | 1.43208 | 0.010311 |
| CPNE9 | 1.43297 | 0.021253 |
| FHL2 | 1.433126 | 0.014288 |
| EPS15L1 | 1.433149 | 0.077818 |
| SLC27A4 | 1.433248 | 0.001172 |
| FGF2 | 1.433654 | 0.310584 |
| C2CD2L | 1.43377 | 0.000377 |
| TGFB1I1 | 1.434157 | 0.021122 |
| CAPRIN2 | 1.4347 | 0.011541 |
| CD46 | 1.435668 | 0.048945 |
| RMDN2 | 1.436022 | 0.007259 |
| CD6 | 1.436348 | 0.837256 |
| IGKV1-33 | 1.436354 | 0.009147 |
| CDC42 | 1.436989 | 0.182125 |
| SERPINA5 | 1.437181 | 0.00054 |
| ASAP3 | 1.437233 | 0.004137 |
| SMTN | 1.437655 | 0.003681 |
| ZYX | 1.438003 | 0.040051 |
| TAOK1 | 1.438705 | 0.00097 |
| NT5M | 1.43928 | 0.003071 |
| STOM | 1.439343 | 0.011997 |
| KATNAL1 | 1.439595 | 0.000131 |

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| EHD1 | 1.439986 | 0.00123 |
| RARRES2 | 1.440757 | 0.025262 |
| PPP1R9B | 1.441102 | 0.00454 |
| NA | 1.44122 | 0.021123 |
| TBC1D8B | 1.441295 | 0.003359 |
| TJP1 | 1.441908 | 0.005265 |
| ENAH | 1.441978 | 0.082858 |
| DYNLT3 | 1.442086 | 0.004267 |
| GUCY1B1 | 1.442193 | 0.002162 |
| PPM1L | 1.442635 | 0.001294 |
| PHACTR2 | 1.442834 | 0.140721 |
| SOD2 | 1.443377 | 0.010529 |
| NHLRC2 | 1.443424 | 0.001036 |
| GNAZ | 1.443633 | 0.005917 |
| RIPOR3 | 1.444601 | 0.004021 |
| RAB33A | 1.445156 | 0.004406 |
| LTBP3 | 1.445216 | 0.066875 |
| PDIA5 | 1.445413 | 0.008862 |
| SAV1 | 1.445947 | 0.001051 |
| CDC42BPB | 1.446198 | 0.004367 |
| FAM89A | 1.446393 | 0.078068 |
| IGKV4-1 | 1.448241 | 0.017097 |
| INPP5B | 1.448317 | 0.006907 |
| GP5 | 1.448341 | 0.009882 |
| TM6SF1 | 1.448414 | 0.015929 |
| F13A1 | 1.448896 | 0.006236 |
| BCL2L1 | 1.450203 | 0.001343 |
| RBP4 | 1.45066 | 0.004232 |

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| ITGAV | 1.450701 | 0.006801 |
| PSEN2 | 1.451347 | 0.007976 |
| COMTD1 | 1.451474 | 0.003057 |
| SEC14L5 | 1.451731 | 0.002565 |
| RAB10 | 1.45255 | 0.001372 |
| AP3S2 | 1.452581 | 0.000197 |
| TUBA3E | 1.453469 | 0.049194 |
| DSTN | 1.453572 | 0.000672 |
| CYB5R3 | 1.453843 | 0.001852 |
| IRAK2 | 1.453899 | 0.015754 |
| TMEM9 | 1.453901 | 0.010793 |
| RAB25 | 1.454053 | 0.001517 |
| TREML2 | 1.454361 | 0.089652 |
| INCENP | 1.454383 | 0.156471 |
| PHACTR3 | 1.454598 | 0.157343 |
| PITPNC1 | 1.454729 | 0.105023 |
| RAB8A | 1.454918 | 0.000676 |
| CLIP2 | 1.455625 | 0.008127 |
| MAPRE1 | 1.456249 | 0.001997 |
| FERMT2 | 1.457214 | 0.005002 |
| CORO1C | 1.457226 | 0.004039 |
| DUSP3 | 1.457584 | 0.001429 |
| SH3BP5 | 1.459113 | 0.002952 |
| MS4A1 | 1.460236 | 0.721943 |
| PRKCG | 1.460348 | 0.001759 |
| DLG1 | 1.460439 | 0.074923 |
| FER | 1.460814 | 0.001329 |
| CD3E | 1.461009 | 0.275773 |

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| BTK | 1.46183 | 0.000627 |
| APBB1 | 1.461891 | 0.043455 |
| MPP1 | 1.462219 | 0.000611 |
| EID2 | 1.46228 | 0.110926 |
| SCAMP5 | 1.46235 | 0.011633 |
| CMTM4 | 1.462936 | 0.162625 |
| ITPKB | 1.463387 | 0.002418 |
| PTGIR | 1.463691 | 0.154171 |
| ITIH2 | 1.464393 | 0.00445 |
| UBE2O | 1.464474 | 0.001759 |
| MAVS | 1.466355 | 0.112376 |
| FGFR1OP2 | 1.466424 | 0.000531 |
| TRIP10 | 1.467537 | 0.005198 |
| DMTN | 1.467723 | 0.006038 |
| MINDY1 | 1.467985 | 0.001474 |
| PDLIM1 | 1.468366 | 0.030836 |
| MLC1 | 1.468441 | 0.001418 |
| CCDC3 | 1.468524 | 0.013223 |
| SEPTIN5 | 1.468558 | 0.017693 |
| KLHDC9 | 1.468605 | 0.004542 |
| ABI1 | 1.4687 | 0.003188 |
| ECE1 | 1.468924 | 0.008073 |
| MPRIP | 1.469305 | 0.022136 |
| FHOD1 | 1.469581 | 0.002679 |
| CD5 | 1.469618 | 0.063444 |
| DPY19L1 | 1.469928 | 0.00443 |
| PBLD | 1.470973 | 0.000228 |
| PLOD2 | 1.471282 | 0.004099 |

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| CD151 | 1.47335 | 0.003405 |
| RRAS | 1.473437 | 0.003943 |
| RAB4B | 1.473443 | 0.185208 |
| PKHD1L1 | 1.47354 | 0.010147 |
| F2 | 1.47357 | 0.001305 |
| STIM1 | 1.47394 | 0.004009 |
| ITGA2B | 1.474331 | 0.003877 |
| SVEP1 | 1.474661 | 0.012878 |
| ATP2C1 | 1.474803 | 0.002104 |
| SYTL4 | 1.475305 | 0.004329 |
| FN3K | 1.475665 | 0.017774 |
| SERPINA4 | 1.475684 | 0.000683 |
| ANGPT1 | 1.475757 | 0.004625 |
| MACROH2A1 | 1.476723 | 0.348121 |
| MLEC | 1.477215 | 0.001118 |
| SH3PXD2A | 1.477263 | 0.002672 |
| IGFBP3 | 1.477885 | 0.003149 |
| PER3 | 1.47795 | 0.148488 |
| PDCD10 | 1.478102 | 0.000213 |
| BTBD11 | 1.478661 | 0.00681 |
| SLFN14 | 1.478995 | 0.005705 |
| RAB11FIP3 | 1.479103 | 0.011326 |
| TDRKH | 1.479473 | 0.000479 |
| HPSE | 1.479862 | 0.004436 |
| VWA5A | 1.480152 | 0.001664 |
| SNAP23 | 1.48026 | 0.003563 |
| ACOT7 | 1.480853 | 0.000808 |
| RHOF | 1.48088 | 0.005665 |

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| MICU1 | 1.481033 | 0.004011 |
| CMIP | 1.481131 | 0.0016 |
| AKT3 | 1.482205 | 0.000973 |
| PYGB | 1.48245 | 0.001572 |
| TOM1L1 | 1.482808 | 0.002508 |
| MIGA2 | 1.482983 | 0.001619 |
| ST6GAL1 | 1.483164 | 0.006401 |
| MTPN | 1.484042 | 0.001544 |
| ARHGEF12 | 1.485723 | 0.001677 |
| ARID3B | 1.485992 | 0.009109 |
| UBE2H | 1.486363 | 0.019225 |
| GRAP2 | 1.48661 | 0.002938 |
| RTN4 | 1.487194 | 0.012542 |
| SH3GL1 | 1.487549 | 0.000978 |
| LAMP5 | 1.48756 | 0.006788 |
| PRAF2 | 1.488319 | 0.000833 |
| GP9 | 1.488898 | 0.008492 |
| NEXN | 1.4892 | 0.014566 |
| CLIP1 | 1.489512 | 0.000417 |
| TUBB1 | 1.490089 | 0.004711 |
| C9 | 1.490339 | 0.000473 |
| SERPINE1 | 1.492111 | 0.010939 |
| SHROOM4 | 1.493527 | 0.002565 |
| LSP1 | 1.494149 | 0.021758 |
| SLMAP | 1.494295 | 0.027771 |
| SLC10A7 | 1.494947 | 0.104324 |
| SERPINE2 | 1.495283 | 0.01557 |
| ANKFY1 | 1.49548 | 0.513174 |

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| PRDX4 | 1.497277 | 0.411285 |
| PGLYRP1 | 1.498124 | 0.717326 |
| GSN | 1.498219 | 0.00304 |
| RAB15 | 1.49887 | 0.053042 |
| LTBP1 | 1.499102 | 0.003868 |
| MMRN1 | 1.499109 | 0.010654 |
| CLDN3 | 1.499832 | 0.00643 |
| LUM | 1.500008 | 0.002915 |
| PRUNE1 | 1.500138 | 0.002129 |
| CD3G | 1.500227 | 0.420818 |
| WDR44 | 1.500443 | 0.00388 |
| TRIM58 | 1.500585 | 0.006032 |
| SEPTIN4 | 1.500649 | 0.001057 |
| VASH1 | 1.502061 | 0.001845 |
| PNMA1 | 1.503729 | 0.001177 |
| RAP1GAP2 | 1.505975 | 0.00973 |
| SLC37A1 | 1.506373 | 0.005458 |
| RAB38 | 1.507107 | 0.007657 |
| LTBP1 | 1.507408 | 0.017739 |
| STXBP1 | 1.508539 | 0.00189 |
| ARHGAP21 | 1.508977 | 0.002385 |
| IL6ST | 1.510224 | 0.002517 |
| CD8B | 1.510535 | 0.137632 |
| TSPAN14 | 1.511432 | 0.00191 |
| PPP1R3E | 1.511954 | 0.002996 |
| RDH11 | 1.512779 | 0.003264 |
| PDE5A | 1.512855 | 0.008506 |
| MTURN | 1.513096 | 0.014173 |

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| SPTB | 1.513745 | 0.00241 |
| TSPAN33 | 1.514544 | 0.003433 |
| SKAP2 | 1.514651 | 0.00567 |
| STON2 | 1.516645 | 0.002289 |
| VAPB | 1.516944 | 0.001531 |
| PANX1 | 1.517224 | 0.003605 |
| LYRM9 | 1.517317 | 0.00157 |
| CAP1 | 1.517794 | 0.000907 |
| KNG1 | 1.517955 | 0.05321 |
| HM13 | 1.51809 | 0.00463 |
| CALCOCO1 | 1.518417 | 0.003302 |
| FHL1 | 1.518484 | 0.013491 |
| TAGLN2 | 1.518487 | 0.003392 |
| LY6G6F | 1.518488 | 0.005428 |
| PGLYRP2 | 1.520006 | 0.000282 |
| BIN2 | 1.520127 | 0.001264 |
| CD69 | 1.522219 | 0.0014 |
| IKZF3 | 1.523368 | 0.508112 |
| FYN | 1.523511 | 0.002533 |
| CLIC4 | 1.524013 | 0.000365 |
| SPHK1 | 1.525069 | 0.00152 |
| RPS27AP5 | 1.526123 | 0.068779 |
| NECTIN2 | 1.526734 | 0.010732 |
| MCTP1 | 1.526952 | 0.000271 |
| CEL | 1.527409 | 0.149277 |
| FCER1G | 1.528061 | 0.003963 |
| SNCA | 1.530367 | 0.024839 |
| PPIF | 1.530539 | 0.004376 |

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| CCDC28B | 1.531581 | 1.2E-05 |
| RAB4A | 1.53198 | 0.004427 |
| VEGFA | 1.531995 | 0.001981 |
| MYL12A | 1.533119 | 0.000828 |
| CEMIP | 1.533569 | 0.003318 |
| YWHAZ | 1.534087 | 0.000708 |
| EGF | 1.534866 | 0.001609 |
| MANF | 1.535623 | 0.008115 |
| KCTD17 | 1.53614 | 0.080571 |
| SLC18A2 | 1.536233 | 0.003406 |
| CD47 | 1.537173 | 0.000616 |
| CCDC9 | 1.537249 | 0.089915 |
| LURAP1L | 1.537472 | 0.001848 |
| PLEK | 1.538957 | 0.002895 |
| SMDT1 | 1.539759 | 0.011048 |
| DAB2 | 1.539768 | 0.002825 |
| ISLR | 1.539996 | 0.015399 |
| RAC1 | 1.540655 | 0.002951 |
| DOK2 | 1.541417 | 0.000414 |
| KSR1 | 1.541949 | 0.109555 |
| MACF1 | 1.542836 | 0.02098 |
| CHST2 | 1.543067 | 0.065986 |
| CAPZB | 1.543338 | 0.008467 |
| MFF | 1.543704 | 0.075981 |
| FERMT3 | 1.544698 | 0.002897 |
| UBASH3B | 1.544782 | 0.002298 |
| CD226 | 1.54486 | 0.005037 |
| C1orf198 | 1.545117 | 0.006502 |

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| CAVIN2 | 1.546989 | 0.006523 |
| AHSG | 1.548304 | 0.000133 |
| CLEC2L | 1.550021 | 0.011763 |
| GNAO1 | 1.550885 | 0.097529 |
| PDLIM5 | 1.551112 | 0.00565 |
| TCHH | 1.552015 | 0.004306 |
| ADAMTSL2 | 1.552415 | 0.001951 |
| SEPTIN6 | 1.552986 | 0.000902 |
| TGFB1 | 1.553544 | 0.003379 |
| POTEE | 1.553558 | 0.002775 |
| CNN2 | 1.554081 | 0.001301 |
| STRN3 | 1.554449 | 0.005848 |
| IGHV5-10-1 | 1.555703 | 0.04752 |
| NYAP1 | 1.556494 | 0.232878 |
| OPHN1 | 1.556882 | 0.007751 |
| LGALSL | 1.557324 | 0.001966 |
| KIFC3 | 1.557354 | 0.003965 |
| PAOX | 1.558859 | 0.001297 |
| FLNA | 1.559167 | 0.119472 |
| IGFBP6 | 1.559481 | 0.015319 |
| CD79B | 1.560624 | 0.209847 |
| CTDSP1 | 1.561028 | 0.026875 |
| SLC2A3 | 1.561083 | 0.006849 |
| ARL4A | 1.561687 | 0.494108 |
| AMDHD1 | 1.5622 | 0.01988 |
| IRAG1 | 1.562732 | 0.003241 |
| CASS4 | 1.563763 | 0.062089 |
| LDLRAP1 | 1.563821 | 0.007241 |

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| NID2 | 1.564155 | 0.003832 |
| C12orf75 | 1.565127 | 0.004498 |
| GSN | 1.565375 | 0.001463 |
| PLIN4 | 1.566039 | 0.157886 |
| SEPTIN8 | 1.566222 | 0.106931 |
| ITGB6 | 1.56623 | 0.176773 |
| TXNL4B | 1.567535 | 0.030637 |
| ARHGEF9 | 1.568728 | 0.198373 |
| MYL1 | 1.568745 | 0.000582 |
| APPL2 | 1.56954 | 0.000731 |
| RAB23 | 1.569903 | 0.001647 |
| AIG1 | 1.571197 | 0.001308 |
| CRACD | 1.571825 | 0.009057 |
| CD40LG | 1.572044 | 0.005227 |
| KSR1 | 1.572775 | 0.002232 |
| MSI1 | 1.573214 | 0.077795 |
| GRK5 | 1.573267 | 0.001071 |
| TRPM4 | 1.573544 | 0.000801 |
| RADIL | 1.574279 | 0.041727 |
| GAS2L1 | 1.57478 | 0.002947 |
| ROCK2 | 1.577 | 0.001329 |
| PROSER2 | 1.577014 | 0.008511 |
| CFHR5 | 1.577966 | 0.013883 |
| NAV2 | 1.578422 | 0.014405 |
| CTTN | 1.578536 | 0.025687 |
| KDM4C | 1.579214 | 0.286673 |
| EXOSC10 | 1.57993 | 0.443441 |
| CAMK2D | 1.580285 | 0.074174 |

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| FNBP1L | 1.58079 | 0.000547 |
| WASF1 | 1.582358 | 0.001762 |
| FN1 | 1.583317 | 0.000841 |
| PDE3A | 1.583541 | 0.004024 |
| NCKAP1 | 1.584256 | 0.004783 |
| ITGB1 | 1.585154 | 0.001924 |
| MAP4K4 | 1.585325 | 0.222335 |
| ITGB5 | 1.586634 | 0.003373 |
| FETUB | 1.588323 | 0.007199 |
| CLIP2 | 1.588522 | 0.008787 |
| ESAM | 1.588843 | 0.005733 |
| TTC39B | 1.589136 | 0.005254 |
| CD274 | 1.589254 | 0.005692 |
| PITPNM2 | 1.591566 | 0.000938 |
| ADCY6 | 1.59247 | 0.000413 |
| CLDN5 | 1.592739 | 0.004528 |
| SUSD1 | 1.594462 | 0.001393 |
| PLSCR4 | 1.594808 | 0.006015 |
| EPHX2 | 1.595761 | 0.001047 |
| PDGFB | 1.595804 | 0.031206 |
| TUBA4A | 1.595834 | 0.001964 |
| RGS10 | 1.596029 | 0.001933 |
| ATG4D | 1.59611 | 0.043897 |
| GP1BA | 1.596335 | 0.009556 |
| CTDSPL | 1.596457 | 0.001897 |
| NIPA1 | 1.59649 | 0.000767 |
| RSU1 | 1.597371 | 0.003141 |
| P2RX1 | 1.597374 | 0.00325 |

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| MTSS1 | 1.597509 | 0.001631 |
| SEPTIN7 | 1.598741 | 0.00148 |
| SRC | 1.600283 | 0.002167 |
| GDI1 | 1.601201 | 0.001221 |
| TOM1L2 | 1.601831 | 0.004609 |
| PGRMC1 | 1.602728 | 0.000457 |
| F5 | 1.604872 | 0.003511 |
| RHOC | 1.60776 | 0.006067 |
| RELN | 1.608098 | 0.000887 |
| PSTPIP2 | 1.608611 | 0.001495 |
| NBL1 | 1.611099 | 0.243448 |
| ANO6 | 1.612467 | 0.000582 |
| CXCL5 | 1.612771 | 0.03666 |
| FUT8 | 1.6128 | 0.001572 |
| GSN | 1.614121 | 0.003227 |
| RAB3C | 1.614189 | 0.003276 |
| RARRES1 | 1.614236 | 0.008202 |
| PARVB | 1.615685 | 0.377194 |
| F2R | 1.615959 | 0.009262 |
| IGHV3-15 | 1.616147 | 0.007944 |
| RNF11 | 1.616922 | 0.002591 |
| TREML1 | 1.618134 | 0.003685 |
| LECT2 | 1.61858 | 0.133425 |
| PTK2 | 1.619439 | 0.001635 |
| APOA1 | 1.619747 | 0.006773 |
| PLS3 | 1.620367 | 0.000817 |
| EFNB1 | 1.620677 | 0.006713 |
| RAP1B | 1.621456 | 0.009644 |

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| ENO2 | 1.621485 | 0.000486 |
| CLIP1 | 1.621734 | 0.123715 |
| APOA4 | 1.622339 | 0.00187 |
| PITPNC1 | 1.622596 | 0.001999 |
| GCSAML | 1.622733 | 0.007382 |
| IL32 | 1.623496 | 0.217559 |
| MMP1 | 1.6242 | 0.002464 |
| TNFAIP8 | 1.624699 | 0.283268 |
| ARHGAP44 | 1.626816 | 0.084763 |
| STRIP2 | 1.627893 | 0.001667 |
| GP1BB | 1.628068 | 0.003311 |
| RASA3 | 1.628729 | 0.000839 |
| PTPRJ | 1.629795 | 0.000628 |
| PRKG1 | 1.6299 | 0.007207 |
| HLA-A | 1.629976 | 0.08337 |
| NA | 1.631697 | 0.012179 |
| TRAC | 1.632466 | 0.087504 |
| PLXNA4 | 1.63381 | 0.000789 |
| SORT1 | 1.633971 | 0.000746 |
| CEP44 | 1.635283 | 0.001744 |
| ARHGAP6 | 1.636039 | 0.00371 |
| KIAA0513 | 1.637255 | 0.002081 |
| GK2 | 1.638171 | 0.001637 |
| ANG | 1.641322 | 0.002049 |
| KRT17 | 1.64579 | 0.042965 |
| F13B | 1.645861 | 0.000978 |
| SELENOP | 1.646099 | 0.00061 |
| PRELID2 | 1.646417 | 0.648138 |

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| VASP | 1.646826 | 0.001694 |
| LPP | 1.647376 | 0.015347 |
| FHL1 | 1.647569 | 0.005828 |
| MYLK | 1.64932 | 0.026983 |
| PLXNB3 | 1.649512 | 0.001008 |
| A2M | 1.653138 | 0.060649 |
| GGT1 | 1.653342 | 0.004267 |
| ELOVL7 | 1.654933 | 0.004127 |
| POLQ | 1.656138 | 0.006843 |
| ITGA6 | 1.658115 | 0.002489 |
| CD9 | 1.658422 | 0.001947 |
| RGS18 | 1.659154 | 0.000287 |
| CA13 | 1.662541 | 0.002495 |
| TSPAN9 | 1.664571 | 0.001223 |
| NFX1 | 1.664726 | 5.91E-05 |
| SELP | 1.664837 | 0.004547 |
| INPP5A | 1.664898 | 0.000487 |
| SH3KBP1 | 1.665721 | 0.257573 |
| IGHE | 1.665751 | 0.428431 |
| MYLK | 1.665904 | 0.010509 |
| CLEC3B | 1.665911 | 0.001141 |
| PLCB4 | 1.667285 | 0.002022 |
| MAPRE2 | 1.668673 | 0.001028 |
| TUBA8 | 1.668746 | 0.011144 |
| PHETA2 | 1.668848 | 0.00072 |
| PRKAR2B | 1.669309 | 0.000657 |
| SPARC | 1.669952 | 0.00134 |
| SRGN | 1.670295 | 0.007242 |

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| SLMAP | 1.670886 | 0.13019 |
| SVIP | 1.672078 | 0.012355 |
| SLA2 | 1.672738 | 0.000303 |
| EMILIN1 | 1.673024 | 0.007477 |
| APOC1 | 1.674127 | 0.023392 |
| TIMP1 | 1.674323 | 0.001636 |
| SET | 1.675445 | 0.093464 |
| GTPBP2 | 1.677558 | 0.000406 |
| F11R | 1.679848 | 0.001228 |
| SLC44A2 | 1.679856 | 0.001589 |
| IGKV3D-11 | 1.680041 | 0.122574 |
| STK24 | 1.680523 | 0.000264 |
| FLNA | 1.681666 | 0.000994 |
| ST3GAL6 | 1.683447 | 0.002615 |
| RGS6 | 1.684071 | 0.000551 |
| HRG | 1.68442 | 2.24E-05 |
| GMPR | 1.68443 | 0.002615 |
| IGHV2-5 | 1.685249 | 0.037089 |
| DENND2C | 1.686944 | 0.002643 |
| GIPC3 | 1.68709 | 0.000656 |
| DLG1 | 1.688406 | 0.190906 |
| KALRN | 1.688466 | 0.007107 |
| PROS1 | 1.689 | 0.001728 |
| FGG | 1.689699 | 0.000347 |
| THBS1 | 1.689967 | 0.003018 |
| SPP2 | 1.691308 | 0.005461 |
| CT45A2 | 1.692564 | 0.157448 |
| RAB27B | 1.694416 | 0.004412 |

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| ACOX1 | 1.696286 | 0.027398 |
| FAM177A1 | 1.696951 | 0.000832 |
| ALOX12 | 1.697325 | 0.001837 |
| ABLIM1 | 1.697543 | 0.004379 |
| MAP1B | 1.69765 | 0.001309 |
| APP | 1.698703 | 0.001035 |
| ARHGAP18 | 1.699744 | 0.002195 |
| PCSK6 | 1.701657 | 0.000932 |
| INAFM2 | 1.70252 | 0.000634 |
| YES1 | 1.70543 | 0.000461 |
| ITGB3 | 1.706263 | 0.002374 |
| MADD | 1.706371 | 0.041363 |
| CASS4 | 1.706517 | 0.000639 |
| SH3PXD2B | 1.707066 | 0.055207 |
| BGN | 1.708689 | 0.002118 |
| EFEMP2 | 1.709964 | 0.348539 |
| EHD3 | 1.710219 | 0.000967 |
| KRT6A | 1.710822 | 0.006201 |
| RENBP | 1.711342 | 0.000896 |
| SHBG | 1.711379 | 0.002842 |
| RGCC | 1.712838 | 0.012244 |
| CAMK1 | 1.713046 | 0.001051 |
| SLC22A23 | 1.71387 | 0.008644 |
| SEPTIN3 | 1.717661 | 0.003814 |
| GNB5 | 1.718477 | 0.000227 |
| PPM1A | 1.718486 | 0.00101 |
| PPP1R12C | 1.719148 | 0.000806 |
| TTYH3 | 1.71928 | 0.001512 |

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| CALML3 | 1.72164 | 0.437041 |
| DTD1 | 1.724047 | 0.001636 |
| XYLT2 | 1.724935 | 0.000772 |
| SLCO3A1 | 1.72562 | 1.91E-05 |
| THBS2 | 1.727037 | 0.005983 |
| HK1 | 1.72725 | 0.092364 |
| KCNK6 | 1.727319 | 0.007671 |
| RABGAP1 | 1.727654 | 0.05846 |
| ICAM2 | 1.72793 | 0.001571 |
| CLN8 | 1.727996 | 0.013599 |
| FYB1 | 1.732124 | 0.008613 |
| PDGFC | 1.732865 | 0.001101 |
| MAP7D2 | 1.734 | 0.005279 |
| HOMER2 | 1.734773 | 0.000676 |
| MFSD2B | 1.735121 | 0.003235 |
| CRYM | 1.738711 | 0.012131 |
| SIDT1 | 1.73953 | 0.001282 |
| GK | 1.742461 | 0.00065 |
| STRN3 | 1.742488 | 0.124933 |
| TEX13C | 1.742741 | 0.331148 |
| NCK2 | 1.745614 | 0.002096 |
| NID1 | 1.747266 | 0.000603 |
| MSR1 | 1.749811 | 0.418275 |
| TLN1 | 1.750457 | 0.00047 |
| PF4V1 | 1.755805 | 0.035866 |
| MAOB | 1.755943 | 0.001388 |
| GSDMB | 1.756049 | 0.297703 |
| SAMD14 | 1.756942 | 0.007556 |

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| DNM3 | 1.759842 | 0.001107 |
| ENDOD1 | 1.760257 | 0.000315 |
| MCU | 1.760532 | 0.005913 |
| ADIPOR1 | 1.764267 | 0.035696 |
| TMEM63B | 1.768648 | 0.000164 |
| FAM174A | 1.769209 | 0.018227 |
| STON1 | 1.772518 | 7.33E-05 |
| KAZN | 1.772611 | 0.002146 |
| VCL | 1.774251 | 0.000791 |
| CMTM6 | 1.77432 | 0.001809 |
| MRS2 | 1.778956 | 0.020025 |
| GPN2 | 1.780795 | 0.051676 |
| LIMA1 | 1.781812 | 0.005483 |
| ITIH1 | 1.782565 | 0.011551 |
| CARMIL1 | 1.784312 | 0.000659 |
| TNXB | 1.785803 | 0.000272 |
| ARL15 | 1.788621 | 0.000242 |
| FLNA | 1.788794 | 0.00031 |
| MAOA | 1.789758 | 0.00134 |
| PVALB | 1.790722 | 0.004668 |
| MAPK10 | 1.792139 | 0.016134 |
| DCN | 1.79478 | 0.058767 |
| KRT31 | 1.79792 | 0.300943 |
| TMEM40 | 1.803922 | 0.004301 |
| LAMB1 | 1.804065 | 0.00064 |
| KIF2A | 1.805246 | 0.046467 |
| FCGR2A | 1.807414 | 0.015409 |
| RAP1GAP2 | 1.809885 | 0.001851 |

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| GLYATL2 | 1.812083 | 0.002397 |
| UACA | 1.816174 | 0.000498 |
| PPP3CA | 1.825357 | 0.017906 |
| TMBIM1 | 1.826154 | 0.000858 |
| APOC3 | 1.826223 | 0.011543 |
| SEC14L3 | 1.833633 | 0.638651 |
| LIPH | 1.835343 | 0.002597 |
| LAMA4 | 1.83683 | 0.000552 |
| TDRP | 1.839213 | 0.009499 |
| P2RY12 | 1.840659 | 0.000657 |
| COL1A2 | 1.841428 | 0.419583 |
| SPIRE1 | 1.845925 | 0.000232 |
| SEPTIN11 | 1.845925 | 0.000973 |
| CSRP1 | 1.849554 | 0.002611 |
| RAP1B | 1.853362 | 0.00128 |
| TSPAN4 | 1.855149 | 0.000483 |
| FBXO40 | 1.858183 | 0.003954 |
| LAMC1 | 1.862664 | 0.000576 |
| PRTFDC1 | 1.866766 | 0.00174 |
| NXNL1 | 1.86717 | 0.295207 |
| IGFBP5 | 1.868343 | 0.011467 |
| LTBP4 | 1.874072 | 0.031472 |
| TSPAN15 | 1.874342 | 0.00016 |
| MACF1 | 1.882579 | 0.145599 |
| GNG11 | 1.88274 | 0.000835 |
| ILK | 1.883629 | 0.000454 |
| TRPC6 | 1.886955 | 0.000344 |
| ACSBG1 | 1.891789 | 0.001485 |

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| LIMS1 | 1.892338 | 0.000255 |
| FBLN5 | 1.897752 | 0.001852 |
| FGA | 1.900079 | 0.000205 |
| CLEC1B | 1.901788 | 0.000938 |
| AFAP1 | 1.904292 | 0.054337 |
| OSBPL6 | 1.906779 | 0.000276 |
| OAZ1 | 1.91002 | 0.017476 |
| ERBIN | 1.91593 | 0.027305 |
| SLC35D3 | 1.916978 | 0.003938 |
| FGB | 1.920088 | 0.000192 |
| RAB6B | 1.923603 | 0.001397 |
| FKBP1B | 1.923647 | 0.003233 |
| BTBD19 | 1.928368 | 0.090752 |
| PNMA2 | 1.929365 | 0.000672 |
| LSR | 1.938411 | 0.001312 |
| RABGAP1L | 1.938985 | 0.046304 |
| PDGFD | 1.939703 | 0.002966 |
| SLC6A4 | 1.940706 | 0.000643 |
| BMP6 | 1.942653 | 0.005268 |
| IGLV8-61 | 1.943602 | 0.181266 |
| MYL9 | 1.944485 | 7.37E-05 |
| TLNRD1 | 1.95598 | 0.000276 |
| GSTM5 | 1.961382 | 0.001317 |
| IRS1 | 1.964274 | 0.043712 |
| UGT8 | 1.966215 | 0.074932 |
| COL1A1 | 1.970426 | 0.003576 |
| CCDC9B | 1.972438 | 0.001741 |
| SDC4 | 1.97356 | 0.005755 |

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| ADRA2A | 1.97388 | 0.028444 |
| JCAD | 1.977053 | 0.050511 |
| CD109 | 1.9789 | 7.45E-05 |
| RAB30 | 1.979271 | 0.000916 |
| PRSS50 | 1.983482 | 0.005895 |
| DMTN | 1.984467 | 0.003646 |
| SH3BGRL2 | 1.988013 | 0.00052 |
| TMSB4X | 1.989327 | 0.001053 |
| TSC22D1 | 1.991408 | 0.023697 |
| JAM3 | 1.992436 | 0.000277 |
| NECTIN2 | 1.992597 | 0.009621 |
| PTGS2 | 1.99317 | 0.12243 |
| UNC45B | 1.99786 | 0.001084 |
| DBN1 | 2.003994 | 0.00051 |
| PTTG1IP | 2.009803 | 0.150728 |
| TUBA8 | 2.017398 | 0.149693 |
| AP1M2 | 2.018836 | 0.13169 |
| PDE2A | 2.022412 | 0.000899 |
| ANOS1 | 2.024896 | 0.084653 |
| C1orf116 | 2.035663 | 0.00995 |
| TPM1 | 2.036244 | 0.111645 |
| KRT6B | 2.040035 | 0.245105 |
| CKB | 2.044516 | 0.027901 |
| GP6 | 2.045107 | 0.004081 |
| TFPI | 2.047611 | 0.001098 |
| TIMP3 | 2.048048 | 0.000141 |
| FGG | 2.048497 | 0.000156 |
| FGFBP2 | 2.056073 | 0.072769 |

| | | |
|---|---|---|
| MLLT6 | 2.063346 | 0.999911 |
| TJP2 | 2.067713 | 0.19397 |
| HGD | 2.069063 | 0.000433 |
| FLNA | 2.070789 | 0.011549 |
| GCOM1 | 2.072277 | 0.005338 |
| TJP2 | 2.073709 | 0.001909 |
| PAWR | 2.085126 | 0.001127 |
| KIF2A | 2.090059 | 0.083065 |
| EPHA10 | 2.106452 | 0.300796 |
| MTCL1 | 2.109961 | 0.034643 |
| GGTA1 | 2.13136 | 0.096911 |
| WASF3 | 2.134672 | 0.085425 |
| DBN1 | 2.135267 | 0.001901 |
| TRAM1L1 | 2.135774 | 0.651648 |
| PPM1B | 2.141159 | 0.004374 |
| ATP2A3 | 2.150816 | 0.001849 |
| FAT4 | 2.177592 | 0.061315 |
| KCNA3 | 2.181107 | 5.95E-05 |
| SEPTIN8 | 2.248852 | 0.223065 |
| PCDH9 | 2.257575 | 0.004445 |
| HLA-B | 2.264497 | 0.151469 |
| PDLIM7 | 2.29848 | 0.003668 |
| CALHM5 | 2.30272 | 0.001009 |
| CALD1 | 2.322106 | 0.001303 |
| ASAP2 | 2.326727 | 0.066016 |
| KNG1 | 2.342399 | 0.003413 |
| TRHDE | 2.352122 | 0.092301 |
| CCL5 | 2.35723 | 0.000567 |

| | | |
|---|---|---|
| NRGN | 2.368362 | 0.010338 |
| PPP1R14A | 2.387105 | 0.000928 |
| PARVB | 2.39196 | 0.060781 |
| PARVA | 2.436996 | 0.01678 |
| SEMA6D | 2.442722 | 0.060088 |
| MYL2 | 2.451928 | 0.012427 |
| KALRN | 2.473685 | 0.006524 |
| TSPAN32 | 2.477861 | 0.008463 |
| CD36 | 2.551321 | 0.000366 |
| ATP2A1 | 2.584718 | 0.185422 |
| ABLIM3 | 2.627984 | 0.00144 |
| SEPTIN5 | 2.707489 | 0.000919 |
| TMEM40 | 2.765863 | 0.003736 |
| CALD1 | 2.773844 | 0.047669 |
| PTGDR | 2.805462 | 0.036178 |
| C19orf33 | 2.82979 | 0.000765 |
| ZNF841 | 2.90579 | 0.667717 |
| PRKCB | 2.910563 | 0.001094 |
| LCP2 | 2.93095 | 0.095886 |
| CFB | 2.974915 | 0.231821 |
| KRT82 | 3.010742 | 0.536643 |
| PCOLCE | 3.061847 | 0.003868 |
| ACTB | 3.190995 | 0.496603 |
| SLC35D1 | 3.465616 | 0.202031 |
| DGKZ | 4.00438 | 0.1 |
| CD79A | 4.916105 | 0.769224 |

Supp Table 4. DEPs of peripheral blood at diagnosis were associated with biological process terms.

| Annotation Version and Release Date: | GO Ontology database DOI: 10.5281/zenodo.7942786 Released 2023-01-05 | | | | | | |
|---|---|---|---|---|---|---|---|
| Analyzed List: | upload_1 (Homo sapiens) | | | | | | |
| Reference List: | Homo sapiens (all genes in database) | | | | | | |
| Test Type: | FISHER | | | | | | |
| Correction: | FDR | | | | | | |
| GO biological process complete | Homo sapiens - REFLIST (20592) | upload_1 (3736) | upload_1 (expected) | upload_1 (over/under) | upload_1 (fold Enrichment) | upload_1 (raw P-value) | upload_1 (FDR) |
| viral mRNA export from host cell nucleus (GO:0046784) | 8 | 8 | 1.45 | + | 5.51 | 1.24E-03 | 3.13E-02 |
| DNA strand elongation involved in DNA replication (GO:0006271) | 15 | 14 | 2.72 | + | 5.14 | 3.09E-05 | 1.27E-03 |
| positive regulation of DNA-directed DNA polymerase activity (GO:1900264) | 13 | 12 | 2.36 | + | 5.09 | 1.23E-04 | 4.35E-03 |
| regulation of DNA-directed DNA polymerase activity (GO:1900262) | 13 | 12 | 2.36 | + | 5.09 | 1.23E-04 | 4.34E-03 |
| regulation of RNA export from nucleus (GO:0046831) | 12 | 11 | 2.18 | + | 5.05 | 2.47E-04 | 7.94E-03 |
| translocation of molecules into host (GO:0044417) | 9 | 8 | 1.63 | + | 4.9 | 2.02E-03 | 4.49E-02 |
| ncRNA export from nucleus (GO:0097064) | 9 | 8 | 1.63 | + | 4.9 | 2.02E-03 | 4.48E-02 |
| DNA strand elongation (GO:0022616) | 20 | 17 | 3.63 | + | 4.69 | 1.02E-05 | 4.67E-04 |
| sno(s)RNA 3'-end processing (GO:0031126) | 12 | 10 | 2.18 | + | 4.59 | 7.84E-04 | 2.11E-02 |
| maturation of SSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) (GO:0000462) | 35 | 29 | 6.35 | + | 4.57 | 1.22E-08 | 8.85E-07 |
| endonucleolytic cleavage of tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) (GO:0000479) | 17 | 14 | 3.08 | + | 4.54 | 7.80E-05 | 2.96E-03 |

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|---|---|---|---|---|---|---|---|
| snRNA processing (GO:0016180) | 28 | 23 | 5.08 | + | 4.53 | 4.34E-07 | 2.52E-05 |
| alternative mRNA splicing, via spliceosome (GO:0000380) | 22 | 18 | 3.99 | + | 4.51 | 8.05E-06 | 3.75E-04 |
| regulation of nucleobase-containing compound transport (GO:0032239) | 15 | 12 | 2.72 | + | 4.41 | 3.05E-04 | 9.58E-03 |
| U2-type prespliceosome assembly (GO:1903241) | 24 | 19 | 4.35 | + | 4.36 | 6.30E-06 | 2.99E-04 |
| regulatory ncRNA 3'-end processing (GO:0043628) | 19 | 15 | 3.45 | + | 4.35 | 6.07E-05 | 2.35E-03 |
| negative regulation of RNA splicing (GO:0033119) | 28 | 22 | 5.08 | + | 4.33 | 1.29E-06 | 7.10E-05 |
| base-excision repair, gap-filling (GO:0006287) | 14 | 11 | 2.54 | + | 4.33 | 6.04E-04 | 1.71E-02 |
| maturation of LSU-rRNA (GO:0000470) | 28 | 22 | 5.08 | + | 4.33 | 1.29E-06 | 7.07E-05 |
| spliceosomal tri-snRNP complex assembly (GO:0000244) | 14 | 11 | 2.54 | + | 4.33 | 6.04E-04 | 1.70E-02 |
| primary miRNA processing (GO:0031053) | 14 | 11 | 2.54 | + | 4.33 | 6.04E-04 | 1.70E-02 |
| mitotic DNA replication (GO:1902969) | 14 | 11 | 2.54 | + | 4.33 | 6.04E-04 | 1.70E-02 |
| snRNA 3'-end processing (GO:0034472) | 23 | 18 | 4.17 | + | 4.31 | 1.23E-05 | 5.56E-04 |
| RNA 5'-end processing (GO:0000966) | 22 | 17 | 3.99 | + | 4.26 | 2.40E-05 | 1.01E-03 |
| tRNA 5'-leader removal (GO:0001682) | 13 | 10 | 2.36 | + | 4.24 | 1.20E-03 | 3.06E-02 |
| exonucleolytic catabolism of deadenylated mRNA (GO:0043928) | 13 | 10 | 2.36 | + | 4.24 | 1.20E-03 | 3.06E-02 |
| maturation of SSU-rRNA (GO:0030490) | 52 | 40 | 9.43 | + | 4.24 | 1.07E-10 | 9.85E-09 |
| ribosomal small subunit biogenesis (GO:0042274) | 103 | 79 | 18.69 | + | 4.23 | 1.17E-19 | 2.02E-17 |
| DNA unwinding involved in DNA replication (GO:0006268) | 21 | 16 | 3.81 | + | 4.2 | 4.68E-05 | 1.86E-03 |
| RNA capping (GO:0036260) | 21 | 16 | 3.81 | + | 4.2 | 4.68E-05 | 1.86E-03 |
| mRNA cis splicing, via spliceosome (GO:0045292) | 24 | 18 | 4.35 | + | 4.13 | 1.84E-05 | 7.97E-04 |
| tRNA 5'-end processing (GO:0099116) | 16 | 12 | 2.9 | + | 4.13 | 4.59E-04 | 1.35E-02 |
| maturation of LSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) (GO:0000463) | 16 | 12 | 2.9 | + | 4.13 | 4.59E-04 | 1.35E-02 |

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|---|---|---|---|---|---|---|---|
| maturation of 5.8S rRNA (GO:0000460) | 36 | 27 | 6.53 | + | 4.13 | 1.61E-07 | 1.01E-05 |
| negative regulation of mRNA splicing, via spliceosome (GO:0048025) | 23 | 17 | 4.17 | + | 4.07 | 3.58E-05 | 1.45E-03 |
| maturation of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) (GO:0000466) | 25 | 18 | 4.54 | + | 3.97 | 2.72E-05 | 1.13E-03 |
| negative regulation of mRNA processing (GO:0050686) | 25 | 18 | 4.54 | + | 3.97 | 2.72E-05 | 1.12E-03 |
| rRNA processing (GO:0006364) | 217 | 155 | 39.37 | + | 3.94 | 9.37E-35 | 3.83E-32 |
| nuclear RNA surveillance (GO:0071027) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.11E-02 |
| positive regulation of heterochromatin organization (GO:0120263) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.11E-02 |
| positive regulation of heterochromatin formation (GO:0031453) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.10E-02 |
| sno(s)RNA processing (GO:0043144) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.09E-02 |
| 2'-deoxyribonucleotide biosynthetic process (GO:0009265) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.09E-02 |
| deoxyribonucleotide biosynthetic process (GO:0009263) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.08E-02 |
| deoxyribose phosphate biosynthetic process (GO:0046385) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.08E-02 |
| ribosomal large subunit biogenesis (GO:0042273) | 76 | 54 | 13.79 | + | 3.92 | 5.95E-13 | 6.89E-11 |
| RNA surveillance (GO:0071025) | 17 | 12 | 3.08 | + | 3.89 | 6.75E-04 | 1.86E-02 |
| ribosomal small subunit assembly (GO:0000028) | 17 | 12 | 3.08 | + | 3.89 | 6.75E-04 | 1.86E-02 |
| nuclear-transcribed mRNA catabolic process, exonucleolytic (GO:0000291) | 20 | 14 | 3.63 | + | 3.86 | 2.60E-04 | 8.34E-03 |
| spliceosomal complex assembly (GO:0000245) | 73 | 51 | 13.24 | + | 3.85 | 4.06E-12 | 4.29E-10 |
| snRNA metabolic process (GO:0016073) | 54 | 37 | 9.8 | + | 3.78 | 5.05E-09 | 3.83E-07 |
| negative regulation of type I interferon-mediated signaling pathway (GO:0060339) | 19 | 13 | 3.45 | + | 3.77 | 5.02E-04 | 1.46E-02 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| regulation of DNA-templated transcription elongation (GO:0032784) | 105 | 71 | 19.05 | + | 3.73 | 9.06E-16 | 1.27E-13 |
| RNA splicing, via transesterification reactions (GO:0000375) | 253 | 170 | 45.9 | + | 3.7 | 1.22E-35 | 5.42E-33 |
| mRNA splicing, via spliceosome (GO:0000398) | 249 | 167 | 45.18 | + | 3.7 | 5.88E-35 | 2.54E-32 |
| RNA splicing, via transesterification reactions with bulged adenosine as nucleophile (GO:0000377) | 249 | 167 | 45.18 | + | 3.7 | 5.88E-35 | 2.47E-32 |
| ribosome biogenesis (GO:0042254) | 310 | 207 | 56.24 | + | 3.68 | 6.39E-43 | 3.68E-40 |
| telomere maintenance via telomerase (GO:0007004) | 21 | 14 | 3.81 | + | 3.67 | 3.72E-04 | 1.12E-02 |
| mRNA methylation (GO:0080009) | 18 | 12 | 3.27 | + | 3.67 | 9.69E-04 | 2.52E-02 |
| positive regulation of cell cycle checkpoint (GO:1901978) | 18 | 12 | 3.27 | + | 3.67 | 9.69E-04 | 2.51E-02 |
| spliceosomal snRNP assembly (GO:0000387) | 39 | 26 | 7.08 | + | 3.67 | 1.36E-06 | 7.37E-05 |
| regulation of mRNA 3'-end processing (GO:0031440) | 18 | 12 | 3.27 | + | 3.67 | 9.69E-04 | 2.51E-02 |
| ribonucleoprotein complex biogenesis (GO:0022613) | 455 | 303 | 82.55 | + | 3.67 | 1.35E-62 | 1.24E-59 |
| rRNA metabolic process (GO:0016072) | 248 | 165 | 44.99 | + | 3.67 | 3.00E-34 | 1.20E-31 |
| protein-RNA complex assembly (GO:0022618) | 197 | 131 | 35.74 | + | 3.67 | 2.05E-27 | 5.69E-25 |
| protein-RNA complex organization (GO:0071826) | 205 | 136 | 37.19 | + | 3.66 | 2.43E-28 | 7.12E-26 |
| nuclear DNA replication (GO:0033260) | 26 | 17 | 4.72 | + | 3.6 | 1.07E-04 | 3.90E-03 |
| ribosomal large subunit assembly (GO:0000027) | 26 | 17 | 4.72 | + | 3.6 | 1.07E-04 | 3.89E-03 |
| regulation of transcription elongation by RNA polymerase II (GO:0034243) | 88 | 57 | 15.97 | + | 3.57 | 2.15E-12 | 2.30E-10 |
| sno(s)RNA metabolic process (GO:0016074) | 17 | 11 | 3.08 | + | 3.57 | 1.86E-03 | 4.25E-02 |
| RNA 3'-end processing (GO:0031123) | 99 | 64 | 17.96 | + | 3.56 | 1.04E-13 | 1.30E-11 |
| positive regulation of DNA-templated transcription, elongation (GO:0032786) | 62 | 40 | 11.25 | + | 3.56 | 4.30E-09 | 3.29E-07 |
| mRNA splice site recognition (GO:0006376) | 31 | 20 | 5.62 | + | 3.56 | 3.11E-05 | 1.27E-03 |

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|---|---|---|---|---|---|---|---|
| regulation of heterochromatin organization (GO:0120261) | 25 | 16 | 4.54 | + | 3.53 | 2.03E-04 | 6.80E-03 |
| regulation of heterochromatin formation (GO:0031445) | 25 | 16 | 4.54 | + | 3.53 | 2.03E-04 | 6.78E-03 |
| mitotic sister chromatid cohesion (GO:0007064) | 22 | 14 | 3.99 | + | 3.51 | 5.24E-04 | 1.51E-02 |
| tRNA wobble base modification (GO:0002097) | 19 | 12 | 3.45 | + | 3.48 | 1.36E-03 | 3.36E-02 |
| cytoplasmic translation (GO:0002181) | 122 | 77 | 22.13 | + | 3.48 | 8.83E-16 | 1.25E-13 |
| cell cycle DNA replication (GO:0044786) | 27 | 17 | 4.9 | + | 3.47 | 1.50E-04 | 5.15E-03 |
| miRNA processing (GO:0035196) | 35 | 22 | 6.35 | + | 3.46 | 1.71E-05 | 7.48E-04 |
| DNA geometric change (GO:0032392) | 82 | 51 | 14.88 | + | 3.43 | 8.90E-11 | 8.27E-09 |
| histone H3 acetylation (GO:0043966) | 37 | 23 | 6.71 | + | 3.43 | 1.26E-05 | 5.68E-04 |
| histone H3-K4 methylation (GO:0051568) | 29 | 18 | 5.26 | + | 3.42 | 1.10E-04 | 3.94E-03 |
| RNA splicing (GO:0008380) | 381 | 236 | 69.12 | + | 3.41 | 8.40E-45 | 5.22E-42 |
| DNA duplex unwinding (GO:0032508) | 76 | 47 | 13.79 | + | 3.41 | 5.50E-10 | 4.59E-08 |
| DNA conformation change (GO:0071103) | 91 | 56 | 16.51 | + | 3.39 | 1.47E-11 | 1.49E-09 |
| regulation of DNA-templated DNA replication (GO:0090329) | 52 | 32 | 9.43 | + | 3.39 | 3.23E-07 | 1.91E-05 |
| positive regulation of chromosome segregation (GO:0051984) | 28 | 17 | 5.08 | + | 3.35 | 2.06E-04 | 6.86E-03 |
| ncRNA processing (GO:0034470) | 422 | 255 | 76.56 | + | 3.33 | 5.69E-47 | 3.68E-44 |
| negative regulation of stem cell population maintenance (GO:1902455) | 25 | 15 | 4.54 | + | 3.31 | 5.28E-04 | 1.52E-02 |
| DNA-templated transcription elongation (GO:0006354) | 45 | 27 | 8.16 | + | 3.31 | 3.74E-06 | 1.85E-04 |
| base-excision repair (GO:0006284) | 42 | 25 | 7.62 | + | 3.28 | 9.38E-06 | 4.33E-04 |
| mRNA processing (GO:0006397) | 459 | 272 | 83.28 | + | 3.27 | 6.54E-49 | 4.84E-46 |
| rRNA methylation (GO:0031167) | 27 | 16 | 4.9 | + | 3.27 | 3.85E-04 | 1.15E-02 |
| negative regulation of DNA-templated transcription, elongation (GO:0032785) | 22 | 13 | 3.99 | + | 3.26 | 1.36E-03 | 3.36E-02 |

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|---|---|---|---|---|---|---|---|
| double-strand break repair via nonhomologous end joining (GO:0006303) | 44 | 26 | 7.98 | + | 3.26 | 6.90E-06 | 3.26E-04 |
| regulation of nuclease activity (GO:0032069) | 22 | 13 | 3.99 | + | 3.26 | 1.36E-03 | 3.36E-02 |
| transcription initiation-coupled chromatin remodeling (GO:0045815) | 39 | 23 | 7.08 | + | 3.25 | 2.36E-05 | 9.99E-04 |
| RNA processing (GO:0006396) | 881 | 519 | 159.84 | + | 3.25 | 2.75E-94 | 3.05E-91 |
| mRNA 3'-end processing (GO:0031124) | 51 | 30 | 9.25 | + | 3.24 | 1.50E-06 | 7.95E-05 |
| rRNA modification (GO:0000154) | 36 | 21 | 6.53 | + | 3.22 | 5.92E-05 | 2.31E-03 |
| positive regulation of transcription elongation by RNA polymerase II (GO:0032968) | 50 | 29 | 9.07 | + | 3.2 | 4.60E-06 | 2.24E-04 |
| mRNA modification (GO:0016556) | 33 | 19 | 5.99 | + | 3.17 | 1.49E-04 | 5.17E-03 |
| RNA export from nucleus (GO:0006405) | 84 | 48 | 15.24 | + | 3.15 | 2.78E-09 | 2.19E-07 |
| post-transcriptional gene silencing (GO:0016441) | 42 | 24 | 7.62 | + | 3.15 | 2.32E-05 | 9.88E-04 |
| DNA replication initiation (GO:0006270) | 28 | 16 | 5.08 | + | 3.15 | 5.20E-04 | 1.51E-02 |
| monoubiquitinated histone H2A deubiquitination (GO:0035522) | 28 | 16 | 5.08 | + | 3.15 | 5.20E-04 | 1.51E-02 |
| monoubiquitinated histone deubiquitination (GO:0035521) | 28 | 16 | 5.08 | + | 3.15 | 5.20E-04 | 1.50E-02 |
| positive regulation of chromosome separation (GO:1905820) | 30 | 17 | 5.44 | + | 3.12 | 3.77E-04 | 1.14E-02 |
| ncRNA-mediated post-transcriptional gene silencing (GO:0035194) | 32 | 18 | 5.81 | + | 3.1 | 2.74E-04 | 8.71E-03 |
| transcription initiation at RNA polymerase II promoter (GO:0006367) | 73 | 41 | 13.24 | + | 3.1 | 5.63E-08 | 3.78E-06 |
| nucleotide-excision repair (GO:0006289) | 57 | 32 | 10.34 | + | 3.09 | 1.80E-06 | 9.40E-05 |
| mRNA export from nucleus (GO:0006406) | 66 | 37 | 11.97 | + | 3.09 | 2.66E-07 | 1.61E-05 |
| ribosome assembly (GO:0042255) | 59 | 33 | 10.7 | + | 3.08 | 1.27E-06 | 7.01E-05 |
| RNA methylation (GO:0001510) | 93 | 52 | 16.87 | + | 3.08 | 1.01E-09 | 8.24E-08 |
| DNA-templated DNA replication (GO:0006261) | 135 | 75 | 24.49 | + | 3.06 | 2.96E-13 | 3.56E-11 |

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|---|---|---|---|---|---|---|---|
| ncRNA metabolic process (GO:0034660) | 526 | 292 | 95.43 | + | 3.06 | 3.09E-48 | 2.18E-45 |
| mRNA metabolic process (GO:0016071) | 622 | 344 | 112.85 | + | 3.05 | 1.33E-56 | 1.15E-53 |
| histone deubiquitination (GO:0016578) | 38 | 21 | 6.89 | + | 3.05 | 1.59E-04 | 5.43E-03 |
| cellular response to gamma radiation (GO:0071480) | 29 | 16 | 5.26 | + | 3.04 | 6.92E-04 | 1.90E-02 |
| telomere maintenance via telomere lengthening (GO:0010833) | 29 | 16 | 5.26 | + | 3.04 | 6.92E-04 | 1.90E-02 |
| transcription by RNA polymerase III (GO:0006383) | 40 | 22 | 7.26 | + | 3.03 | 1.09E-04 | 3.94E-03 |
| transcription elongation by RNA polymerase II (GO:0006368) | 40 | 22 | 7.26 | + | 3.03 | 1.09E-04 | 3.93E-03 |
| RNA polymerase II preinitiation complex assembly (GO:0051123) | 51 | 28 | 9.25 | + | 3.03 | 1.07E-05 | 4.88E-04 |
| positive regulation of interferon-beta production (GO:0032728) | 42 | 23 | 7.62 | + | 3.02 | 7.55E-05 | 2.87E-03 |
| mRNA polyadenylation (GO:0006378) | 33 | 18 | 5.99 | + | 3.01 | 5.65E-04 | 1.61E-02 |
| regulation of mRNA processing (GO:0050684) | 134 | 73 | 24.31 | + | 3 | 1.82E-12 | 1.98E-10 |
| monoubiquitinated protein deubiquitination (GO:0035520) | 35 | 19 | 6.35 | + | 2.99 | 3.86E-04 | 1.15E-02 |
| positive regulation of stem cell population maintenance (GO:1902459) | 48 | 26 | 8.71 | + | 2.99 | 2.61E-05 | 1.09E-03 |
| attachment of spindle microtubules to kinetochore (GO:0008608) | 26 | 14 | 4.72 | + | 2.97 | 1.75E-03 | 4.08E-02 |
| regulation of telomere capping (GO:1904353) | 26 | 14 | 4.72 | + | 2.97 | 1.75E-03 | 4.07E-02 |
| chromosome condensation (GO:0030261) | 41 | 22 | 7.44 | + | 2.96 | 1.28E-04 | 4.49E-03 |
| DNA replication (GO:0006260) | 200 | 107 | 36.29 | + | 2.95 | 1.95E-17 | 3.06E-15 |
| positive regulation of transcription initiation by RNA polymerase II (GO:0060261) | 62 | 33 | 11.25 | + | 2.93 | 2.55E-06 | 1.31E-04 |
| positive regulation of viral genome replication (GO:0045070) | 32 | 17 | 5.81 | + | 2.93 | 9.40E-04 | 2.46E-02 |
| telomere maintenance (GO:0000723) | 96 | 51 | 17.42 | + | 2.93 | 5.82E-09 | 4.39E-07 |
| regulation of chromatin organization (GO:1902275) | 51 | 27 | 9.25 | + | 2.92 | 2.30E-05 | 9.80E-04 |
| regulation of mRNA splicing, via spliceosome (GO:0048024) | 106 | 56 | 19.23 | + | 2.91 | 1.90E-09 | 1.52E-07 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| telomere organization (GO:0032200) | 106 | 55 | 19.23 | + | 2.86 | 3.46E-09 | 2.70E-07 |
| RNA destabilization (GO:0050779) | 81 | 42 | 14.7 | + | 2.86 | 2.16E-07 | 1.33E-05 |
| histone acetylation (GO:0016573) | 85 | 44 | 15.42 | + | 2.85 | 1.11E-07 | 7.21E-06 |
| spindle checkpoint signaling (GO:0031577) | 31 | 16 | 5.62 | + | 2.84 | 1.58E-03 | 3.74E-02 |
| antigen processing and presentation of exogenous peptide antigen via MHC class II (GO:0019886) | 31 | 16 | 5.62 | + | 2.84 | 1.58E-03 | 3.73E-02 |
| regulation of transcription initiation by RNA polymerase II (GO:0060260) | 72 | 37 | 13.06 | + | 2.83 | 1.42E-06 | 7.58E-05 |
| RNA modification (GO:0009451) | 181 | 93 | 32.84 | + | 2.83 | 1.78E-14 | 2.26E-12 |
| regulation of RNA splicing (GO:0043484) | 183 | 94 | 33.2 | + | 2.83 | 1.27E-14 | 1.64E-12 |
| regulation of type I interferon-mediated signaling pathway (GO:0060338) | 41 | 21 | 7.44 | + | 2.82 | 2.68E-04 | 8.54E-03 |
| tRNA methylation (GO:0030488) | 43 | 22 | 7.8 | + | 2.82 | 1.90E-04 | 6.39E-03 |
| mRNA transcription by RNA polymerase II (GO:0042789) | 47 | 24 | 8.53 | + | 2.81 | 9.74E-05 | 3.62E-03 |
| DNA-templated transcription initiation (GO:0006352) | 108 | 55 | 19.59 | + | 2.81 | 4.89E-09 | 3.72E-07 |
| positive regulation of chromosome organization (GO:2001252) | 110 | 56 | 19.96 | + | 2.81 | 3.51E-09 | 2.73E-07 |
| regulation of DNA replication (GO:0006275) | 130 | 66 | 23.59 | + | 2.8 | 1.84E-10 | 1.61E-08 |
| tRNA processing (GO:0008033) | 136 | 69 | 24.67 | + | 2.8 | 6.58E-11 | 6.27E-09 |
| positive regulation of DNA-templated transcription initiation (GO:2000144) | 69 | 35 | 12.52 | + | 2.8 | 3.36E-06 | 1.67E-04 |
| regulation of chromosome separation (GO:1905818) | 73 | 37 | 13.24 | + | 2.79 | 1.71E-06 | 9.00E-05 |
| mRNA destabilization (GO:0061157) | 77 | 39 | 13.97 | + | 2.79 | 8.81E-07 | 4.97E-05 |
| regulation of chromosome segregation (GO:0051983) | 131 | 66 | 23.77 | + | 2.78 | 2.16E-10 | 1.88E-08 |
| mRNA transport (GO:0051028) | 135 | 68 | 24.49 | + | 2.78 | 1.10E-10 | 1.00E-08 |
| negative regulation of chromosome segregation (GO:0051985) | 36 | 18 | 6.53 | + | 2.76 | 9.20E-04 | 2.43E-02 |

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|---|---|---|---|---|---|---|---|
| RNA phosphodiester bond hydrolysis, exonucleolytic (GO:0090503) | 36 | 18 | 6.53 | + | 2.76 | 9.20E-04 | 2.42E-02 |
| histone lysine methylation (GO:0034968) | 48 | 24 | 8.71 | + | 2.76 | 1.22E-04 | 4.32E-03 |
| ncRNA catabolic process (GO:0034661) | 42 | 21 | 7.62 | + | 2.76 | 3.30E-04 | 1.02E-02 |
| antigen processing and presentation of peptide or polysaccharide antigen via MHC class II (GO:0002504) | 34 | 17 | 6.17 | + | 2.76 | 1.31E-03 | 3.28E-02 |
| regulation of interferon-beta production (GO:0032648) | 60 | 30 | 10.89 | + | 2.76 | 2.24E-05 | 9.61E-04 |
| nuclear-transcribed mRNA catabolic process, deadenylation-dependent decay (GO:0000288) | 44 | 22 | 7.98 | + | 2.76 | 2.36E-04 | 7.69E-03 |
| mRNA transcription (GO:0009299) | 54 | 27 | 9.8 | + | 2.76 | 6.56E-05 | 2.52E-03 |
| tRNA modification (GO:0006400) | 95 | 47 | 17.24 | + | 2.73 | 1.24E-07 | 7.95E-06 |
| internal peptidyl-lysine acetylation (GO:0018393) | 93 | 46 | 16.87 | + | 2.73 | 1.73E-07 | 1.08E-05 |
| regulation of DNA-templated transcription initiation (GO:2000142) | 81 | 40 | 14.7 | + | 2.72 | 1.38E-06 | 7.46E-05 |
| negative regulation of chromosome organization (GO:2001251) | 79 | 39 | 14.33 | + | 2.72 | 1.98E-06 | 1.03E-04 |
| double-strand break repair (GO:0006302) | 209 | 103 | 37.92 | + | 2.72 | 5.56E-15 | 7.44E-13 |
| positive regulation of mRNA metabolic process (GO:1903313) | 130 | 64 | 23.59 | + | 2.71 | 7.42E-10 | 6.09E-08 |
| regulation of mRNA metabolic process (GO:1903311) | 300 | 147 | 54.43 | + | 2.7 | 1.08E-20 | 2.00E-18 |
| peptidyl-lysine acetylation (GO:0018394) | 96 | 47 | 17.42 | + | 2.7 | 1.50E-07 | 9.48E-06 |
| regulation of cell cycle checkpoint (GO:1901976) | 47 | 23 | 8.53 | + | 2.7 | 3.19E-04 | 9.94E-03 |
| positive regulation of mRNA catabolic process (GO:0061014) | 92 | 45 | 16.69 | + | 2.7 | 2.90E-07 | 1.73E-05 |
| regulation of mitotic metaphase/anaphase transition (GO:0030071) | 90 | 44 | 16.33 | + | 2.69 | 4.05E-07 | 2.38E-05 |
| RNA localization (GO:0006403) | 185 | 90 | 33.56 | + | 2.68 | 6.54E-13 | 7.46E-11 |
| regulation of stem cell population maintenance (GO:2000036) | 72 | 35 | 13.06 | + | 2.68 | 9.36E-06 | 4.34E-04 |

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|---|---|---|---|---|---|---|---|
| negative regulation of metaphase/anaphase transition of cell cycle (GO:1902100) | 35 | 17 | 6.35 | + | 2.68 | 1.58E-03 | 3.75E-02 |
| negative regulation of chromosome separation (GO:1905819) | 35 | 17 | 6.35 | + | 2.68 | 1.58E-03 | 3.74E-02 |
| negative regulation of mitotic sister chromatid separation (GO:2000816) | 33 | 16 | 5.99 | + | 2.67 | 2.23E-03 | 4.88E-02 |
| antigen processing and presentation of peptide antigen via MHC class II (GO:0002495) | 33 | 16 | 5.99 | + | 2.67 | 2.23E-03 | 4.87E-02 |
| negative regulation of mitotic sister chromatid segregation (GO:0033048) | 33 | 16 | 5.99 | + | 2.67 | 2.23E-03 | 4.87E-02 |
| negative regulation of sister chromatid segregation (GO:0033046) | 33 | 16 | 5.99 | + | 2.67 | 2.23E-03 | 4.86E-02 |
| establishment of RNA localization (GO:0051236) | 165 | 80 | 29.94 | + | 2.67 | 1.19E-11 | 1.21E-09 |
| negative regulation of mitotic metaphase/anaphase transition (GO:0045841) | 33 | 16 | 5.99 | + | 2.67 | 2.23E-03 | 4.85E-02 |
| RNA transport (GO:0050658) | 163 | 79 | 29.57 | + | 2.67 | 1.67E-11 | 1.68E-09 |
| nucleic acid transport (GO:0050657) | 163 | 79 | 29.57 | + | 2.67 | 1.67E-11 | 1.67E-09 |
| internal protein amino acid acetylation (GO:0006475) | 95 | 46 | 17.24 | + | 2.67 | 2.54E-07 | 1.55E-05 |
| regulation of metaphase/anaphase transition of cell cycle (GO:1902099) | 93 | 45 | 16.87 | + | 2.67 | 3.52E-07 | 2.08E-05 |
| recombinational repair (GO:0000725) | 120 | 58 | 21.77 | + | 2.66 | 7.74E-09 | 5.75E-07 |
| double-strand break repair via homologous recombination (GO:0000724) | 116 | 56 | 21.05 | + | 2.66 | 1.49E-08 | 1.06E-06 |
| regulation of mitotic sister chromatid separation (GO:0010965) | 58 | 28 | 10.52 | + | 2.66 | 6.22E-05 | 2.40E-03 |
| negative regulation of viral genome replication (GO:0045071) | 56 | 27 | 10.16 | + | 2.66 | 8.75E-05 | 3.28E-03 |
| regulation of mitotic sister chromatid segregation (GO:0033047) | 54 | 26 | 9.8 | + | 2.65 | 1.24E-04 | 4.35E-03 |
| RNA metabolic process (GO:0016070) | 1653 | 790 | 299.9 | + | 2.63 | ########## | ########## |

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|---|---|---|---|---|---|---|---|
| transcription preinitiation complex assembly (GO:0070897) | 65 | 31 | 11.79 | + | 2.63 | 4.41E-05 | 1.77E-03 |
| regulation of viral genome replication (GO:0045069) | 86 | 41 | 15.6 | + | 2.63 | 1.58E-06 | 8.33E-05 |
| regulation of chromosome organization (GO:0033044) | 250 | 119 | 45.36 | + | 2.62 | 3.58E-16 | 5.20E-14 |
| histone methylation (GO:0016571) | 61 | 29 | 11.07 | + | 2.62 | 5.34E-05 | 2.09E-03 |
| antigen processing and presentation of exogenous peptide antigen (GO:0002478) | 40 | 19 | 7.26 | + | 2.62 | 1.55E-03 | 3.71E-02 |
| positive regulation of mRNA processing (GO:0050685) | 40 | 19 | 7.26 | + | 2.62 | 1.55E-03 | 3.71E-02 |
| negative regulation of telomere maintenance (GO:0032205) | 36 | 17 | 6.53 | + | 2.6 | 1.93E-03 | 4.33E-02 |
| positive regulation of transcription by RNA polymerase I (GO:0045943) | 36 | 17 | 6.53 | + | 2.6 | 1.93E-03 | 4.33E-02 |
| RNA catabolic process (GO:0006401) | 168 | 79 | 30.48 | + | 2.59 | 5.42E-11 | 5.19E-09 |
| histone modification (GO:0016570) | 232 | 109 | 42.09 | + | 2.59 | 1.48E-14 | 1.90E-12 |
| regulation of sister chromatid segregation (GO:0033045) | 105 | 49 | 19.05 | + | 2.57 | 2.54E-07 | 1.55E-05 |
| positive regulation of type I interferon production (GO:0032481) | 71 | 33 | 12.88 | + | 2.56 | 2.71E-05 | 1.13E-03 |
| 2'-deoxyribonucleotide metabolic process (GO:0009394) | 41 | 19 | 7.44 | + | 2.55 | 1.70E-03 | 3.99E-02 |
| negative regulation of mitotic nuclear division (GO:0045839) | 41 | 19 | 7.44 | + | 2.55 | 1.70E-03 | 3.99E-02 |
| protein sumoylation (GO:0016925) | 54 | 25 | 9.8 | + | 2.55 | 2.43E-04 | 7.87E-03 |
| nuclear export (GO:0051168) | 134 | 62 | 24.31 | + | 2.55 | 1.09E-08 | 7.93E-07 |
| translation (GO:0006412) | 389 | 179 | 70.58 | + | 2.54 | 1.44E-22 | 3.06E-20 |
| tRNA metabolic process (GO:0006399) | 198 | 91 | 35.92 | + | 2.53 | 5.16E-12 | 5.41E-10 |
| regulation of RNA stability (GO:0043487) | 178 | 81 | 32.29 | + | 2.51 | 9.72E-11 | 8.98E-09 |
| DNA-templated DNA replication maintenance of fidelity (GO:0045005) | 55 | 25 | 9.98 | + | 2.51 | 4.57E-04 | 1.35E-02 |
| nucleic acid metabolic process (GO:0090304) | 2270 | 1030 | 411.85 | + | 2.5 | ########## | ########## |

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|---|---|---|---|---|---|---|---|
| sister chromatid segregation (GO:0000819) | 139 | 63 | 25.22 | + | 2.5 | 1.90E-08 | 1.34E-06 |
| deoxyribonucleotide metabolic process (GO:0009262) | 42 | 19 | 7.62 | + | 2.49 | 1.91E-03 | 4.33E-02 |
| nucleoside monophosphate biosynthetic process (GO:0009124) | 42 | 19 | 7.62 | + | 2.49 | 1.91E-03 | 4.32E-02 |
| deoxyribose phosphate metabolic process (GO:0019692) | 42 | 19 | 7.62 | + | 2.49 | 1.91E-03 | 4.32E-02 |
| positive regulation of telomere maintenance (GO:0032206) | 69 | 31 | 12.52 | + | 2.48 | 7.22E-05 | 2.76E-03 |
| regulation of mRNA catabolic process (GO:0061013) | 187 | 84 | 33.93 | + | 2.48 | 7.87E-11 | 7.41E-09 |
| regulation of transcription by RNA polymerase I (GO:0006356) | 49 | 22 | 8.89 | + | 2.47 | 7.91E-04 | 2.13E-02 |
| negative regulation of mRNA metabolic process (GO:1903312) | 96 | 43 | 17.42 | + | 2.47 | 4.36E-06 | 2.14E-04 |
| nuclear-transcribed mRNA catabolic process (GO:0000956) | 105 | 47 | 19.05 | + | 2.47 | 1.25E-06 | 6.92E-05 |
| macromolecule methylation (GO:0043414) | 226 | 101 | 41 | + | 2.46 | 1.17E-12 | 1.29E-10 |
| negative regulation of translation (GO:0017148) | 184 | 82 | 33.38 | + | 2.46 | 1.74E-10 | 1.54E-08 |
| mitotic sister chromatid segregation (GO:0000070) | 135 | 60 | 24.49 | + | 2.45 | 6.30E-08 | 4.22E-06 |
| DNA repair (GO:0006281) | 510 | 225 | 92.53 | + | 2.43 | 3.99E-26 | 1.00E-23 |
| mitotic nuclear division (GO:0140014) | 161 | 71 | 29.21 | + | 2.43 | 3.98E-09 | 3.06E-07 |
| peptide biosynthetic process (GO:0043043) | 418 | 184 | 75.84 | + | 2.43 | 1.60E-21 | 3.18E-19 |
| mRNA catabolic process (GO:0006402) | 128 | 56 | 23.22 | + | 2.41 | 2.70E-07 | 1.63E-05 |
| negative regulation of nuclear division (GO:0051784) | 48 | 21 | 8.71 | + | 2.41 | 1.31E-03 | 3.28E-02 |
| replication fork processing (GO:0031297) | 48 | 21 | 8.71 | + | 2.41 | 1.31E-03 | 3.27E-02 |
| protein acetylation (GO:0006473) | 119 | 52 | 21.59 | + | 2.41 | 5.92E-07 | 3.40E-05 |
| regulation of type I interferon production (GO:0032479) | 119 | 52 | 21.59 | + | 2.41 | 5.92E-07 | 3.39E-05 |
| nuclear envelope organization (GO:0006998) | 55 | 24 | 9.98 | + | 2.41 | 7.77E-04 | 2.10E-02 |
| ncRNA transcription (GO:0098781) | 46 | 20 | 8.35 | + | 2.4 | 1.83E-03 | 4.17E-02 |
| regulation of mRNA stability (GO:0043488) | 166 | 72 | 30.12 | + | 2.39 | 6.08E-09 | 4.54E-07 |

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|---|---|---|---|---|---|---|---|
| regulation of telomere maintenance (GO:0032204) | 104 | 45 | 18.87 | + | 2.38 | 5.54E-06 | 2.64E-04 |
| mitotic metaphase plate congression (GO:0007080) | 51 | 22 | 9.25 | + | 2.38 | 1.56E-03 | 3.72E-02 |
| RNA-mediated gene silencing (GO:0031047) | 109 | 47 | 19.78 | + | 2.38 | 3.08E-06 | 1.55E-04 |
| positive regulation of viral process (GO:0048524) | 65 | 28 | 11.79 | + | 2.37 | 4.08E-04 | 1.21E-02 |
| negative regulation of innate immune response (GO:0045824) | 86 | 37 | 15.6 | + | 2.37 | 4.10E-05 | 1.66E-03 |
| gene expression (GO:0010467) | 1823 | 783 | 330.75 | + | 2.37 | 4.22E-91 | 4.37E-88 |
| DNA biosynthetic process (GO:0071897) | 98 | 42 | 17.78 | + | 2.36 | 9.92E-06 | 4.57E-04 |
| antiviral innate immune response (GO:0140374) | 49 | 21 | 8.89 | + | 2.36 | 2.22E-03 | 4.88E-02 |
| negative regulation of DNA recombination (GO:0045910) | 49 | 21 | 8.89 | + | 2.36 | 2.22E-03 | 4.88E-02 |
| translational initiation (GO:0006413) | 70 | 30 | 12.7 | + | 2.36 | 2.21E-04 | 7.28E-03 |
| regulation of DNA repair (GO:0006282) | 213 | 91 | 38.64 | + | 2.35 | 1.09E-10 | 1.00E-08 |
| cellular response to ionizing radiation (GO:0071479) | 75 | 32 | 13.61 | + | 2.35 | 1.27E-04 | 4.46E-03 |
| peptidyl-lysine methylation (GO:0018022) | 68 | 29 | 12.34 | + | 2.35 | 3.11E-04 | 9.75E-03 |
| regulation of alternative mRNA splicing, via spliceosome (GO:0000381) | 54 | 23 | 9.8 | + | 2.35 | 1.23E-03 | 3.10E-02 |
| chromosome organization (GO:0051276) | 455 | 193 | 82.55 | + | 2.34 | 5.05E-21 | 9.45E-19 |
| cell cycle checkpoint signaling (GO:0000075) | 161 | 68 | 29.21 | + | 2.33 | 3.22E-08 | 2.22E-06 |
| mitochondrial translation (GO:0032543) | 109 | 46 | 19.78 | + | 2.33 | 5.46E-06 | 2.61E-04 |
| regulation of translation (GO:0006417) | 429 | 181 | 77.83 | + | 2.33 | 1.45E-19 | 2.42E-17 |
| positive regulation of DNA repair (GO:0045739) | 128 | 54 | 23.22 | + | 2.33 | 8.31E-07 | 4.71E-05 |
| regulation of translational initiation (GO:0006446) | 83 | 35 | 15.06 | + | 2.32 | 8.83E-05 | 3.30E-03 |
| response to ionizing radiation (GO:0010212) | 143 | 60 | 25.94 | + | 2.31 | 2.41E-07 | 1.48E-05 |
| DNA metabolic process (GO:0006259) | 772 | 323 | 140.06 | + | 2.31 | 5.51E-34 | 2.14E-31 |
| response to gamma radiation (GO:0010332) | 55 | 23 | 9.98 | + | 2.3 | 1.39E-03 | 3.40E-02 |

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|---|---|---|---|---|---|---|---|
| nucleobase-containing compound metabolic process (GO:0006139) | 2784 | 1160 | 505.1 | + | 2.3 | ########## | ########## |
| nucleobase-containing compound transport (GO:0015931) | 221 | 92 | 40.1 | + | 2.29 | 2.27E-10 | 1.97E-08 |
| peptidyl-lysine modification (GO:0018205) | 255 | 106 | 46.26 | + | 2.29 | 1.00E-11 | 1.03E-09 |
| post-transcriptional regulation of gene expression (GO:0010608) | 518 | 215 | 93.98 | + | 2.29 | 1.90E-22 | 3.99E-20 |
| nucleobase-containing compound catabolic process (GO:0034655) | 287 | 119 | 52.07 | + | 2.29 | 6.05E-13 | 6.96E-11 |
| regulation of DNA metabolic process (GO:0051052) | 531 | 220 | 96.34 | + | 2.28 | 7.32E-23 | 1.62E-20 |
| protein-DNA complex assembly (GO:0065004) | 186 | 77 | 33.75 | + | 2.28 | 7.98E-09 | 5.90E-07 |
| metaphase plate congression (GO:0051310) | 63 | 26 | 11.43 | + | 2.27 | 9.45E-04 | 2.47E-02 |
| positive regulation of double-strand break repair (GO:2000781) | 85 | 35 | 15.42 | + | 2.27 | 1.09E-04 | 3.92E-03 |
| heterochromatin organization (GO:0070828) | 73 | 30 | 13.24 | + | 2.27 | 3.20E-04 | 9.95E-03 |
| regulation of DNA recombination (GO:0000018) | 134 | 55 | 24.31 | + | 2.26 | 1.34E-06 | 7.30E-05 |
| negative regulation of DNA metabolic process (GO:0051053) | 144 | 59 | 26.13 | + | 2.26 | 6.51E-07 | 3.72E-05 |
| mitotic cell cycle checkpoint signaling (GO:0007093) | 127 | 52 | 23.04 | + | 2.26 | 3.13E-06 | 1.58E-04 |
| mitochondrial gene expression (GO:0140053) | 142 | 58 | 25.76 | + | 2.25 | 8.99E-07 | 5.04E-05 |
| DNA damage response (GO:0006974) | 764 | 312 | 138.61 | + | 2.25 | 3.00E-31 | 1.06E-28 |
| nucleosome organization (GO:0034728) | 108 | 44 | 19.59 | + | 2.25 | 2.11E-05 | 9.09E-04 |
| negative regulation of amide metabolic process (GO:0034249) | 207 | 84 | 37.56 | + | 2.24 | 3.62E-09 | 2.80E-07 |
| RNA stabilization (GO:0043489) | 69 | 28 | 12.52 | + | 2.24 | 6.10E-04 | 1.71E-02 |
| positive regulation of DNA recombination (GO:0045911) | 69 | 28 | 12.52 | + | 2.24 | 6.10E-04 | 1.71E-02 |
| protein methylation (GO:0006479) | 111 | 45 | 20.14 | + | 2.23 | 1.68E-05 | 7.42E-04 |
| protein alkylation (GO:0008213) | 111 | 45 | 20.14 | + | 2.23 | 1.68E-05 | 7.40E-04 |
| negative regulation of RNA catabolic process (GO:1902369) | 84 | 34 | 15.24 | + | 2.23 | 1.71E-04 | 5.78E-03 |

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|---|---|---|---|---|---|---|---|
| heterocycle metabolic process (GO:0046483) | 2960 | 1196 | 537.03 | + | 2.23 | ########## | ########## |
| regulation of double-strand break repair via homologous recombination (GO:0010569) | 72 | 29 | 13.06 | + | 2.22 | 7.20E-04 | 1.96E-02 |
| cellular nitrogen compound catabolic process (GO:0044270) | 326 | 131 | 59.15 | + | 2.21 | 2.55E-13 | 3.12E-11 |
| positive regulation of DNA metabolic process (GO:0051054) | 304 | 122 | 55.15 | + | 2.21 | 2.06E-12 | 2.22E-10 |
| cellular nitrogen compound metabolic process (GO:0034641) | 3334 | 1337 | 604.89 | + | 2.21 | ########## | ########## |
| DNA recombination (GO:0006310) | 247 | 99 | 44.81 | + | 2.21 | 2.47E-10 | 2.13E-08 |
| methylation (GO:0032259) | 282 | 113 | 51.16 | + | 2.21 | 1.74E-11 | 1.72E-09 |
| negative regulation of viral process (GO:0048525) | 95 | 38 | 17.24 | + | 2.2 | 9.10E-05 | 3.40E-03 |
| nucleocytoplasmic transport (GO:0006913) | 248 | 99 | 44.99 | + | 2.2 | 4.03E-10 | 3.42E-08 |
| nuclear transport (GO:0051169) | 248 | 99 | 44.99 | + | 2.2 | 4.03E-10 | 3.40E-08 |
| regulation of double-strand break repair (GO:2000779) | 133 | 53 | 24.13 | + | 2.2 | 4.92E-06 | 2.37E-04 |
| cellular aromatic compound metabolic process (GO:0006725) | 3002 | 1194 | 544.65 | + | 2.19 | ########## | ########## |
| regulation of histone modification (GO:0031056) | 83 | 33 | 15.06 | + | 2.19 | 3.90E-04 | 1.16E-02 |
| heterocycle catabolic process (GO:0046700) | 328 | 130 | 59.51 | + | 2.18 | 7.23E-13 | 8.14E-11 |
| regulation of amide metabolic process (GO:0034248) | 488 | 193 | 88.54 | + | 2.18 | 1.93E-18 | 3.12E-16 |
| protein localization to chromosome (GO:0034502) | 81 | 32 | 14.7 | + | 2.18 | 5.43E-04 | 1.55E-02 |
| post-translational protein modification (GO:0043687) | 66 | 26 | 11.97 | + | 2.17 | 1.32E-03 | 3.29E-02 |
| peptide metabolic process (GO:0006518) | 513 | 202 | 93.07 | + | 2.17 | 4.31E-19 | 7.13E-17 |
| heterochromatin formation (GO:0031507) | 61 | 24 | 11.07 | + | 2.17 | 2.23E-03 | 4.89E-02 |
| amide biosynthetic process (GO:0043604) | 543 | 213 | 98.52 | + | 2.16 | 8.14E-20 | 1.44E-17 |
| transcription by RNA polymerase II (GO:0006366) | 355 | 139 | 64.41 | + | 2.16 | 2.85E-13 | 3.46E-11 |

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|---|---|---|---|---|---|---|---|
| epigenetic regulation of gene expression (GO:0040029) | 189 | 74 | 34.29 | + | 2.16 | 1.02E-07 | 6.68E-06 |
| positive regulation of translation (GO:0045727) | 146 | 57 | 26.49 | + | 2.15 | 3.19E-06 | 1.60E-04 |
| chromatin remodeling (GO:0006338) | 596 | 232 | 108.13 | + | 2.15 | 3.01E-21 | 5.71E-19 |
| RNA phosphodiester bond hydrolysis (GO:0090501) | 121 | 47 | 21.95 | + | 2.14 | 3.38E-05 | 1.38E-03 |
| positive regulation of DNA biosynthetic process (GO:2000573) | 75 | 29 | 13.61 | + | 2.13 | 9.45E-04 | 2.47E-02 |
| nucleosome assembly (GO:0006334) | 88 | 34 | 15.97 | + | 2.13 | 3.61E-04 | 1.10E-02 |
| protein acylation (GO:0043543) | 159 | 61 | 28.85 | + | 2.11 | 2.97E-06 | 1.50E-04 |
| DNA-templated transcription (GO:0006351) | 632 | 242 | 114.66 | + | 2.11 | 2.08E-21 | 4.04E-19 |
| RNA biosynthetic process (GO:0032774) | 644 | 246 | 116.84 | + | 2.11 | 1.18E-21 | 2.45E-19 |
| regulation of viral life cycle (GO:1903900) | 144 | 55 | 26.13 | + | 2.11 | 1.04E-05 | 4.74E-04 |
| protein-DNA complex organization (GO:0071824) | 810 | 309 | 146.96 | + | 2.1 | 5.23E-27 | 1.40E-24 |
| pyrimidine-containing compound metabolic process (GO:0072527) | 84 | 32 | 15.24 | + | 2.1 | 6.76E-04 | 1.86E-02 |
| aromatic compound catabolic process (GO:0019439) | 344 | 131 | 62.41 | + | 2.1 | 7.61E-12 | 7.94E-10 |
| nucleic acid phosphodiester bond hydrolysis (GO:0090305) | 142 | 54 | 25.76 | + | 2.1 | 1.42E-05 | 6.36E-04 |
| organic cyclic compound metabolic process (GO:1901360) | 3244 | 1231 | 588.56 | + | 2.09 | ########## | ########## |
| mitotic spindle organization (GO:0007052) | 95 | 36 | 17.24 | + | 2.09 | 3.55E-04 | 1.09E-02 |
| nucleus organization (GO:0006997) | 143 | 54 | 25.94 | + | 2.08 | 1.50E-05 | 6.69E-04 |
| DNA damage checkpoint signaling (GO:0000077) | 109 | 41 | 19.78 | + | 2.07 | 1.49E-04 | 5.16E-03 |
| regulation of DNA biosynthetic process (GO:2000278) | 125 | 47 | 22.68 | + | 2.07 | 4.71E-05 | 1.86E-03 |
| cellular response to UV (GO:0034644) | 91 | 34 | 16.51 | + | 2.06 | 6.63E-04 | 1.83E-02 |
| protein localization to nucleus (GO:0034504) | 193 | 72 | 35.02 | + | 2.06 | 7.46E-07 | 4.24E-05 |
| chromatin organization (GO:0006325) | 732 | 273 | 132.81 | + | 2.06 | 9.15E-23 | 2.00E-20 |
| DNA integrity checkpoint signaling (GO:0031570) | 118 | 44 | 21.41 | + | 2.06 | 1.07E-04 | 3.89E-03 |

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|---|---|---|---|---|---|---|---|
| regulation of viral process (GO:0050792) | 167 | 62 | 30.3 | + | 2.05 | 4.86E-06 | 2.35E-04 |
| regulation of mitotic nuclear division (GO:0007088) | 117 | 43 | 21.23 | + | 2.03 | 1.58E-04 | 5.41E-03 |
| spindle assembly (GO:0051225) | 98 | 36 | 17.78 | + | 2.02 | 6.47E-04 | 1.80E-02 |
| regulation of mitotic cell cycle phase transition (GO:1901990) | 333 | 122 | 60.42 | + | 2.02 | 2.69E-10 | 2.31E-08 |
| mitotic cell cycle process (GO:1903047) | 522 | 191 | 94.71 | + | 2.02 | 1.80E-15 | 2.45E-13 |
| regulation of signal transduction by p53 class mediator (GO:1901796) | 107 | 39 | 19.41 | + | 2.01 | 4.64E-04 | 1.36E-02 |
| regulation of cell cycle phase transition (GO:1901987) | 434 | 158 | 78.74 | + | 2.01 | 6.89E-13 | 7.81E-11 |
| defense response to virus (GO:0051607) | 270 | 98 | 48.99 | + | 2 | 2.11E-08 | 1.48E-06 |
| defense response to symbiont (GO:0140546) | 271 | 98 | 49.17 | + | 1.99 | 2.28E-08 | 1.59E-06 |
| negative regulation of response to biotic stimulus (GO:0002832) | 133 | 48 | 24.13 | + | 1.99 | 1.06E-04 | 3.90E-03 |
| negative regulation of gene expression, epigenetic (GO:0045814) | 86 | 31 | 15.6 | + | 1.99 | 1.81E-03 | 4.14E-02 |
| regulation of G2/M transition of mitotic cell cycle (GO:0010389) | 100 | 36 | 18.14 | + | 1.98 | 7.48E-04 | 2.03E-02 |
| negative regulation of cell cycle phase transition (GO:1901988) | 228 | 82 | 41.37 | + | 1.98 | 4.33E-07 | 2.53E-05 |
| non-membrane-bounded organelle assembly (GO:0140694) | 320 | 115 | 58.06 | + | 1.98 | 2.28E-09 | 1.81E-07 |
| import into nucleus (GO:0051170) | 117 | 42 | 21.23 | + | 1.98 | 3.48E-04 | 1.07E-02 |
| cellular nitrogen compound biosynthetic process (GO:0044271) | 1623 | 580 | 294.46 | + | 1.97 | 1.84E-44 | 1.10E-41 |
| organic cyclic compound catabolic process (GO:1901361) | 375 | 134 | 68.04 | + | 1.97 | 1.44E-10 | 1.29E-08 |
| mitotic cell cycle (GO:0000278) | 616 | 220 | 111.76 | + | 1.97 | 1.07E-16 | 1.58E-14 |
| chromosome segregation (GO:0007059) | 332 | 118 | 60.23 | + | 1.96 | 1.94E-09 | 1.55E-07 |
| nucleobase-containing compound biosynthetic process (GO:0034654) | 1026 | 364 | 186.15 | + | 1.96 | 6.89E-27 | 1.81E-24 |
| blastocyst development (GO:0001824) | 113 | 40 | 20.5 | + | 1.95 | 6.36E-04 | 1.77E-02 |
| response to UV (GO:0009411) | 153 | 54 | 27.76 | + | 1.95 | 6.07E-05 | 2.35E-03 |
| heterocycle biosynthetic process (GO:0018130) | 1097 | 384 | 199.03 | + | 1.93 | 1.68E-27 | 4.75E-25 |

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|---|---|---|---|---|---|---|---|
| spindle organization (GO:0007051) | 163 | 57 | 29.57 | + | 1.93 | 4.57E-05 | 1.83E-03 |
| macromolecule biosynthetic process (GO:0009059) | 1517 | 529 | 275.23 | + | 1.92 | 7.16E-38 | 3.37E-35 |
| protein import into nucleus (GO:0006606) | 112 | 39 | 20.32 | + | 1.92 | 8.97E-04 | 2.38E-02 |
| cellular response to radiation (GO:0071478) | 181 | 63 | 32.84 | + | 1.92 | 2.25E-05 | 9.61E-04 |
| negative regulation of mitotic cell cycle phase transition (GO:1901991) | 167 | 58 | 30.3 | + | 1.91 | 5.38E-05 | 2.10E-03 |
| ERAD pathway (GO:0036503) | 98 | 34 | 17.78 | + | 1.91 | 2.20E-03 | 4.84E-02 |
| negative regulation of cellular catabolic process (GO:0031330) | 199 | 69 | 36.1 | + | 1.91 | 1.12E-05 | 5.11E-04 |
| negative regulation of mitotic cell cycle (GO:0045930) | 214 | 74 | 38.83 | + | 1.91 | 4.96E-06 | 2.39E-04 |
| signal transduction in response to DNA damage (GO:0042770) | 142 | 49 | 25.76 | + | 1.9 | 2.45E-04 | 7.92E-03 |
| positive regulation of amide metabolic process (GO:0034250) | 174 | 60 | 31.57 | + | 1.9 | 5.08E-05 | 2.00E-03 |
| activation of innate immune response (GO:0002218) | 154 | 53 | 27.94 | + | 1.9 | 1.36E-04 | 4.71E-03 |
| erythrocyte homeostasis (GO:0034101) | 108 | 37 | 19.59 | + | 1.89 | 1.61E-03 | 3.80E-02 |
| aromatic compound biosynthetic process (GO:0019438) | 1107 | 378 | 200.84 | + | 1.88 | 1.89E-25 | 4.58E-23 |
| regulation of G1/S transition of mitotic cell cycle (GO:2000045) | 164 | 56 | 29.75 | + | 1.88 | 1.00E-04 | 3.72E-03 |
| negative regulation of cell cycle process (GO:0010948) | 274 | 93 | 49.71 | + | 1.87 | 5.64E-07 | 3.25E-05 |
| intrinsic apoptotic signaling pathway (GO:0097193) | 165 | 56 | 29.94 | + | 1.87 | 1.06E-04 | 3.90E-03 |
| regulation of cell cycle G2/M phase transition (GO:1902749) | 112 | 38 | 20.32 | + | 1.87 | 1.36E-03 | 3.36E-02 |
| positive regulation of cell cycle phase transition (GO:1901989) | 113 | 38 | 20.5 | + | 1.85 | 2.01E-03 | 4.47E-02 |
| response to virus (GO:0009615) | 372 | 125 | 67.49 | + | 1.85 | 1.13E-08 | 8.19E-07 |
| cell division (GO:0051301) | 521 | 175 | 94.52 | + | 1.85 | 1.17E-11 | 1.20E-09 |
| regulation of mitotic cell cycle (GO:0007346) | 494 | 165 | 89.63 | + | 1.84 | 6.89E-11 | 6.53E-09 |
| T cell receptor signaling pathway (GO:0050852) | 111 | 37 | 20.14 | + | 1.84 | 1.94E-03 | 4.35E-02 |
| amide metabolic process (GO:0043603) | 800 | 266 | 145.14 | + | 1.83 | 8.30E-17 | 1.24E-14 |

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|---|---|---|---|---|---|---|---|
| protein-containing complex organization (GO:0043933) | 1971 | 651 | 357.6 | + | 1.82 | 5.75E-41 | 2.98E-38 |
| organic cyclic compound biosynthetic process (GO:1901362) | 1230 | 404 | 223.16 | + | 1.81 | 1.72E-24 | 3.99E-22 |
| regulation of cellular catabolic process (GO:0031329) | 649 | 213 | 117.75 | + | 1.81 | 3.48E-13 | 4.16E-11 |
| nuclear chromosome segregation (GO:0098813) | 236 | 77 | 42.82 | + | 1.8 | 1.77E-05 | 7.68E-04 |
| cell cycle phase transition (GO:0044770) | 176 | 57 | 31.93 | + | 1.79 | 2.43E-04 | 7.87E-03 |
| protein-containing complex assembly (GO:0065003) | 1256 | 406 | 227.88 | + | 1.78 | 1.74E-23 | 3.91E-21 |
| microtubule cytoskeleton organization involved in mitosis (GO:1902850) | 130 | 42 | 23.59 | + | 1.78 | 1.91E-03 | 4.33E-02 |
| cell cycle process (GO:0022402) | 881 | 283 | 159.84 | + | 1.77 | 3.74E-16 | 5.37E-14 |
| positive regulation of cellular catabolic process (GO:0031331) | 318 | 102 | 57.69 | + | 1.77 | 1.48E-06 | 7.89E-05 |
| cellular response to stress (GO:0033554) | 1600 | 513 | 290.29 | + | 1.77 | 2.76E-29 | 8.59E-27 |
| cellular biosynthetic process (GO:0044249) | 2217 | 710 | 402.23 | + | 1.77 | 2.12E-41 | 1.13E-38 |
| regulation of cell cycle G1/S phase transition (GO:1902806) | 191 | 61 | 34.65 | + | 1.76 | 2.08E-04 | 6.91E-03 |
| regulation of cell cycle process (GO:0010564) | 725 | 231 | 131.54 | + | 1.76 | 4.48E-13 | 5.27E-11 |
| positive regulation of binding (GO:0051099) | 179 | 57 | 32.48 | + | 1.76 | 3.70E-04 | 1.12E-02 |
| carbohydrate derivative catabolic process (GO:1901136) | 173 | 55 | 31.39 | + | 1.75 | 5.77E-04 | 1.64E-02 |
| positive regulation of innate immune response (GO:0045089) | 255 | 81 | 46.26 | + | 1.75 | 2.44E-05 | 1.03E-03 |
| regulation of nuclear division (GO:0051783) | 145 | 46 | 26.31 | + | 1.75 | 1.64E-03 | 3.86E-02 |
| cellular metabolic process (GO:0044237) | 5808 | 1835 | 1053.74 | + | 1.74 | ########## | ########## |
| negative regulation of cell cycle (GO:0045786) | 361 | 113 | 65.5 | + | 1.73 | 1.18E-06 | 6.52E-05 |
| macromolecule metabolic process (GO:0043170) | 5864 | 1827 | 1063.9 | + | 1.72 | ########## | ########## |
| cell cycle (GO:0007049) | 1270 | 395 | 230.42 | + | 1.71 | 2.10E-20 | 3.79E-18 |
| regulation of innate immune response (GO:0045088) | 385 | 118 | 69.85 | + | 1.69 | 1.75E-06 | 9.17E-05 |

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|---|---|---|---|---|---|---|---|
| cellular response to starvation (GO:0009267) | 173 | 53 | 31.39 | + | 1.69 | 1.50E-03 | 3.62E-02 |
| positive regulation of response to biotic stimulus (GO:0002833) | 284 | 87 | 51.53 | + | 1.69 | 4.30E-05 | 1.73E-03 |
| positive regulation of cell cycle process (GO:0090068) | 252 | 77 | 45.72 | + | 1.68 | 1.09E-04 | 3.92E-03 |
| regulation of cellular response to stress (GO:0080135) | 642 | 196 | 116.48 | + | 1.68 | 6.28E-10 | 5.22E-08 |
| regulation of protein modification by small protein conjugation or removal (GO:1903320) | 256 | 78 | 46.45 | + | 1.68 | 1.20E-04 | 4.28E-03 |
| nuclear division (GO:0000280) | 309 | 94 | 56.06 | + | 1.68 | 2.58E-05 | 1.08E-03 |
| nitrogen compound metabolic process (GO:0006807) | 6589 | 1999 | 1195.44 | + | 1.67 | ########## | ########## |
| mitotic cell cycle phase transition (GO:0044772) | 165 | 50 | 29.94 | + | 1.67 | 2.23E-03 | 4.88E-02 |
| cellular response to abiotic stimulus (GO:0071214) | 327 | 99 | 59.33 | + | 1.67 | 1.73E-05 | 7.56E-04 |
| cellular response to environmental stimulus (GO:0104004) | 327 | 99 | 59.33 | + | 1.67 | 1.73E-05 | 7.54E-04 |
| organic substance biosynthetic process (GO:1901576) | 2574 | 779 | 467 | + | 1.67 | 1.51E-38 | 7.56E-36 |
| protein folding (GO:0006457) | 219 | 66 | 39.73 | + | 1.66 | 4.85E-04 | 1.41E-02 |
| regulation of cell cycle (GO:0051726) | 1119 | 337 | 203.02 | + | 1.66 | 7.22E-16 | 1.03E-13 |
| peptidyl-amino acid modification (GO:0018193) | 733 | 220 | 132.99 | + | 1.65 | 1.51E-10 | 1.35E-08 |
| cellular component biogenesis (GO:0044085) | 2655 | 796 | 481.7 | + | 1.65 | 3.03E-38 | 1.47E-35 |
| biosynthetic process (GO:0009058) | 2637 | 789 | 478.43 | + | 1.65 | 1.36E-37 | 6.20E-35 |
| negative regulation of gene expression (GO:0010629) | 954 | 285 | 173.08 | + | 1.65 | 4.43E-13 | 5.25E-11 |
| protein polyubiquitination (GO:0000209) | 243 | 72 | 44.09 | + | 1.63 | 3.83E-04 | 1.15E-02 |
| primary metabolic process (GO:0044238) | 7140 | 2092 | 1295.41 | + | 1.61 | ########## | ########## |
| regulation of response to biotic stimulus (GO:0002831) | 478 | 140 | 86.72 | + | 1.61 | 1.37E-06 | 7.42E-05 |
| regulation of catabolic process (GO:0009894) | 1013 | 295 | 183.79 | + | 1.61 | 1.75E-12 | 1.91E-10 |
| response to starvation (GO:0042594) | 213 | 62 | 38.64 | + | 1.6 | 1.75E-03 | 4.08E-02 |

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|---|---|---|---|---|---|---|---|
| organelle fission (GO:0048285) | 335 | 97 | 60.78 | + | 1.6 | 8.71E-05 | 3.28E-03 |
| cellular catabolic process (GO:0044248) | 1073 | 310 | 194.67 | + | 1.59 | 9.45E-13 | 1.05E-10 |
| activation of immune response (GO:0002253) | 368 | 106 | 66.77 | + | 1.59 | 4.69E-05 | 1.86E-03 |
| macromolecule catabolic process (GO:0009057) | 1007 | 290 | 182.7 | + | 1.59 | 7.88E-12 | 8.15E-10 |
| regulation of protein ubiquitination (GO:0031396) | 216 | 62 | 39.19 | + | 1.58 | 1.91E-03 | 4.33E-02 |
| regulation of autophagy (GO:0010506) | 352 | 101 | 63.86 | + | 1.58 | 7.53E-05 | 2.87E-03 |
| organic substance metabolic process (GO:0071704) | 7624 | 2182 | 1383.22 | + | 1.58 | ########## | ########## |
| protein localization to organelle (GO:0033365) | 730 | 208 | 132.44 | + | 1.57 | 1.97E-08 | 1.39E-06 |
| organonitrogen compound biosynthetic process (GO:1901566) | 1346 | 383 | 244.2 | + | 1.57 | 8.95E-15 | 1.17E-12 |
| positive regulation of organelle organization (GO:0010638) | 508 | 144 | 92.17 | + | 1.56 | 4.41E-06 | 2.16E-04 |
| negative regulation of defense response (GO:0031348) | 272 | 77 | 49.35 | + | 1.56 | 9.46E-04 | 2.46E-02 |
| regulation of binding (GO:0051098) | 371 | 105 | 67.31 | + | 1.56 | 8.59E-05 | 3.24E-03 |
| regulation of I-kappaB kinase/NF-kappaB signaling (GO:0043122) | 258 | 73 | 46.81 | + | 1.56 | 1.20E-03 | 3.06E-02 |
| metabolic process (GO:0008152) | 8056 | 2272 | 1461.6 | + | 1.55 | ########## | ########## |
| positive regulation of nucleobase-containing compound metabolic process (GO:0045935) | 2042 | 575 | 370.48 | + | 1.55 | 1.85E-21 | 3.64E-19 |
| cellular response to extracellular stimulus (GO:0031668) | 259 | 72 | 46.99 | + | 1.53 | 2.04E-03 | 4.51E-02 |
| biological process involved in symbiotic interaction (GO:0044403) | 270 | 75 | 48.99 | + | 1.53 | 1.52E-03 | 3.66E-02 |
| autophagy (GO:0006914) | 317 | 88 | 57.51 | + | 1.53 | 6.28E-04 | 1.75E-02 |
| process utilizing autophagic mechanism (GO:0061919) | 317 | 88 | 57.51 | + | 1.53 | 6.28E-04 | 1.75E-02 |
| innate immune response (GO:0045087) | 758 | 210 | 137.52 | + | 1.53 | 9.23E-08 | 6.05E-06 |
| positive regulation of cell cycle (GO:0045787) | 344 | 95 | 62.41 | + | 1.52 | 3.88E-04 | 1.16E-02 |
| macromolecule modification (GO:0043412) | 2716 | 750 | 492.76 | + | 1.52 | 1.69E-26 | 4.30E-24 |

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|---|---|---|---|---|---|---|---|
| proteasomal protein catabolic process (GO:0010498) | 381 | 105 | 69.12 | + | 1.52 | 2.17E-04 | 7.17E-03 |
| regulation of protein stability (GO:0031647) | 334 | 92 | 60.6 | + | 1.52 | 5.28E-04 | 1.52E-02 |
| positive regulation of immune response (GO:0050778) | 629 | 173 | 114.12 | + | 1.52 | 2.05E-06 | 1.07E-04 |
| positive regulation of catabolic process (GO:0009896) | 527 | 144 | 95.61 | + | 1.51 | 2.13E-05 | 9.17E-04 |
| response to radiation (GO:0009314) | 445 | 121 | 80.74 | + | 1.5 | 1.19E-04 | 4.26E-03 |
| positive regulation of RNA metabolic process (GO:0051254) | 1847 | 502 | 335.1 | + | 1.5 | 3.36E-16 | 4.92E-14 |
| establishment of organelle localization (GO:0051656) | 391 | 106 | 70.94 | + | 1.49 | 3.29E-04 | 1.01E-02 |
| protein modification by small protein conjugation or removal (GO:0070647) | 854 | 231 | 154.94 | + | 1.49 | 1.06E-07 | 6.89E-06 |
| regulation of immune response (GO:0050776) | 885 | 239 | 160.57 | + | 1.49 | 6.80E-08 | 4.53E-06 |
| proteasome-mediated ubiquitin-dependent protein catabolic process (GO:0043161) | 346 | 93 | 62.77 | + | 1.48 | 1.03E-03 | 2.64E-02 |
| negative regulation of catabolic process (GO:0009895) | 339 | 91 | 61.5 | + | 1.48 | 1.17E-03 | 2.99E-02 |
| apoptotic signaling pathway (GO:0097190) | 313 | 84 | 56.79 | + | 1.48 | 1.95E-03 | 4.36E-02 |
| cellular component disassembly (GO:0022411) | 325 | 87 | 58.96 | + | 1.48 | 1.86E-03 | 4.24E-02 |
| negative regulation of organelle organization (GO:0010639) | 340 | 91 | 61.69 | + | 1.48 | 1.48E-03 | 3.56E-02 |
| regulation of organelle organization (GO:0033043) | 1174 | 314 | 213 | + | 1.47 | 1.29E-09 | 1.04E-07 |
| establishment of protein localization to organelle (GO:0072594) | 344 | 92 | 62.41 | + | 1.47 | 1.25E-03 | 3.15E-02 |
| protein modification by small protein conjugation (GO:0032446) | 711 | 190 | 129 | + | 1.47 | 2.95E-06 | 1.50E-04 |
| positive regulation of macromolecule biosynthetic process (GO:0010557) | 1933 | 516 | 350.7 | + | 1.47 | 1.90E-15 | 2.57E-13 |
| defense response to other organism (GO:0098542) | 1006 | 267 | 182.52 | + | 1.46 | 4.09E-08 | 2.76E-06 |
| intracellular protein transport (GO:0006886) | 694 | 184 | 125.91 | + | 1.46 | 6.94E-06 | 3.27E-04 |
| immune response-regulating signaling pathway (GO:0002764) | 336 | 89 | 60.96 | + | 1.46 | 2.18E-03 | 4.80E-02 |

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|---|---|---|---|---|---|---|---|
| intracellular transport (GO:0046907) | 1368 | 362 | 248.2 | + | 1.46 | 1.38E-10 | 1.25E-08 |
| positive regulation of biosynthetic process (GO:0009891) | 2072 | 547 | 375.92 | + | 1.46 | 1.23E-15 | 1.69E-13 |
| regulation of response to stress (GO:0080134) | 1417 | 374 | 257.09 | + | 1.45 | 8.72E-11 | 8.16E-09 |
| positive regulation of cellular biosynthetic process (GO:0031328) | 2013 | 530 | 365.22 | + | 1.45 | 5.59E-15 | 7.42E-13 |
| positive regulation of defense response (GO:0031349) | 390 | 102 | 70.76 | + | 1.44 | 1.25E-03 | 3.14E-02 |
| cellular component assembly (GO:0022607) | 2407 | 629 | 436.7 | + | 1.44 | 2.96E-17 | 4.51E-15 |
| organic substance catabolic process (GO:1901575) | 1703 | 445 | 308.97 | + | 1.44 | 3.73E-12 | 3.97E-10 |
| response to stress (GO:0006950) | 3419 | 892 | 620.31 | + | 1.44 | 3.28E-25 | 7.84E-23 |
| nucleobase-containing small molecule metabolic process (GO:0055086) | 561 | 146 | 101.78 | + | 1.43 | 1.33E-04 | 4.64E-03 |
| negative regulation of protein modification process (GO:0031400) | 462 | 120 | 83.82 | + | 1.43 | 5.80E-04 | 1.65E-02 |
| negative regulation of protein metabolic process (GO:0051248) | 986 | 256 | 178.89 | + | 1.43 | 4.10E-07 | 2.40E-05 |
| in utero embryonic development (GO:0001701) | 401 | 104 | 72.75 | + | 1.43 | 1.43E-03 | 3.49E-02 |
| cellular component organization or biogenesis (GO:0071840) | 5754 | 1492 | 1043.95 | + | 1.43 | 3.45E-47 | 2.33E-44 |
| positive regulation of cellular metabolic process (GO:0031325) | 2966 | 767 | 538.12 | + | 1.43 | 2.16E-20 | 3.86E-18 |
| protein modification process (GO:0036211) | 2502 | 647 | 453.94 | + | 1.43 | 5.87E-17 | 8.86E-15 |
| proteolysis involved in protein catabolic process (GO:0051603) | 656 | 169 | 119.02 | + | 1.42 | 6.60E-05 | 2.53E-03 |
| catabolic process (GO:0009056) | 1977 | 509 | 358.69 | + | 1.42 | 5.52E-13 | 6.45E-11 |
| regulation of defense response (GO:0031347) | 754 | 194 | 136.8 | + | 1.42 | 1.83E-05 | 7.96E-04 |
| positive regulation of RNA biosynthetic process (GO:1902680) | 1714 | 440 | 310.97 | + | 1.41 | 4.37E-11 | 4.24E-09 |
| protein metabolic process (GO:0019538) | 3802 | 974 | 689.8 | + | 1.41 | 1.28E-25 | 3.16E-23 |
| regulation of protein metabolic process (GO:0051246) | 2461 | 630 | 446.5 | + | 1.41 | 1.19E-15 | 1.65E-13 |
| negative regulation of cellular metabolic process (GO:0031324) | 2212 | 566 | 401.32 | + | 1.41 | 4.72E-14 | 5.91E-12 |

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|---|---|---|---|---|---|---|---|
| biological process involved in interspecies interaction between organisms (GO:0044419) | 1551 | 396 | 281.4 | + | 1.41 | 8.13E-10 | 6.65E-08 |
| positive regulation of nitrogen compound metabolic process (GO:0051173) | 3111 | 794 | 564.43 | + | 1.41 | 8.24E-20 | 1.44E-17 |
| response to biotic stimulus (GO:0009607) | 1419 | 362 | 257.45 | + | 1.41 | 5.94E-09 | 4.46E-07 |
| protein ubiquitination (GO:0016567) | 633 | 161 | 114.84 | + | 1.4 | 1.68E-04 | 5.71E-03 |
| positive regulation of DNA-templated transcription (GO:0045893) | 1707 | 434 | 309.7 | + | 1.4 | 1.70E-10 | 1.51E-08 |
| positive regulation of gene expression (GO:0010628) | 1171 | 297 | 212.45 | + | 1.4 | 2.41E-07 | 1.48E-05 |
| modification-dependent macromolecule catabolic process (GO:0043632) | 604 | 153 | 109.58 | + | 1.4 | 2.70E-04 | 8.58E-03 |
| positive regulation of programmed cell death (GO:0043068) | 533 | 135 | 96.7 | + | 1.4 | 7.19E-04 | 1.97E-02 |
| positive regulation of macromolecule metabolic process (GO:0010604) | 3503 | 887 | 635.55 | + | 1.4 | 1.26E-21 | 2.54E-19 |
| protein transport (GO:0015031) | 1187 | 300 | 215.36 | + | 1.39 | 2.83E-07 | 1.70E-05 |
| regulation of nucleobase-containing compound metabolic process (GO:0019219) | 4027 | 1017 | 730.62 | + | 1.39 | 4.70E-25 | 1.11E-22 |
| response to other organism (GO:0051707) | 1371 | 346 | 248.74 | + | 1.39 | 3.18E-08 | 2.20E-06 |
| ubiquitin-dependent protein catabolic process (GO:0006511) | 583 | 147 | 105.77 | + | 1.39 | 4.64E-04 | 1.36E-02 |
| protein catabolic process (GO:0030163) | 774 | 195 | 140.43 | + | 1.39 | 5.00E-05 | 1.97E-03 |
| response to external biotic stimulus (GO:0043207) | 1374 | 346 | 249.28 | + | 1.39 | 3.96E-08 | 2.68E-06 |
| establishment of protein localization (GO:0045184) | 1284 | 323 | 232.96 | + | 1.39 | 1.33E-07 | 8.49E-06 |
| positive regulation of cytokine production (GO:0001819) | 489 | 123 | 88.72 | + | 1.39 | 1.44E-03 | 3.50E-02 |
| organophosphate biosynthetic process (GO:0090407) | 545 | 137 | 98.88 | + | 1.39 | 8.15E-04 | 2.18E-02 |
| positive regulation of metabolic process (GO:0009893) | 3814 | 958 | 691.97 | + | 1.38 | 1.01E-22 | 2.17E-20 |
| lymphocyte activation (GO:0046649) | 478 | 120 | 86.72 | + | 1.38 | 1.88E-03 | 4.27E-02 |

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|---|---|---|---|---|---|---|---|
| positive regulation of apoptotic process (GO:0043065) | 510 | 128 | 92.53 | + | 1.38 | 1.22E-03 | 3.11E-02 |
| establishment of localization in cell (GO:0051649) | 1785 | 446 | 323.85 | + | 1.38 | 6.66E-10 | 5.50E-08 |
| apoptotic process (GO:0006915) | 1045 | 261 | 189.59 | + | 1.38 | 3.78E-06 | 1.86E-04 |
| modification-dependent protein catabolic process (GO:0019941) | 593 | 148 | 107.59 | + | 1.38 | 6.22E-04 | 1.74E-02 |
| negative regulation of nitrogen compound metabolic process (GO:0051172) | 2371 | 590 | 430.17 | + | 1.37 | 9.33E-13 | 1.04E-10 |
| positive regulation of immune system process (GO:0002684) | 973 | 242 | 176.53 | + | 1.37 | 1.21E-05 | 5.48E-04 |
| organonitrogen compound catabolic process (GO:1901565) | 1112 | 276 | 201.75 | + | 1.37 | 3.34E-06 | 1.66E-04 |
| organelle localization (GO:0051640) | 528 | 131 | 95.79 | + | 1.37 | 1.47E-03 | 3.57E-02 |
| programmed cell death (GO:0012501) | 1091 | 270 | 197.94 | + | 1.36 | 4.79E-06 | 2.32E-04 |
| nitrogen compound transport (GO:0071705) | 1623 | 401 | 294.46 | + | 1.36 | 1.98E-08 | 1.39E-06 |
| negative regulation of macromolecule metabolic process (GO:0010605) | 2750 | 679 | 498.93 | + | 1.36 | 4.18E-14 | 5.28E-12 |
| organonitrogen compound metabolic process (GO:1901564) | 4843 | 1194 | 878.66 | + | 1.36 | 7.11E-27 | 1.84E-24 |
| cell death (GO:0008219) | 1103 | 271 | 200.12 | + | 1.35 | 7.59E-06 | 3.56E-04 |
| negative regulation of nucleobase-containing compound metabolic process (GO:0045934) | 1563 | 384 | 283.57 | + | 1.35 | 7.23E-08 | 4.80E-06 |
| negative regulation of metabolic process (GO:0009892) | 2980 | 732 | 540.66 | + | 1.35 | 7.17E-15 | 9.43E-13 |
| regulation of cellular metabolic process (GO:0031323) | 5457 | 1337 | 990.06 | + | 1.35 | 3.87E-30 | 1.25E-27 |
| negative regulation of macromolecule biosynthetic process (GO:0010558) | 1556 | 379 | 282.3 | + | 1.34 | 1.97E-07 | 1.23E-05 |
| cellular component organization (GO:0016043) | 5540 | 1344 | 1005.12 | + | 1.34 | 1.22E-28 | 3.72E-26 |
| regulation of cytokine production (GO:0001817) | 775 | 188 | 140.61 | + | 1.34 | 3.69E-04 | 1.12E-02 |
| negative regulation of biosynthetic process (GO:0009890) | 1646 | 399 | 298.63 | + | 1.34 | 1.19E-07 | 7.66E-06 |
| cellular macromolecule localization (GO:0070727) | 1937 | 469 | 351.43 | + | 1.33 | 8.48E-09 | 6.24E-07 |

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|---|---|---|---|---|---|---|---|
| regulation of RNA metabolic process (GO:0051252) | 3743 | 906 | 679.09 | + | 1.33 | 2.35E-17 | 3.65E-15 |
| regulation of transferase activity (GO:0051338) | 847 | 205 | 153.67 | + | 1.33 | 2.35E-04 | 7.65E-03 |
| negative regulation of cellular biosynthetic process (GO:0031327) | 1597 | 386 | 289.74 | + | 1.33 | 2.70E-07 | 1.63E-05 |
| protein localization (GO:0008104) | 1931 | 466 | 350.34 | + | 1.33 | 1.36E-08 | 9.79E-07 |
| regulation of immune system process (GO:0002682) | 1484 | 358 | 269.24 | + | 1.33 | 8.92E-07 | 5.02E-05 |
| organelle organization (GO:0006996) | 3054 | 736 | 554.09 | + | 1.33 | 2.05E-13 | 2.53E-11 |
| regulation of nitrogen compound metabolic process (GO:0051171) | 5622 | 1352 | 1020 | + | 1.33 | 2.20E-27 | 6.00E-25 |
| regulation of cellular biosynthetic process (GO:0031326) | 4045 | 972 | 733.88 | + | 1.32 | 4.98E-18 | 7.90E-16 |
| regulation of biosynthetic process (GO:0009889) | 4154 | 997 | 753.66 | + | 1.32 | 1.86E-18 | 3.03E-16 |
| regulation of macromolecule biosynthetic process (GO:0010556) | 3938 | 945 | 714.47 | + | 1.32 | 2.85E-17 | 4.38E-15 |
| regulation of primary metabolic process (GO:0080090) | 5801 | 1390 | 1052.47 | + | 1.32 | 7.60E-28 | 2.18E-25 |
| cellular localization (GO:0051641) | 2695 | 645 | 488.95 | + | 1.32 | 2.92E-11 | 2.87E-09 |
| regulation of protein modification process (GO:0031399) | 1442 | 345 | 261.62 | + | 1.32 | 2.92E-06 | 1.49E-04 |
| regulation of gene expression (GO:0010468) | 4861 | 1162 | 881.93 | + | 1.32 | 1.19E-21 | 2.43E-19 |
| positive regulation of cellular component organization (GO:0051130) | 1118 | 267 | 202.84 | + | 1.32 | 5.44E-05 | 2.12E-03 |
| defense response (GO:0006952) | 1429 | 341 | 259.26 | + | 1.32 | 4.33E-06 | 2.13E-04 |
| macromolecule localization (GO:0033036) | 2371 | 565 | 430.17 | + | 1.31 | 1.29E-09 | 1.04E-07 |
| regulation of macromolecule metabolic process (GO:0060255) | 6161 | 1465 | 1117.79 | + | 1.31 | 1.48E-28 | 4.42E-26 |
| regulation of metabolic process (GO:0019222) | 6691 | 1581 | 1213.95 | + | 1.3 | 1.38E-30 | 4.55E-28 |
| regulation of programmed cell death (GO:0043067) | 1517 | 357 | 275.23 | + | 1.3 | 6.60E-06 | 3.12E-04 |
| organelle assembly (GO:0070925) | 827 | 194 | 150.04 | + | 1.29 | 1.39E-03 | 3.41E-02 |
| negative regulation of RNA metabolic process (GO:0051253) | 1447 | 339 | 262.53 | + | 1.29 | 1.70E-05 | 7.48E-04 |
| response to abiotic stimulus (GO:0009628) | 1118 | 260 | 202.84 | + | 1.28 | 2.94E-04 | 9.30E-03 |

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|---|---|---|---|---|---|---|---|
| regulation of apoptotic process (GO:0042981) | 1467 | 341 | 266.16 | + | 1.28 | 2.98E-05 | 1.23E-03 |
| positive regulation of cellular process (GO:0048522) | 5492 | 1271 | 996.41 | + | 1.28 | 1.24E-19 | 2.09E-17 |
| positive regulation of molecular function (GO:0044093) | 1518 | 351 | 275.41 | + | 1.27 | 2.95E-05 | 1.22E-03 |
| response to nitrogen compound (GO:1901698) | 1060 | 244 | 192.32 | + | 1.27 | 7.80E-04 | 2.10E-02 |
| positive regulation of biological process (GO:0048518) | 6198 | 1414 | 1124.5 | + | 1.26 | 2.07E-20 | 3.79E-18 |
| small molecule metabolic process (GO:0044281) | 1674 | 381 | 303.71 | + | 1.25 | 4.20E-05 | 1.70E-03 |
| response to organonitrogen compound (GO:0010243) | 986 | 224 | 178.89 | + | 1.25 | 2.15E-03 | 4.74E-02 |
| positive regulation of protein metabolic process (GO:0051247) | 1425 | 322 | 258.54 | + | 1.25 | 2.95E-04 | 9.32E-03 |
| regulation of cellular component organization (GO:0051128) | 2438 | 550 | 442.33 | + | 1.24 | 1.39E-06 | 7.45E-05 |
| positive regulation of transcription by RNA polymerase II (GO:0045944) | 1268 | 286 | 230.05 | + | 1.24 | 7.17E-04 | 1.96E-02 |
| proteolysis (GO:0006508) | 1282 | 286 | 232.59 | + | 1.23 | 1.43E-03 | 3.47E-02 |
| phosphorus metabolic process (GO:0006793) | 1839 | 410 | 333.65 | + | 1.23 | 1.08E-04 | 3.92E-03 |
| regulation of RNA biosynthetic process (GO:2001141) | 3450 | 767 | 625.93 | + | 1.23 | 3.76E-08 | 2.58E-06 |
| vesicle-mediated transport (GO:0016192) | 1302 | 289 | 236.22 | + | 1.22 | 1.74E-03 | 4.06E-02 |
| regulation of catalytic activity (GO:0050790) | 1826 | 405 | 331.29 | + | 1.22 | 1.69E-04 | 5.72E-03 |
| phosphate-containing compound metabolic process (GO:0006796) | 1813 | 401 | 328.93 | + | 1.22 | 2.31E-04 | 7.56E-03 |
| regulation of DNA-templated transcription (GO:0006355) | 3427 | 754 | 621.76 | + | 1.21 | 2.12E-07 | 1.31E-05 |
| negative regulation of cellular process (GO:0048523) | 4692 | 1032 | 851.27 | + | 1.21 | 2.70E-10 | 2.30E-08 |
| regulation of molecular function (GO:0065009) | 2565 | 561 | 465.37 | + | 1.21 | 2.36E-05 | 1.00E-03 |
| negative regulation of biological process (GO:0048519) | 5307 | 1159 | 962.85 | + | 1.2 | 4.46E-11 | 4.30E-09 |
| immune system process (GO:0002376) | 2260 | 492 | 410.03 | + | 1.2 | 1.33E-04 | 4.65E-03 |
| cellular process (GO:0009987) | 14613 | 3176 | 2651.23 | + | 1.2 | 3.60E-78 | 3.49E-75 |
| response to organic substance (GO:0010033) | 2592 | 563 | 470.27 | + | 1.2 | 4.53E-05 | 1.81E-03 |

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|---|---|---|---|---|---|---|---|
| response to external stimulus (GO:0009605) | 2419 | 525 | 438.88 | + | 1.2 | 9.57E-05 | 3.56E-03 |
| cellular response to organic substance (GO:0071310) | 1777 | 384 | 322.4 | + | 1.19 | 1.42E-03 | 3.47E-02 |
| organic substance transport (GO:0071702) | 2214 | 478 | 401.69 | + | 1.19 | 3.16E-04 | 9.90E-03 |
| regulation of response to stimulus (GO:0048583) | 3954 | 844 | 717.37 | + | 1.18 | 2.38E-06 | 1.23E-04 |
| cellular response to chemical stimulus (GO:0070887) | 2394 | 503 | 434.34 | + | 1.16 | 1.74E-03 | 4.07E-02 |
| localization (GO:0051179) | 4496 | 920 | 815.71 | + | 1.13 | 1.83E-04 | 6.16E-03 |
| biological_process (GO:0008150) | 17714 | 3533 | 3213.85 | + | 1.1 | 5.49E-56 | 4.26E-53 |
| regulation of cellular process (GO:0050794) | 10986 | 2155 | 1993.19 | + | 1.08 | 1.01E-06 | 5.62E-05 |
| biological regulation (GO:0065007) | 12172 | 2372 | 2208.36 | + | 1.07 | 4.60E-07 | 2.66E-05 |
| regulation of biological process (GO:0050789) | 11752 | 2290 | 2132.16 | + | 1.07 | 1.53E-06 | 8.10E-05 |
| multicellular organismal process (GO:0032501) | 6692 | 1063 | 1214.13 | - | 0.88 | 9.31E-07 | 5.20E-05 |
| signal transduction (GO:0007165) | 4801 | 724 | 871.04 | - | 0.83 | 8.74E-08 | 5.75E-06 |
| cell communication (GO:0007154) | 5260 | 791 | 954.32 | - | 0.83 | 9.29E-09 | 6.81E-07 |
| signaling (GO:0023052) | 5101 | 751 | 925.47 | - | 0.81 | 4.79E-10 | 4.02E-08 |
| tissue development (GO:0009888) | 1747 | 256 | 316.96 | - | 0.81 | 7.60E-04 | 2.06E-02 |
| neurogenesis (GO:0022008) | 1318 | 187 | 239.12 | - | 0.78 | 1.01E-03 | 2.60E-02 |
| anatomical structure morphogenesis (GO:0009653) | 2239 | 313 | 406.22 | - | 0.77 | 2.92E-06 | 1.49E-04 |
| plasma membrane bounded cell projection organization (GO:0120036) | 1147 | 156 | 208.1 | - | 0.75 | 3.74E-04 | 1.13E-02 |
| cell projection organization (GO:0030030) | 1194 | 162 | 216.63 | - | 0.75 | 2.64E-04 | 8.45E-03 |
| tube development (GO:0035295) | 899 | 120 | 163.11 | - | 0.74 | 1.00E-03 | 2.60E-02 |
| epithelium development (GO:0060429) | 1097 | 145 | 199.03 | - | 0.73 | 1.68E-04 | 5.72E-03 |
| cell motility (GO:0048870) | 1055 | 139 | 191.41 | - | 0.73 | 1.78E-04 | 6.00E-03 |
| circulatory system development (GO:0072359) | 926 | 122 | 168 | - | 0.73 | 5.29E-04 | 1.52E-02 |

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|---|---|---|---|---|---|---|---|
| monoatomic cation transport (GO:0006812) | 790 | 102 | 143.33 | - | 0.71 | 7.65E-04 | 2.07E-02 |
| neuron projection development (GO:0031175) | 699 | 90 | 126.82 | - | 0.71 | 1.53E-03 | 3.67E-02 |
| generation of neurons (GO:0048699) | 1148 | 145 | 208.28 | - | 0.7 | 1.25E-05 | 5.66E-04 |
| cell morphogenesis (GO:0000902) | 686 | 86 | 124.46 | - | 0.69 | 7.93E-04 | 2.13E-02 |
| epithelial cell differentiation (GO:0030855) | 631 | 79 | 114.48 | - | 0.69 | 1.24E-03 | 3.14E-02 |
| cell adhesion (GO:0007155) | 966 | 120 | 175.26 | - | 0.68 | 3.44E-05 | 1.40E-03 |
| regulation of monoatomic ion transport (GO:0043269) | 589 | 73 | 106.86 | - | 0.68 | 1.49E-03 | 3.59E-02 |
| sensory organ development (GO:0007423) | 591 | 73 | 107.22 | - | 0.68 | 1.25E-03 | 3.15E-02 |
| neuron development (GO:0048666) | 861 | 106 | 156.21 | - | 0.68 | 7.23E-05 | 2.76E-03 |
| monoatomic ion transport (GO:0006811) | 991 | 122 | 179.8 | - | 0.68 | 1.67E-05 | 7.40E-04 |
| neuron differentiation (GO:0030182) | 1078 | 132 | 195.58 | - | 0.67 | 5.38E-06 | 2.58E-04 |
| locomotion (GO:0040011) | 542 | 66 | 98.33 | - | 0.67 | 1.39E-03 | 3.42E-02 |
| cell part morphogenesis (GO:0032990) | 518 | 63 | 93.98 | - | 0.67 | 1.97E-03 | 4.40E-02 |
| inorganic cation transmembrane transport (GO:0098662) | 635 | 77 | 115.21 | - | 0.67 | 4.83E-04 | 1.41E-02 |
| regulation of secretion (GO:0051046) | 623 | 75 | 113.03 | - | 0.66 | 4.26E-04 | 1.26E-02 |
| transmembrane transport (GO:0055085) | 1246 | 148 | 226.06 | - | 0.65 | 1.49E-07 | 9.46E-06 |
| tube morphogenesis (GO:0035239) | 683 | 81 | 123.92 | - | 0.65 | 1.28E-04 | 4.47E-03 |
| monoatomic cation transmembrane transport (GO:0098655) | 654 | 77 | 118.66 | - | 0.65 | 1.40E-04 | 4.85E-03 |
| plasma membrane bounded cell projection morphogenesis (GO:0120039) | 493 | 58 | 89.44 | - | 0.65 | 1.21E-03 | 3.08E-02 |
| cell projection morphogenesis (GO:0048858) | 498 | 58 | 90.35 | - | 0.64 | 8.34E-04 | 2.22E-02 |
| regulation of system process (GO:0044057) | 567 | 66 | 102.87 | - | 0.64 | 3.38E-04 | 1.04E-02 |
| inorganic ion transmembrane transport (GO:0098660) | 733 | 85 | 132.99 | - | 0.64 | 3.27E-05 | 1.34E-03 |

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|---|---|---|---|---|---|---|---|
| neuron projection morphogenesis (GO:0048812) | 488 | 56 | 88.54 | - | 0.63 | 5.96E-04 | 1.69E-02 |
| regulation of hormone levels (GO:0010817) | 541 | 62 | 98.15 | - | 0.63 | 3.03E-04 | 9.54E-03 |
| cell morphogenesis involved in neuron differentiation (GO:0048667) | 450 | 51 | 81.64 | - | 0.62 | 8.72E-04 | 2.31E-02 |
| monoatomic ion transmembrane transport (GO:0034220) | 819 | 92 | 148.59 | - | 0.62 | 3.28E-06 | 1.64E-04 |
| regulation of secretion by cell (GO:1903530) | 564 | 63 | 102.33 | - | 0.62 | 1.04E-04 | 3.81E-03 |
| regulation of trans-synaptic signaling (GO:0099177) | 486 | 54 | 88.17 | - | 0.61 | 2.84E-04 | 9.00E-03 |
| cell junction organization (GO:0034330) | 531 | 59 | 96.34 | - | 0.61 | 1.63E-04 | 5.58E-03 |
| regulation of monoatomic ion transmembrane transport (GO:0034765) | 471 | 52 | 85.45 | - | 0.61 | 3.59E-04 | 1.10E-02 |
| animal organ morphogenesis (GO:0009887) | 991 | 109 | 179.8 | - | 0.61 | 8.02E-08 | 5.30E-06 |
| modulation of chemical synaptic transmission (GO:0050804) | 485 | 53 | 87.99 | - | 0.6 | 2.14E-04 | 7.10E-03 |
| tissue morphogenesis (GO:0048729) | 570 | 61 | 103.41 | - | 0.59 | 2.59E-05 | 1.08E-03 |
| morphogenesis of an epithelium (GO:0002009) | 458 | 49 | 83.09 | - | 0.59 | 1.80E-04 | 6.07E-03 |
| blood circulation (GO:0008015) | 402 | 43 | 72.93 | - | 0.59 | 5.32E-04 | 1.53E-02 |
| cell-cell adhesion (GO:0098609) | 543 | 56 | 98.52 | - | 0.57 | 1.56E-05 | 6.92E-04 |
| regionalization (GO:0003002) | 409 | 42 | 74.2 | - | 0.57 | 1.65E-04 | 5.63E-03 |
| axon development (GO:0061564) | 430 | 44 | 78.01 | - | 0.56 | 1.07E-04 | 3.89E-03 |
| axonogenesis (GO:0007409) | 375 | 38 | 68.04 | - | 0.56 | 2.52E-04 | 8.10E-03 |
| epithelial tube morphogenesis (GO:0060562) | 316 | 32 | 57.33 | - | 0.56 | 9.33E-04 | 2.45E-02 |
| regulation of transmembrane transport (GO:0034762) | 594 | 60 | 107.77 | - | 0.56 | 2.74E-06 | 1.41E-04 |
| sensory organ morphogenesis (GO:0090596) | 278 | 28 | 50.44 | - | 0.56 | 1.78E-03 | 4.08E-02 |
| cell-cell signaling (GO:0007267) | 1091 | 108 | 197.94 | - | 0.55 | 3.96E-11 | 3.86E-09 |
| system process (GO:0003008) | 2066 | 202 | 374.83 | - | 0.54 | 2.13E-21 | 4.08E-19 |

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|---|---|---|---|---|---|---|---|
| regulation of protein secretion (GO:0050708) | 261 | 25 | 47.35 | - | 0.53 | 1.22E-03 | 3.10E-02 |
| cell junction assembly (GO:0034329) | 283 | 27 | 51.34 | - | 0.53 | 6.22E-04 | 1.74E-02 |
| pattern specification process (GO:0007389) | 457 | 43 | 82.91 | - | 0.52 | 7.74E-06 | 3.62E-04 |
| regulation of blood circulation (GO:1903522) | 249 | 23 | 45.18 | - | 0.51 | 9.20E-04 | 2.43E-02 |
| anterior/posterior pattern specification (GO:0009952) | 217 | 20 | 39.37 | - | 0.51 | 1.99E-03 | 4.44E-02 |
| regulation of membrane potential (GO:0042391) | 434 | 40 | 78.74 | - | 0.51 | 8.09E-06 | 3.76E-04 |
| positive regulation of transmembrane transport (GO:0034764) | 234 | 21 | 42.45 | - | 0.49 | 8.64E-04 | 2.30E-02 |
| regulation of peptide transport (GO:0090087) | 202 | 18 | 36.65 | - | 0.49 | 1.87E-03 | 4.25E-02 |
| nervous system process (GO:0050877) | 1449 | 129 | 262.89 | - | 0.49 | 1.97E-18 | 3.15E-16 |
| muscle contraction (GO:0006936) | 229 | 20 | 41.55 | - | 0.48 | 7.35E-04 | 2.00E-02 |
| cell fate commitment (GO:0045165) | 258 | 22 | 46.81 | - | 0.47 | 2.23E-04 | 7.35E-03 |
| inner ear development (GO:0048839) | 202 | 17 | 36.65 | - | 0.46 | 9.38E-04 | 2.46E-02 |
| regulation of peptide hormone secretion (GO:0090276) | 197 | 16 | 35.74 | - | 0.45 | 7.75E-04 | 2.10E-02 |
| potassium ion transport (GO:0006813) | 175 | 14 | 31.75 | - | 0.44 | 1.55E-03 | 3.71E-02 |
| morphogenesis of a branching structure (GO:0001763) | 175 | 14 | 31.75 | - | 0.44 | 1.55E-03 | 3.70E-02 |
| signal release (GO:0023061) | 188 | 15 | 34.11 | - | 0.44 | 8.29E-04 | 2.21E-02 |
| morphogenesis of a branching epithelium (GO:0061138) | 165 | 13 | 29.94 | - | 0.43 | 1.64E-03 | 3.86E-02 |
| axon guidance (GO:0007411) | 234 | 18 | 42.45 | - | 0.42 | 1.00E-04 | 3.71E-03 |
| neuron projection guidance (GO:0097485) | 234 | 18 | 42.45 | - | 0.42 | 1.00E-04 | 3.71E-03 |
| fertilization (GO:0009566) | 197 | 15 | 35.74 | - | 0.42 | 3.63E-04 | 1.10E-02 |
| inorganic anion transport (GO:0015698) | 158 | 12 | 28.67 | - | 0.42 | 1.79E-03 | 4.10E-02 |
| eye morphogenesis (GO:0048592) | 159 | 12 | 28.85 | - | 0.42 | 1.32E-03 | 3.29E-02 |
| potassium ion transmembrane transport (GO:0071805) | 164 | 12 | 29.75 | - | 0.4 | 1.02E-03 | 2.63E-02 |

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|---|---|---|---|---|---|---|---|
| chemical synaptic transmission (GO:0007268) | 415 | 30 | 75.29 | - | 0.4 | 3.91E-08 | 2.67E-06 |
| anterograde trans-synaptic signaling (GO:0098916) | 415 | 30 | 75.29 | - | 0.4 | 3.91E-08 | 2.66E-06 |
| trans-synaptic signaling (GO:0099537) | 432 | 31 | 78.38 | - | 0.4 | 1.58E-08 | 1.13E-06 |
| synaptic signaling (GO:0099536) | 462 | 33 | 83.82 | - | 0.39 | 3.42E-09 | 2.68E-07 |
| detection of abiotic stimulus (GO:0009582) | 141 | 10 | 25.58 | - | 0.39 | 1.45E-03 | 3.50E-02 |
| Unclassified (UNCLASSIFIED) | 2878 | 203 | 522.15 | - | 0.39 | 5.49E-56 | 4.48E-53 |
| positive regulation of cytosolic calcium ion concentration (GO:0007204) | 200 | 14 | 36.29 | - | 0.39 | 1.21E-04 | 4.30E-03 |
| cell-cell junction assembly (GO:0007043) | 131 | 9 | 23.77 | - | 0.38 | 2.03E-03 | 4.50E-02 |
| sensory perception (GO:0007600) | 982 | 67 | 178.16 | - | 0.38 | 1.21E-19 | 2.06E-17 |
| sodium ion transmembrane transport (GO:0035725) | 134 | 9 | 24.31 | - | 0.37 | 1.51E-03 | 3.63E-02 |
| cilium movement (GO:0003341) | 169 | 11 | 30.66 | - | 0.36 | 2.40E-04 | 7.79E-03 |
| single fertilization (GO:0007338) | 156 | 10 | 28.3 | - | 0.35 | 3.21E-04 | 9.93E-03 |
| regulation of animal organ morphogenesis (GO:2000027) | 129 | 8 | 23.4 | - | 0.34 | 1.16E-03 | 2.98E-02 |
| adenylate cyclase-activating G protein-coupled receptor signaling pathway (GO:0007189) | 147 | 9 | 26.67 | - | 0.34 | 3.21E-04 | 9.94E-03 |
| detection of external stimulus (GO:0009581) | 139 | 8 | 25.22 | - | 0.32 | 3.18E-04 | 9.94E-03 |
| cell-cell adhesion via plasma-membrane adhesion molecules (GO:0098742) | 263 | 14 | 47.72 | - | 0.29 | 1.33E-07 | 8.51E-06 |
| cilium-dependent cell motility (GO:0060285) | 134 | 7 | 24.31 | - | 0.29 | 2.28E-04 | 7.47E-03 |
| cilium or flagellum-dependent cell motility (GO:0001539) | 134 | 7 | 24.31 | - | 0.29 | 2.28E-04 | 7.45E-03 |
| sperm motility (GO:0097722) | 117 | 6 | 21.23 | - | 0.28 | 4.00E-04 | 1.19E-02 |
| flagellated sperm motility (GO:0030317) | 117 | 6 | 21.23 | - | 0.28 | 4.00E-04 | 1.19E-02 |
| adenylate cyclase-modulating G protein-coupled receptor signaling pathway (GO:0007188) | 235 | 12 | 42.64 | - | 0.28 | 2.96E-07 | 1.76E-05 |

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|---|---|---|---|---|---|---|---|
| axoneme assembly (GO:0035082) | 98 | 5 | 17.78 | - | 0.28 | 1.44E-03 | 3.50E-02 |
| kidney epithelium development (GO:0072073) | 140 | 7 | 25.4 | - | 0.28 | 8.01E-05 | 3.03E-03 |
| cilium movement involved in cell motility (GO:0060294) | 124 | 6 | 22.5 | - | 0.27 | 2.05E-04 | 6.83E-03 |
| nephron epithelium development (GO:0072009) | 109 | 5 | 19.78 | - | 0.25 | 3.66E-04 | 1.11E-02 |
| cell fate specification (GO:0001708) | 88 | 4 | 15.97 | - | 0.25 | 1.97E-03 | 4.41E-02 |
| ureteric bud development (GO:0001657) | 88 | 4 | 15.97 | - | 0.25 | 1.97E-03 | 4.40E-02 |
| mesonephric tubule development (GO:0072164) | 89 | 4 | 16.15 | - | 0.25 | 1.32E-03 | 3.29E-02 |
| mesonephric epithelium development (GO:0072163) | 89 | 4 | 16.15 | - | 0.25 | 1.32E-03 | 3.29E-02 |
| homophilic cell adhesion via plasma membrane adhesion molecules (GO:0007156) | 168 | 7 | 30.48 | - | 0.23 | 2.54E-06 | 1.31E-04 |
| regulation of neurotransmitter transport (GO:0051588) | 100 | 4 | 18.14 | - | 0.22 | 3.20E-04 | 9.97E-03 |
| G protein-coupled receptor signaling pathway (GO:0007186) | 1220 | 48 | 221.34 | - | 0.22 | 7.07E-42 | 3.92E-39 |
| diencephalon development (GO:0021536) | 78 | 3 | 14.15 | - | 0.21 | 1.68E-03 | 3.95E-02 |
| detection of stimulus (GO:0051606) | 676 | 25 | 122.65 | - | 0.2 | 1.95E-24 | 4.46E-22 |
| chemokine-mediated signaling pathway (GO:0070098) | 83 | 3 | 15.06 | - | 0.2 | 8.01E-04 | 2.14E-02 |
| nephron tubule development (GO:0072080) | 86 | 3 | 15.6 | - | 0.19 | 5.58E-04 | 1.59E-02 |
| renal tubule development (GO:0061326) | 91 | 3 | 16.51 | - | 0.18 | 2.63E-04 | 8.43E-03 |
| motile cilium assembly (GO:0044458) | 66 | 2 | 11.97 | - | 0.17 | 1.99E-03 | 4.43E-02 |
| nephron tubule morphogenesis (GO:0072078) | 68 | 2 | 12.34 | - | 0.16 | 1.34E-03 | 3.33E-02 |
| sensory perception of taste (GO:0050909) | 69 | 2 | 12.52 | - | 0.16 | 1.38E-03 | 3.38E-02 |
| nephron epithelium morphogenesis (GO:0072088) | 70 | 2 | 12.7 | - | 0.16 | 9.17E-04 | 2.43E-02 |
| renal tubule morphogenesis (GO:0061333) | 72 | 2 | 13.06 | - | 0.15 | 9.51E-04 | 2.47E-02 |
| neuropeptide signaling pathway (GO:0007218) | 113 | 3 | 20.5 | - | 0.15 | 1.29E-05 | 5.79E-04 |

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|---|---|---|---|---|---|---|---|
| adenylate cyclase-inhibiting G protein-coupled receptor signaling pathway (GO:0007193) | 77 | 2 | 13.97 | - | 0.14 | 4.33E-04 | 1.28E-02 |
| phenol-containing compound metabolic process (GO:0018958) | 89 | 2 | 16.15 | - | 0.12 | 6.04E-05 | 2.34E-03 |
| tight junction assembly (GO:0120192) | 56 | 1 | 10.16 | - | 0.1 | 1.42E-03 | 3.46E-02 |
| detection of stimulus involved in sensory perception (GO:0050906) | 555 | 7 | 100.69 | - | 0.07 | 3.45E-31 | 1.19E-28 |
| detection of chemical stimulus (GO:0009593) | 514 | 6 | 93.25 | - | 0.06 | 1.41E-29 | 4.46E-27 |
| sensory perception of chemical stimulus (GO:0007606) | 539 | 5 | 97.79 | - | 0.05 | 2.38E-32 | 8.81E-30 |
| sensory perception of smell (GO:0007608) | 460 | 2 | 83.46 | - | 0.02 | 9.29E-31 | 3.13E-28 |
| detection of chemical stimulus involved in sensory perception (GO:0050907) | 481 | 1 | 87.27 | - | 0.01 | 6.76E-34 | 2.56E-31 |
| detection of chemical stimulus involved in sensory perception of smell (GO:0050911) | 433 | 0 | 78.56 | - | < 0.01 | 4.06E-32 | 1.47E-29 |
| phototransduction (GO:0007602) | 42 | 0 | 7.62 | - | < 0.01 | 1.86E-03 | 4.24E-02 |

Subb Table.5 DEPs of peripheral blood at diagnosis were associated molecular function terms

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis Type: | PANTHER Overrepresentation Test (Released 20230705) | | | | | | |
| Annotation Version and Release Date: | GO Ontology database DOI: 10.5281/zenodo.7942786 Released 2023-01-05 | | | | | | |
| Analyzed List: | upload_1 (Homo sapiens) | | | | | | |
| Reference List: | Homo sapiens (all genes in database) | | | | | | |
| Test Type: | FISHER | | | | | | |
| Correction: | FDR | | | | | | |
| GO molecular function complete | Homo sapiens - REFLIST (20592) | upload_1 (3736) | upload_1 (expected) | upload_1 (over/under) | upload_1 (fold Enrichment) | upload_1 (raw P-value) | upload_1 (FDR) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| RNA binding (GO:0003723) | 1672 | 853 | 303.35 | + | 2.81 | ########## | ########## |
| protein binding (GO:0005515) | 14383 | 3226 | 2609.5 | + | 1.24 | ########## | ########## |
| binding (GO:0005488) | 16543 | 3502 | 3001.39 | + | 1.17 | ########## | ########## |
| heterocyclic compound binding (GO:1901363) | 5975 | 1708 | 1084.04 | + | 1.58 | 2.12E-86 | 2.68E-83 |
| organic cyclic compound binding (GO:0097159) | 6046 | 1720 | 1096.92 | + | 1.57 | 7.04E-86 | 7.13E-83 |
| nucleic acid binding (GO:0003676) | 4005 | 1284 | 726.63 | + | 1.77 | 3.01E-84 | 2.54E-81 |
| Unclassified (UNCLASSIFIED) | 2403 | 97 | 435.98 | - | 0.22 | 1.04E-82 | 7.54E-80 |
| molecular_function (GO:0003674) | 18189 | 3639 | 3300.02 | + | 1.1 | 1.04E-82 | 6.60E-80 |
| G protein-coupled receptor activity (GO:0004930) | 879 | 16 | 159.48 | - | 0.1 | 2.63E-44 | 1.48E-41 |
| catalytic activity (GO:0003824) | 5640 | 1428 | 1023.26 | + | 1.4 | 2.24E-39 | 1.13E-36 |
| catalytic activity, acting on a nucleic acid (GO:0140640) | 620 | 294 | 112.49 | + | 2.61 | 1.73E-38 | 7.95E-36 |
| olfactory receptor activity (GO:0004984) | 431 | 0 | 78.2 | - | < 0.01 | 6.58E-32 | 2.77E-29 |
| transmembrane signaling receptor activity (GO:0004888) | 1326 | 84 | 240.58 | - | 0.35 | 5.57E-29 | 2.17E-26 |
| molecular transducer activity (GO:0060089) | 1549 | 115 | 281.03 | - | 0.41 | 3.11E-27 | 1.12E-24 |
| signaling receptor activity (GO:0038023) | 1549 | 115 | 281.03 | - | 0.41 | 3.11E-27 | 1.05E-24 |

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|---|---|---|---|---|---|---|---|
| catalytic activity, acting on RNA (GO:0140098) | 399 | 193 | 72.39 | + | 2.67 | 4.06E-26 | 1.28E-23 |
| DNA-binding transcription factor activity (GO:0003700) | 1416 | 106 | 256.9 | - | 0.41 | 1.48E-24 | 4.39E-22 |
| DNA-binding transcription factor activity, RNA polymerase II-specific (GO:0000981) | 1366 | 102 | 247.83 | - | 0.41 | 8.14E-24 | 2.29E-21 |
| protein-containing complex binding (GO:0044877) | 1780 | 520 | 322.94 | + | 1.61 | 4.62E-22 | 1.23E-19 |
| mRNA binding (GO:0003729) | 328 | 158 | 59.51 | + | 2.66 | 1.47E-21 | 3.71E-19 |
| nucleotide binding (GO:0000166) | 2174 | 596 | 394.43 | + | 1.51 | 5.03E-20 | 1.21E-17 |
| nucleoside phosphate binding (GO:1901265) | 2175 | 596 | 394.61 | + | 1.51 | 5.15E-20 | 1.18E-17 |
| small molecule binding (GO:0036094) | 2581 | 683 | 468.27 | + | 1.46 | 6.44E-20 | 1.42E-17 |
| enzyme binding (GO:0019899) | 2110 | 572 | 382.82 | + | 1.49 | 2.75E-18 | 5.79E-16 |
| helicase activity (GO:0004386) | 157 | 95 | 28.48 | + | 3.34 | 3.54E-18 | 7.16E-16 |
| purine nucleotide binding (GO:0017076) | 2010 | 546 | 364.67 | + | 1.5 | 1.17E-17 | 2.28E-15 |
| transcription coregulator activity (GO:0003712) | 504 | 192 | 91.44 | + | 2.1 | 5.21E-17 | 9.77E-15 |
| hydrolase activity (GO:0016787) | 2434 | 632 | 441.6 | + | 1.43 | 8.01E-17 | 1.45E-14 |
| purine ribonucleoside triphosphate binding (GO:0035639) | 1838 | 502 | 333.47 | + | 1.51 | 1.43E-16 | 2.49E-14 |
| structural constituent of ribosome (GO:0003735) | 165 | 93 | 29.94 | + | 3.11 | 2.09E-16 | 3.53E-14 |

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|---|---|---|---|---|---|---|---|
| ribonucleotide binding (GO:0032553) | 1923 | 519 | 348.89 | + | 1.49 | 2.52E-16 | 4.11E-14 |
| adenyl nucleotide binding (GO:0030554) | 1656 | 460 | 300.45 | + | 1.53 | 3.82E-16 | 6.04E-14 |
| chromatin binding (GO:0003682) | 599 | 213 | 108.68 | + | 1.96 | 4.95E-16 | 7.59E-14 |
| purine ribonucleotide binding (GO:0032555) | 1906 | 514 | 345.8 | + | 1.49 | 5.02E-16 | 7.47E-14 |
| anion binding (GO:0043168) | 2448 | 629 | 444.14 | + | 1.42 | 5.50E-16 | 7.95E-14 |
| RNA polymerase II transcription regulatory region sequence-specific DNA binding (GO:0000977) | 1399 | 132 | 253.82 | - | 0.52 | 9.85E-16 | 1.38E-13 |
| signaling receptor regulator activity (GO:0030545) | 567 | 31 | 102.87 | - | 0.3 | 5.79E-15 | 7.92E-13 |
| receptor ligand activity (GO:0048018) | 507 | 25 | 91.98 | - | 0.27 | 6.99E-15 | 9.31E-13 |
| ATP binding (GO:0005524) | 1491 | 416 | 270.51 | + | 1.54 | 7.54E-15 | 9.78E-13 |
| carbohydrate derivative binding (GO:0097367) | 2286 | 587 | 414.75 | + | 1.42 | 8.26E-15 | 1.04E-12 |
| adenyl ribonucleotide binding (GO:0032559) | 1553 | 428 | 281.76 | + | 1.52 | 1.32E-14 | 1.63E-12 |
| signaling receptor activator activity (GO:0030546) | 517 | 27 | 93.8 | - | 0.29 | 2.29E-14 | 2.76E-12 |
| catalytic activity, acting on DNA (GO:0140097) | 257 | 113 | 46.63 | + | 2.42 | 1.18E-13 | 1.38E-11 |
| RNA polymerase II cis-regulatory region sequence-specific DNA binding (GO:0000978) | 1186 | 112 | 215.18 | - | 0.52 | 1.85E-13 | 2.12E-11 |
| hydrolase activity, acting on acid anhydrides, in phosphorus-containing anhydrides (GO:0016818) | 775 | 243 | 140.61 | + | 1.73 | 4.30E-13 | 4.83E-11 |

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|---|---|---|---|---|---|---|---|
| hydrolase activity, acting on acid anhydrides (GO:0016817) | 775 | 243 | 140.61 | + | 1.73 | 4.30E-13 | 4.73E-11 |
| cis-regulatory region sequence-specific DNA binding (GO:0000987) | 1208 | 117 | 219.17 | - | 0.53 | 5.79E-13 | 6.23E-11 |
| pyrophosphatase activity (GO:0016462) | 773 | 241 | 140.25 | + | 1.72 | 7.79E-13 | 8.20E-11 |
| transferase activity (GO:0016740) | 2306 | 576 | 418.38 | + | 1.38 | 1.12E-12 | 1.16E-10 |
| transcription coactivator activity (GO:0003713) | 280 | 116 | 50.8 | + | 2.28 | 1.39E-12 | 1.41E-10 |
| ATP hydrolysis activity (GO:0016887) | 383 | 143 | 69.49 | + | 2.06 | 2.51E-12 | 2.49E-10 |
| single-stranded DNA binding (GO:0003697) | 124 | 68 | 22.5 | + | 3.02 | 5.83E-12 | 5.67E-10 |
| ATP-dependent activity (GO:0140657) | 579 | 190 | 105.05 | + | 1.81 | 6.74E-12 | 6.44E-10 |
| ribonucleoprotein complex binding (GO:0043021) | 170 | 82 | 30.84 | + | 2.66 | 7.30E-12 | 6.84E-10 |
| ATP-dependent activity, acting on DNA (GO:0008094) | 128 | 69 | 23.22 | + | 2.97 | 1.01E-11 | 9.28E-10 |
| basal RNA polymerase II transcription machinery binding (GO:0001099) | 61 | 44 | 11.07 | + | 3.98 | 5.66E-11 | 5.11E-09 |
| basal transcription machinery binding (GO:0001098) | 61 | 44 | 11.07 | + | 3.98 | 5.66E-11 | 5.02E-09 |
| cytokine activity (GO:0005125) | 234 | 6 | 42.45 | - | 0.14 | 5.94E-11 | 5.18E-09 |
| transcription cis-regulatory region binding (GO:0000976) | 1497 | 169 | 271.6 | - | 0.62 | 1.64E-10 | 1.41E-08 |
| histone binding (GO:0042393) | 249 | 100 | 45.18 | + | 2.21 | 1.81E-10 | 1.53E-08 |

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|---|---|---|---|---|---|---|---|
| ribonucleoside triphosphate phosphatase activity (GO:0017111) | 713 | 215 | 129.36 | + | 1.66 | 2.12E-10 | 1.76E-08 |
| RNA helicase activity (GO:0003724) | 76 | 48 | 13.79 | + | 3.48 | 2.15E-10 | 1.75E-08 |
| transcription regulatory region nucleic acid binding (GO:0001067) | 1499 | 171 | 271.96 | - | 0.63 | 3.44E-10 | 2.76E-08 |
| ATP-dependent activity, acting on RNA (GO:0008186) | 78 | 48 | 14.15 | + | 3.39 | 4.09E-10 | 3.23E-08 |
| identical protein binding (GO:0042802) | 2173 | 526 | 394.25 | + | 1.33 | 8.96E-10 | 6.97E-08 |
| nucleosome binding (GO:0031491) | 69 | 44 | 12.52 | + | 3.51 | 9.61E-10 | 7.37E-08 |
| odorant binding (GO:0005549) | 124 | 0 | 22.5 | - | < 0.01 | 1.75E-09 | 1.32E-07 |
| ion binding (GO:0043167) | 6105 | 1292 | 1107.63 | + | 1.17 | 2.29E-09 | 1.70E-07 |
| transcription factor binding (GO:0008134) | 610 | 185 | 110.67 | + | 1.67 | 2.88E-09 | 2.11E-07 |
| sequence-specific double-stranded DNA binding (GO:1990837) | 1561 | 186 | 283.21 | - | 0.66 | 4.34E-09 | 3.13E-07 |
| nuclease activity (GO:0004518) | 213 | 85 | 38.64 | + | 2.2 | 5.59E-09 | 3.98E-07 |
| histone modifying activity (GO:0140993) | 200 | 81 | 36.29 | + | 2.23 | 8.48E-09 | 5.96E-07 |
| DNA helicase activity (GO:0003678) | 59 | 38 | 10.7 | + | 3.55 | 1.07E-08 | 7.44E-07 |
| channel activity (GO:0015267) | 503 | 40 | 91.26 | - | 0.44 | 1.71E-08 | 1.17E-06 |
| passive transmembrane transporter activity (GO:0022803) | 504 | 40 | 91.44 | - | 0.44 | 1.72E-08 | 1.16E-06 |

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|---|---|---|---|---|---|---|---|
| molecular adaptor activity (GO:0060090) | 562 | 169 | 101.96 | + | 1.66 | 2.11E-08 | 1.40E-06 |
| snRNA binding (GO:0017069) | 51 | 34 | 9.25 | + | 3.67 | 3.40E-08 | 2.23E-06 |
| RNA polymerase binding (GO:0070063) | 60 | 37 | 10.89 | + | 3.4 | 3.83E-08 | 2.49E-06 |
| catalytic activity, acting on a tRNA (GO:0140101) | 131 | 59 | 23.77 | + | 2.48 | 4.48E-08 | 2.87E-06 |
| nucleotidyltransferase activity (GO:0016779) | 154 | 66 | 27.94 | + | 2.36 | 4.59E-08 | 2.90E-06 |
| monoatomic ion channel activity (GO:0005216) | 442 | 34 | 80.19 | - | 0.42 | 5.52E-08 | 3.45E-06 |
| double-stranded RNA binding (GO:0003725) | 73 | 41 | 13.24 | + | 3.1 | 5.63E-08 | 3.47E-06 |
| snoRNA binding (GO:0030515) | 33 | 26 | 5.99 | + | 4.34 | 1.38E-07 | 8.41E-06 |
| RNA polymerase core enzyme binding (GO:0043175) | 41 | 29 | 7.44 | + | 3.9 | 1.38E-07 | 8.32E-06 |
| monoatomic ion gated channel activity (GO:0022839) | 326 | 22 | 59.15 | - | 0.37 | 2.74E-07 | 1.63E-05 |
| RNA polymerase II complex binding (GO:0000993) | 35 | 26 | 6.35 | + | 4.09 | 3.10E-07 | 1.82E-05 |
| transmembrane transporter activity (GO:0022857) | 1125 | 133 | 204.11 | - | 0.65 | 4.92E-07 | 2.86E-05 |
| DNA-binding transcription factor binding (GO:0140297) | 487 | 144 | 88.36 | + | 1.63 | 5.62E-07 | 3.23E-05 |
| gated channel activity (GO:0022836) | 328 | 23 | 59.51 | - | 0.39 | 6.62E-07 | 3.76E-05 |
| RNA polymerase II general transcription initiation factor activity (GO:0016251) | 40 | 27 | 7.26 | + | 3.72 | 7.18E-07 | 4.03E-05 |

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|---|---|---|---|---|---|---|---|
| damaged DNA binding (GO:0003684) | 72 | 38 | 13.06 | + | 2.91 | 7.25E-07 | 4.03E-05 |
| mRNA 3'-UTR binding (GO:0003730) | 110 | 49 | 19.96 | + | 2.46 | 7.58E-07 | 4.16E-05 |
| monoatomic cation channel activity (GO:0005261) | 332 | 24 | 60.23 | - | 0.4 | 8.33E-07 | 4.53E-05 |
| transferase activity, transferring one-carbon groups (GO:0016741) | 226 | 80 | 41 | + | 1.95 | 8.96E-07 | 4.82E-05 |
| transcription corepressor activity (GO:0003714) | 191 | 71 | 34.65 | + | 2.05 | 1.01E-06 | 5.38E-05 |
| translation regulator activity (GO:0045182) | 162 | 63 | 29.39 | + | 2.14 | 1.02E-06 | 5.37E-05 |
| catalytic activity, acting on a protein (GO:0140096) | 2322 | 527 | 421.28 | + | 1.25 | 1.27E-06 | 6.64E-05 |
| DNA binding (GO:0003677) | 2509 | 563 | 455.21 | + | 1.24 | 1.63E-06 | 8.40E-05 |
| transporter activity (GO:0005215) | 1244 | 154 | 225.7 | - | 0.68 | 1.70E-06 | 8.70E-05 |
| hydrolase activity, acting on ester bonds (GO:0016788) | 761 | 202 | 138.07 | + | 1.46 | 1.99E-06 | 1.01E-04 |
| RNA nuclease activity (GO:0004540) | 128 | 53 | 23.22 | + | 2.28 | 2.07E-06 | 1.04E-04 |
| RNA methyltransferase activity (GO:0008173) | 66 | 35 | 11.97 | + | 2.92 | 2.20E-06 | 1.09E-04 |
| methyltransferase activity (GO:0008168) | 213 | 75 | 38.64 | + | 1.94 | 2.28E-06 | 1.12E-04 |
| rRNA binding (GO:0019843) | 67 | 35 | 12.16 | + | 2.88 | 2.46E-06 | 1.19E-04 |
| general transcription initiation factor activity (GO:0140223) | 55 | 31 | 9.98 | + | 3.11 | 2.55E-06 | 1.23E-04 |

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|---|---|---|---|---|---|---|---|
| signaling receptor binding (GO:0005102) | 1516 | 198 | 275.05 | - | 0.72 | 3.13E-06 | 1.49E-04 |
| nucleosomal DNA binding (GO:0031492) | 39 | 25 | 7.08 | + | 3.53 | 3.60E-06 | 1.70E-04 |
| tRNA binding (GO:0000049) | 76 | 37 | 13.79 | + | 2.68 | 4.54E-06 | 2.13E-04 |
| sequence-specific DNA binding (GO:0043565) | 1675 | 224 | 303.89 | - | 0.74 | 4.63E-06 | 2.15E-04 |
| 3'-5' exonuclease activity (GO:0008408) | 55 | 30 | 9.98 | + | 3.01 | 5.40E-06 | 2.48E-04 |
| protein-macromolecule adaptor activity (GO:0030674) | 397 | 118 | 72.03 | + | 1.64 | 5.74E-06 | 2.62E-04 |
| transferase activity, transferring phosphorus-containing groups (GO:0016772) | 936 | 237 | 169.82 | + | 1.4 | 5.75E-06 | 2.59E-04 |
| protein domain specific binding (GO:0019904) | 668 | 178 | 121.2 | + | 1.47 | 7.50E-06 | 3.36E-04 |
| monoatomic ion transmembrane transporter activity (GO:0015075) | 720 | 80 | 130.63 | - | 0.61 | 8.54E-06 | 3.79E-04 |
| modification-dependent protein binding (GO:0140030) | 178 | 64 | 32.29 | + | 1.98 | 8.80E-06 | 3.87E-04 |
| postsynaptic neurotransmitter receptor activity (GO:0098960) | 73 | 0 | 13.24 | - | < 0.01 | 1.01E-05 | 4.43E-04 |
| G protein-coupled peptide receptor activity (GO:0008528) | 126 | 4 | 22.86 | - | 0.17 | 1.25E-05 | 5.42E-04 |
| exonuclease activity (GO:0004527) | 81 | 37 | 14.7 | + | 2.52 | 1.46E-05 | 6.26E-04 |
| monoatomic cation transmembrane transporter activity (GO:0008324) | 597 | 64 | 108.31 | - | 0.59 | 1.86E-05 | 7.92E-04 |
| neurotransmitter receptor activity (GO:0030594) | 99 | 2 | 17.96 | - | 0.11 | 1.96E-05 | 8.26E-04 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| inorganic molecular entity transmembrane transporter activity (GO:0015318) | 681 | 76 | 123.55 | - | 0.62 | 2.00E-05 | 8.35E-04 |
| peptide receptor activity (GO:0001653) | 132 | 5 | 23.95 | - | 0.21 | 2.22E-05 | 9.20E-04 |
| S-adenosylmethionine-dependent methyltransferase activity (GO:0008757) | 165 | 59 | 29.94 | + | 1.97 | 2.24E-05 | 9.19E-04 |
| hormone activity (GO:0005179) | 128 | 5 | 23.22 | - | 0.22 | 3.09E-05 | 1.26E-03 |
| salt transmembrane transporter activity (GO:1901702) | 582 | 63 | 105.59 | - | 0.6 | 3.13E-05 | 1.27E-03 |
| pre-mRNA binding (GO:0036002) | 37 | 22 | 6.71 | + | 3.28 | 3.21E-05 | 1.29E-03 |
| transition metal ion binding (GO:0046914) | 1115 | 268 | 202.29 | + | 1.32 | 3.28E-05 | 1.31E-03 |
| single-stranded DNA helicase activity (GO:0017116) | 23 | 17 | 4.17 | + | 4.07 | 3.58E-05 | 1.41E-03 |
| endonuclease activity (GO:0004519) | 130 | 49 | 23.59 | + | 2.08 | 3.84E-05 | 1.50E-03 |
| RNA polymerase II general transcription initiation factor binding (GO:0001091) | 26 | 18 | 4.72 | + | 3.82 | 3.94E-05 | 1.53E-03 |
| exonuclease activity, active with either ribo- or deoxyribonucleic acids and producing 5'-phosphomonoesters (GO:0016796) | 60 | 29 | 10.89 | + | 2.66 | 4.43E-05 | 1.71E-03 |
| single-stranded RNA binding (GO:0003727) | 87 | 37 | 15.78 | + | 2.34 | 4.50E-05 | 1.73E-03 |
| extracellular matrix structural constituent (GO:0005201) | 165 | 9 | 29.94 | - | 0.3 | 4.79E-05 | 1.82E-03 |
| voltage-gated monoatomic cation channel activity (GO:0022843) | 153 | 8 | 27.76 | - | 0.29 | 6.24E-05 | 2.36E-03 |
| growth factor activity (GO:0008083) | 163 | 9 | 29.57 | - | 0.3 | 6.80E-05 | 2.55E-03 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DNA-binding transcription activator activity (GO:0001216) | 480 | 50 | 87.09 | - | 0.57 | 7.02E-05 | 2.61E-03 |
| structural constituent of nuclear pore (GO:0017056) | 25 | 17 | 4.54 | + | 3.75 | 7.55E-05 | 2.79E-03 |
| DNA-binding transcription activator activity, RNA polymerase II-specific (GO:0001228) | 476 | 50 | 86.36 | - | 0.58 | 8.63E-05 | 3.16E-03 |
| voltage-gated channel activity (GO:0022832) | 202 | 14 | 36.65 | - | 0.38 | 8.96E-05 | 3.26E-03 |
| enzyme activator activity (GO:0008047) | 634 | 163 | 115.03 | + | 1.42 | 9.38E-05 | 3.39E-03 |
| general transcription initiation factor binding (GO:0140296) | 53 | 26 | 9.62 | + | 2.7 | 1.07E-04 | 3.83E-03 |
| 5'-3' RNA polymerase activity (GO:0034062) | 32 | 19 | 5.81 | + | 3.27 | 1.11E-04 | 3.94E-03 |
| RNA polymerase activity (GO:0097747) | 32 | 19 | 5.81 | + | 3.27 | 1.11E-04 | 3.91E-03 |
| voltage-gated monoatomic ion channel activity (GO:0005244) | 201 | 14 | 36.47 | - | 0.38 | 1.23E-04 | 4.33E-03 |
| RNA polymerase II-specific DNA-binding transcription factor binding (GO:0061629) | 353 | 100 | 64.04 | + | 1.56 | 1.29E-04 | 4.49E-03 |
| transmitter-gated monoatomic ion channel activity involved in regulation of postsynaptic membrane potential (GO:1904315) | 56 | 0 | 10.16 | - | < 0.01 | 1.31E-04 | 4.53E-03 |
| metal ion transmembrane transporter activity (GO:0046873) | 442 | 46 | 80.19 | - | 0.57 | 1.33E-04 | 4.59E-03 |
| neurotransmitter receptor activity involved in regulation of postsynaptic membrane potential (GO:0099529) | 58 | 0 | 10.52 | - | < 0.01 | 1.42E-04 | 4.85E-03 |
| DNA-directed 5'-3' RNA polymerase activity (GO:0003899) | 30 | 18 | 5.44 | + | 3.31 | 1.51E-04 | 5.13E-03 |
| cytokine receptor binding (GO:0005126) | 271 | 23 | 49.17 | - | 0.47 | 1.63E-04 | 5.48E-03 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DNA-binding transcription repressor activity, RNA polymerase II-specific (GO:0001227) | 331 | 31 | 60.05 | - | 0.52 | 1.65E-04 | 5.53E-03 |
| acyltransferase activity (GO:0016746) | 727 | 181 | 131.9 | + | 1.37 | 1.69E-04 | 5.63E-03 |
| enzyme regulator activity (GO:0030234) | 1343 | 308 | 243.66 | + | 1.26 | 1.76E-04 | 5.81E-03 |
| G protein-coupled receptor binding (GO:0001664) | 298 | 27 | 54.07 | - | 0.5 | 1.87E-04 | 6.13E-03 |
| zinc ion binding (GO:0008270) | 836 | 203 | 151.68 | + | 1.34 | 2.15E-04 | 7.02E-03 |
| 3'-5'-RNA exonuclease activity (GO:0000175) | 36 | 20 | 6.53 | + | 3.06 | 2.32E-04 | 7.53E-03 |
| potassium ion transmembrane transporter activity (GO:0015079) | 158 | 10 | 28.67 | - | 0.35 | 2.36E-04 | 7.60E-03 |
| ribosome binding (GO:0043022) | 111 | 41 | 20.14 | + | 2.04 | 2.50E-04 | 8.01E-03 |
| RNA exonuclease activity (GO:0004532) | 41 | 21 | 7.44 | + | 2.82 | 2.68E-04 | 8.52E-03 |
| ubiquitin binding (GO:0043130) | 98 | 37 | 17.78 | + | 2.08 | 2.86E-04 | 9.04E-03 |
| potassium channel activity (GO:0005267) | 122 | 6 | 22.13 | - | 0.27 | 2.94E-04 | 9.23E-03 |
| tRNA-specific ribonuclease activity (GO:0004549) | 15 | 12 | 2.72 | + | 4.41 | 3.05E-04 | 9.52E-03 |
| inorganic cation transmembrane transporter activity (GO:0022890) | 560 | 65 | 101.6 | - | 0.64 | 3.13E-04 | 9.72E-03 |
| DNA-binding transcription repressor activity (GO:0001217) | 337 | 33 | 61.14 | - | 0.54 | 3.45E-04 | 1.06E-02 |
| ubiquitin-like protein binding (GO:0032182) | 118 | 42 | 21.41 | + | 1.96 | 3.69E-04 | 1.13E-02 |

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|---|---|---|---|---|---|---|---|
| chromatin DNA binding (GO:0031490) | 118 | 42 | 21.41 | + | 1.96 | 3.69E-04 | 1.12E-02 |
| RNA exonuclease activity, producing 5'-phosphomonoesters (GO:0016896) | 39 | 20 | 7.08 | + | 2.83 | 3.78E-04 | 1.14E-02 |
| double-stranded DNA binding (GO:0003690) | 1657 | 238 | 300.63 | - | 0.79 | 3.80E-04 | 1.15E-02 |
| MHC class II protein complex binding (GO:0023026) | 27 | 16 | 4.9 | + | 3.27 | 3.85E-04 | 1.15E-02 |
| chemokine activity (GO:0008009) | 48 | 0 | 8.71 | - | < 0.01 | 4.83E-04 | 1.44E-02 |
| voltage-gated potassium channel activity (GO:0005249) | 99 | 4 | 17.96 | - | 0.22 | 4.84E-04 | 1.43E-02 |
| isomerase activity (GO:0016853) | 168 | 54 | 30.48 | + | 1.77 | 4.86E-04 | 1.43E-02 |
| U3 snoRNA binding (GO:0034511) | 11 | 10 | 2 | + | 5.01 | 4.95E-04 | 1.45E-02 |
| MHC protein complex binding (GO:0023023) | 37 | 19 | 6.71 | + | 2.83 | 5.36E-04 | 1.56E-02 |
| transmitter-gated channel activity (GO:0022835) | 62 | 1 | 11.25 | - | 0.09 | 6.40E-04 | 1.85E-02 |
| transmitter-gated monoatomic ion channel activity (GO:0022824) | 62 | 1 | 11.25 | - | 0.09 | 6.40E-04 | 1.84E-02 |
| DNA secondary structure binding (GO:0000217) | 38 | 19 | 6.89 | + | 2.76 | 6.51E-04 | 1.86E-02 |
| extracellular ligand-gated monoatomic ion channel activity (GO:0005230) | 75 | 2 | 13.61 | - | 0.15 | 6.58E-04 | 1.87E-02 |
| translation regulator activity, nucleic acid binding (GO:0090079) | 114 | 40 | 20.68 | + | 1.93 | 6.68E-04 | 1.89E-02 |
| DNA polymerase binding (GO:0070182) | 20 | 13 | 3.63 | + | 3.58 | 7.13E-04 | 2.00E-02 |

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|---|---|---|---|---|---|---|---|
| ubiquitin-like protein ligase binding (GO:0044389) | 324 | 89 | 58.78 | + | 1.51 | 7.18E-04 | 2.01E-02 |
| rRNA methyltransferase activity (GO:0008649) | 23 | 14 | 4.17 | + | 3.35 | 7.24E-04 | 2.01E-02 |
| RNA polymerase II CTD heptapeptide repeat modifying activity (GO:0140994) | 23 | 14 | 4.17 | + | 3.35 | 7.24E-04 | 2.00E-02 |
| oxidoreductase activity (GO:0016491) | 734 | 177 | 133.17 | + | 1.33 | 7.33E-04 | 2.01E-02 |
| ligand-gated monoatomic ion channel activity (GO:0015276) | 147 | 10 | 26.67 | - | 0.37 | 7.97E-04 | 2.18E-02 |
| telomeric DNA binding (GO:0042162) | 39 | 19 | 7.08 | + | 2.69 | 7.99E-04 | 2.17E-02 |
| structural molecule activity (GO:0005198) | 786 | 187 | 142.6 | + | 1.31 | 9.09E-04 | 2.46E-02 |
| acetyltransferase activity (GO:0016407) | 97 | 35 | 17.6 | + | 1.99 | 9.37E-04 | 2.52E-02 |
| translation factor activity, RNA binding (GO:0008135) | 90 | 33 | 16.33 | + | 2.02 | 9.79E-04 | 2.62E-02 |
| RNA polymerase II CTD heptapeptide repeat kinase activity (GO:0008353) | 10 | 9 | 1.81 | + | 4.96 | 9.99E-04 | 2.66E-02 |
| calcium ion binding (GO:0005509) | 724 | 93 | 131.36 | - | 0.71 | 1.10E-03 | 2.92E-02 |
| dioxygenase activity (GO:0051213) | 95 | 34 | 17.24 | + | 1.97 | 1.27E-03 | 3.35E-02 |
| catalytic activity, acting on a rRNA (GO:0140102) | 25 | 14 | 4.54 | + | 3.09 | 1.32E-03 | 3.47E-02 |
| N6-methyladenosine-containing RNA binding (GO:1990247) | 11 | 9 | 2 | + | 4.51 | 1.57E-03 | 4.09E-02 |
| ribonuclease P activity (GO:0004526) | 11 | 9 | 2 | + | 4.51 | 1.57E-03 | 4.07E-02 |

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|---|---|---|---|---|---|---|---|
| N-acetyltransferase activity (GO:0008080) | 70 | 27 | 12.7 | + | 2.13 | 1.62E-03 | 4.18E-02 |
| 3'-5' DNA helicase activity (GO:0043138) | 14 | 10 | 2.54 | + | 3.94 | 1.77E-03 | 4.55E-02 |
| promoter-specific chromatin binding (GO:1990841) | 64 | 25 | 11.61 | + | 2.15 | 1.81E-03 | 4.64E-02 |
| regulatory RNA binding (GO:0061980) | 46 | 20 | 8.35 | + | 2.4 | 1.83E-03 | 4.64E-02 |
| peptide-lysine-N-acetyltransferase activity (GO:0061733) | 46 | 20 | 8.35 | + | 2.4 | 1.83E-03 | 4.62E-02 |
| acetylation-dependent protein binding (GO:0140033) | 23 | 13 | 4.17 | + | 3.12 | 1.83E-03 | 4.61E-02 |
| lysine-acetylated histone binding (GO:0070577) | 23 | 13 | 4.17 | + | 3.12 | 1.83E-03 | 4.59E-02 |
| O-methyltransferase activity (GO:0008171) | 23 | 13 | 4.17 | + | 3.12 | 1.83E-03 | 4.57E-02 |
| ligand-gated channel activity (GO:0022834) | 148 | 11 | 26.85 | - | 0.41 | 1.85E-03 | 4.59E-02 |
| miRNA binding (GO:0035198) | 32 | 16 | 5.81 | + | 2.76 | 1.86E-03 | 4.60E-02 |
| cadherin binding (GO:0045296) | 326 | 87 | 59.15 | + | 1.47 | 1.88E-03 | 4.63E-02 |
| snRNP binding (GO:0070990) | 9 | 8 | 1.63 | + | 4.9 | 2.02E-03 | 4.94E-02 |
| DNA clamp loader activity (GO:0003689) | 9 | 8 | 1.63 | + | 4.9 | 2.02E-03 | 4.92E-02 |

Supp Table.6 DEPs of peripheral blood at diagnosis were associated cellular function terms

| | | |
|---|---|---|
| Analysis Type: | PANTHER Overrepresentation Test (Released 20230705) | |
| Annotation Version and Release Date: | GO Ontology database DOI: 10.5281/zenodo.7942786 Released 2023-01-05 | |

| Analyzed List: | upload_1 (Homo sapiens) | | | | | | |
|---|---|---|---|---|---|---|---|
| Reference List: | Homo sapiens (all genes in database) | | | | | | |
| Test Type: | FISHER | | | | | | |
| Correction: | FDR | | | | | | |
| GO cellular component complete | Homo sapiens - REFLIST (20592) | upload_1 (3736) | upload_1 (expected) | upload_1 (over/under) | upload_1 (fold Enrichment) | upload_1 (raw P-value) | upload_1 (FDR) |
| intracellular anatomical structure (GO:0005622) | 14879 | 3443 | 2699.49 | + | 1.28 | ######## | ######## |
| organelle lumen (GO:0043233) | 5617 | 1913 | 1019.09 | + | 1.88 | ######## | ######## |
| intracellular organelle lumen (GO:0070013) | 5617 | 1913 | 1019.09 | + | 1.88 | ######## | ######## |
| membrane-enclosed lumen (GO:0031974) | 5617 | 1913 | 1019.09 | + | 1.88 | ######## | ######## |
| intracellular membrane-bounded organelle (GO:0043231) | 12120 | 3041 | 2198.93 | + | 1.38 | ######## | ######## |
| nuclear lumen (GO:0031981) | 4492 | 1634 | 814.98 | + | 2 | ######## | ######## |
| intracellular organelle (GO:0043229) | 13233 | 3177 | 2400.86 | + | 1.32 | ######## | ######## |
| nucleoplasm (GO:0005654) | 4129 | 1526 | 749.12 | + | 2.04 | ######## | ######## |
| membrane-bounded organelle (GO:0043227) | 13193 | 3167 | 2393.6 | + | 1.32 | ######## | ######## |
| organelle (GO:0043226) | 14034 | 3274 | 2546.18 | + | 1.29 | ######## | ######## |
| nucleus (GO:0005634) | 7651 | 2187 | 1388.12 | + | 1.58 | ######## | ######## |
| nuclear protein-containing complex (GO:0140513) | 1225 | 614 | 222.25 | + | 2.76 | 3.25E-90 | 5.37E-88 |
| protein-containing complex (GO:0032991) | 6363 | 1764 | 1154.44 | + | 1.53 | 8.02E-81 | 1.22E-78 |
| cytoplasm (GO:0005737) | 12118 | 2794 | 2198.56 | + | 1.27 | 3.17E-79 | 4.49E-77 |
| ribonucleoprotein complex (GO:1990904) | 732 | 433 | 132.81 | + | 3.26 | 2.31E-78 | 3.04E-76 |
| cytosol (GO:0005829) | 5526 | 1559 | 1002.58 | + | 1.55 | 6.84E-72 | 8.46E-70 |

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|---|---|---|---|---|---|---|---|
| intracellular non-membrane-bounded organelle (GO:0043232) | 5269 | 1465 | 955.95 | + | 1.53 | 2.92E-62 | 3.40E-60 |
| non-membrane-bounded organelle (GO:0043228) | 5270 | 1465 | 956.13 | + | 1.53 | 3.95E-62 | 4.35E-60 |
| nucleolus (GO:0005730) | 1018 | 458 | 184.7 | + | 2.48 | 1.95E-55 | 2.03E-53 |
| Unclassified (UNCLASSIFIED) | 1852 | 100 | 336.01 | - | 0.3 | 1.11E-48 | 1.10E-46 |
| cellular_component (GO:0005575) | 18740 | 3636 | 3399.99 | + | 1.07 | 1.11E-48 | 1.05E-46 |
| catalytic complex (GO:1902494) | 1744 | 621 | 316.41 | + | 1.96 | 2.05E-47 | 1.84E-45 |
| cellular anatomical entity (GO:0110165) | 18588 | 3612 | 3372.41 | + | 1.07 | 1.73E-45 | 1.49E-43 |
| nuclear body (GO:0016604) | 832 | 362 | 150.95 | + | 2.4 | 5.11E-41 | 4.21E-39 |
| spliceosomal complex (GO:0005681) | 205 | 140 | 37.19 | + | 3.76 | 4.61E-30 | 3.65E-28 |
| nuclear speck (GO:0016607) | 414 | 206 | 75.11 | + | 2.74 | 3.15E-29 | 2.40E-27 |
| chromosome (GO:0005694) | 1893 | 575 | 343.45 | + | 1.67 | 5.52E-28 | 4.05E-26 |
| cell periphery (GO:0071944) | 6350 | 829 | 1152.08 | - | 0.72 | 1.35E-27 | 9.58E-26 |
| transferase complex (GO:1990234) | 851 | 308 | 154.4 | + | 1.99 | 8.38E-24 | 5.72E-22 |
| plasma membrane (GO:0005886) | 5866 | 774 | 1064.27 | - | 0.73 | 1.23E-23 | 8.09E-22 |
| chromosomal region (GO:0098687) | 387 | 181 | 70.21 | + | 2.58 | 2.07E-23 | 1.32E-21 |
| ribosome (GO:0005840) | 237 | 132 | 43 | + | 3.07 | 2.82E-22 | 1.75E-20 |
| preribosome (GO:0030684) | 109 | 85 | 19.78 | + | 4.3 | 2.29E-21 | 1.38E-19 |
| intracellular protein-containing complex (GO:0140535) | 894 | 308 | 162.2 | + | 1.9 | 3.34E-21 | 1.94E-19 |
| ribosomal subunit (GO:0044391) | 188 | 108 | 34.11 | + | 3.17 | 2.85E-19 | 1.61E-17 |
| catalytic step 2 spliceosome (GO:0071013) | 91 | 71 | 16.51 | + | 4.3 | 4.30E-18 | 2.37E-16 |
| chromosome, telomeric region (GO:0000781) | 159 | 91 | 28.85 | + | 3.15 | 2.38E-16 | 1.28E-14 |
| small-subunit processome (GO:0032040) | 73 | 59 | 13.24 | + | 4.45 | 9.27E-16 | 4.83E-14 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| nuclear chromosome (GO:0000228) | 225 | 110 | 40.82 | + | 2.69 | 1.10E-15 | 5.57E-14 |
| U2-type spliceosomal complex (GO:0005684) | 92 | 66 | 16.69 | + | 3.95 | 1.19E-15 | 5.89E-14 |
| cytosolic ribosome (GO:0022626) | 114 | 72 | 20.68 | + | 3.48 | 7.33E-15 | 3.54E-13 |
| DNA-directed RNA polymerase complex (GO:0000428) | 105 | 67 | 19.05 | + | 3.52 | 4.38E-14 | 2.06E-12 |
| RNA polymerase complex (GO:0030880) | 108 | 68 | 19.59 | + | 3.47 | 4.54E-14 | 2.09E-12 |
| Sm-like protein family complex (GO:0120114) | 84 | 59 | 15.24 | + | 3.87 | 7.33E-14 | 3.30E-12 |
| nuclear DNA-directed RNA polymerase complex (GO:0055029) | 102 | 65 | 18.51 | + | 3.51 | 1.09E-13 | 4.79E-12 |
| transferase complex, transferring phosphorus-containing groups (GO:0061695) | 299 | 123 | 54.25 | + | 2.27 | 5.46E-13 | 2.35E-11 |
| small nuclear ribonucleoprotein complex (GO:0030532) | 74 | 53 | 13.43 | + | 3.95 | 7.77E-13 | 3.28E-11 |
| mitochondrion (GO:0005739) | 1697 | 444 | 307.89 | + | 1.44 | 3.46E-12 | 1.43E-10 |
| spliceosomal snRNP complex (GO:0097525) | 65 | 48 | 11.79 | + | 4.07 | 4.25E-12 | 1.72E-10 |
| mitochondrial matrix (GO:0005759) | 488 | 167 | 88.54 | + | 1.89 | 9.19E-12 | 3.64E-10 |
| methyltransferase complex (GO:0034708) | 97 | 57 | 17.6 | + | 3.24 | 4.39E-11 | 1.71E-09 |
| RNA polymerase II, holoenzyme (GO:0016591) | 78 | 50 | 14.15 | + | 3.53 | 6.21E-11 | 2.36E-09 |
| nuclear periphery (GO:0034399) | 150 | 73 | 27.21 | + | 2.68 | 7.38E-11 | 2.76E-09 |
| condensed chromosome (GO:0000793) | 277 | 109 | 50.26 | + | 2.17 | 7.86E-11 | 2.88E-09 |
| chromosome, centromeric region (GO:0000775) | 243 | 99 | 44.09 | + | 2.25 | 1.17E-10 | 4.22E-09 |
| small ribosomal subunit (GO:0015935) | 75 | 48 | 13.61 | + | 3.53 | 1.55E-10 | 5.47E-09 |
| large ribosomal subunit (GO:0015934) | 116 | 61 | 21.05 | + | 2.9 | 3.11E-10 | 1.08E-08 |
| envelope (GO:0031975) | 1281 | 337 | 232.41 | + | 1.45 | 1.18E-09 | 4.02E-08 |
| organelle envelope (GO:0031967) | 1281 | 337 | 232.41 | + | 1.45 | 1.18E-09 | 3.95E-08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| nuclear envelope (GO:0005635) | 500 | 160 | 90.71 | + | 1.76 | 1.82E-09 | 6.02E-08 |
| cytosolic large ribosomal subunit (GO:0022625) | 60 | 40 | 10.89 | + | 3.67 | 2.17E-09 | 7.05E-08 |
| U2-type precatalytic spliceosome (GO:0071005) | 50 | 36 | 9.07 | + | 3.97 | 3.18E-09 | 1.02E-07 |
| precatalytic spliceosome (GO:0071011) | 53 | 37 | 9.62 | + | 3.85 | 3.52E-09 | 1.11E-07 |
| protein-DNA complex (GO:0032993) | 1372 | 353 | 248.92 | + | 1.42 | 4.34E-09 | 1.34E-07 |
| nuclear matrix (GO:0016363) | 127 | 61 | 23.04 | + | 2.65 | 4.85E-09 | 1.48E-07 |
| endomembrane system (GO:0012505) | 4778 | 1032 | 866.87 | + | 1.19 | 9.50E-09 | 2.85E-07 |
| extracellular exosome (GO:0070062) | 2100 | 500 | 381 | + | 1.31 | 1.62E-08 | 4.78E-07 |
| ribonucleoprotein granule (GO:0035770) | 273 | 99 | 49.53 | + | 2 | 1.70E-08 | 4.96E-07 |
| SWI/SNF superfamily-type complex (GO:0070603) | 94 | 49 | 17.05 | + | 2.87 | 1.75E-08 | 5.04E-07 |
| fibrillar center (GO:0001650) | 151 | 66 | 27.4 | + | 2.41 | 2.06E-08 | 5.84E-07 |
| vesicle (GO:0031982) | 3995 | 875 | 724.81 | + | 1.21 | 2.70E-08 | 7.54E-07 |
| extracellular organelle (GO:0043230) | 2124 | 502 | 385.36 | + | 1.3 | 3.59E-08 | 9.88E-07 |
| extracellular membrane-bounded organelle (GO:0065010) | 2124 | 502 | 385.36 | + | 1.3 | 3.59E-08 | 9.75E-07 |
| extracellular vesicle (GO:1903561) | 2123 | 501 | 385.18 | + | 1.3 | 4.21E-08 | 1.13E-06 |
| RNA polymerase II transcription regulator complex (GO:0090575) | 245 | 88 | 44.45 | + | 1.98 | 1.48E-07 | 3.92E-06 |
| histone methyltransferase complex (GO:0035097) | 64 | 37 | 11.61 | + | 3.19 | 1.77E-07 | 4.62E-06 |
| cytoplasmic ribonucleoprotein granule (GO:0036464) | 255 | 90 | 46.26 | + | 1.95 | 2.33E-07 | 6.00E-06 |
| spindle (GO:0005819) | 426 | 131 | 77.29 | + | 1.69 | 3.64E-07 | 9.24E-06 |
| site of DNA damage (GO:0090734) | 116 | 52 | 21.05 | + | 2.47 | 4.21E-07 | 1.06E-05 |
| 90S preribosome (GO:0030686) | 28 | 23 | 5.08 | + | 4.53 | 4.34E-07 | 1.07E-05 |
| organelle membrane (GO:0031090) | 3720 | 808 | 674.92 | + | 1.2 | 4.36E-07 | 1.07E-05 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| transcription regulator complex (GO:0005667) | 507 | 149 | 91.98 | + | 1.62 | 5.11E-07 | 1.24E-05 |
| monoatomic ion channel complex (GO:0034702) | 304 | 20 | 55.15 | - | 0.36 | 5.18E-07 | 1.24E-05 |
| polysome (GO:0005844) | 69 | 37 | 12.52 | + | 2.96 | 5.51E-07 | 1.30E-05 |
| Cajal body (GO:0015030) | 59 | 34 | 10.7 | + | 3.18 | 6.17E-07 | 1.44E-05 |
| replication fork (GO:0005657) | 67 | 36 | 12.16 | + | 2.96 | 7.58E-07 | 1.75E-05 |
| polysomal ribosome (GO:0042788) | 32 | 24 | 5.81 | + | 4.13 | 7.76E-07 | 1.77E-05 |
| U4/U6 x U5 tri-snRNP complex (GO:0046540) | 35 | 25 | 6.35 | + | 3.94 | 8.73E-07 | 1.96E-05 |
| azurophil granule (GO:0042582) | 154 | 61 | 27.94 | + | 2.18 | 9.23E-07 | 2.05E-05 |
| primary lysosome (GO:0005766) | 154 | 61 | 27.94 | + | 2.18 | 9.23E-07 | 2.03E-05 |
| U2-type catalytic step 2 spliceosome (GO:0071007) | 30 | 23 | 5.44 | + | 4.23 | 1.00E-06 | 2.19E-05 |
| cytosolic small ribosomal subunit (GO:0022627) | 41 | 27 | 7.44 | + | 3.63 | 1.02E-06 | 2.19E-05 |
| spliceosomal tri-snRNP complex (GO:0097526) | 36 | 25 | 6.53 | + | 3.83 | 1.26E-06 | 2.69E-05 |
| MLL1 complex (GO:0071339) | 31 | 23 | 5.62 | + | 4.09 | 1.50E-06 | 3.15E-05 |
| histone deacetylase complex (GO:0000118) | 82 | 40 | 14.88 | + | 2.69 | 1.58E-06 | 3.29E-05 |
| sno(s)RNA-containing ribonucleoprotein complex (GO:0005732) | 24 | 20 | 4.35 | + | 4.59 | 2.09E-06 | 4.32E-05 |
| MLL1/2 complex (GO:0044665) | 32 | 23 | 5.81 | + | 3.96 | 2.20E-06 | 4.49E-05 |
| organellar ribosome (GO:0000313) | 90 | 42 | 16.33 | + | 2.57 | 2.28E-06 | 4.62E-05 |
| mitochondrial ribosome (GO:0005761) | 90 | 42 | 16.33 | + | 2.57 | 2.28E-06 | 4.57E-05 |
| transcription factor TFIID complex (GO:0005669) | 35 | 24 | 6.35 | + | 3.78 | 2.41E-06 | 4.77E-05 |
| condensed chromosome, centromeric region (GO:0000779) | 177 | 66 | 32.11 | + | 2.06 | 2.42E-06 | 4.75E-05 |
| transcription elongation factor complex (GO:0008023) | 47 | 28 | 8.53 | + | 3.28 | 2.76E-06 | 5.35E-05 |
| nuclear membrane (GO:0031965) | 319 | 101 | 57.88 | + | 1.75 | 2.91E-06 | 5.60E-05 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| chromatin (GO:0000785) | 1309 | 316 | 237.49 | + | 1.33 | 4.20E-06 | 8.01E-05 |
| heterochromatin (GO:0000792) | 80 | 38 | 14.51 | + | 2.62 | 4.27E-06 | 8.05E-05 |
| midbody (GO:0030496) | 204 | 72 | 37.01 | + | 1.95 | 4.52E-06 | 8.44E-05 |
| kinetochore (GO:0000776) | 166 | 62 | 30.12 | + | 2.06 | 4.53E-06 | 8.40E-05 |
| U2 snRNP (GO:0005686) | 26 | 20 | 4.72 | + | 4.24 | 4.89E-06 | 8.96E-05 |
| nuclear pore (GO:0005643) | 98 | 43 | 17.78 | + | 2.42 | 5.41E-06 | 9.83E-05 |
| ATPase complex (GO:1904949) | 149 | 57 | 27.03 | + | 2.11 | 5.89E-06 | 1.06E-04 |
| synaptic membrane (GO:0097060) | 400 | 35 | 72.57 | - | 0.48 | 6.05E-06 | 1.08E-04 |
| basement membrane (GO:0005604) | 91 | 1 | 16.51 | - | 0.06 | 7.06E-06 | 1.25E-04 |
| azurophil granule lumen (GO:0035578) | 90 | 40 | 16.33 | + | 2.45 | 7.97E-06 | 1.40E-04 |
| vacuole (GO:0005773) | 849 | 217 | 154.03 | + | 1.41 | 8.89E-06 | 1.54E-04 |
| histone acetyltransferase complex (GO:0000123) | 93 | 41 | 16.87 | + | 2.43 | 9.53E-06 | 1.64E-04 |
| intracellular vesicle (GO:0097708) | 2517 | 556 | 456.66 | + | 1.22 | 9.90E-06 | 1.69E-04 |
| microtubule cytoskeleton (GO:0015630) | 1379 | 327 | 250.19 | + | 1.31 | 1.11E-05 | 1.88E-04 |
| lytic vacuole (GO:0000323) | 753 | 195 | 136.62 | + | 1.43 | 1.21E-05 | 2.03E-04 |
| lysosome (GO:0005764) | 753 | 195 | 136.62 | + | 1.43 | 1.21E-05 | 2.01E-04 |
| carboxy-terminal domain protein kinase complex (GO:0032806) | 18 | 16 | 3.27 | + | 4.9 | 1.27E-05 | 2.09E-04 |
| transmembrane transporter complex (GO:1902495) | 397 | 36 | 72.03 | - | 0.5 | 1.49E-05 | 2.45E-04 |
| cytoplasmic vesicle (GO:0031410) | 2513 | 553 | 455.93 | + | 1.21 | 1.58E-05 | 2.57E-04 |
| acetyltransferase complex (GO:1902493) | 104 | 43 | 18.87 | + | 2.28 | 1.63E-05 | 2.63E-04 |
| integrator complex (GO:0032039) | 19 | 16 | 3.45 | + | 4.64 | 2.00E-05 | 3.20E-04 |
| receptor complex (GO:0043235) | 546 | 57 | 99.06 | - | 0.58 | 2.15E-05 | 3.40E-04 |
| cytoplasmic stress granule (GO:0010494) | 91 | 39 | 16.51 | + | 2.36 | 2.31E-05 | 3.63E-04 |

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|---|---|---|---|---|---|---|---|
| immunoglobulin complex (GO:0019814) | 169 | 9 | 30.66 | - | 0.29 | 2.44E-05 | 3.81E-04 |
| centrosome (GO:0005813) | 648 | 170 | 117.57 | + | 1.45 | 2.61E-05 | 4.04E-04 |
| serine/threonine protein kinase complex (GO:1902554) | 131 | 50 | 23.77 | + | 2.1 | 2.64E-05 | 4.06E-04 |
| PML body (GO:0016605) | 105 | 43 | 19.05 | + | 2.26 | 2.74E-05 | 4.17E-04 |
| euchromatin (GO:0000791) | 59 | 29 | 10.7 | + | 2.71 | 3.72E-05 | 5.63E-04 |
| cilium (GO:0005929) | 746 | 87 | 135.35 | - | 0.64 | 3.80E-05 | 5.70E-04 |
| protein acetyltransferase complex (GO:0031248) | 103 | 42 | 18.69 | + | 2.25 | 3.82E-05 | 5.70E-04 |
| cation channel complex (GO:0034703) | 195 | 12 | 35.38 | - | 0.34 | 3.84E-05 | 5.68E-04 |
| SAGA-type complex (GO:0070461) | 38 | 22 | 6.89 | + | 3.19 | 4.34E-05 | 6.36E-04 |
| specific granule (GO:0042581) | 159 | 56 | 28.85 | + | 1.94 | 5.41E-05 | 7.88E-04 |
| endoribonuclease complex (GO:1902555) | 33 | 20 | 5.99 | + | 3.34 | 5.95E-05 | 8.60E-04 |
| external encapsulating structure (GO:0030312) | 564 | 62 | 102.33 | - | 0.61 | 6.40E-05 | 9.19E-04 |
| extracellular matrix (GO:0031012) | 563 | 62 | 102.14 | - | 0.61 | 7.87E-05 | 1.12E-03 |
| postsynaptic membrane (GO:0045211) | 283 | 24 | 51.34 | - | 0.47 | 8.74E-05 | 1.24E-03 |
| plasma membrane signaling receptor complex (GO:0098802) | 331 | 30 | 60.05 | - | 0.5 | 8.79E-05 | 1.24E-03 |
| preribosome, small subunit precursor (GO:0030688) | 15 | 13 | 2.72 | + | 4.78 | 9.89E-05 | 1.38E-03 |
| site of double-strand break (GO:0035861) | 85 | 35 | 15.42 | + | 2.27 | 1.09E-04 | 1.51E-03 |
| U12-type spliceosomal complex (GO:0005689) | 29 | 18 | 5.26 | + | 3.42 | 1.10E-04 | 1.51E-03 |
| organellar small ribosomal subunit (GO:0000314) | 32 | 19 | 5.81 | + | 3.27 | 1.11E-04 | 1.51E-03 |
| mitochondrial small ribosomal subunit (GO:0005763) | 32 | 19 | 5.81 | + | 3.27 | 1.11E-04 | 1.50E-03 |
| transporter complex (GO:1990351) | 423 | 43 | 76.74 | - | 0.56 | 1.20E-04 | 1.62E-03 |
| protein kinase complex (GO:1902911) | 151 | 52 | 27.4 | + | 1.9 | 1.73E-04 | 2.32E-03 |

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|---|---|---|---|---|---|---|---|
| U1 snRNP (GO:0005685) | 19 | 14 | 3.45 | + | 4.06 | 1.78E-04 | 2.36E-03 |
| preribosome, large subunit precursor (GO:0030687) | 19 | 14 | 3.45 | + | 4.06 | 1.78E-04 | 2.35E-03 |
| Sin3-type complex (GO:0070822) | 22 | 15 | 3.99 | + | 3.76 | 1.94E-04 | 2.54E-03 |
| Sin3 complex (GO:0016580) | 22 | 15 | 3.99 | + | 3.76 | 1.94E-04 | 2.53E-03 |
| collagen-containing extracellular matrix (GO:0062023) | 427 | 45 | 77.47 | - | 0.58 | 2.27E-04 | 2.94E-03 |
| cell projection (GO:0042995) | 2401 | 359 | 435.61 | - | 0.82 | 2.38E-04 | 3.06E-03 |
| microtubule organizing center (GO:0005815) | 852 | 206 | 154.58 | + | 1.33 | 2.44E-04 | 3.11E-03 |
| phagocytic vesicle (GO:0045335) | 142 | 49 | 25.76 | + | 1.9 | 2.45E-04 | 3.11E-03 |
| U5 snRNP (GO:0005682) | 20 | 14 | 3.63 | + | 3.86 | 2.60E-04 | 3.28E-03 |
| endonuclease complex (GO:1905348) | 37 | 20 | 6.71 | + | 2.98 | 2.65E-04 | 3.33E-03 |
| lytic vacuole membrane (GO:0098852) | 423 | 114 | 76.74 | + | 1.49 | 2.68E-04 | 3.34E-03 |
| focal adhesion (GO:0005925) | 423 | 114 | 76.74 | + | 1.49 | 2.68E-04 | 3.32E-03 |
| lysosomal membrane (GO:0005765) | 423 | 114 | 76.74 | + | 1.49 | 2.68E-04 | 3.30E-03 |
| mitotic spindle (GO:0072686) | 181 | 58 | 32.84 | + | 1.77 | 2.85E-04 | 3.48E-03 |
| P-body (GO:0000932) | 98 | 37 | 17.78 | + | 2.08 | 2.86E-04 | 3.48E-03 |
| nuclear cyclin-dependent protein kinase holoenzyme complex (GO:0019908) | 10 | 10 | 1.81 | + | 5.51 | 3.01E-04 | 3.63E-03 |
| mediator complex (GO:0016592) | 38 | 20 | 6.89 | + | 2.9 | 3.13E-04 | 3.76E-03 |
| cytoplasmic vesicle lumen (GO:0060205) | 323 | 91 | 58.6 | + | 1.55 | 3.30E-04 | 3.94E-03 |
| vesicle lumen (GO:0031983) | 325 | 91 | 58.96 | + | 1.54 | 3.50E-04 | 4.15E-03 |
| collagen trimer (GO:0005581) | 88 | 3 | 15.97 | - | 0.19 | 3.81E-04 | 4.49E-03 |
| DNA replication preinitiation complex (GO:0031261) | 13 | 11 | 2.36 | + | 4.66 | 3.92E-04 | 4.60E-03 |
| endoplasmic reticulum protein-containing complex (GO:0140534) | 127 | 44 | 23.04 | + | 1.91 | 3.97E-04 | 4.63E-03 |

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|---|---|---|---|---|---|---|---|
| secretory granule lumen (GO:0034774) | 320 | 90 | 58.06 | + | 1.55 | 4.01E-04 | 4.65E-03 |
| tertiary granule (GO:0070820) | 164 | 53 | 29.75 | + | 1.78 | 4.32E-04 | 4.97E-03 |
| Set1C/COMPASS complex (GO:0048188) | 16 | 12 | 2.9 | + | 4.13 | 4.59E-04 | 5.26E-03 |
| transcription factor TFIIH core complex (GO:0000439) | 11 | 10 | 2 | + | 5.01 | 4.95E-04 | 5.64E-03 |
| CMG complex (GO:0071162) | 11 | 10 | 2 | + | 5.01 | 4.95E-04 | 5.61E-03 |
| exoribonuclease complex (GO:1905354) | 19 | 13 | 3.45 | + | 3.77 | 5.02E-04 | 5.65E-03 |
| vacuolar membrane (GO:0005774) | 468 | 122 | 84.91 | + | 1.44 | 5.04E-04 | 5.64E-03 |
| cell surface (GO:0009986) | 918 | 121 | 166.55 | - | 0.73 | 5.07E-04 | 5.65E-03 |
| spindle microtubule (GO:0005876) | 82 | 32 | 14.88 | + | 2.15 | 5.75E-04 | 6.36E-03 |
| cell-substrate junction (GO:0030055) | 433 | 114 | 78.56 | + | 1.45 | 6.04E-04 | 6.65E-03 |
| vacuolar lumen (GO:0005775) | 175 | 55 | 31.75 | + | 1.73 | 6.24E-04 | 6.83E-03 |
| nuclear replication fork (GO:0043596) | 34 | 18 | 6.17 | + | 2.92 | 6.47E-04 | 7.05E-03 |
| prespliceosome (GO:0071010) | 17 | 12 | 3.08 | + | 3.89 | 6.75E-04 | 7.30E-03 |
| U2-type prespliceosome (GO:0071004) | 17 | 12 | 3.08 | + | 3.89 | 6.75E-04 | 7.26E-03 |
| plasma membrane bounded cell projection (GO:0120025) | 2293 | 347 | 416.02 | - | 0.83 | 7.39E-04 | 7.91E-03 |
| transcription factor TFIIH holo complex (GO:0005675) | 12 | 10 | 2.18 | + | 4.59 | 7.84E-04 | 8.35E-03 |
| plasma membrane protein complex (GO:0098797) | 729 | 93 | 132.26 | - | 0.7 | 8.05E-04 | 8.53E-03 |
| T cell receptor complex (GO:0042101) | 149 | 10 | 27.03 | - | 0.37 | 8.18E-04 | 8.62E-03 |
| ficolin-1-rich granule (GO:0101002) | 185 | 57 | 33.56 | + | 1.7 | 8.41E-04 | 8.82E-03 |
| platelet alpha granule (GO:0031091) | 91 | 4 | 16.51 | - | 0.24 | 9.29E-04 | 9.69E-03 |
| exosome (RNase complex) (GO:0000178) | 18 | 12 | 3.27 | + | 3.67 | 9.69E-04 | 1.00E-02 |
| transcription export complex (GO:0000346) | 10 | 9 | 1.81 | + | 4.96 | 9.99E-04 | 1.03E-02 |
| bounding membrane of organelle (GO:0098588) | 2159 | 460 | 391.71 | + | 1.17 | 1.07E-03 | 1.10E-02 |

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|---|---|---|---|---|---|---|---|
| spindle pole (GO:0000922) | 172 | 53 | 31.21 | + | 1.7 | 1.10E-03 | 1.12E-02 |
| cyclin-dependent protein kinase holoenzyme complex (GO:0000307) | 53 | 23 | 9.62 | + | 2.39 | 1.10E-03 | 1.12E-02 |
| ribonuclease P complex (GO:0030677) | 13 | 10 | 2.36 | + | 4.24 | 1.20E-03 | 1.21E-02 |
| supramolecular complex (GO:0099080) | 1409 | 312 | 255.63 | + | 1.22 | 1.25E-03 | 1.25E-02 |
| MHC protein complex (GO:0042611) | 25 | 14 | 4.54 | + | 3.09 | 1.32E-03 | 1.32E-02 |
| DNA polymerase complex (GO:0042575) | 19 | 12 | 3.45 | + | 3.48 | 1.36E-03 | 1.36E-02 |
| acrosomal vesicle (GO:0001669) | 143 | 10 | 25.94 | - | 0.39 | 1.47E-03 | 1.46E-02 |
| ubiquitin ligase complex (GO:0000151) | 311 | 84 | 56.42 | + | 1.49 | 1.51E-03 | 1.49E-02 |
| perinuclear region of cytoplasm (GO:0048471) | 747 | 177 | 135.53 | + | 1.31 | 1.53E-03 | 1.51E-02 |
| presynaptic membrane (GO:0042734) | 165 | 13 | 29.94 | - | 0.43 | 1.64E-03 | 1.60E-02 |
| endocytic vesicle (GO:0030139) | 348 | 92 | 63.14 | + | 1.46 | 1.67E-03 | 1.62E-02 |
| secretory granule membrane (GO:0030667) | 320 | 86 | 58.06 | + | 1.48 | 1.72E-03 | 1.66E-02 |
| core mediator complex (GO:0070847) | 26 | 14 | 4.72 | + | 2.97 | 1.75E-03 | 1.68E-02 |
| mitochondrial nucleoid (GO:0042645) | 46 | 20 | 8.35 | + | 2.4 | 1.83E-03 | 1.75E-02 |
| nucleoid (GO:0009295) | 46 | 20 | 8.35 | + | 2.4 | 1.83E-03 | 1.74E-02 |
| MHC class II protein complex (GO:0042613) | 17 | 11 | 3.08 | + | 3.57 | 1.86E-03 | 1.77E-02 |
| SMN-Sm protein complex (GO:0034719) | 17 | 11 | 3.08 | + | 3.57 | 1.86E-03 | 1.76E-02 |
| specific granule membrane (GO:0035579) | 91 | 32 | 16.51 | + | 1.94 | 2.32E-03 | 2.18E-02 |
| nuclear exosome (RNase complex) (GO:0000176) | 12 | 9 | 2.18 | + | 4.13 | 2.38E-03 | 2.22E-02 |
| RPAP3/R2TP/prefoldin-like complex (GO:1990062) | 12 | 9 | 2.18 | + | 4.13 | 2.38E-03 | 2.21E-02 |
| mitochondrial protein-containing complex (GO:0098798) | 297 | 80 | 53.88 | + | 1.48 | 2.41E-03 | 2.23E-02 |
| box C/D RNP complex (GO:0031428) | 7 | 7 | 1.27 | + | 5.51 | 2.53E-03 | 2.33E-02 |

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|---|---|---|---|---|---|---|---|
| cytoplasmic exosome (RNase complex) (GO:0000177) | 15 | 10 | 2.72 | + | 3.67 | 2.55E-03 | 2.34E-02 |
| replisome (GO:0030894) | 15 | 10 | 2.72 | + | 3.67 | 2.55E-03 | 2.33E-02 |
| RNA polymerase III complex (GO:0005666) | 18 | 11 | 3.27 | + | 3.37 | 2.59E-03 | 2.36E-02 |
| transcription factor TFTC complex (GO:0033276) | 18 | 11 | 3.27 | + | 3.37 | 2.59E-03 | 2.34E-02 |
| sex chromosome (GO:0000803) | 30 | 15 | 5.44 | + | 2.76 | 2.67E-03 | 2.41E-02 |
| SWI/SNF complex (GO:0016514) | 30 | 15 | 5.44 | + | 2.76 | 2.67E-03 | 2.40E-02 |
| neuron projection membrane (GO:0032589) | 62 | 2 | 11.25 | - | 0.18 | 2.87E-03 | 2.56E-02 |
| trans-Golgi network membrane (GO:0032588) | 105 | 35 | 19.05 | + | 1.84 | 3.01E-03 | 2.67E-02 |
| plasma membrane region (GO:0098590) | 1310 | 191 | 237.67 | - | 0.8 | 3.10E-03 | 2.74E-02 |
| multimeric ribonuclease P complex (GO:0030681) | 10 | 8 | 1.81 | + | 4.41 | 3.15E-03 | 2.78E-02 |
| post-mRNA release spliceosomal complex (GO:0071014) | 10 | 8 | 1.81 | + | 4.41 | 3.15E-03 | 2.77E-02 |
| DNA repair complex (GO:1990391) | 22 | 12 | 3.99 | + | 3.01 | 3.39E-03 | 2.96E-02 |
| transcription preinitiation complex (GO:0097550) | 13 | 9 | 2.36 | + | 3.82 | 3.48E-03 | 3.02E-02 |
| nuclear replisome (GO:0043601) | 13 | 9 | 2.36 | + | 3.82 | 3.48E-03 | 3.01E-02 |
| spindle midzone (GO:0051233) | 37 | 17 | 6.71 | + | 2.53 | 3.55E-03 | 3.06E-02 |
| sperm flagellum (GO:0036126) | 157 | 13 | 28.48 | - | 0.46 | 3.72E-03 | 3.19E-02 |
| neuromuscular junction (GO:0031594) | 80 | 4 | 14.51 | - | 0.28 | 3.73E-03 | 3.19E-02 |
| potassium channel complex (GO:0034705) | 90 | 5 | 16.33 | - | 0.31 | 3.93E-03 | 3.34E-02 |
| keratin filament (GO:0045095) | 99 | 6 | 17.96 | - | 0.33 | 3.99E-03 | 3.37E-02 |
| 9+2 motile cilium (GO:0097729) | 170 | 15 | 30.84 | - | 0.49 | 4.07E-03 | 3.43E-02 |
| paraspeckles (GO:0042382) | 8 | 7 | 1.45 | + | 4.82 | 4.12E-03 | 3.46E-02 |
| condensin complex (GO:0000796) | 8 | 7 | 1.45 | + | 4.82 | 4.12E-03 | 3.44E-02 |

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|---|---|---|---|---|---|---|---|
| lumenal side of endoplasmic reticulum membrane (GO:0098553) | 29 | 14 | 5.26 | + | 2.66 | 4.54E-03 | 3.78E-02 |
| cytoplasmic side of membrane (GO:0098562) | 207 | 58 | 37.56 | + | 1.54 | 4.54E-03 | 3.76E-02 |
| U4 snRNP (GO:0005687) | 11 | 8 | 2 | + | 4.01 | 4.72E-03 | 3.90E-02 |
| nucleotide-excision repair complex (GO:0000109) | 11 | 8 | 2 | + | 4.01 | 4.72E-03 | 3.88E-02 |
| hemoglobin complex (GO:0005833) | 11 | 8 | 2 | + | 4.01 | 4.72E-03 | 3.87E-02 |
| motile cilium (GO:0031514) | 258 | 27 | 46.81 | - | 0.58 | 4.78E-03 | 3.90E-02 |
| NuRD complex (GO:0016581) | 17 | 10 | 3.08 | + | 3.24 | 4.91E-03 | 3.99E-02 |
| CHD-type complex (GO:0090545) | 17 | 10 | 3.08 | + | 3.24 | 4.91E-03 | 3.97E-02 |
| npBAF complex (GO:0071564) | 14 | 9 | 2.54 | + | 3.54 | 4.94E-03 | 3.98E-02 |
| ISWI-type complex (GO:0031010) | 14 | 9 | 2.54 | + | 3.54 | 4.94E-03 | 3.97E-02 |
| SAGA complex (GO:0000124) | 25 | 13 | 4.54 | + | 2.87 | 4.95E-03 | 3.95E-02 |
| organelle subcompartment (GO:0031984) | 1510 | 324 | 273.96 | + | 1.18 | 5.16E-03 | 4.10E-02 |
| condensed nuclear chromosome (GO:0000794) | 82 | 28 | 14.88 | + | 1.88 | 5.18E-03 | 4.10E-02 |
| cyclin/CDK positive transcription elongation factor complex (GO:0008024) | 6 | 6 | 1.09 | + | 5.51 | 5.22E-03 | 4.12E-02 |
| THO complex part of transcription export complex (GO:0000445) | 6 | 6 | 1.09 | + | 5.51 | 5.22E-03 | 4.11E-02 |
| THO complex (GO:0000347) | 6 | 6 | 1.09 | + | 5.51 | 5.22E-03 | 4.09E-02 |
| voltage-gated potassium channel complex (GO:0008076) | 79 | 4 | 14.33 | - | 0.28 | 5.37E-03 | 4.18E-02 |
| specific granule lumen (GO:0035580) | 61 | 23 | 11.07 | + | 2.08 | 5.57E-03 | 4.33E-02 |
| vesicle membrane (GO:0012506) | 1238 | 270 | 224.61 | + | 1.2 | 5.65E-03 | 4.37E-02 |
| transcription repressor complex (GO:0017053) | 78 | 27 | 14.15 | + | 1.91 | 6.07E-03 | 4.68E-02 |
| postsynaptic specialization membrane (GO:0099634) | 127 | 10 | 23.04 | - | 0.43 | 6.08E-03 | 4.67E-02 |

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|---|---|---|---|---|---|---|---|
| secretory granule (GO:0030141) | 899 | 202 | 163.11 | + | 1.24 | 6.13E-03 | 4.69E-02 |
| Cul4-RING E3 ubiquitin ligase complex (GO:0080008) | 37 | 16 | 6.71 | + | 2.38 | 6.26E-03 | 4.77E-02 |
| ribonuclease MRP complex (GO:0000172) | 9 | 7 | 1.63 | + | 4.29 | 6.36E-03 | 4.83E-02 |
| nuclear pore outer ring (GO:0031080) | 9 | 7 | 1.63 | + | 4.29 | 6.36E-03 | 4.81E-02 |
| organellar large ribosomal subunit (GO:0000315) | 56 | 21 | 10.16 | + | 2.07 | 6.53E-03 | 4.92E-02 |
| mitochondrial large ribosomal subunit (GO:0005762) | 56 | 21 | 10.16 | + | 2.07 | 6.53E-03 | 4.90E-02 |

Supp Table.7 DEPs were associated with three KEGG pathways

| Category | Term | Count | % | PValue | Genes | List Total | Pop Hits | Pop Total | Fold Enrichment | Bonferroni | Benjamini | FDR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa03040:Spliceosome | 99 | 2.706397 | 2.22E-17 | TCERG1, EIF4A3, HNRNPU, EFTUD2, SNRPD2, SNRPD1, MAGOH, SNRPD3, AQR, THOC1, THOC3, THOC2, WBP11, CRNKL | 1741 | 216 | 8586 | 2.260339 | 7.79E-15 | 7.79E-15 | 6.85E-15 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1, PRPF6, DDX39B, PRPF3, SRSF2, SNRPG, SNRNP27, SRSF3, PPIE, SRSF4, PPIH, SNRPE, SRSF5, SRSF6, SNRNP200, SRSF8, SNRPA, SRSF9, DDX5, DHX8, RBM8A, SNU13, PRPF8, ZMAT2, DHX38, PRPF38A, CCDC12, FUS, ALYREF, HSPA6, LSM4, CHERP, LSM2, HNRNPM, HNRNPK, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SNW1, HNRNPC, ISY1, RBM25, PRPF19, USP39, PQBP1, SART1, SNRNP70, DHX15, DHX16, BCAS2, RBM17, NCBP1, NCBP2, BUD31, PRPF40B, PRPF40A, PLRG1, PRPF18, RP9, SNRPA1, SLU7, SF3B4, SF3B5, SF3B2, SF3B3, SF3B6, SRSF1, DDX23, U2AF1, U2AF2 | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , TRA2B, TRA2A , SNRPB 2, HNRN PA1, SRSF10 , SMND C1, SF3B1, SF3A3, SF3A1, HNRN PA3, SF3A2, HSPA1 L, CDC5L, U2SUR P, XAB2, SNRNP 40, ACIN1, PRPF3 1, RBMX | | | | | | | |
| KEGG_P ATHWAY | hsa03420:Nucl eotide excision repair | 44 | 1.20 284 3 | 1.63 E-16 | PCNA, CCNH, CETN2, XPC, POLD3 , POLD4 , POLR2 A, POLR2 B, POLD1 , POLR2 C, POLD2 , | 17 41 | 63 | 85 86 | 3.444 326 | 3.89 E-14 | 2.86 E-14 | 2.52 E-14 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | POLR2D, POLR2E, POLR2G, POLR2H, POLE, POLR2L, RFC5, RFC3, POLR2J2, RFC4, LIG1, RFC1, RFC2, RPA1, GTF2H1, RAD23A, GTF2H2, GTF2H3, GTF2H4, GTF2H5, DDB2, CDK7, ERCC3, ERCC4, ERCC1, RPA3, POLE2, ERCC2, POLE3, ERCC8, ERCC5, ERCC6, MNAT1 | | | | | | | |

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| KEGG_PATHWAY | hsa03010:Ribosome | 78 | 2.132313 | 2.92E-14 | RPL4, RPL30, MRPS15, MRPS16, RPL3, RPL32, RPL31, MRPS14, RPL34, RPLP1, RPLP0, MRPS12, MRPS10, RPL10A, RPL8, RPL9, RPL6, RPL7, RPS4X, RPS15, MRPL3, RPL7A, RPS17, RPS16, RPS19, RPL18A, RPL36AL, RPS18, RPLP2, RPL35, RPL38, RPS10, RPS13, RPS12, RPS9, RPL21, RPS8, RPS5, RPL22, | 1741 | 167 | 8586 | 2.303405 | 1.02E-11 | 3.40E-12 | 2.99E-12 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RPS6, MRPS2, RPL13A, RPS3A, MRPS5, RPL24, RPL27, RPL26, RPL29, MRPL19, RPL11, RPL36A, MRPL17, RPS27L, MRPL14, RPS4Y1, MRPL11, MRPL20, RPL13, RPS2, RPL15, RPL18, RPL17, RPL19, RPL35A, MRPL28, RPL23A, MRPL21, MRPL30, RPS26, RPS25, RPS28, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RPS27, RPS20, RPL22L1, FAU, RPS21, RPS24, RPS23 | | | | | | | |
| KEGG_PATHWAY | hsa03013:Nucleocytoplasmic transport | 58 | 1.585566 | 5.10E-14 | IPO11, NUP107, NUP188, EIF4A3, PHAX, IPO7, IPO4, PNN, SUMO1, XPO4, MAGOH, XPO5, NUP62, KPNA6, KPNA2, KPNA3, NDC1, NUP214, SEC13, NUP210, NUP133, NCBP1, NCBP2, THOC1, THOC3, | 1741 | 108 | 8586 | 2.648478 | 1.79E-11 | 4.47E-12 | 3.93E-12 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | THOC2, THOC5, THOC7, SRRM1, THOC6, NUP93, DDX19A, DDX39B, TMEM33, NUP50, NUP54, NUP58, NUP205, RBM8A, AAAS, NUP160, NXF1, POM121C, NUP85, TPR, SAP18, NUP88, NUP43, RANBP2, NUP155, ALYREF, PYM1, | | | | | | | |

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| | | | | | NUP153, SNUPN, XPOT, ACIN1, RNPS1, NUP37 | | | | | | | |
| KEGG_PATHWAY | hsa05171:Coronavirus disease - COVID-19 | 97 | 2.651722 | 8.60E-14 | RPL4, RPL30, RPL3, RPL32, RPL31, RPL34, RPL10A, RPL8, RPL9, RPL6, RPL7, RPS15, RPS17, RPS16, TBK1, RPS19, RPL18A, RPL36AL, RPS18, RPL35, RPL38, RPS10, MAP3K7, RPS13, RPS12, RPS9, RPL21, RPS8, RPS5, RPL22, RPS6, CYBB, ADAM17, RPL24, RPL27, RPL26, | 1741 | 232 | 8586 | 2.061939 | 3.01E-11 | 6.02E-12 | 5.30E-12 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RPL29, C5AR1, RPS4Y 1, C7, PLCG2, EIF2AK 2, ISG15, NFKB1 , RPS26, RPS25, RPS28, RPS27, RPS20, RPS21, RPS24, RPS23, NRP1, RPLP1, RPLP0, CGAS, PIK3C D, ADAR, RPS4X, IFIH1, RPL7A, RPLP2, IKBKG, IKBKE, JAK1, RPL13 A, RPS3A, FOS, TYK2, TNFRS F1A, OAS1, IRF3, PIK3CA , OAS2, OAS3, TLR8, TLR2, C1R, RPL11, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RPL36A, RPS27L, MAPK1, RPL13, RPS2, RPL15, RPL18, RPL17, MAPK3, RPL19, STAT2, MX2, MX1, RPL35A, RPL23A, FCGR2A, RPL22L1, FAU | | | | | | | |
| KEGG_PATHWAY | hsa03030:DNA replication | 28 | 0.765446 | 2.23E-12 | PRIM2, RNASEH2B, FEN1, RNASEH2A, PCNA, PRIM1, POLD3, POLD4, RNASEH1, POLD1, POLD2, POLE, RFC5, RFC3, RFC4, | 1741 | 36 | 8586 | 3.835727 | 7.81E-10 | 1.30E-10 | 1.15E-10 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | LIG1, RFC1, RFC2, RPA1, RPA3, POLE2, POLE3, MCM3, MCM4, MCM5, MCM6, DNA2, MCM2 | | | | | | | |
| KEGG_PATHWAY | hsa03410:Base excision repair | 31 | 0.847458 | 7.42E-12 | FEN1, PCNA, MPG, PNKP, HMGB1, POLD3, POLB, POLD4, NTHL1, POLD1, POLD2, POLL, POLE, RFC5, MBD4, RFC3, PARP4, RFC4, LIG1, PARP1, RFC1, RFC2, PARP2, LIG3, SMUG1, POLG2 | 1741 | 44 | 8586 | 3.474571 | 2.60E-09 | 3.71E-10 | 3.27E-10 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , APEX1, TDP1, POLE2, POLE3, ADPRS | | | | | | | |
| KEGG_PATHWAY | hsa03022:Basal transcription factors | 31 | 0.847458 | 1.80E-11 | GTF2A1, CCNH, GTF2B, TAF9, GTF2E1, GTF2E2, TAF5L, TAF9B, GTF2I, TAF15, TBP, TAF13, GTF2H1, GTF2H2, GTF2F1, GTF2H3, GTF2F2, GTF2H4, GTF2H5, TAF6L, CDK7, ERCC3, ERCC2, TAF8, TAF7, TBPL1, TAF6, TAF4, MNAT1, TAF2, TAF1 | 1741 | 45 | 8586 | 3.397358 | 6.29E-09 | 7.86E-10 | 6.92E-10 |

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| KEGG_PATHWAY | hsa03015:mRNA surveillance pathway | 44 | 1.202843 | 6.20E-08 | HBS1L, RBM8A, RNMT, CSTF3, EIF4A3, CSTF2T, PPP2R2A, MSI2, PNN, NXF1, FIP1L1, PPP2R1B, PCF11, PAPOLG, MAGOH, PAPOLA, SAP18, SYMPK, CPSF7, RNGTT, CPSF6, CPSF1, NCBP1, NCBP2, FUS, ALYREF, PABPC4, CPSF2, PYM1, PPP2R5B, SSU72, PPP2R5C, SRRM1 | 1741 | 97 | 8586 | 2.237036 | 2.17E-05 | 2.41E-06 | 2.12E-06 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , WDR33, PPP1CA, DDX19A, NUDT21, DDX39B, WDR82, PPP2R2D, ACIN1, RNPS1, PABPC1, TARDBP | | | | | | | |
| KEGG_PATHWAY | hsa04110:Cell cycle | 60 | 1.640241 | 3.33E-07 | CDKN1C, RB1, YWHAE, CCNH, SMC3, CDC20, NIPBL, PPP2R1B, YWHAQ, CDC26, CHEK2, CHEK1, EP300, SKP2, ANAPC7, PPP2R5B, ESCO2, PPP2R5C, SMC1 | 1741 | 157 | 8586 | 1.884706 | 1.17E-04 | 1.17E-05 | 1.03E-05 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A, SMC1B, RBL2, CCNA2, TFDP1, CCNE1, MCM3, MCM4, MCM5, MCM6, ANAPC1, MAD1L1, MCM2, HDAC2, ANAPC15, PCNA, PRKDC, HDAC1, CDCA5, PDS5B, PDS5A, AURKB, ORC5, ORC4, CCNB1, ORC3, RAD21, ORC2, BUB3, CREBB | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | P, CDKN2C, CDC7, WAPL, NDC80, WEE1, CDK7, STAG2, CDK6, CDK4, CDK2, ATM, MAD2L1 | | | | | | | |
| KEGG_PATHWAY | hsa03430:Mismatch repair | 17 | 0.464735 | 4.34E-07 | RFC5, RFC3, RFC4, PCNA, LIG1, RFC1, RFC2, RPA1, MLH1, MSH6, POLD3, POLD4, MSH2, RPA3, POLD1, POLD2, PMS2 | 1741 | 23 | 8586 | 3.645131 | 1.52E-04 | 1.38E-05 | 1.21E-05 |
| KEGG_PATHWAY | hsa05166:Human T-cell leukemia virus 1 infection | 76 | 2.077638 | 1.28E-06 | RB1, ATF2, NRP1, CRTC2, CRTC3, SPI1, ITGB2, PTEN, SLC2A1, PIK3CD, | 1741 | 222 | 8586 | 1.688312 | 4.48E-04 | 3.73E-05 | 3.28E-05 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CD3G, TNFRSF13C, ICAM1, POLB, CDC20, PPP3CA, PPP3CC, CDC26, CHEK2, PRKACG, CHEK1, TSPO, EP300, IKBKG, HLA-DOA, HLA-DOB, HRAS, JAK1, HLA-DPA1, MAP2K4, MAP2K2, TBP, ANAPC7, HLA-B, HLA-A, FOS, HLA-F, TGFBR1, TGFBR2, TNFRSF1A, CCNA2, CREB1, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ADCY9, PIK3CA, CCNE1, LCK, CANX, TBPL1, ANAPC1, MAD1L1, ANAPC15, GPS2, NRAS, HLA-DMA, HLA-DMB, MAPK1, BUB3, MAPK3, STAT5A, HLA-DRB5, CREBBP, CDKN2C, RANBP3, MAP3K1, NFYB, NFATC2, NFKB1, CD4, CDK4, CDK2, HLA-DPB1, HLA-DRA, | | | | | | | |

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| | | | | | ATM, HLA-DRB3, HLA-DRB1, MAD2L1 | | | | | | | |
| KEGG_PATHWAY | hsa03082:ATP-dependent chromatin remodeling | 46 | 1.257518 | 3.98E-06 | INO80C, SMARCD1, INO80B, HDAC2, HDAC1, CHD4, YEATS4, RSF1, CHD3, PHF6, MACROH2A1, H2AC18, BICRA, TFPT, MTA1, CHRAC1, RBBP4, BCL7C, RUVBL1, DPF2, EP400, RBBP7, DMAP1, MTA2, H2AZ1, SMARCE1, SMARCC2, | 1741 | 117 | 8586 | 1.938939 | 1.39E-03 | 1.07E-04 | 9.42E-05 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PHF10, C17ORF49, BICRAL, MCRS1, ACTL6A, MBD2, ACTR8, INO80, BAZ1A, BAZ1B, ARID1A, SMARCA2, ARID1B, SMARCA4, MORF4L1, MRGBP, H2AC21, POLE3, CDK2AP1 | | | | | | | |
| KEGG_PATHWAY | hsa03020:RNA polymerase | 20 | 0.546747 | 4.89E-06 | POLR2J2, POLR3GL, POLR3A, POLR2A, POLR3B, POLR2B, POLR1A, POLR3C, | 1741 | 34 | 8586 | 2.90097 | 0.001709 | 1.22E-04 | 1.08E-04 |

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| | | | | | POLR1B, POLR2C, POLR3E, POLR2D, POLR2E, POLR3F, POLR1E, POLR1F, POLR2G, POLR2H, POLR3K, POLR2L | | | | | | | |
| KEGG_PATHWAY | hsa05203:Viral carcinogenesis | 67 | 1.831602 | 2.71E-05 | RB1, YWHAE, ATF2, DDX3X, GTF2B, PIK3CD, CHD4, POLB, CDC20, CASP8, YWHAQ, PRKACG, CHEK1, EP300, IKBKG, SKP2, HRAS, H4C6, | 1741 | 204 | 8586 | 1.619708 | 0.009447 | 6.33E-04 | 5.57E-04 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | JAK1, USP7, TBP, ACTN1, HLA-B, SCRIB, TRAF1, HLA-A, HLA-F, RHOA, RBL2, CCNA2, CREB1, PIK3CA, IRF3, CCNE1, IRF7, TBPL1, ATP6V0D1, ATP6V0D2, MAD1L1, GTF2A1, HDAC2, HDAC1, PXN, UBR4, GTF2E1, GTF2E2, HDAC6, HDAC7, CDC42, NRAS, MAPK1, MAPK3, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | STAT5A, CREBBP, EIF2AK2, GTF2H1, GTF2H2, GTF2H3, GTF2H4, NFKB1, SNW1, HNRNPK, CDK6, CDK4, CDK2, REL, GRB2 | | | | | | | |
| KEGG_PATHWAY | hsa03450:Non-homologous end-joining | 10 | 0.273373 | 1.82E-04 | XRCC6, FEN1, RAD50, MRE11, XRCC4, XRCC5, PRKDC, DNTT, POLL, NHEJ1 | 1741 | 13 | 8586 | 3.793576 | 0.061847 | 0.00399 | 0.003511 |
| KEGG_PATHWAY | hsa05169:Epstein-Barr virus infection | 63 | 1.722253 | 2.53E-04 | RB1, PIK3CD, CD3G, ICAM1, CASP9, TBK1, CASP8, SIN3A, CIR1, IKBKG, | 1741 | 202 | 8586 | 1.538088 | 0.084674 | 0.005204 | 0.004579 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HLA-DOA, SKP2, HLA-DOB, IKBKE, MAP3K7, JAK1, HLA-DPA1, PDIA3, MAP2K4, ENTPD1, USP7, HLA-B, TYK2, HLA-A, HLA-F, DDB2, SAP30, CCNA2, PIK3CA, OAS1, IRF3, CCNE1, OAS2, OAS3, IRF7, CD44, TLR2, HDAC2, HDAC1, HLA-DMA, BCL2L11, HLA-DMB, SAP30L, PLCG2, RIPK1, BID, | | | | | | | |

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| | | | | | HLA-DRB5, STAT2, EIF2AK2, ISG15, NFKB1, SNW1, PSMC6, CDK6, CDK4, CDK2, HLA-DPB1, HLA-DRA, FAS, VIM, CD247, HLA-DRB3, HLA-DRB1 | | | | | | | |
| KEGG_PATHWAY | hsa01232:Nucleotide metabolism | 32 | 0.874795 | 3.74E-04 | HDDC2, GMPS, ADK, AK2, AK5, NTPCR, TYMS, AK6, NT5E, PNP, GUK1, UPP1, TK1, RRM1, ENTPD1, DUT, RRM2, ENTPD5, CTPS1, ADA2, AMPD | 1741 | 85 | 8586 | 1.856621 | 0.122827 | 0.007267 | 0.006395 |

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| | | | | | 3, DCK, UCK2, NME6, IMPDH1, NME7, IMPDH2, CMPK2, ADSS2, DCTPP1, ADA, ITPA | | | | | | | |
| KEGG_PATHWAY | hsa04612:Antigen processing and presentation | 30 | 0.82012 | 3.94E-04 | HSP90AB1, CTSS, HLA-DMA, HLA-DMB, HLA-DOA, HLA-DOB, HLA-DPA1, PDIA3, CD74, HLA-DRB5, NFYA, HSPA1L, HSPA5, NFYB, NFYC, HSPA6, HLA-B, HLA-A, HLA-F, CD4, CREB1, CD8A, PSME3, RFX5, CANX, | 1741 | 78 | 8586 | 1.896788 | 0.128989 | 0.007267 | 0.006395 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HLA-DPB1, PSME2, HLA-DRA, HLA-DRB3, HLA-DRB1 | | | | | | | |
| KEGG_PATHWAY | hsa05160:Hepatitis C | 51 | 1.394204 | 4.44E-04 | RB1, YWHAE, SCARB1, ARAF, PIK3CD, PPP2R2A, IFIT1, CASP9, TBK1, CASP8, PPP2R1B, YWHAQ, IKBKG, IKBKE, HRAS, JAK1, MAP2K2, TYK2, TNFRSF1A, PIAS1, PIK3CA, OAS1, IRF3, OAS2, OAS3, PSME3, IRF7, SOS1, SOS2, NRAS, RXRA, | 1741 | 158 | 8586 | 1.591861 | 0.144045 | 0.007775 | 0.006842 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAPK 1, RIPK1, BID, MAPK 3, EIF2AK 1, STAT2, MX2, MX1, EIF2AK 3, EIF2AK 2, CFLAR, EIF2AK 4, NFKB1 , CDK6, CDK4, PPP2R 2D, CDK2, FAS, EIF3E, GRB2 | | | | | | | |
| KEGG_PATHWAY | hsa03440:Homologous recombination | 19 | 0.51941 | 5.06E-04 | BLM, MRE11 , ABRAXAS1, TOP3A , XRCC3, RPA1, RAD54B, POLD3 , POLD4 , RAD51D, BRIP1, RAD50 , RAD51 | 1741 | 41 | 8586 | 2.285398 | 0.162235 | 0.008427 | 0.007416 |

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| | | | | | , RPA3, POLD1, UIMC1, POLD2, ATM, NBN | | | | | | | |
| KEGG_PATHWAY | hsa03083:Polycomb repressive complex | 31 | 0.847458 | 6.94E-04 | L3MBTL3, HDAC2, USP16, MAX, HDAC1, UBE2D2, FOXK1, RNF2, AURKB, DCAF7, SCML2, RBBP4, WDR5, EP300, RBBP7, YAF2, SUZ12, USP7, CREBBP, PHC2, KDM2A, AUTS2, RING1, EED, PCGF5, TEX10, HCFC1, TFDP1, ASXL2, MTF2, COMM | 1741 | 84 | 8586 | 1.820013 | 0.215626 | 0.011036 | 0.009711 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | D3-BMI1 | | | | | | | |
| KEGG_PATHWAY | hsa05140:Leishmaniasis | 29 | 0.792783 | 7.45E-04 | NCF1, NCF2, NCF4, ITGB2, HLA-DMA, FCGR3A, HLA-DMB, FCGR3B, MAPK1, FCGR1A, HLA-DOA, MAP3K7, HLA-DOB, JAK1, MAPK3, HLA-DPA1, MARCKSL1, HLA-DRB5, CR1, CYBB, CYBA, FOS, NFKB1, FCGR2A, HLA-DPB1, HLA-DRA, HLA-DRB3, HLA- | 1741 | 77 | 8586 | 1.857374 | 0.229628 | 0.011338 | 0.009978 |

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| | | | | | DRB1, TLR2 | | | | | | | |
| KEGG_PATHWAY | hsa05221:Acute myeloid leukemia | 26 | 0.710771 | 9.13E-04 | CSF1R, SPI1, FLT3, ARAF, PIK3CD, MPO, NRAS, EIF4EBP1, MAPK1, IKBKG, CD14, FCGR1A, HRAS, MAPK3, STAT5A, MAP2K2, ZBTB16, NFKB1, RUNX1, CCNA2, PIK3CA, KIT, RARA, GRB2, SOS1, SOS2 | 1741 | 67 | 8586 | 1.913774 | 0.273574 | 0.013311 | 0.0117114 |
| KEGG_PATHWAY | hsa05164:Influenza A | 53 | 1.448879 | 9.76E-04 | PRSS1, CALCOCO2, PIK3CD, ADAR, ICAM1, IFIH1, PYCAR | 1741 | 171 | 8586 | 1.528523 | 0.289452 | 0.013662 | 0.0120223 |

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| | | | | | D, CASP9, TBK1, CASP8, KPNA6, EP300, IKBKG, HLA-DOA, KPNA2, HLA-DOB, IKBKE, JAK1, HLA-DPA1, MAP2K2, TYK2, TNFRSF1A, DNAJC3, PIK3CA, OAS1, IRF3, HNRNPUL1, OAS2, OAS3, IRF7, DNAJB1, NXF1, HLA-DMA, HLA-DMB, MAPK1, BID, MAPK3, HLA-DRB5, CREBBP, STAT2, MX2, | | | | | | | |

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| | | | | | MX1, TNFRSF10B, EIF2AK2, NFKB1, RAB11B, CDK6, CDK4, HLA-DPB1, HLA-DRA, FAS, HLA-DRB3, HLA-DRB1 | | | | | | | |
| KEGG_PATHWAY | hsa05152:Tuberculosis | 55 | 1.503554 | 0.001117 | CALML5, ITGB2, LSP1, CTSS, CASP9, PPP3CA, FCGR3A, PPP3CC, FCGR3B, CASP8, MRC1, LAMP2, ITGAX, EP300, HLA-DOA, HLA-DOB, CTSD, CAMP, JAK1, HLA- | 1741 | 180 | 8586 | 1.506893 | 0.323634 | 0.015031 | 0.013227 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | DPA1, CR1, RIPK2, RHOA, TNFRSF1A, TLR1, CREB1, RFX5, TLR6, ATP6V0D1, ATP6V0D2, TLR2, RAB5B, RAB5C, MALT1, HLA-DMA, HLA-DMB, ATP6V1H, MAPK1, CD14, FCGR1A, BID, MAPK3, CD74, HLA-DRB5, CREBBP, NFYA, NFYB, NFYC, NFKB1, FCGR2A, HLA-DPB1, HLA- | | | | | | | |

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| | | | | | DRA, HLA-DRB3, CALM2, HLA-DRB1 | | | | | | | |
| KEGG_PATHWAY | hsa03018:RNA degradation | 29 | 0.792783 | 0.001181 | DDX6, BTG2, PARN, EXOSC6, EXOSC5, EXOSC4, EXOSC9, EXOSC8, MTREX, EXOSC3, DCPS, EXOSC2, PNPT1, CNOT6L, DIS3, PABPC4, CNOT10, LSM4, PATL1, LSM2, CNOT6, CNOT7, CNOT1, CNOT2, C1D, PABPC1, CNOT8 | 1741 | 79 | 8586 | 1.810352 | 0.338799 | 0.015313 | 0.013475 |

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| | | | | | , MPHOSPH6, DCP1B | | | | | | | |
| KEGG_PATHWAY | hsa04141:Protein processing in endoplasmic reticulum | 52 | 1.421542 | 0.001512 | ERO1A, HSP90AB1, UBXN2A, UBE2D2, NGLY1, ATXN3L, MAN1A2, CAPN2, FBXO6, SEC63, PDIA3, SEC13, SSR3, DNAJB12, MOGS, RAD23A, PDIA6, CKAP4, DNAJC3, SELENOS, TMEM258, DNAJB11, CANX, PREB, ATF6, SEC23A, VCP, DERL3, DERL2, RRBP1, UBE2J | 1741 | 170 | 8586 | 1.508504 | 0.411161 | 0.0189 | 0.016632 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2, HSPBP1, HSP90B1, DNAJB1, ATXN3, GANAB, OS9, LMAN2, UGGT2, UGGT1, EDEM3, HSPA1L, HSPA5, WFS1, HSPA6, EIF2AK3, NSFL1C, DNAJC10, DNAJA2, STT3A, STUB1, STT3B | | | | | | | |
| KEGG_PATHWAY | hsa05330:Allograft rejection | 17 | 0.464735 | 0.001761 | CD86, HLA-DRB5, HLA-B, PRF1, GZMB, HLA-A, HLA-F, HLA-DMA, HLA-DMB, HLA-DPB1, | 1741 | 38 | 8586 | 2.206264 | 0.460323 | 0.02125 | 0.0187 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FAS, HLA-DRA, HLA-DOA, HLA-DRB3, HLA-DOB, HLA-DRB1, HLA-DPA1 | | | | | | | |
| KEGG_PATHWAY | hsa03250:Viral life cycle - HIV-1 | 24 | 0.656096 | 0.002018 | RANBP2, APOBEC3D, CREBBP, CPSF7, CCNT2, CPSF6, CCNT1, APOBEC3G, MX2, MX1, PSIP1, MLLT1, NUP153, SUPT5H, SAMHD1, AFF4, CDK9, BST2, CD4, HGS, CHMP4B, EP300, NELFCD, | 1741 | 63 | 8586 | 1.878723 | 0.50694 | 0.023547 | 0.0220721 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | APOBEC3B | | | | | | | |
| KEGG_PATHWAY | hsa04120:Ubiquitin mediated proteolysis | 44 | 1.202843 | 0.002809 | DET1, CUL7, ANAPC15, CUL5, CUL3, UBE2D2, CUL2, KEAP1, UBE2L6, PRPF19, UBE2J2, UBE2Z, CDC20, CDC26, UBR5, SKP2, PIAS4, UBE2H, PPIL2, MAP3K1, FBXW8, ANAPC7, SMURF2, UBE2C, FBXW11, UBE2E3, UBE2E1, UBE2E2, UBE2A | 1741 | 142 | 8586 | 1.528116 | 0.62639 | 0.031518 | 0.027736 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , PIAS2, PIAS1, DDB2, UBE2W, ITCH, UBE2S, UBA2, ERCC8, UBE2O, STUB1, BIRC6, SAE1, UBE2K, BIRC2, ANAPC1 | | | | | | | |
| KEGG_PATHWAY | hsa04940:Type I diabetes mellitus | 18 | 0.492072 | 0.002882 | CD86, HLA-DRB5, HLA-B, PRF1, ICA1, GZMB, HLA-A, HLA-F, HLA-DMA, HLA-DMB, HLA-DPB1, FAS, HLA-DRA, HLA-DOA, HLA-DRB3, HLA-DOB, HLA-DRB1, HLA-DPA1 | 1741 | 43 | 8586 | 2.064411 | 0.635789 | 0.031518 | 0.0277736 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa04218:Cellular senescence | 47 | 1.284855 | 0.003632 | RB1, LIN54, MRE11, CALML5, PTEN, PIK3CD, LIN9, FOXO3, ZFP36L2, PPP3CA, NRAS, CCNB1, PPP3CC, RBBP4, CHEK2, RASSF5, CHEK1, CAPN2, EIF4EBP1, MAPK1, NBN, HRAS, MAPK3, MAP2K2, FBXW11, HLA-B, HUS1, NFATC2, HLA-A, HIPK1, HLA-F, SIRT1, | 1741 | 156 | 8586 | 1.485817 | 0.720185 | 0.037811 | 0.0332773 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | TGFBR1, NFKB1, TGFBR2, PPP1CA, RBL2, CCNA2, RAD50, CDK6, PIK3CA, CCNE1, CDK4, CDK2, ATM, RAD1, CALM2 | | | | | | | |
| KEGG_PATHWAY | hsa04145:Phagosome | 46 | 1.257518 | 0.003673 | ATP6V1A, SCARB1, RAB5B, RAB5C, NCF1, TFRC, C1R, NCF2, NCF4, STX18, ITGB2, MPO, CTSS, TUBB6, HLA-DMA, FCGR3A, HLA-DMB, FCGR3B, MRC1, LAMP2 | 1741 | 152 | 8586 | 1.492473 | 0.724157 | 0.037811 | 0.0332733 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , ATP6V1H, CD14, FCGR1A, HLA-DOA, HLA-DOB, HLA-DPA1, HLA-DRB5, TUBB, HLA-B, CYBB, CYBA, HLA-A, HLA-F, PIKFYVE, FCGR2A, HGS, CANX, HLA-DPB1, HLA-DRA, TLR6, SEC22B, ATP6V0D1, HLA-DRB3, ATP6V0D2, HLA-DRB1, TLR2 | | | | | | | |
| KEGG_PATHWAY | hsa00280:Valine, leucine and isoleucine degradation | 19 | 0.51941 | 0.004308 | BCKDHA, ACAA2, BCKDHB, | 1741 | 48 | 8586 | 1.952111 | 0.779342 | 0.043082 | 0.037912 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MCCC1, ACAT1, ALDH3A2, IL4I1, HMGCL, ALDH6A1, PCCA, ALDH2, ALDH1B1, OXCT1, MMUT, HADH, DLD, ALDH7A1, HIBCH, ALDH9A1 | | | | | | | |
| KEGG_PATHWAY | hsa05416:Viral myocarditis | 22 | 0.601422 | 0.005501 | CD86, HLA-DRB5, ITGB2, HLA-B, PRF1, HLA-A, HLA-F, ICAM1, CASP9, HLA-DMA, HLA-DMB, CASP8, HLA-DPB1, HLA-DRA, RAC3, HLA-DOA, | 1741 | 60 | 8586 | 1.808271 | 0.85493 | 0.053478 | 0.047061 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HLA-DRB3, BID, HLA-DOB, HLA-DRB1, EIF4G2, HLA-DPA1 | | | | | | | |
| KEGG_PATHWAY | hsa05332:Graft-versus-host disease | 17 | 0.464735 | 0.005815 | CD86, HLA-DRB5, HLA-B, PRF1, GZMB, HLA-A, HLA-F, HLA-DMA, HLA-DMB, HLA-DPB1, FAS, HLA-DRA, HLA-DOA, HLA-DRB3, HLA-DOB, HLA-DRB1, HLA-DPA1 | 1741 | 42 | 8586 | 1.996143 | 0.870145 | 0.055011 | 0.048409 |
| KEGG_PATHWAY | hsa05220:Chronic myeloid leukemia | 26 | 0.710771 | 0.006506 | RB1, HDAC2, CTBP2, SHC1, CTBP1, HDAC1, ARAF, PIK3CD, NRAS, | 1741 | 76 | 8586 | 1.687143 | 0.898194 | 0.059927 | 0.052736 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAPK1, IKBKG, HRAS, MAPK3, STAT5A, MAP2K2, TGFBR1, NFKB1, TGFBR2, RUNX1, DDB2, CDK6, PIK3CA, CDK4, GRB2, SOS1, SOS2 | | | | | | | |
| KEGG_PATHWAY | hsa04621:NOD-like receptor signaling pathway | 53 | 1.448879 | 0.006844 | YWHAE, HSP90AB1, ANTXR2, PYCARD, PSTPIP1, TBK1, CASP8, NAMPT, IKBKG, IKBKE, MAP3K7, CAMP, JAK1, GBP5, GABARAPL1, | 1741 | 186 | 8586 | 1.405255 | 0.909613 | 0.061421 | 0.05405 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RIPK2, CYBB, CYBA, TYK2, RHOA, OAS1, IRF3, OAS2, OAS3, IRF7, TXNIP, RBCK1, PLCB2, NAIP, BIRC2, RNF31, NLRC4, MEFV, TANK, GABARAP, SHARPIN, IFI16, MAPK1, RIPK1, NLRP1, TP53BP1, GBP2, GBP1, ATG5, MAPK3, DEFA4, STAT2, TRPV2, CARD6, NFKB1, NLRP12, ATG16L1, SUGT1 | | | | | | | |

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| KEGG_PATHWAY | hsa04659:Th17 cell differentiation | 34 | 0.92947 | 0.007074 | HSP90AB1, CD3G, IL1RAP, PPP3CA, HLA-DMA, PPP3CC, HLA-DMB, RXRA, MAPK1, IKBKG, HLA-DOA, HLA-DOB, JAK1, MAPK3, HLA-DPA1, STAT5A, HLA-DRB5, NFATC2, TYK2, FOS, TGFBR1, NFKB1, TGFBR2, RUNX1, ZAP70, CD4, IRF4, LCK, RARA, HLA-DPB1, | 1741 | 108 | 8586 | 1.552556 | 0.916661 | 0.061901 | 0.054473 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HLA-DRA, CD247, HLA-DRB3, HLA-DRB1 | | | | | | | |
| KEGG_PATHWAY | hsa05161:Hepatitis B | 47 | 1.284855 | 0.007812 | RB1, ATF2, DDX3X, PCNA, ARAF, PIK3CD, IFIH1, CASP9, NRAS, CASP8, TBK1, YWHAQ, PTK2B, MAPK1, EP300, IKBKG, BID, HRAS, MAP3K7, IKBKE, JAK1, MAPK3, STAT5A, MAP2K4, CREBBP, MAP2K2, MAP3K1, STAT2, NFATC2, | 1741 | 162 | 8586 | 1.430787 | 0.935741 | 0.066685 | 0.058683 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | TYK2, FOS, TGFBR1, NFKB1, TGFBR2, DDB2, CCNA2, CREB1, IRF3, PIK3CA, CCNE1, CDK2, IRF7, FAS, GRB2, SOS1, SOS2, TLR2 | | | | | | | |
| KEGG_PATHWAY | hsa03008:Ribosome biogenesis in eukaryotes | 47 | 1.284855 | 0.009892 | RBM28, POP7, NVL, POP1, WDR3, POP4, RPP30, HEATR1, SNU13, AK6, FBLL1, PWP2, WDR43, NOL6, RRP7A, FBL, NXF1, EMG1, TCOF1, NOB1, BMS1, GAR1, | 1741 | 164 | 8586 | 1.413338 | 0.969176 | 0.082434 | 0.072542 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | DROSHA, RIOK2, UTP14A, MDN1, RPP38, NOP56, UTP15, NOP58, WDR36, UTP4, IMP3, RPP40, WDR75, IMP4, GNL2, GTPBP4, GNL3, RCL1, LSG1, TBL3, DKC1, NHP2, MPHOSPH10, RPP25, NOP10 | | | | | | | |
| KEGG_PATHWAY | hsa04623:Cytosolic DNA-sensing pathway | 25 | 0.683434 | 0.010974 | CGAS, ADAR, SAMHD1, MEFV, PYCARD, CASP7, CASP8, TBK1, POLR2E, RIPK1, IKBKG, POLR2 | 1741 | 75 | 8586 | 1.643883 | 0.978979 | 0.089326 | 0.078607 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | H, IKBKE, POLR2L, ZBP1, POLR3GL, NFKB1, POLR3A, IRF3, POLR3B, POLR3C, POLR3E, IRF7, POLR3F, POLR3K | | | | | | | |
| KEGG_PATHWAY | hsa01240:Biosynthesis of cofactors | 44 | 1.202843 | 0.011901 | LIPT2, MOCS2, ALAS1, PANK3, FECH, HAAO, QPRT, MPI, AK2, MAT2B, AK5, AK6, GPHN, GMPPB, NFS1, UGP2, ALDH2, ALDH1B1, SPR, MAT2A, RFK, | 1741 | 153 | 8586 | 1.418252 | 0.98486 | 0.094669 | 0.083309 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FPGS, EARS2, TPK1, UROS, CAD, AKR1A1, CTPS1, KMO, COQ7, COQ5, ALDH3A2, DHFR, COQ3, GCLC, EPRS1, NME6, NMNAT1, NME7, HMBS, CMPK2, ALPL, ADSS2, DLD | | | | | | | |
| KEGG_PATHWAY | hsa05202:Transcriptional misregulation in cancer | 53 | 1.448879 | 0.01447 | CD86, ATF1, CCNT2, SPI1, CCNT1, LDB1, FLT3, MPO, AFF1, HOXA10, LYL1, HHEX, SIN3A, H3-3B, TRAF1, SUPT3H, TGFBR2, ETV6, | 1741 | 193 | 8586 | 1.354287 | 0.993912 | 0.112544 | 0.0990339 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RUNX1, DDB2, CCNA2, EWSR1, RARA, COMMD3-BMI1, ERG, MET, BIRC2, CSF1R, DDX5, HDAC2, HPGD, KMT2A, MAX, HDAC1, PRCC, MLLT1, FUT8, RXRA, H3C13, CD14, FCGR1A, CDKN2C, TAF15, FUS, DEFA4, ZBTB16, GZMB, NFKB1, CDK9, SP1, REL, ATM, CDK14 | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa05211:Renal cell carcinoma | 23 | 0.628759 | 0.015143 | EGLN1, CREBBP, FH, MAP2K2, CUL2, PRCC, ARAF, SLC2A1, GAB1, PIK3CD, CDC42, PAK1, NRAS, PIK3CA, RAPGEF1, EP300, MAPK1, GRB2, SOS1, HRAS, MET, SOS2, MAPK3 | 1741 | 69 | 8586 | 1.643883 | 0.995207 | 0.115218 | 0.101392 |
| KEGG_PATHWAY | hsa05170:Human immunodeficiency virus 1 infection | 57 | 1.558229 | 0.017143 | CALML5, PIK3CD, CGAS, CD3G, CASP9, PPP3CA, PPP3CC, TBK1, CASP8, CHEK1, AP1S2, RAC3, AP1S3, | 1741 | 212 | 8586 | 1.325962 | 0.997647 | 0.126076 | 0.110946 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | IKBKG, HRAS, MAP3K7, PDIA3, MAP2K2, FBXW11, AP1B1, HLA-B, HLA-A, FOS, HLA-F, TNFRSF1B, TNFRSF1A, PIK3CA, IRF3, TLR2, CUL5, PXN, SAMHD1, NRAS, PAK1, CCNB1, GNG2, GNG7, PLCG2, PTK2B, MAPK1, RIPK1, BID, MAPK3, APOBEC3D, APOBEC3G, LIMK2, NFATC2, NFKB1, BST2, | | | | | | | |

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| | | | | | CD4, WEE1, GNB4, FAS, ATM, CD247, CALM2, APOBEC3B | | | | | | | |
| KEGG_PATHWAY | hsa00511:Other glycan degradation | 9 | 0.246036 | 0.017491 | NEU3, MANBA, HEXB, FUCA1, NEU1, HEXD, MAN2B1, AGA, ENGASE | 1741 | 18 | 8586 | 2.465824 | 0.997921 | 0.126076 | 0.110946 |
| KEGG_PATHWAY | hsa04140:Autophagy - animal | 46 | 1.257518 | 0.017651 | STX17, CALCOCO2, WDR45B, MTMR14, PTEN, PIK3CD, HMGB1, AMBRA1, WDR45, MTMR4, TANK, GABARAP, STK11, NRAS, DEPTOR, | 1741 | 165 | 8586 | 1.374884 | 0.998036 | 0.126076 | 0.110946 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | TBK1, PRKACG, LAMP2, MLST8, MAPK1, SUPT20H, HRAS, CTSD, MAP3K7, ATG5, MAPK3, SH3GLB1, RUBCN, GABARAPL1, MAP2K2, EIF2AK3, RAB39B, CFLAR, EIF2AK4, ATG14, ATG13, RAB33B, PIK3CA, ATG16L1, GORASP2, RRAGB, RRAGD, ATG2A | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , ATG4B, WDFY3, BIRC6 | | | | | | | |
| KEGG_PATHWAY | hsa00730:Thiamine metabolism | 8 | 0.218699 | 0.019284 | THTPA, NFS1, TPK1, AK2, ALPL, AK5, NTPCR, ACP1 | 1741 | 15 | 8586 | 2.630213 | 0.998903 | 0.134986 | 0.118788 |
| KEGG_PATHWAY | hsa04660:T cell receptor signaling pathway | 35 | 0.956807 | 0.023474 | PIK3CD, PPP2R2A, CD3G, MALT1, CDC42, PPP3CA, PAK1, NRAS, PPP3CC, PPP2R1B, MAPK1, IKBKG, HRAS, MAP3K7, MAPK3, MAP2K2, PPP2R5B, NFATC2, PPP2R5C, FOS, RHOA, | 1741 | 121 | 8586 | 1.42651 | 0.999755 | 0.157144 | 0.138287 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | NFKB1, VAV2, ZAP70, CD4, PTPRC, PIK3CA, LCK, CD8A, CDK4, PPP2R2D, GRB2, CD247, SOS1, SOS2 | | | | | | | |
| KEGG_PATHWAY | hsa04658:Th1 and Th2 cell differentiation | 28 | 0.765446 | 0.023704 | MAML1, CD3G, PPP3CA, HLA-DMA, PPP3CC, HLA-DMB, MAPK1, IKBKG, HLA-DOA, HLA-DOB, JAK1, MAPK3, HLA-DPA1, STAT5A, HLA-DRB5, NFATC2, TYK2, FOS, NFKB1, ZAP70, | 1741 | 92 | 8586 | 1.500936 | 0.999774 | 0.157144 | 0.138287 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CD4, LCK, HLA-DPB1, HLA-DRA, CD247, MAML3, HLA-DRB3, HLA-DRB1 | | | | | | | |
| KEGG_PATHWAY | hsa05162:Measles | 39 | 1.066156 | 0.023796 | PIK3CD, CD3G, ADAR, IFIH1, CASP9, CASP8, TBK1, RACK1, IKBKG, BID, MAP3K7, IKBKE, JAK1, STAT5A, HSPA1L, EIF2AK1, STAT2, MX2, HSPA6, MX1, EIF2AK3, EIF2AK2, MSN, TYK2, EIF2AK4, FOS, NFKB1, CDK6, | 1741 | 138 | 8586 | 1.393727 | 0.999782 | 0.157144 | 0.138287 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OAS1, IRF3, PIK3CA, CCNE1, OAS2, CDK4, OAS3, CDK2, IRF7, FAS, TLR2 | | | | | | | |
| KEGG_PATHWAY | hsa05134:Legionellosis | 19 | 0.51941 | 0.02438 | HBS1L, VCP, CR1, HSPA1L, ITGB2, HSPA6, NLRC4, CLK4, NFKB1, CASP9, CLK1, PYCARD, CASP7, CASP8, HSF1, CD14, SEC22B, NAIP, TLR2 | 1741 | 56 | 8586 | 1.673238 | 0.999823 | 0.158019 | 0.139056 |
| KEGG_PATHWAY | hsa05223:Non-small cell lung cancer | 23 | 0.628759 | 0.024854 | RB1, STAT5A, MAP2K2, ARAF, PIK3CD, FOXO3, FHIT, DDB2, CASP9, NRAS, | 1741 | 72 | 8586 | 1.575388 | 0.999851 | 0.158165 | 0.139185 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RXRA, CDK6, PIK3CA, CDK4, RASSF5, PLCG2, MAPK1, GRB2, SOS1, HRAS, MET, SOS2, MAPK3 | | | | | | | |
| KEGG_PATHWAY | hsa01100:Metabolic pathways | 342 | 9.349371 | 0.025927 | AHCYL1, CMAS, PANK3, MT-CO1, NUDT2, GLS, GCSH, IL4I1, NSDHL, PNP, SCP2, ANPEP, NAMPT, PIP4K2B, MMUT, GLUL, EARS2, PDHX, ENTPD1, ALG6, ENTPD5, MCCC1, ALG5, ACSL6, TALDO | 1741 | 1543 | 8586 | 1.093081 | 0.999898 | 0.162043 | 0.142598 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1, SETMAR, MOGS, CMBL, ALG1, GANC, CHIT1, ADCY9, CYP2U1, ETHE1, HMBS, ATP6V0D1, ATP6V0D2, ALDH7A1, ACOT4, GPLD1, PLPP1, LIPT2, MGST3, MGST1, MGST2, MTMR4, GNS, HACD2, MTMR6, NEU3, UGCG, SGPL1, INPP5F, RDH10, LDHD, NEU1, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PLCG2, ST3GAL4, HMOX1, PIP5K1A, HTD2, LTA4H, HMOX2, ARSB, CHKB, SETDB1, SETD1B, SETD1A, SETDB2, CYP4F3, MTHFS, PAICS, PEDS1-UBE2V1, DHFR, CS, SQLE, BST1, UCK2, ALDH6A1, EPRS1, CYP2S1, PPT1, ADA, ITPA, PIGS, MOCS2, PIGU, PIGT, HEXB, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MTMR14, QPRT, SETD7, ADK, HEXD, PYGM, THTPA, GYS1, IMPA1, QARS1, IMPA2, GUK1, RFK, PHGDH, DLAT, TK1, NANS, COX8A, PCYT1A, ELOVL5, PGAM1, AKR1A1, PLAAT3, AMPD3, SIRT1, SIRT2, ALDH5A1, NME6, NME7, PIGA, AGPS, PIGK, TKT, GART, DLD, PLCB2, FH, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AHCY, OAT, SGMS1, IDUA, ADH1A, HAAO, TYMS, HSD17B8, NT5E, GPAT4, ALOX5, DGLUCY, MGAT1, GPAT3, CKB, CEPT1, AASDHPPT, ATP5PF, AOC1, TIGAR, PKLR, PTGES2, TPK1, GLYCTK, GSR, AKR1C3, COX6C, NUDT9, NMNAT1, GSTA4, NDUFAB1, LPCAT2, PNPLA4, PLCD1, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OTC, HDDC2, ACAA2, NDUFA11, MPI, INPPL1, HNMT, COMT, HDDC3, FADS2, HPGDS, FPGS, ENPP4, KMT5B, HADH, PSPH, NUDT12, PCYT2, AMY1C, ALG14, ALG12, SDHC, KMO, DGKZ, CAMKMT, DPM1, ALDH3A2, PHOSPHO1, DGKQ, CMPK2, ATP6V1A, IDI1, H6PD, FECH, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | KMT2A, ALOX15, COX17, GMPS, AK2, PLD4, UAP1, COX7A2, AK5, NTPCR, AK6, FHIT, PLD3, UQCRH, ACAT1, EBP, FUT8, ALDH3B1, AMDHD2, COX11, ATP6V1H, GGT5, PDHA1, UROS, IDH2, ADA2, B3GALT6, SYNJ2, COQ7, COQ5, QDPR, COQ3, GCLC, AMACR, NAT1, SYNJ1, P4HA1 | | | | | | | |

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| | | | | | , STT3A, ALPL, ACO1, POC1B-GALNT4, DEGS1, ACO2, ADSS2, STT3B, MT-CYB, NIT2, POMT2, B4GALT3, COLGALT2, ALAS1, AMD1, PTEN, APIP, PIK3CD, MTR, PIK3C2A, OPLAH, GPHN, HK2, GMPPB, SPR, ALDH2, CA3, MAN1A2, PGM2, UPP1, CA8, ACP1, LBR, COLGALT1, | | | | | | | |

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| | | | | | HIBCH, BCKDHA, HGSNAT, CERS5, CERS6, GPX4, BCKDHB, DNMT3A, CAD, CTPS1, BPGM, DCK, POMGNT1, LSS, ALDH1A3, PIK3CA, PCCA, NDUFS5, BLVRB, NDUFS1, MVD, HAGH, B4GALT7, FBP1, DCTPP1, FBP2, B4GALT4, ALDH9A1, GALT, ACSS2, MVK, RPE, NDUFB1, MAT2B, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HSD17B12, AGPAT2, AGPAT3, DDO, SRM, SELENBP1, HMGCL, GANAB, NFS1, UGP2, MAT2A, ALDH1B1, CHSY1, OXCT1, PDE6D, BPNT1, PCBD1, NDUFA9, NDUFA7, RRM1, DUT, RRM2, GALNT3, GALNT2, B3GAT3, GALNT1, NDUFA2, SUOX, SGPP1, GALNS | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , RPIA, PIKFYVE, SUCLA2, GNPDA1, NAGK, TMLHE, IMPDH1, SCD, IMPDH2, SCLY, LPIN1, LPIN2, LPIN3 | | | | | | | |
| KEGG_PATHWAY | hsa04650:Natural killer cell mediated cytotoxicity | 36 | 0.984144 | 0.02882 | SHC1, ITGB2, PRF1, ARAF, PIK3CD, ICAM1, PPP3CA, PAK1, NRAS, FCGR3A, PPP3CC, FCGR3B, PLCG2, PTK2B, MAPK1, RAC3, BID, HRAS, MAPK3, MAP2K2, SH2D1 | 1741 | 127 | 8586 | 1.397948 | 0.999964 | 0.176965 | 0.15573 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A, TNFRSF10B, NFATC2, GZMB, VAV2, LAT2, ZAP70, TYROBP, PIK3CA, LCK, FAS, CD48, GRB2, CD247, SOS1, SOS2 | | | | | | | |
| KEGG_PATHWAY | hsa04614:Renin-angiotensin system | 10 | 0.273373 | 0.029426 | CPA3, ENPEP, MME, ANPEP, PREP, REN, CTSG, PRCP, THOP1, AGT | 1741 | 23 | 8586 | 2.144195 | 0.999971 | 0.177574 | 0.156265 |
| KEGG_PATHWAY | hsa04210:Apoptosis | 38 | 1.038819 | 0.030399 | PRF1, PIK3CD, LMNB2, CTSS, LMNB1, CASP9, CASP7, NRAS, CASP8, BCL2L11, CAPN2, MAPK1, RIPK1, | 1741 | 136 | 8586 | 1.377961 | 0.99998 | 0.180332 | 0.158692 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | IKBKG, BID, HRAS, CTSD, MAPK3, DFFB, DFFA, PARP4, ENDOG, MAP2K2, PARP1, PARP2, EIF2AK3, TNFRSF10B, GZMB, CFLAR, TRAF1, FOS, NFKB1, TNFRSF1A, PIK3CA, IL3RA, FAS, ATM, BIRC2 | | | | | | | |
| KEGG_PATHWAY | hsa00240:Pyrimidine metabolism | 19 | 0.51941 | 0.034436 | HDDC2, RRM1, ENTPD1, DUT, RRM2, ENTPD5, CAD, NUDT2, CTPS1, TYMS, DCK, NT5E, | 1741 | 58 | 8586 | 1.61554 | 0.999995 | 0.200876 | 0.1776771 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | UCK2, NME6, NME7, CMPK2, TK1, UPP1, DCTPP1 | | | | | | | |
| KEGG_PATHWAY | hsa00310:Lysine degradation | 20 | 0.546747 | 0.040202 | COLGALT2, KMT2A, SETDB1, SETD1B, SETD1A, SETDB2, SETD7, SETMAR, ACAT1, CAMKMT, ALDH3A2, TMLHE, ALDH2, ALDH1B1, KMT5B, HADH, DLD, ALDH7A1, COLGALT1, ALDH9A1 | 1741 | 63 | 8586 | 1.565603 | 0.999999 | 0.227211 | 0.199946 |
| KEGG_PATHWAY | hsa00620:Pyruvate metabolism | 16 | 0.437397 | 0.040249 | FH, PDHA1, ACSS2, | 1741 | 47 | 8586 | 1.678859 | 0.999999 | 0.227211 | 0.199946 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PKLR, ADH1A, AKR1A1, ACAT1, ALDH3A2, ALDH2, ALDH1B1, LDHD, DLAT, HAGH, DLD, ALDH7A1, ALDH9A1 | | | | | | | |
| KEGG_PATHWAY | hsa04142:Lysosome | 36 | 0.984144 | 0.048686 | IDUA, HEXB, CLTC, NAGPA, GNS, CTSS, CLN5, MFSD8, GGA1, GM2A, LAMP2, NEU1, AP1S2, ATP6V1H, CTSG, AP1S3, AGA, CTSD, ARSB, HGSNAT, ABCA2, MANBA, | 1741 | 132 | 8586 | 1.344995 | 1 | 0.270477 | 0.23802 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FUCA1, AP1B1, MCOLN1, AP4B1, IGF2R, GALNS, NPC1, NPC2, DMXL1, PPT1, MAN2B1, CD68, ATP6V0D1, ATP6V0D2 | | | | | | | |
| KEGG_PATHWAY | hsa05320:Autoimmune thyroid disease | 17 | 0.464735 | 0.0562 | CD86, HLA-DRB5, HLA-B, PRF1, GZMB, HLA-A, HLA-F, HLA-DMA, HLA-DMB, HLA-DPB1, FAS, HLA-DRA, HLA-DOA, HLA-DRB3, HLA-DOB, HLA-DRB1, HLA-DPA1 | 1741 | 53 | 8586 | 1.58185 | 1 | 0.303656 | 0.267217 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa04640:Hematopoietic cell lineage | 28 | 0.765446 | 0.056393 | CSF1R, TFRC, FLT3, CD3G, CD1C, HLA-DMA, HLA-DMB, ANPEP, CD14, FCGR1A, HLA-DOA, HLA-DOB, CD33, HLA-DPA1, HLA-DRB5, CR1, MME, DNTT, CD2, CD4, CD8A, KIT, IL3RA, HLA-DPB1, HLA-DRA, HLA-DRB3, CD44, HLA-DRB1 | 1741 | 99 | 8586 | 1.39481 | 1 | 0.303656 | 0.2672177 |
| KEGG_PATHWAY | hsa05230:Central carbon metabolism in cancer | 21 | 0.574084 | 0.060479 | PDGFRB, TIGAR, MAP2K2, PDHA1, FLT3, PGAM1, | 1741 | 70 | 8586 | 1.479495 | 1 | 0.32072 | 0.282234 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | IDH2, PTEN, SLC2A1, PIK3CD, SLC1A5, HK2, GLS, NRAS, PIK3CA, KIT, MAPK1, HRAS, SLC16A3, MET, MAPK3 | | | | | | | |
| KEGG_PATHWAY | hsa05213:Endometrial cancer | 18 | 0.492072 | 0.064336 | MAP2K2, PTEN, ARAF, AXIN1, PIK3CD, MLH1, FOXO3, DDB2, CASP9, NRAS, APC, PIK3CA, MAPK1, GRB2, SOS1, HRAS, SOS2, MAPK3 | 1741 | 58 | 8586 | 1.530512 | 1 | 0.332664 | 0.292745 |
| KEGG_PATHWAY | hsa05417:Lipid and atherosclerosis | 54 | 1.476217 | 0.064906 | ERO1A, HSP90AB1, | 1741 | 215 | 8586 | 1.238647 | 1 | 0.332664 | 0.292745 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | NCF1, CALML5, NCF2, NCF4, PIK3CD, VLDLR, ICAM1, PYCARD, CASP9, PPP3CA, CASP7, PPP3CC, TBK1, CASP8, IKBKG, IKBKE, HRAS, MAP3K7, MAP2K4, CYBB, CYBA, FOS, RHOA, TNFRSF1A, VAV2, PIK3CA, IRF3, IRF7, TLR6, ATF6, PLCB2, TLR2, TANK, HSP90B1, CDC42, NRAS, RXRA, | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAPK1, CD14, BID, MAPK3, HSPA1L, HSPA5, HSPA6, EIF2AK3, NFATC2, TNFRSF10B, POU2F2, NFKB1, MIB1, FAS, CALM2 | | | | | | | |
| KEGG_PATHWAY | hsa00630:Glyoxylate and dicarboxylate metabolism | 11 | 0.300711 | 0.065582 | CS, GCSH, ACSS2, PCCA, GLYCTK, ACO1, ACO2, MMUT, GLUL, DLD, ACAT1 | 1741 | 30 | 8586 | 1.808271 | 1 | 0.332664 | 0.292745 |
| KEGG_PATHWAY | hsa05214:Glioma | 22 | 0.601422 | 0.06698 | RB1, PDGFRB, MAP2K2, CAMK1D, CALML5, SHC1, PTEN, ARAF, PIK3CD, | 1741 | 75 | 8586 | 1.446617 | 1 | 0.3349 | 0.294712 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | DDB2, NRAS, CDK6, PIK3CA, CDK4, PLCG2, MAPK1, GRB2, SOS1, HRAS, CALM2, SOS2, MAPK3 | | | | | | | |
| KEGG_PATHWAY | hsa04662:B cell receptor signaling pathway | 24 | 0.656096 | 0.071189 | MAP2K2, INPPL1, NFATC2, PIK3CD, LILRB2, FOS, MALT1, NFKB1, LILRA5, VAV2, PPP3CA, NRAS, PPP3CC, PIK3CA, PLCG2, RAC3, MAPK1, GRB2, IKBKG, PIK3AP1, SOS1, HRAS, | 1741 | 84 | 8586 | 1.409042 | 1 | 0.350933 | 0.308821 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SOS2, MAPK3 | | | | | | | |
| KEGG_PATHWAY | hsa00230:Purine metabolism | 34 | 0.92947 | 0.075917 | HDDC2, GMPS, ADK, AK2, NUDT2, AK5, NTPCR, AK6, FHIT, HDDC3, NT5E, PNP, GUK1, PDE6D, PGM2, ENPP4, RRM1, ENTPD1, RRM2, ENTPD5, ADA2, AMPD3, DCK, PAICS, NUDT9, ADCY9, NME6, IMPDH1, NME7, IMPDH2, ADSS2, GART, ADA, ITPA | 1741 | 128 | 8586 | 1.309969 | 1 | 0.364505 | 0.320764 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa03060:Protein export | 9 | 0.246036 | 0.076025 | SRP19, SPCS3, SPCS2, SRP72, HSPA5, SRP54, SRP14, SRP9, SEC63 | 1741 | 23 | 8586 | 1.929775 | 1 | 0.364505 | 0.320764 |
| KEGG_PATHWAY | hsa05310:Asthma | 11 | 0.300711 | 0.079926 | HLA-DMA, HLA-DRB5, HLA-DMB, HLA-DPB1, HLA-DRA, EPX, HLA-DRB3, HLA-DOA, HLA-DOB, HLA-DRB1, HLA-DPA1 | 1741 | 31 | 8586 | 1.74994 | 1 | 0.378029 | 0.332666 |
| KEGG_PATHWAY | hsa04922:Glucagon signaling pathway | 29 | 0.792783 | 0.08254 | ATF2, CRTC2, CALML5, PRKAG1, SLC2A1, PYGM, PPP3CA, GYS1, PPP4C, PPP3CC, PRKACG, PHKG2 | 1741 | 107 | 8586 | 1.336615 | 1 | 0.385188 | 0.338965 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | , EP300, CREBBP, PDHA1, PRMT1, PGAM1, PPP4R3A, PPP4R3B, PHKA2, CPT1B, SIRT1, CREB1, GNAS, SIK2, PLCB2, FBP1, CALM2, FBP2 | | | | | | | |
| KEGG_PATHWAY | hsa01524:Platinum drug resistance | 21 | 0.574084 | 0.087629 | TOP2A, TOP2B, MGST3, MGST1, MGST2, PIK3CD, MLH1, CASP9, MSH6, CASP8, ATP7B, PIK3CA, MSH2, GSTA4, ERCC1, FAS, | 1741 | 73 | 8586 | 1.418693 | 1 | 0.403313 | 0.354915 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAPK1, ATM, BID, BIRC2, MAPK3 | | | | | | | |
| KEGG_PATHWAY | hsa05210:Colorectal cancer | 24 | 0.656096 | 0.088729 | MAP2K2, ARAF, AXIN1, PIK3CD, FOS, MLH1, RHOA, TGFBR1, TGFBR2, DDB2, CASP9, MSH6, NRAS, BCL2L11, APC, PIK3CA, MSH2, RAC3, MAPK1, GRB2, SOS1, HRAS, SOS2, MAPK3 | 1741 | 86 | 8586 | 1.376274 | 1 | 0.403313 | 0.354915 |
| KEGG_PATHWAY | hsa04380:Osteoclast differentiation | 35 | 0.956807 | 0.094753 | CSF1R, SPI1, NCF1, NCF2, NCF4, PIK3CD, LILRA5, PPP3C | 1741 | 135 | 8586 | 1.278576 | 1 | 0.425176 | 0.374155 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A, FCGR3A, PPP3CC, FCGR3B, PLCG2, SIRPA, MAPK1, IKBKG, FCGR1A, MAP3K7, JAK1, MAPK3, STAT2, NFATC2, CYBA, TYK2, LILRB2, FOS, TGFBR1, NFKB1, TGFBR2, TNFRSF1A, TYROBP, FCGR2A, CREB1, PIK3CA, LCK, GRB2 | | | | | | | |
| KEGG_PATHWAY | hsa05167:Kaposi sarcoma-associated herpesvirus infection | 48 | 1.312192 | 0.098911 | RB1, CD86, CALML5, PIK3CD, | 1741 | 194 | 8586 | 1.220202 | 1 | 0.438214 | 0.385628 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ICAM1, CASP9, PPP3CA, PREX1, NRAS, CASP8, PPP3CC, TBK1, GNG2, GNG7, PLCG2, MAPK1, EP300, IKBKG, BID, HRAS, IKBKE, JAK1, MAPK3, MAP2K4, CREBBP, MAP2K2, STAT2, HLA-B, NFATC2, EIF2AK2, TYK2, HLA-A, FOS, ATG14, HLA-F, NFKB1, TNFRSF1A, HCK, CD200R1, | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CREB1, CDK6, IRF3, PIK3CA, CDK4, GNB4, IRF7, FAS, CALM2 | | | | | | | |

Supp Table. 8 DEPs for the comparison of peripheral blood at diagnosis vs peripheral blood at remission were associated with biological process terms

| Test Type: | FISHER | | | | | | |
|---|---|---|---|---|---|---|---|
| Correction: | FDR | | | | | | |
| GO biological process complete | Homo sapiens - REFLIST (20592) | upload_1 (187) | upload_1 (expected) | upload_1 (over/under) | upload_1 (fold Enrichment) | upload_1 (raw P-value) | upload_1 (FDR) |
| nucleic acid metabolic process (GO:0090304) | 2270 | 58 | 20.61 | + | 2.81 | 1.95E-13 | 3.02E-09 |
| cellular nitrogen compound metabolic process (GO:0034641) | 3334 | 70 | 30.28 | + | 2.31 | 4.57E-12 | 3.55E-08 |
| nucleobase-containing compound metabolic process (GO:0006139) | 2784 | 61 | 25.28 | + | 2.41 | 2.60E-11 | 1.35E-07 |
| RNA processing (GO:0006396) | 881 | 32 | 8 | + | 4 | 3.70E-11 | 1.44E-07 |
| heterocycle metabolic process (GO:0046483) | 2960 | 63 | 26.88 | + | 2.34 | 3.92E-11 | 1.22E-07 |
| cellular aromatic compound metabolic process (GO:0006725) | 3002 | 63 | 27.26 | + | 2.31 | 6.52E-11 | 1.69E-07 |
| RNA metabolic process (GO:0016070) | 1653 | 42 | 15.01 | + | 2.8 | 1.21E-09 | 2.68E-06 |
| organic cyclic compound metabolic process (GO:1901360) | 3244 | 63 | 29.46 | + | 2.14 | 2.00E-09 | 3.89E-06 |
| positive regulation of cytoplasmic translation (GO:2000767) | 15 | 6 | 0.14 | + | 44.05 | 2.38E-08 | 4.10E-05 |
| negative regulation of mRNA metabolic process (GO:1903312) | 96 | 10 | 0.87 | + | 11.47 | 4.13E-08 | 6.41E-05 |
| positive regulation of translation (GO:0045727) | 146 | 11 | 1.33 | + | 8.3 | 1.87E-07 | 2.64E-04 |
| gene expression (GO:0010467) | 1823 | 40 | 16.56 | + | 2.42 | 1.92E-07 | 2.48E-04 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| mRNA processing (GO:0006397) | 459 | 18 | 4.17 | + | 4.32 | 3.37E-07 | 4.02E-04 |
| regulation of nucleobase-containing compound metabolic process (GO:0019219) | 4027 | 66 | 36.57 | + | 1.8 | 6.45E-07 | 7.16E-04 |
| positive regulation of amide metabolic process (GO:0034250) | 174 | 11 | 1.58 | + | 6.96 | 9.66E-07 | 1.00E-03 |
| regulation of cytoplasmic translation (GO:2000765) | 32 | 6 | 0.29 | + | 20.65 | 1.07E-06 | 1.03E-03 |
| protein-containing complex organization (GO:0043933) | 1971 | 40 | 17.9 | + | 2.23 | 1.33E-06 | 1.22E-03 |
| regulation of macromolecule biosynthetic process (GO:0010556) | 3938 | 64 | 35.76 | + | 1.79 | 1.39E-06 | 1.20E-03 |
| mRNA metabolic process (GO:0016071) | 622 | 20 | 5.65 | + | 3.54 | 1.48E-06 | 1.21E-03 |
| regulation of gene expression (GO:0010468) | 4861 | 74 | 44.14 | + | 1.68 | 1.51E-06 | 1.17E-03 |
| regulation of cellular metabolic process (GO:0031323) | 5457 | 80 | 49.56 | + | 1.61 | 1.71E-06 | 1.27E-03 |
| regulation of cellular biosynthetic process (GO:0031326) | 4045 | 65 | 36.73 | + | 1.77 | 1.79E-06 | 1.27E-03 |
| post-transcriptional regulation of gene expression (GO:0010608) | 518 | 18 | 4.7 | + | 3.83 | 1.80E-06 | 1.21E-03 |
| rRNA modification (GO:0000154) | 36 | 6 | 0.33 | + | 18.35 | 1.96E-06 | 1.27E-03 |
| mRNA stabilization (GO:0048255) | 60 | 7 | 0.54 | + | 12.85 | 2.36E-06 | 1.46E-03 |
| RNA splicing (GO:0008380) | 381 | 15 | 3.46 | + | 4.34 | 3.20E-06 | 1.91E-03 |
| DNA replication (GO:0006260) | 200 | 11 | 1.82 | + | 6.06 | 3.48E-06 | 2.00E-03 |
| regulation of biosynthetic process (GO:0009889) | 4154 | 65 | 37.72 | + | 1.72 | 3.78E-06 | 2.10E-03 |
| regulation of mRNA metabolic process (GO:1903311) | 300 | 13 | 2.72 | + | 4.77 | 5.51E-06 | 2.95E-03 |
| RNA stabilization (GO:0043489) | 69 | 7 | 0.63 | + | 11.17 | 5.53E-06 | 2.86E-03 |
| regulation of RNA metabolic process (GO:0051252) | 3743 | 60 | 33.99 | + | 1.77 | 5.90E-06 | 2.96E-03 |
| cellular metabolic process (GO:0044237) | 5808 | 82 | 52.74 | + | 1.55 | 6.01E-06 | 2.92E-03 |
| negative regulation of mRNA catabolic process (GO:1902373) | 72 | 7 | 0.65 | + | 10.71 | 7.17E-06 | 3.37E-03 |
| CRD-mediated mRNA stabilization (GO:0070934) | 11 | 4 | 0.1 | + | 40.04 | 8.02E-06 | 3.66E-03 |
| negative regulation of nuclear-transcribed mRNA catabolic process, | 12 | 4 | 0.11 | + | 36.71 | 1.06E-05 | 4.71E-03 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| deadenylation-dependent decay (GO:1900152) | | | | | | | |
| negative regulation of RNA catabolic process (GO:1902369) | 84 | 7 | 0.76 | + | 9.18 | 1.83E-05 | 7.89E-03 |
| rRNA metabolic process (GO:0016072) | 248 | 11 | 2.25 | + | 4.88 | 2.40E-05 | 1.01E-02 |
| chromosome organization (GO:0051276) | 455 | 15 | 4.13 | + | 3.63 | 2.44E-05 | 9.99E-03 |
| RNA splicing, via transesterification reactions (GO:0000375) | 253 | 11 | 2.3 | + | 4.79 | 2.86E-05 | 1.14E-02 |
| DNA metabolic process (GO:0006259) | 772 | 20 | 7.01 | + | 2.85 | 3.24E-05 | 1.26E-02 |
| system process (GO:0003008) | 2066 | 4 | 18.76 | - | 0.21 | 4.13E-05 | 1.56E-02 |
| positive regulation of gene expression (GO:0010628) | 1171 | 26 | 10.63 | + | 2.44 | 4.21E-05 | 1.56E-02 |
| negative regulation of nucleobase-containing compound metabolic process (GO:0045934) | 1563 | 31 | 14.19 | + | 2.18 | 4.23E-05 | 1.53E-02 |
| regulation of mRNA processing (GO:0050684) | 134 | 8 | 1.22 | + | 6.57 | 4.45E-05 | 1.57E-02 |
| chromatin organization (GO:0006325) | 732 | 19 | 6.65 | + | 2.86 | 5.03E-05 | 1.74E-02 |
| regulation of translation (GO:0006417) | 429 | 14 | 3.9 | + | 3.59 | 5.10E-05 | 1.72E-02 |
| RNA modification (GO:0009451) | 181 | 9 | 1.64 | + | 5.48 | 5.79E-05 | 1.91E-02 |
| protein-DNA complex organization (GO:0071824) | 810 | 20 | 7.36 | + | 2.72 | 6.22E-05 | 2.01E-02 |
| regulation of DNA-templated transcription (GO:0006355) | 3427 | 53 | 31.12 | + | 1.7 | 6.94E-05 | 2.20E-02 |
| negative regulation of RNA metabolic process (GO:0051253) | 1447 | 29 | 13.14 | + | 2.21 | 7.21E-05 | 2.24E-02 |
| regulation of mRNA splicing, via spliceosome (GO:0048024) | 106 | 7 | 0.96 | + | 7.27 | 7.39E-05 | 2.25E-02 |
| regulation of RNA biosynthetic process (GO:2001141) | 3450 | 53 | 31.33 | + | 1.69 | 7.58E-05 | 2.26E-02 |
| positive regulation of biological process (GO:0048518) | 6198 | 82 | 56.29 | + | 1.46 | 8.03E-05 | 2.35E-02 |
| cellular component organization or biogenesis (GO:0071840) | 5754 | 77 | 52.25 | + | 1.47 | 1.11E-04 | 3.18E-02 |
| macromolecule metabolic process (GO:0043170) | 5864 | 78 | 53.25 | + | 1.46 | 1.21E-04 | 3.41E-02 |
| antigen processing and presentation of exogenous antigen (GO:0019884) | 49 | 5 | 0.44 | + | 11.24 | 1.24E-04 | 3.43E-02 |
| mRNA splicing, via spliceosome (GO:0000398) | 249 | 10 | 2.26 | + | 4.42 | 1.25E-04 | 3.39E-02 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| RNA splicing, via transesterification reactions with bulged adenosine as nucleophile (GO:0000377) | 249 | 10 | 2.26 | + | 4.42 | 1.25E-04 | 3.34E-02 |
| negative regulation of mRNA processing (GO:0050686) | 25 | 4 | 0.23 | + | 17.62 | 1.27E-04 | 3.33E-02 |
| regulation of chromosome organization (GO:0033044) | 250 | 10 | 2.27 | + | 4.4 | 1.29E-04 | 3.33E-02 |
| nitrogen compound metabolic process (GO:0006807) | 6589 | 85 | 59.84 | + | 1.42 | 1.45E-04 | 3.70E-02 |
| rRNA methylation (GO:0031167) | 27 | 4 | 0.25 | + | 16.31 | 1.65E-04 | 4.14E-02 |
| regulation of nuclear-transcribed mRNA catabolic process, deadenylation-dependent decay (GO:1900151) | 27 | 4 | 0.25 | + | 16.31 | 1.65E-04 | 4.07E-02 |
| regulation of mRNA stability (GO:0043488) | 166 | 8 | 1.51 | + | 5.31 | 1.84E-04 | 4.46E-02 |
| regulation of amide metabolic process (GO:0034248) | 488 | 14 | 4.43 | + | 3.16 | 1.90E-04 | 4.54E-02 |
| regulation of nitrogen compound metabolic process (GO:0051171) | 5622 | 75 | 51.05 | + | 1.47 | 1.90E-04 | 4.47E-02 |

Supp Table. 9 DEPs for the comparison of peripheral blood at diagnosis vs peripheral blood at remission were associated with molecular terms

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Analysis Type: | PANTHER Overrepresentation Test (Released 20231017) | | | | | | |
| Annotation Version and Release Date: | GO Ontology database DOI: 10.5281/zenodo.7942786 Released 2023-01-05 | | | | | | |
| Analyzed List: | upload_1 (Homo sapiens) | | | | | | |
| Reference List: | Homo sapiens (all genes in database) | | | | | | |
| Test Type: | FISHER | | | | | | |
| Correction: | FDR | | | | | | |
| GO molecular function complete | Homo sapiens - REFLIST (20592) | upload_1 (187) | upload_1 (expected) | upload_1 (over/under) | upload_1 (fold Enrichment) | upload_1 (raw P-value) | upload_1 (FDR) |
| nucleic acid binding (GO:0003676) | 4005 | 97 | 36.37 | + | 2.67 | 8.48E-23 | 4.29E-19 |
| RNA binding (GO:0003723) | 1672 | 56 | 15.18 | + | 3.69 | 6.75E-18 | 1.71E-14 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| heterocyclic compound binding (GO:1901363) | 5975 | 109 | 54.26 | + | 2.01 | 1.30E-16 | 2.20E-13 |
| organic cyclic compound binding (GO:0097159) | 6046 | 110 | 54.9 | + | 2 | 1.37E-16 | 1.73E-13 |
| chromatin DNA binding (GO:0031490) | 118 | 13 | 1.07 | + | 12.13 | 1.92E-10 | 1.94E-07 |
| DNA binding (GO:0003677) | 2509 | 55 | 22.78 | + | 2.41 | 3.73E-10 | 3.14E-07 |
| nucleosomal DNA binding (GO:0031492) | 39 | 9 | 0.35 | + | 25.41 | 3.96E-10 | 2.86E-07 |
| nucleosome binding (GO:0031491) | 69 | 9 | 0.63 | + | 14.36 | 3.41E-08 | 2.16E-05 |
| chromatin binding (GO:0003682) | 599 | 22 | 5.44 | + | 4.04 | 4.68E-08 | 2.63E-05 |
| mRNA binding (GO:0003729) | 328 | 16 | 2.98 | + | 5.37 | 9.60E-08 | 4.86E-05 |
| binding (GO:0005488) | 16543 | 176 | 150.23 | + | 1.17 | 1.37E-07 | 6.29E-05 |
| single-stranded RNA binding (GO:0003727) | 87 | 8 | 0.79 | + | 10.13 | 2.31E-06 | 9.73E-04 |
| mRNA 3'-UTR binding (GO:0003730) | 110 | 8 | 1 | + | 8.01 | 1.17E-05 | 4.53E-03 |
| Unclassified (UNCLASSIFIED) | 2403 | 5 | 21.82 | - | 0.23 | 1.56E-05 | 5.62E-03 |
| molecular_function (GO:0003674) | 18189 | 182 | 165.18 | + | 1.1 | 1.56E-05 | 5.24E-03 |
| protein-containing complex binding (GO:0044877) | 1780 | 35 | 16.16 | + | 2.17 | 1.91E-05 | 6.05E-03 |
| pre-mRNA binding (GO:0036002) | 37 | 5 | 0.34 | + | 14.88 | 3.63E-05 | 1.08E-02 |
| protein binding (GO:0005515) | 14383 | 155 | 130.61 | + | 1.19 | 5.63E-05 | 1.58E-02 |
| telomerase RNA binding (GO:0070034) | 22 | 4 | 0.2 | + | 20.02 | 8.13E-05 | 2.16E-02 |
| poly(A) binding (GO:0008143) | 27 | 4 | 0.25 | + | 16.31 | 1.65E-04 | 4.18E-02 |

Supp Table. 10 DEPs for the comparison of peripheral blood at diagnosis vs peripheral blood at remission were associated with cellular terms:

| | | |
|---|---|---|
| Analysis Type: | PANTHER Overrepresentation Test (Released 20231017) | |
| Annotation Version and Release Date: | GO Ontology database DOI: 10.5281/zenodo.7942786 Released 2023-01-05 | |

| Analyzed List: | upload_1 (Homo sapiens) | | | | | | |
|---|---|---|---|---|---|---|---|
| Reference List: | Homo sapiens (all genes in database) | | | | | | |
| Test Type: | FISHER | | | | | | |
| Correction: | FDR | | | | | | |
| GO cellular component complete | Homo sapiens - REFLIST (20592) | upload_1 (187) | upload_1 (expected) | upload_1 (over/under) | upload_1 (fold Enrichment) | upload_1 (raw P-value) | upload_1 (FDR) |
| nucleus (GO:0005634) | 7651 | 126 | 69.48 | + | 1.81 | 9.73E-17 | 1.93E-13 |
| nucleoplasm (GO:0005654) | 4129 | 88 | 37.5 | + | 2.35 | 1.72E-16 | 1.70E-13 |
| nuclear lumen (GO:0031981) | 4492 | 92 | 40.79 | + | 2.26 | 3.53E-16 | 2.33E-13 |
| intracellular organelle (GO:0043229) | 13233 | 168 | 120.17 | + | 1.4 | 2.48E-15 | 1.23E-12 |
| intracellular membrane-bounded organelle (GO:0043231) | 12120 | 158 | 110.06 | + | 1.44 | 6.17E-14 | 2.45E-11 |
| organelle lumen (GO:0043233) | 5617 | 99 | 51.01 | + | 1.94 | 1.85E-13 | 6.09E-11 |
| intracellular organelle lumen (GO:0070013) | 5617 | 99 | 51.01 | + | 1.94 | 1.85E-13 | 5.22E-11 |
| membrane-enclosed lumen (GO:0031974) | 5617 | 99 | 51.01 | + | 1.94 | 1.85E-13 | 4.57E-11 |
| organelle (GO:0043226) | 14034 | 168 | 127.45 | + | 1.32 | 3.99E-12 | 8.78E-10 |
| membrane-bounded organelle (GO:0043227) | 13193 | 161 | 119.81 | + | 1.34 | 2.90E-11 | 5.74E-09 |
| ribonucleoprotein complex (GO:1990904) | 732 | 29 | 6.65 | + | 4.36 | 4.83E-11 | 8.69E-09 |
| intracellular anatomical structure (GO:0005622) | 14879 | 171 | 135.12 | + | 1.27 | 1.69E-10 | 2.79E-08 |
| intracellular non-membrane-bounded organelle (GO:0043232) | 5269 | 85 | 47.85 | + | 1.78 | 5.98E-09 | 9.11E-07 |
| non-membrane-bounded organelle (GO:0043228) | 5270 | 85 | 47.86 | + | 1.78 | 6.00E-09 | 8.49E-07 |
| chromosome (GO:0005694) | 1893 | 44 | 17.19 | + | 2.56 | 6.44E-09 | 8.51E-07 |
| nuclear protein-containing complex (GO:0140513) | 1225 | 31 | 11.12 | + | 2.79 | 2.86E-07 | 3.54E-05 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| protein-containing complex (GO:0032991) | 6363 | 91 | 57.78 | + | 1.57 | 6.28E-07 | 7.32E-05 |
| spliceosomal complex (GO:0005681) | 205 | 12 | 1.86 | + | 6.45 | 6.66E-07 | 7.33E-05 |
| cytosolic large ribosomal subunit (GO:0022625) | 60 | 7 | 0.54 | + | 12.85 | 2.36E-06 | 2.46E-04 |
| nucleolus (GO:0005730) | 1018 | 26 | 9.24 | + | 2.81 | 2.49E-06 | 2.47E-04 |
| protein-DNA complex (GO:0032993) | 1372 | 31 | 12.46 | + | 2.49 | 2.98E-06 | 2.81E-04 |
| chromatin (GO:0000785) | 1309 | 30 | 11.89 | + | 2.52 | 3.34E-06 | 3.01E-04 |
| large ribosomal subunit (GO:0015934) | 116 | 8 | 1.05 | + | 7.59 | 1.68E-05 | 1.44E-03 |
| Cajal body (GO:0015030) | 59 | 6 | 0.54 | + | 11.2 | 2.61E-05 | 2.15E-03 |
| CRD-mediated mRNA stability complex (GO:0070937) | 6 | 3 | 0.05 | + | 55.06 | 5.79E-05 | 4.59E-03 |
| telomerase holoenzyme complex (GO:0005697) | 21 | 4 | 0.19 | + | 20.97 | 6.93E-05 | 5.28E-03 |
| ribosome (GO:0005840) | 237 | 10 | 2.15 | + | 4.65 | 8.43E-05 | 6.19E-03 |
| nuclear body (GO:0016604) | 832 | 20 | 7.56 | + | 2.65 | 8.89E-05 | 6.29E-03 |
| cytosolic ribosome (GO:0022626) | 114 | 7 | 1.04 | + | 6.76 | 1.14E-04 | 7.77E-03 |
| nuclear speck (GO:0016607) | 414 | 13 | 3.76 | + | 3.46 | 1.38E-04 | 9.08E-03 |
| ribosomal subunit (GO:0044391) | 188 | 8 | 1.71 | + | 4.69 | 4.11E-04 | 2.63E-02 |
| mitotic spindle midzone (GO:1990023) | 14 | 3 | 0.13 | + | 23.6 | 4.44E-04 | 2.75E-02 |
| spindle midzone (GO:0051233) | 37 | 4 | 0.34 | + | 11.9 | 4.96E-04 | 2.98E-02 |
| fibrillar center (GO:0001650) | 151 | 7 | 1.37 | + | 5.1 | 5.81E-04 | 3.39E-02 |
| MHC class II protein complex (GO:0042613) | 17 | 3 | 0.15 | + | 19.43 | 7.30E-04 | 4.13E-02 |

SuppTable.11 The DEPs for the comparison of peripheral blood at diagnosis vs peripheral blood at remission were associated with KEGG pathways:

| Category | Term | Count | % | PValue | Genes | List | Pop | Pop | Fold Enrichment | Bonferroni | Benjamini | FDR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | Total | Hits | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa04640:Hematopoietic cell lineage | 5 | 2.747253 | 0.012922 | HLA-DRB5, HLA-DPB1, CD1C, CD1A, HLA-DQB1 | 80 | 9 9 | 8586 | 5.420455 | 0.757721 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa03040:Spliceosome | 7 | 3.846154 | 0.014315 | SF3B2, DDX46, DDX42, HNRNPU, HNRNPC, HNRNPA1, SMNDC1 | 80 | 2 1 6 | 8586 | 3.478125 | 0.792289 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa03082:ATP-dependent chromatin remodeling | 5 | 2.747253 | 0.022497 | INO80B, H2AJ, RBBP4, CDK2AP1, PHF6 | 80 | 1 1 7 | 8586 | 4.586538 | 0.916268 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa05310:Asthma | 3 | 1.648352 | 0.03272 | HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 3 1 | 8586 | 10.38629 | 0.973382 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa05140:Leishmaniasis | 4 | 2.197802 | 0.033728 | MARCKSL1, HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 7 7 | 8586 | 5.575325 | 0.976241 | 0.564263 | 0.564263 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa05322:Systemic lupus erythematosus | 5 | 2.747253 | 0.037186 | H2AJ, HLA-DRB5, HLA-DPB1, H3-3B, HLA-DQB1 | 80 | 137 | 8586 | 3.916971 | 0.983925 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa03020:RNA polymerase | 3 | 1.648352 | 0.038786 | POLR2M, POLR3GL, POLR3K | 80 | 34 | 8586 | 9.469853 | 0.986591 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa05330:Allograft rejection | 3 | 1.648352 | 0.047477 | HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 38 | 8586 | 8.473026 | 0.995018 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa05332:Graft-versus-host disease | 3 | 1.648352 | 0.056804 | HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 42 | 8586 | 7.666071 | 0.998296 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa05150:Staphylococcus aureus infection | 4 | 2.197802 | 0.058284 | HLA-DRB5, C5AR1, HLA-DPB1, HLA-DQB1 | 80 | 96 | 8586 | 4.471875 | 0.998564 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa04940:Type I diabetes mellitus | 3 | 1.648352 | 0.059229 | HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 43 | 8586 | 7.487791 | 0.998712 | 0.564263 | 0.564263 |
| KEGG_PATHWAY | hsa05171:Coronavirus disease - COVID-19 | 6 | 3.296703 | 0.062121 | RPL34, RPL37A, C5AR1, | 80 | 232 | 8586 | 2.775647 | 0.99908 | 0.564263 | 0.564263 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RPL26, RPL29, RPL28 | | | | | | | |
| KEGG_PATHWAY | hsa03010:Ribosome | 5 | 2.747253 | 0.067559 | RPL34, RPL37A, RPL26, RPL29, RPL28 | 80 | 167 | 8586 | 3.213323 | 0.999512 | 0.566453 | 0.566453 |
| KEGG_PATHWAY | hsa04672:Intestinal immune network for IgA production | 3 | 1.648352 | 0.074489 | HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 49 | 8586 | 6.570918 | 0.999783 | 0.579952 | 0.579952 |
| KEGG_PATHWAY | hsa05320:Autoimmune thyroid disease | 3 | 1.648352 | 0.085284 | HLA-DRB5, HLA-DPB1, HLA-DQB1 | 80 | 53 | 8586 | 6.075 | 0.99994 | 0.61973 | 0.61973 |

| Category | Term | Count | % | PValue | Genes |
|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa03040:Spliceosome | 99 | 2.706397 | 2.22E-17 | TCERG1, EIF4A3, HNRNPU, EFTUD2, SN SRSF5, SRSF6, SNRNP200, SRSF8, SNRP ISY1, RBM25, PRPF19, USP39, PQBP1, S SF3B6, SRSF1, DDX23, U2AF1, U2AF2, T |
| KEGG_PATHWAY | hsa03420:Nucleotide excision repair | 44 | 1.202843 | 1.63E-16 | PCNA, CCNH, CETN2, XPC, POLD3, POL RAD23A, GTF2H2, GTF2H3, GTF2H4, GT |
| KEGG_PATHWAY | hsa03010:Ribosome | 78 | 2.132313 | 2.92E-14 | RPL4, RPL30, MRPS15, MRPS16, RPL3, RPL36AL, RPS18, RPLP2, RPL35, RPL38, RPS27L, MRPL14, RPS4Y1, MRPL11, MR RPS23 |

| | | | | | |
|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa03013:Nucleocytoplasmic transport | 58 | 1.585566 | 5.10E-14 | IPO11, NUP107, NUP188, EIF4A3, PHAX THOC5, THOC7, SRRM1, THOC6, NUP93 ALYREF, PYM1, NUP153, SNUPN, XPOT, |
| KEGG_PATHWAY | hsa05171:Coronavirus disease - COVID-19 | 97 | 2.651722 | 8.60E-14 | RPL4, RPL30, RPL3, RPL32, RPL31, RPL3 RPS5, RPL22, RPS6, CYBB, ADAM17, RP PIK3CD, ADAR, RPS4X, IFIH1, RPL7A, RP RPL15, RPL18, RPL17, MAPK3, RPL19, S |
| KEGG_PATHWAY | hsa03030:DNA replication | 28 | 0.765446 | 2.23E-12 | PRIM2, RNASEH2B, FEN1, RNASEH2A, F MCM2 |
| KEGG_PATHWAY | hsa03410:Base excision repair | 31 | 0.847458 | 7.42E-12 | FEN1, PCNA, MPG, PNKP, HMGB1, POLI POLE3, ADPRS |
| KEGG_PATHWAY | hsa03022:Basal transcription factors | 31 | 0.847458 | 1.80E-11 | GTF2A1, CCNH, GTF2B, TAF9, GTF2E1, G TAF4, MNAT1, TAF2, TAF1 |
| KEGG_PATHWAY | hsa03015:mRNA surveillance pathway | 44 | 1.202843 | 6.20E-08 | HBS1L, RBM8A, RNMT, CSTF3, EIF4A3, C PABPC4, CPSF2, PYM1, PPP2R5B, SSU72 |
| KEGG_PATHWAY | hsa04110:Cell cycle | 60 | 1.640241 | 3.33E-07 | CDKN1C, RB1, YWHAE, CCNH, SMC3, CI MCM4, MCM5, MCM6, ANAPC1, MAD1 WAPL, NDC80, WEE1, CDK7, STAG2, CD |
| KEGG_PATHWAY | hsa03430:Mismatch repair | 17 | 0.464735 | 4.34E-07 | RFC5, RFC3, RFC4, PCNA, LIG1, RFC1, RI |
| KEGG_PATHWAY | hsa05166:Human T-cell leukemia virus 1 infection | 76 | 2.077638 | 1.28E-06 | RB1, ATF2, NRP1, CRTC2, CRTC3, SPI1, I HRAS, JAK1, HLA-DPA1, MAP2K4, MAP2 GPS2, NRAS, HLA-DMA, HLA-DMB, MAI DRB1, MAD2L1 |
| KEGG_PATHWAY | hsa03082:ATP-dependent chromatin remodeling | 46 | 1.257518 | 3.98E-06 | INO80C, SMARCD1, INO80B, HDAC2, H SMARCE1, SMARCC2, PHF10, C17ORF4 |
| KEGG_PATHWAY | hsa03020:RNA polymerase | 20 | 0.546747 | 4.89E-06 | POLR2J2, POLR3GL, POLR3A, POLR2A, I |
| KEGG_PATHWAY | hsa05203:Viral carcinogenesis | 67 | 1.831602 | 2.71E-05 | RB1, YWHAE, ATF2, DDX3X, GTF2B, PIK RBL2, CCNA2, CREB1, PIK3CA, IRF3, CCI CREBBP, EIF2AK2, GTF2H1, GTF2H2, GT |
| KEGG_PATHWAY | hsa03450:Non-homologous end-joining | 10 | 0.273373 | 1.82E-04 | XRCC6, FEN1, RAD50, MRE11, XRCC4, X |
| KEGG_PATHWAY | hsa05169:Epstein-Barr virus infection | 63 | 1.722253 | 2.53E-04 | RB1, PIK3CD, CD3G, ICAM1, CASP9, TBI CCNA2, PIK3CA, OAS1, IRF3, CCNE1, OA CDK6, CDK4, CDK2, HLA-DPB1, HLA-DRA |

| | | | | | |
|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa01232:Nucleotide metabolism | 32 | 0.874795 | 3.74E-04 | HDDC2, GMPS, ADK, AK2, AK5, NTPCR, DCTPP1, ADA, ITPA |
| KEGG_PATHWAY | hsa04612:Antigen processing and presentation | 30 | 0.82012 | 3.94E-04 | HSP90AB1, CTSS, HLA-DMA, HLA-DMB, HLA-DPB1, PSME2, HLA-DRA, HLA-DRB |
| KEGG_PATHWAY | hsa05160:Hepatitis C | 51 | 1.394204 | 4.44E-04 | RB1, YWHAE, SCARB1, ARAF, PIK3CD, P SOS1, SOS2, NRAS, RXRA, MAPK1, RIPK |
| KEGG_PATHWAY | hsa03440:Homologous recombination | 19 | 0.51941 | 5.06E-04 | BLM, MRE11, ABRAXAS1, TOP3A, XRCC |
| KEGG_PATHWAY | hsa03083:Polycomb repressive complex | 31 | 0.847458 | 6.94E-04 | L3MBTL3, HDAC2, USP16, MAX, HDAC1 HCFC1, TFDP1, ASXL2, MTF2, COMMD3 |
| KEGG_PATHWAY | hsa05140:Leishmaniasis | 29 | 0.792783 | 7.45E-04 | NCF1, NCF2, NCF4, ITGB2, HLA-DMA, F HLA-DPB1, HLA-DRA, HLA-DRB3, HLA-D |
| KEGG_PATHWAY | hsa05221:Acute myeloid leukemia | 26 | 0.710771 | 9.13E-04 | CSF1R, SPI1, FLT3, ARAF, PIK3CD, MPO, |
| KEGG_PATHWAY | hsa05164:Influenza A | 53 | 1.448879 | 9.76E-04 | PRSS1, CALCOCO2, PIK3CD, ADAR, ICAM OAS1, IRF3, HNRNPUL1, OAS2, OAS3, IF HLA-DRA, FAS, HLA-DRB3, HLA-DRB1 |
| KEGG_PATHWAY | hsa05152:Tuberculosis | 55 | 1.503554 | 0.001117 | CALML5, ITGB2, LSP1, CTSS, CASP9, PPI RFX5, TLR6, ATP6V0D1, ATP6V0D2, TLR DPB1, HLA-DRA, HLA-DRB3, CALM2, HL |
| KEGG_PATHWAY | hsa03018:RNA degradation | 29 | 0.792783 | 0.001181 | DDX6, BTG2, PARN, EXOSC6, EXOSC5, E CNOT8, MPHOSPH6, DCP1B |
| KEGG_PATHWAY | hsa04141:Protein processing in endoplasmic reticulum | 52 | 1.421542 | 0.001512 | ERO1A, HSP90AB1, UBXN2A, UBE2D2, PREB, ATF6, SEC23A, VCP, DERL3, DERL DNAJA2, STT3A, STUB1, STT3B |
| KEGG_PATHWAY | hsa05330:Allograft rejection | 17 | 0.464735 | 0.001761 | CD86, HLA-DRB5, HLA-B, PRF1, GZMB, |
| KEGG_PATHWAY | hsa03250:Viral life cycle - HIV-1 | 24 | 0.656096 | 0.002018 | RANBP2, APOBEC3D, CREBBP, CPSF7, C |
| KEGG_PATHWAY | hsa04120:Ubiquitin mediated proteolysis | 44 | 1.202843 | 0.002809 | DET1, CUL7, ANAPC15, CUL5, CUL3, UB UBE2E3, UBE2E1, UBE2E2, UBE2A, PIAS |
| KEGG_PATHWAY | hsa04940:Type I diabetes mellitus | 18 | 0.492072 | 0.002882 | CD86, HLA-DRB5, HLA-B, PRF1, ICA1, G |
| KEGG_PATHWAY | hsa04218:Cellular senescence | 47 | 1.284855 | 0.003632 | RB1, LIN54, MRE11, CALML5, PTEN, PIK B, HUS1, NFATC2, HLA-A, HIPK1, HLA-F, |

| | | | | | |
|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa04145:Phagosome | 46 | 1.257518 | 0.003673 | ATP6V1A, SCARB1, RAB5B, RAB5C, NCF HLA-DPA1, HLA-DRB5, TUBB, HLA-B, CY |
| KEGG_PATHWAY | hsa00280:Valine, leucine and isoleucine degradation | 19 | 0.51941 | 0.004308 | BCKDHA, ACAA2, BCKDHB, MCCC1, ACA |
| KEGG_PATHWAY | hsa05416:Viral myocarditis | 22 | 0.601422 | 0.005501 | CD86, HLA-DRB5, ITGB2, HLA-B, PRF1, I |
| KEGG_PATHWAY | hsa05332:Graft-versus-host disease | 17 | 0.464735 | 0.005815 | CD86, HLA-DRB5, HLA-B, PRF1, GZMB, I |
| KEGG_PATHWAY | hsa05220:Chronic myeloid leukemia | 26 | 0.710771 | 0.006506 | RB1, HDAC2, CTBP2, SHC1, CTBP1, HDA |
| KEGG_PATHWAY | hsa04621:NOD-like receptor signaling pathway | 53 | 1.448879 | 0.006844 | YWHAE, HSP90AB1, ANTXR2, PYCARD, RBCK1, PLCB2, NAIP, BIRC2, RNF31, NLR SUGT1 |
| KEGG_PATHWAY | hsa04659:Th17 cell differentiation | 34 | 0.92947 | 0.007074 | HSP90AB1, CD3G, IL1RAP, PPP3CA, HLA RUNX1, ZAP70, CD4, IRF4, LCK, RARA, H |
| KEGG_PATHWAY | hsa05161:Hepatitis B | 47 | 1.284855 | 0.007812 | RB1, ATF2, DDX3X, PCNA, ARAF, PIK3CD STAT2, NFATC2, TYK2, FOS, TGFBR1, NFI |
| KEGG_PATHWAY | hsa03008:Ribosome biogenesis in eukaryotes | 47 | 1.284855 | 0.009892 | RBM28, POP7, NVL, POP1, WDR3, POP4 UTP15, NOP58, WDR36, UTP4, IMP3, R |
| KEGG_PATHWAY | hsa04623:Cytosolic DNA-sensing pathway | 25 | 0.683434 | 0.010974 | CGAS, ADAR, SAMHD1, MEFV, PYCARD, |
| KEGG_PATHWAY | hsa01240:Biosynthesis of cofactors | 44 | 1.202843 | 0.011901 | LIPT2, MOCS2, ALAS1, PANK3, FECH, HA COQ7, COQ5, ALDH3A2, DHFR, COQ3, C |
| KEGG_PATHWAY | hsa05202:Transcriptional misregulation in cancer | 53 | 1.448879 | 0.01447 | CD86, ATF1, CCNT2, SPI1, CCNT1, LDB1 CSF1R, DDX5, HDAC2, HPGD, KMT2A, M |
| KEGG_PATHWAY | hsa05211:Renal cell carcinoma | 23 | 0.628759 | 0.015143 | EGLN1, CREBBP, FH, MAP2K2, CUL2, PR |
| KEGG_PATHWAY | hsa05170:Human immunodeficiency virus 1 infection | 57 | 1.558229 | 0.017143 | CALML5, PIK3CD, CGAS, CD3G, CASP9, TNFRSF1A, PIK3CA, IRF3, TLR2, CUL5, P GNB4, FAS, ATM, CD247, CALM2, APOB |
| KEGG_PATHWAY | hsa00511:Other glycan degradation | 9 | 0.246036 | 0.017491 | NEU3, MANBA, HEXB, FUCA1, NEU1, H |
| KEGG_PATHWAY | hsa04140:Autophagy - animal | 46 | 1.257518 | 0.017651 | STX17, CALCOCO2, WDR45B, MTMR14, MAP3K7, ATG5, MAPK3, SH3GLB1, RUB |

| | | | | | |
|---|---|---|---|---|---|
| KEGG_PATHWAY | hsa00730:Thiamine metabolism | 8 | 0.218699 | 0.019284 | THTPA, NFS1, TPK1, AK2, ALPL, AK5, NT |
| KEGG_PATHWAY | hsa04660:T cell receptor signaling pathway | 35 | 0.956807 | 0.023474 | PIK3CD, PPP2R2A, CD3G, MALT1, CDC4 PTPRC, PIK3CA, LCK, CD8A, CDK4, PPP2 |
| KEGG_PATHWAY | hsa04658:Th1 and Th2 cell differentiation | 28 | 0.765446 | 0.023704 | MAML1, CD3G, PPP3CA, HLA-DMA, PP CD247, MAML3, HLA-DRB3, HLA-DRB1 |
| KEGG_PATHWAY | hsa05162:Measles | 39 | 1.066156 | 0.023796 | PIK3CD, CD3G, ADAR, IFIH1, CASP9, CA OAS1, IRF3, PIK3CA, CCNE1, OAS2, CDK |
| KEGG_PATHWAY | hsa05134:Legionellosis | 19 | 0.51941 | 0.02438 | HBS1L, VCP, CR1, HSPA1L, ITGB2, HSPA6 |
| KEGG_PATHWAY | hsa05223:Non-small cell lung cancer | 23 | 0.628759 | 0.024854 | RB1, STAT5A, MAP2K2, ARAF, PIK3CD, F |
| KEGG_PATHWAY | hsa01100:Metabolic pathways | 342 | 9.349371 | 0.025927 | AHCYL1, CMAS, PANK3, MT-CO1, NUDT MOGS, CMBL, ALG1, GANC, CHIT1, ADC SGPL1, INPP5F, RDH10, LDHD, NEU1, PI BST1, UCK2, ALDH6A1, EPRS1, CYP2S1, NANS, COX8A, PCYT1A, ELOVL5, PGAM HSD17B8, NT5E, GPAT4, ALOX5, DGLUC PNPLA4, PLCD1, OTC, HDDC2, ACAA2, N CAMKMT, DPM1, ALDH3A2, PHOSPHO1 ALDH3B1, AMDHD2, COX11, ATP6V1H, ACO2, ADSS2, STT3B, MT-CYB, NIT2, PC LBR, COLGALT1, HIBCH, BCKDHA, HGSN FBP1, DCTPP1, FBP2, B4GALT4, ALDH9A PDE6D, BPNT1, PCBD1, NDUFA9, NDUF SCLY, LPIN1, LPIN2, LPIN3 |
| KEGG_PATHWAY | hsa04650:Natural killer cell mediated cytotoxicity | 36 | 0.984144 | 0.02882 | SHC1, ITGB2, PRF1, ARAF, PIK3CD, ICAM ZAP70, TYROBP, PIK3CA, LCK, FAS, CD48 |
| KEGG_PATHWAY | hsa04614:Renin-angiotensin system | 10 | 0.273373 | 0.029426 | CPA3, ENPEP, MME, ANPEP, PREP, REN, |
| KEGG_PATHWAY | hsa04210:Apoptosis | 38 | 1.038819 | 0.030399 | PRF1, PIK3CD, LMNB2, CTSS, LMNB1, C TNFRSF10B, GZMB, CFLAR, TRAF1, FOS, |
| KEGG_PATHWAY | hsa00240:Pyrimidine metabolism | 19 | 0.51941 | 0.034436 | HDDC2, RRM1, ENTPD1, DUT, RRM2, EI |
| KEGG_PATHWAY | hsa00310:Lysine degradation | 20 | 0.546747 | 0.040202 | COLGALT2, KMT2A, SETDB1, SETD1B, S |

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| KEGG_PATHWAY | hsa00620:Pyruvate metabolism | 16 | 0.437397 | 0.040249 | FH, PDHA1, ACSS2, PKLR, ADH1A, AKR1 |
| KEGG_PATHWAY | hsa04142:Lysosome | 36 | 0.984144 | 0.048686 | IDUA, HEXB, CLTC, NAGPA, GNS, CTSS, G GALNS, NPC1, NPC2, DMXL1, PPT1, MA |
| KEGG_PATHWAY | hsa05320:Autoimmune thyroid disease | 17 | 0.464735 | 0.0562 | CD86, HLA-DRB5, HLA-B, PRF1, GZMB, |
| KEGG_PATHWAY | hsa04640:Hematopoietic cell lineage | 28 | 0.765446 | 0.056393 | CSF1R, TFRC, FLT3, CD3G, CD1C, HLA-D DRB3, CD44, HLA-DRB1 |
| KEGG_PATHWAY | hsa05230:Central carbon metabolism in cancer | 21 | 0.574084 | 0.060479 | PDGFRB, TIGAR, MAP2K2, PDHA1, FLT3 |
| KEGG_PATHWAY | hsa05213:Endometrial cancer | 18 | 0.492072 | 0.064336 | MAP2K2, PTEN, ARAF, AXIN1, PIK3CD, M |
| KEGG_PATHWAY | hsa05417:Lipid and atherosclerosis | 54 | 1.476217 | 0.064906 | ERO1A, HSP90AB1, NCF1, CALML5, NCF VAV2, PIK3CA, IRF3, IRF7, TLR6, ATF6, P CALM2 |
| KEGG_PATHWAY | hsa00630:Glyoxylate and dicarboxylate metabolism | 11 | 0.300711 | 0.065582 | CS, GCSH, ACSS2, PCCA, GLYCTK, ACO1, |
| KEGG_PATHWAY | hsa05214:Glioma | 22 | 0.601422 | 0.06698 | RB1, PDGFRB, MAP2K2, CAMK1D, CALM |
| KEGG_PATHWAY | hsa04662:B cell receptor signaling pathway | 24 | 0.656096 | 0.071189 | MAP2K2, INPPL1, NFATC2, PIK3CD, LILR |
| KEGG_PATHWAY | hsa00230:Purine metabolism | 34 | 0.92947 | 0.075917 | HDDC2, GMPS, ADK, AK2, NUDT2, AK5, NME7, IMPDH2, ADSS2, GART, ADA, ITP |
| KEGG_PATHWAY | hsa03060:Protein export | 9 | 0.246036 | 0.076025 | SRP19, SPCS3, SPCS2, SRP72, HSPA5, SP |
| KEGG_PATHWAY | hsa05310:Asthma | 11 | 0.300711 | 0.079926 | HLA-DMA, HLA-DRB5, HLA-DMB, HLA-D |
| KEGG_PATHWAY | hsa04922:Glucagon signaling pathway | 29 | 0.792783 | 0.08254 | ATF2, CRTC2, CALML5, PRKAG1, SLC2A1 PLCB2, FBP1, CALM2, FBP2 |
| KEGG_PATHWAY | hsa01524:Platinum drug resistance | 21 | 0.574084 | 0.087629 | TOP2A, TOP2B, MGST3, MGST1, MGST2 |
| KEGG_PATHWAY | hsa05210:Colorectal cancer | 24 | 0.656096 | 0.088729 | MAP2K2, ARAF, AXIN1, PIK3CD, FOS, M |
| KEGG_PATHWAY | hsa04380:Osteoclast differentiation | 35 | 0.956807 | 0.094753 | CSF1R, SPI1, NCF1, NCF2, NCF4, PIK3CD NFKB1, TGFBR2, TNFRSF1A, TYROBP, FC |

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| KEGG_PATHWAY | hsa05167:Kaposi sarcoma-associated herpesvirus infection | 48 | 1.312192 | 0.098911 | RB1, CD86, CALML5, PIK3CD, ICAM1, C<br>HLA-B, NFATC2, EIF2AK2, TYK2, HLA-A, |