Secondary Progressive MS

| NAME | SIZE | ES | NES | NOM p-val | FDR q-val | FWER p-val | RANK AT MAX | LEADING EDGE |
|--|------|------------|-----------|--------------|-----------|------------|-------------|--------------------------------|
| WP_NETWORK_MAP_OF_SARSCOV2_SIGNAL ING_PATHWAY | 149 | 0.8460869 | 2.5432181 | 0.0 | 0.0 | 0.0 | 676 | tags=39%, list=4%, signal=40% |
| WP_OVERVIEW_OF_PROINFLAMMATORY_A ND_PROFIBROTIC_MEDIATORS | 50 | 0.93976414 | 2.470999 | 0.0 | 0.0 | 0.0 | 473 | tags=78%, list=3%, signal=80% |
| WP_SARSCOV2_INNATE_IMMUNITY_EVASIO N_AND_CELLSPECIFIC_IMMUNE_RESPONSE | 51 | 0.90117097 | 2.3926134 | 0.0 | 0.0 | 0.0 | 570 | tags=55%, list=4%, signal=57% |
| WP_IL18_SIGNALING_PATHWAY | 218 | 0.74076456 | 2.3238444 | 0.0 | 0.0 | 0.0 | 989 | tags=26%, list=6%, signal=27% |
| WP_TOLLLIKE_RECEPTOR_SIGNALING_PAT HWAY | 70 | 0.8184287 | 2.2512605 | 0.0 | 0.0 | 0.0 | 1569 | tags=50%, list=10%, signal=55% |
| WP_BURN_WOUND_HEALING | 76 | 0.80698717 | 2.2512403 | 0.0 | 0.0 | 0.0 | 669 | tags=34%, list=4%, signal=36% |
| WP_PHOTODYNAMIC_THERAPYINDUCED_N FKB_SURVIVAL_SIGNALING | 31 | 0.9071497 | 2.2422645 | 0.0 | 0.0 | 0.0 | 497 | tags=58%, list=3%, signal=60% |
| WP_ALLOGRAFT_REJECTION | 54 | 0.8490738 | 2.2395604 | 0.0 | 0.0 | 0.0 | 692 | tags=37%, list=4%, signal=39% |
| WP_CYTOSOLIC_DNASENSING_PATHWAY | 54 | 0.8315613 | 2.236571 | 0.0 | 0.0 | 0.0 | 860 | tags=39%, list=6%, signal=41% |
| WP_CHEMOKINE_SIGNALING_PATHWAY | 122 | 0.7467291 | 2.2237914 | 0.0 | 0.0 | 0.0 | 1093 | tags=26%, list=7%, signal=28% |
| WP_MEASLES_VIRUS_INFECTION | 99 | 0.77047217 | 2.2223508 | 0.0 | 0.0 | 0.0 | 1005 | tags=36%, list=7%, signal=39% |
| WP_TYPE_II_INTERFERON_SIGNALING_IFN G | 27 | 0.92428946 | 2.1978188 | 0.0 | 0.0 | 0.0 | 755 | tags=81%, list=5%, signal=86% |
| WP_LUNG_FIBROSIS | 47 | 0.8480363 | 2.174579 | 0.0 | 0.0 | 0.0 | 882 | tags=40%, list=6%, signal=43% |
| WP_MIRNAS_INVOLVEMENT_IN_THE_IMMU NE_RESPONSE_IN_SEPSIS | 30 | 0.90992916 | 2.163208 | 0.0 | 0.0 | 0.0 | 436 | tags=57%, list=3%, signal=58% |
| WP_NONGENOMIC_ACTIONS_OF_125_DIHYD ROXYVITAMIN_D3 | 60 | 0.8013839 | 2.161435 | 0.0 | 0.0 | 0.0 | 1005 | tags=38%, list=7%, signal=41% |
| WP_NOVEL_INTRACELLULAR_COMPONENT S_OF_RIGILIKE_RECEPTOR_RLR_PATHWAY | 51 | 0.81449455 | 2.1494145 | 0.0 | 0.0 | 0.0 | 1181 | tags=37%, list=8%, signal=40% |
| WP_VITAMIN_B12_METABOLISM | 37 | 0.848672 | 2.1324003 | 0.0 | 0.0 | 0.0 | 586 | tags=35%, list=4%, signal=36% |

| NAME | SIZE | ES | NES | NOM | FDR q-val | FWER p-val | RANK AT MAX | LEADING EDGE |
|---|------|------------|-----------|-------|-----------|------------|-------------|--------------------------------|
| | | | | p-val | · | · | | |
| WP_APOPTOSIS | 74 | 0.7569625 | 2.129045 | 0.0 | 0.0 | 0.0 | 1914 | tags=49%, list=12%, signal=55% |
| WP_PROSTAGLANDIN_SIGNALING | 20 | 0.9473872 | 2.123287 | 0.0 | 0.0 | 0.0 | 572 | tags=85%, list=4%, signal=88% |
| WP_FOLATE_METABOLISM | 47 | 0.81010765 | 2.119544 | 0.0 | 0.0 | 0.0 | 1397 | tags=38%, list=9%, signal=42% |
| WP_TNFRELATED_WEAK_INDUCER_OF_APO PTOSIS_TWEAK_SIGNALING_PATHWAY | 38 | 0.8404808 | 2.108779 | 0.0 | 0.0 | 0.0 | 1181 | tags=50%, list=8%, signal=54% |
| WP_TNFALPHA_SIGNALING_PATHWAY | 84 | 0.7456271 | 2.0979562 | 0.0 | 0.0 | 0.0 | 1635 | tags=39%, list=11%, signal=44% |
| WP_EBOLA_VIRUS_INFECTION_IN_HOST | 115 | 0.7012862 | 2.0875921 | 0.0 | 0.0 | 0.0 | 1673 | tags=35%, list=11%, signal=39% |
| WP_APOPTOSISRELATED_NETWORK_DUE_T O_ALTERED_NOTCH3_IN_OVARIAN_CANCER | 52 | 0.7885452 | 2.0871582 | 0.0 | 0.0 | 0.0 | 1755 | tags=48%, list=11%, signal=54% |
| WP_HOSTPATHOGEN_INTERACTION_OF_HU MAN_CORONAVIRUSES_INTERFERON_INDU CTION | 32 | 0.85562384 | 2.0869937 | 0.0 | 0.0 | 0.0 | 1005 | tags=56%, list=7%, signal=60% |
| WP_IMMUNE_RESPONSE_TO_TUBERCULOSI S | 22 | 0.9274794 | 2.0833354 | 0.0 | 0.0 | 0.0 | 1005 | tags=86%, list=7%, signal=92% |
| WP_VITAMIN_D_RECEPTOR_PATHWAY | 102 | 0.7107194 | 2.0802145 | 0.0 | 0.0 | 0.0 | 1471 | tags=29%, list=10%, signal=32% |
| WP_HEPATITIS_B_INFECTION | 122 | 0.6964496 | 2.0763535 | 0.0 | 0.0 | 0.0 | 1864 | tags=35%, list=12%, signal=40% |
| WP_THYMIC_STROMAL_LYMPHOPOIETIN_T SLP_SIGNALING_PATHWAY | 38 | 0.83096075 | 2.0644739 | 0.0 | 0.0 | 0.0 | 1534 | tags=50%, list=10%, signal=55% |
| WP_TYPE_I_INTERFERON_INDUCTION_AND_ SIGNALING_DURING_SARSCOV2_INFECTION | 24 | 0.87546664 | 2.0607483 | 0.0 | 0.0 | 0.0 | 1569 | tags=79%, list=10%, signal=88% |
| WP_TCELL_RECEPTOR_TCR_SIGNALING_PA THWAY | 65 | 0.7561409 | 2.051476 | 0.0 | 0.0 | 0.0 | 1930 | tags=42%, list=13%, signal=47% |
| WP_SELENIUM_MICRONUTRIENT_NETWOR K | 63 | 0.7434307 | 2.0440016 | 0.0 | 0.0 | 0.0 | 1181 | tags=32%, list=8%, signal=34% |
| WP_GLUCOCORTICOID_RECEPTOR_PATHW AY | 54 | 0.7523782 | 2.0430808 | 0.0 | 0.0 | 0.0 | 1174 | tags=31%, list=8%, signal=34% |
| WP_FIBRIN_COMPLEMENT_RECEPTOR_3_SI GNALING_PATHWAY | 30 | 0.8409784 | 2.0425556 | 0.0 | 0.0 | 0.0 | 436 | tags=30%, list=3%, signal=31% |

| NAME | SIZE | ES | NES | NOM | FDR q-val | FWER p-val | RANK AT MAX | LEADING EDGE |
|---|------|------------|-----------|-------|---------------|------------|-------------|--------------------------------|
| | | | | p-val | | | | |
| WP_PHOTODYNAMIC_THERAPYINDUCED_HI FI_SURVIVAL_SIGNALING | 34 | 0.8323053 | 2.0369625 | 0.0 | 0.0 | 0.0 | 1179 | tags=53%, list=8%, signal=57% |
| WP_EBSTEINBARR_VIRUS_LMPI_SIGNALING | 22 | 0.8869853 | 2.0321584 | 0.0 | 0.0 | 0.0 | 448 | tags=41%, list=3%, signal=42% |
| WP_CYTOKINES_AND_INFLAMMATORY_RES PONSE | 15 | 0.96241194 | 2.0276701 | 0.0 | 0.0 | 0.0 | 473 | tags=80%, list=3%, signal=82% |
| WP_ADIPOGENESIS | 100 | 0.68804413 | 2.0101457 | 0.0 | 3.600608E-05 | 0.001 | 1561 | tags=30%, list=10%, signal=33% |
| WP_SIGNAL_TRANSDUCTION_THROUGH_IL1 R | 29 | 0.837423 | 1.9965441 | 0.0 | 3.5082845E-05 | 0.001 | 873 | tags=41%, list=6%, signal=44% |
| WP_ANTIVIRAL_AND_ANTIINFLAMMATORY _EFFECTS_OF_NRF2_ON_SARSCOV2_PATHW AY | 25 | 0.8385395 | 1.9950932 | 0.0 | 3.4205776E-05 | 0.001 | 1392 | tags=52%, list=9%, signal=57% |
| WP_ACUTE_VIRAL_MYOCARDITIS | 64 | 0.73279077 | 1.9920508 | 0.0 | 3.337149E-05 | 0.001 | 1796 | tags=36%, list=12%, signal=41% |
| WP_OREXIN_RECEPTOR_PATHWAY | 104 | 0.68628234 | 1.9871063 | 0.0 | 6.26563E-05 | 0.002 | 1114 | tags=30%, list=7%, signal=32% |
| WP_INTERACTIONS_OF_NATURAL_KILLER_ CELLS_IN_PANCREATIC_CANCER | 17 | 0.9063179 | 1.9694649 | 0.0 | 1.517542E-04 | 0.005 | 171 | tags=35%, list=1%, signal=36% |
| WP_ONCOSTATIN_M_SIGNALING_PATHWAY | 62 | 0.72465867 | 1.9681491 | 0.0 | 1.4830525E-04 | 0.005 | 1688 | tags=42%, list=11%, signal=47% |
| WP_SPINAL_CORD_INJURY | 90 | 0.6820536 | 1.9676989 | 0.0 | 1.4500957E-04 | 0.005 | 1539 | tags=30%, list=10%, signal=33% |
| WP_HEPATITIS_C_AND_HEPATOCELLULAR_ CARCINOMA | 44 | 0.7678406 | 1.9605255 | 0.0 | 1.4185719E-04 | 0.005 | 1534 | tags=39%, list=10%, signal=43% |
| WP_RANKLRANK_SIGNALING_PATHWAY | 49 | 0.74385184 | 1.9507523 | 0.0 | 1.669359E-04 | 0.006 | 1181 | tags=35%, list=8%, signal=37% |
| WP_IL1_SIGNALING_PATHWAY | 52 | 0.73290676 | 1.9452747 | 0.0 | 1.6345807E-04 | 0.006 | 1534 | tags=38%, list=10%, signal=43% |
| WP_APOPTOSIS_MODULATION_AND_SIGNAL ING | 79 | 0.7099479 | 1.9427781 | 0.0 | 1.601222E-04 | 0.006 | 1179 | tags=32%, list=8%, signal=34% |
| WP_HEMATOPOIETIC_STEM_CELL_DIFFERE NTIATION | 33 | 0.7892056 | 1.9369601 | 0.0 | 2.387379E-04 | 0.009 | 669 | tags=33%, list=4%, signal=35% |
| WP_PHOTODYNAMIC_THERAPYINDUCED_A PI_SURVIVAL_SIGNALING | 44 | 0.7628298 | 1.9259088 | 0.0 | 2.6098205E-04 | 0.01 | 1816 | tags=45%, list=12%, signal=51% |

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| | | | | p-val | | | | |
| WP_NUCLEAR_RECEPTORS_METAPATHWAY | 209 | 0.6121718 | 1.9102982 | 0.0 | 3.3318944E-04 | 0.013 | 1447 | tags=27%, list=9%, signal=30% |
| WP_GASTRIN_SIGNALING_PATHWAY | 104 | 0.6454356 | 1.9081985 | 0.0 | 3.7588252E-04 | 0.015 | 1688 | tags=28%, list=11%, signal=31% |
| WP_TLR4_SIGNALING_AND_TOLERANCE | 25 | 0.8200695 | 1.9060669 | 0.0 | 3.6892173E-04 | 0.015 | 1864 | tags=56%, list=12%, signal=64% |
| WP_IL6_SIGNALING_PATHWAY | 40 | 0.7465028 | 1.9003567 | 0.0 | 3.8851527E-04 | 0.016 | 1688 | tags=45%, list=11%, signal=50% |
| WP_COMPLEMENT_SYSTEM | 47 | 0.7347429 | 1.8942397 | 0.0 | 4.5119316E-04 | 0.019 | 1855 | tags=51%, list=12%, signal=58% |
| WP_COPPER_HOMEOSTASIS | 50 | 0.72367305 | 1.8936822 | 0.0 | 4.432775E-04 | 0.019 | 873 | tags=26%, list=6%, signal=27% |
| WP_RAS_AND_BRADYKININ_PATHWAYS_IN_ COVID19 | 15 | 0.87957615 | 1.8903635 | 0.0 | 5.2885624E-04 | 0.022 | 763 | tags=60%, list=5%, signal=63% |
| WP_SMALL_CELL_LUNG_CANCER | 87 | 0.6594188 | 1.8804467 | 0.0 | 6.9777877E-04 | 0.03 | 2322 | tags=43%, list=15%, signal=50% |
| WP_HOSTPATHOGEN_INTERACTION_OF_HU MAN_CORONAVIRUSES_MAPK_SIGNALING | 33 | 0.7507818 | 1.8785032 | 0.0 | 6.8614905E-04 | 0.03 | 1713 | tags=39%, list=11%, signal=44% |
| WP_TYROBP_CAUSAL_NETWORK_IN_MICR OGLIA | 37 | 0.75591224 | 1.8768034 | 0.0 | 7.4110203E-04 | 0.033 | 1909 | tags=43%, list=12%, signal=49% |
| WP_PROTEASOME_DEGRADATION | 60 | 0.69659036 | 1.8741941 | 0.0 | 7.706627E-04 | 0.035 | 2538 | tags=43%, list=16%, signal=52% |
| WP_MALIGNANT_PLEURAL_MESOTHELIOM A | 355 | 0.5844303 | 1.8740658 | 0.0 | 7.5842993E-04 | 0.035 | 1889 | tags=25%, list=12%, signal=28% |
| WP_IL4_SIGNALING_PATHWAY | 45 | 0.7293307 | 1.8731518 | 0.0 | 7.4657943E-04 | 0.035 | 2177 | tags=49%, list=14%, signal=57% |
| WP_OXIDATIVE_DAMAGE_RESPONSE | 36 | 0.74541193 | 1.8729957 | 0.0 | 7.350936E-04 | 0.035 | 1840 | tags=42%, list=12%, signal=47% |
| WP_NUCLEOTIDEBINDING_OLIGOMERIZATI ON_DOMAIN_NOD_PATHWAY | 29 | 0.7766107 | 1.8703796 | 0.0 | 7.850783E-04 | 0.038 | 1864 | tags=41%, list=12%, signal=47% |
| WP_TCELL_ACTIVATION_SARSCOV2 | 57 | 0.6945776 | 1.870083 | 0.0 | 7.733607E-04 | 0.038 | 2159 | tags=44%, list=14%, signal=51% |
| WP_MONOAMINE_TRANSPORT | 24 | 0.8145303 | 1.8481959 | 0.0 | 0.0014609734 | 0.073 | 583 | tags=29%, list=4%, signal=30% |

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|--|------|------------|-----------|----------------------|--------------|------------|-------------|--------------------------------|
| | | | | p-val | · | · | | |
| WP_INTERLEUKIN1_IL1_STRUCTURAL_PATH WAY | 46 | 0.70582145 | 1.8447814 | 0.0 | 0.001608931 | 0.082 | 1480 | tags=33%, list=10%, signal=36% |
| WP_TOLLLIKE_RECEPTOR_SIGNALING_REL ATED_TO_MYD88 | 25 | 0.7909123 | 1.8427594 | 0.0 | 0.0017363471 | 0.09 | 1864 | tags=56%, list=12%, signal=64% |
| WP_ARYL_HYDROCARBON_RECEPTOR_PAT HWAY_WP2873 | 28 | 0.7691323 | 1.8377645 | 0.0 | 0.0019163375 | 0.101 | 1579 | tags=43%, list=10%, signal=48% |
| WP_P53_TRANSCRIPTIONAL_GENE_NETWO RK | 60 | 0.6803107 | 1.8333062 | 0.0 | 0.002092862 | 0.111 | 1250 | tags=27%, list=8%, signal=29% |
| WP_TCELL_ANTIGEN_RECEPTOR_TCR_PAT HWAY_DURING_STAPHYLOCOCCUS_AUREUS _INFECTION | 43 | 0.72721136 | 1.8311056 | 0.001 51285 92 | 0.00213672 | 0.115 | 1877 | tags=35%, list=12%, signal=40% |
| WP_DEVELOPMENT_AND_HETEROGENEITY _OF_THE_ILC_FAMILY | 18 | 0.8514459 | 1.8310802 | 0.0 | 0.0021078456 | 0.115 | 572 | tags=44%, list=4%, signal=46% |
| WP_SARS_CORONAVIRUS_AND_INNATE_IMM UNITY | 16 | 0.85216695 | 1.8307209 | 0.0 | 0.0020797409 | 0.115 | 1005 | tags=63%, list=7%, signal=67% |
| WP_INTERACTIONS_BETWEEN_IMMUNE_CE LLS_AND_MICRORNAS_IN_TUMOR_MICROE NVIRONMENT | 15 | 0.867825 | 1.8227766 | 0.001 71232 88 | 0.002330436 | 0.13 | 598 | tags=47%, list=4%, signal=49% |
| WP_16P112_DISTAL_DELETION_SYNDROME | 22 | 0.7948648 | 1.8179435 | 0.001 66112 95 | 0.002434724 | 0.137 | 1451 | tags=41%, list=9%, signal=45% |
| WP_INTERLEUKINII_SIGNALING_PATHWAY | 41 | 0.71838546 | 1.8166027 | 0.0 | 0.0025028368 | 0.142 | 2206 | tags=44%, list=14%, signal=51% |
| WP_OVERVIEW_OF_NANOPARTICLE_EFFEC TS | 15 | 0.85610974 | 1.8136523 | 0.0 | 0.0026397721 | 0.151 | 828 | tags=47%, list=5%, signal=49% |
| WP_KYNURENINE_PATHWAY_AND_LINKS_T O_CELL_SENESCENCE | 17 | 0.815249 | 1.8111843 | 0.0 | 0.0026884428 | 0.155 | 572 | tags=35%, list=4%, signal=37% |
| WP_RAC1PAK1P38MMP2_PATHWAY | 58 | 0.6912336 | 1.8091458 | 0.0 | 0.0028036505 | 0.16 | 2482 | tags=41%, list=16%, signal=49% |
| WP_MITOCHONDRIAL_IMMUNE_RESPONSE_ TO_SARSCOV2 | 24 | 0.7867584 | 1.8051873 | 0.0 | 0.0030454542 | 0.174 | 492 | tags=29%, list=3%, signal=30% |
| WP_IL7_SIGNALING_PATHWAY | 22 | 0.7961588 | 1.8041968 | 0.001 63934 43 | 0.0031371878 | 0.182 | 1534 | tags=50%, list=10%, signal=55% |
| WP_IL1_AND_MEGAKARYOCYTES_IN_OBESI TY | 16 | 0.8367271 | 1.7895049 | 0.0 | 0.0040906304 | 0.23 | 607 | tags=50%, list=4%, signal=52% |
| WP_TRYPTOPHAN_METABOLISM | 25 | 0.76520467 | 1.7867551 | 0.001 61812 3 | 0.004199801 | 0.235 | 439 | tags=28%, list=3%, signal=29% |

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|---|------|------------|-----------|----------------------|--------------|------------|-------------|--------------------------------|
| | | | | p-val | | | | |
| WP_TGFBETA_RECEPTOR_SIGNALING | 46 | 0.69577706 | 1.7866969 | 0.001 46198 83 | 0.0041657547 | 0.235 | 1105 | tags=30%, list=7%, signal=33% |
| WP_VITAMIN_D_IN_INFLAMMATORY_DISEA SES | 22 | 0.7806111 | 1.7828939 | 0.003 26264 28 | 0.004421795 | 0.248 | 1365 | tags=41%, list=9%, signal=45% |
| WP_RELATIONSHIP_BETWEEN_INFLAMMAT ION_COX2_AND_EGFR | 20 | 0.7908796 | 1.7783753 | 0.003 24675 32 | 0.0047783284 | 0.272 | 1002 | tags=30%, list=6%, signal=32% |
| WP_PI3KAKTMTOR_VITD3_SIGNALING | 17 | 0.80475545 | 1.775132 | 0.0 | 0.004888491 | 0.278 | 1534 | tags=47%, list=10%, signal=52% |
| WP_STING_PATHWAY_IN_KAWASAKILIKE_DI SEASE_AND_COVID19 | 17 | 0.8221489 | 1.7693853 | 0.0 | 0.005433562 | 0.304 | 1514 | tags=53%, list=10%, signal=59% |
| WP_MODULATORS_OF_TCR_SIGNALING_AN D_T_CELL_ACTIVATION | 42 | 0.6892324 | 1.768283 | 0.0 | 0.0054318346 | 0.308 | 1930 | tags=38%, list=13%, signal=43% |
| WP_RESISTIN_AS_A_REGULATOR_OF_INFLA MMATION | 27 | 0.748449 | 1.7617979 | 0.006 58978 57 | 0.0061074435 | 0.345 | 1181 | tags=30%, list=8%, signal=32% |
| WP_OLIGODENDROCYTE_SPECIFICATION_A ND_DIFFERENTIATION_LEADING_TO_MYELI N_COMPONENTS_FOR_CNS | 28 | 0.7313474 | 1.7615058 | 0.001 55279 51 | 0.0060558245 | 0.345 | 734 | tags=25%, list=5%, signal=26% |
| WP_TGFBETA_RECEPTOR_SIGNALING_IN_S KELETAL_DYSPLASIAS | 49 | 0.6826367 | 1.7512733 | 0.0 | 0.0071718376 | 0.404 | 1105 | tags=29%, list=7%, signal=31% |
| WP_ARYL_HYDROCARBON_RECEPTOR_PAT HWAY_WP2586 | 41 | 0.68494356 | 1.749191 | 0.001 47929 | 0.0072780517 | 0.412 | 1579 | tags=34%, list=10%, signal=38% |
| WP_TRANSCRIPTION_FACTOR_REGULATIO N_IN_ADIPOGENESIS | 17 | 0.80529857 | 1.7428292 | 0.0 | 0.007959309 | 0.44 | 922 | tags=29%, list=6%, signal=31% |
| WP_PROLACTIN_SIGNALING_PATHWAY | 67 | 0.6355698 | 1.7421681 | 0.001 34770 89 | 0.007932079 | 0.44 | 1688 | tags=33%, list=11%, signal=37% |
| WP_LEPTIN_SIGNALING_PATHWAY | 72 | 0.62663645 | 1.7415162 | 0.0 | 0.007944842 | 0.444 | 2590 | tags=35%, list=17%, signal=42% |
| WP_ZINC_HOMEOSTASIS | 29 | 0.7164053 | 1.7414311 | 0.001 53846 15 | 0.007890857 | 0.445 | 995 | tags=45%, list=6%, signal=48% |
| WP_PI3KAKT_SIGNALING_PATHWAY | 238 | 0.5476732 | 1.7377964 | 0.0 | 0.008274985 | 0.465 | 2422 | tags=33%, list=16%, signal=38% |
| WP_FOCAL_ADHESION | 161 | 0.56180054 | 1.735664 | 0.0 | 0.008528019 | 0.48 | 2072 | tags=30%, list=13%, signal=34% |
| WP_AGERAGE_PATHWAY | 57 | 0.6463289 | 1.7347735 | 0.001 48148 15 | 0.0085974345 | 0.489 | 2131 | tags=32%, list=14%, signal=37% |

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| | | | | p-val | | | | |
| WP_METABOLISM_OF_SPINGOLIPIDS_IN_ER _AND_GOLGI_APPARATUS | 18 | 0.7739115 | 1.733022 | 0.001 66666 67 | 0.008757096 | 0.497 | 434 | tags=22%, list=3%, signal=23% |
| WP_IL2_SIGNALING_PATHWAY | 34 | 0.69560665 | 1.7281932 | 0.006 06980 27 | 0.009345271 | 0.523 | 2159 | tags=47%, list=14%, signal=55% |
| WP_DNA_DAMAGE_RESPONSE_ONLY_ATM_ DEPENDENT | 95 | 0.5959135 | 1.7208059 | 0.0 | 0.010347939 | 0.559 | 1688 | tags=28%, list=11%, signal=32% |
| WP_NEOVASCULARISATION_PROCESSES | 31 | 0.71770763 | 1.7206157 | 0.001 52439 02 | 0.010273997 | 0.56 | 1574 | tags=39%, list=10%, signal=43% |
| WP_UNFOLDED_PROTEIN_RESPONSE | 24 | 0.74902576 | 1.7167554 | 0.011 07594 9 | 0.01073494 | 0.581 | 2124 | tags=42%, list=14%, signal=48% |
| WP_NAD_BIOSYNTHETIC_PATHWAYS | 21 | 0.7524537 | 1.7131215 | 0.004 93421 03 | 0.011138227 | 0.601 | 322 | tags=19%, list=2%, signal=19% |
| WP_NAD_METABOLISM_IN_ONCOGENEINDU CED_SENESCENCE_AND_MITOCHONDRIAL_ DYSFUNCTIONASSOCIATED_SENESCENCE | 22 | 0.75470716 | 1.7122788 | 0.003 36700 33 | 0.011218798 | 0.604 | 1561 | tags=36%, list=10%, signal=40% |
| WP_TGFBETA_SIGNALING_PATHWAY | 123 | 0.5788204 | 1.7072226 | 0.0 | 0.011921808 | 0.633 | 1556 | tags=28%, list=10%, signal=30% |
| WP_MICROGLIA_PATHOGEN_PHAGOCYTOSI S_PATHWAY | 20 | 0.765763 | 1.707069 | 0.008 25082 5 | 0.011838201 | 0.634 | 1271 | tags=40%, list=8%, signal=44% |
| WP_WHITE_FAT_CELL_DIFFERENTIATION | 24 | 0.74538434 | 1.7043871 | 0.006 53594 8 | 0.012227738 | 0.65 | 1345 | tags=33%, list=9%, signal=36% |
| WP_COMPLEMENT_AND_COAGULATION_CA SCADES | 31 | 0.7088154 | 1.6994889 | 0.001 49700 6 | 0.012773982 | 0.666 | 968 | tags=39%, list=6%, signal=41% |
| WP_HOSTPATHOGEN_INTERACTION_OF_HU MAN_CORONAVIRUSES_APOPTOSIS | 17 | 0.76820004 | 1.6966451 | 0.003 29489 28 | 0.013137995 | 0.681 | 1646 | tags=35%, list=11%, signal=39% |
| WP_CIRCADIAN_RHYTHM_GENES | 151 | 0.5578142 | 1.695207 | 0.0 | 0.01333652 | 0.69 | 2438 | tags=28%, list=16%, signal=33% |
| WP_SUDDEN_INFANT_DEATH_SYNDROME_SI DS_SUSCEPTIBILITY_PATHWAYS | 120 | 0.5684004 | 1.6841302 | 0.0 | 0.015516482 | 0.744 | 1556 | tags=22%, list=10%, signal=24% |
| WP_BLADDER_CANCER | 38 | 0.6779362 | 1.6758355 | 0.003 07219 66 | 0.017376743 | 0.797 | 1603 | tags=32%, list=10%, signal=35% |
| WP_VEGFAVEGFR2_SIGNALING_PATHWAY | 392 | 0.5102096 | 1.6751335 | 0.0 | 0.017443066 | 0.798 | 2569 | tags=32%, list=17%, signal=37% |
| WP_FAS_LIGAND_PATHWAY_AND_STRESS_IN DUCTION_OF_HEAT_SHOCK_PROTEINS | 40 | 0.6606856 | 1.6730505 | 0.006 10687 02 | 0.017744701 | 0.805 | 1646 | tags=28%, list=11%, signal=31% |

| NAME | SIZE | ES | NES | NOM | FDR q-val | FWER p-val | RANK AT MAX | LEADING EDGE |
|---|------|------------|-----------|----------------------|-------------|------------|-------------|--------------------------------|
| | | | | p-val | | | | |
| WP_NONALCOHOLIC_FATTY_LIVER_DISEAS E | 138 | 0.5636175 | 1.6708754 | 0.0 | 0.018016294 | 0.812 | 1181 | tags=15%, list=8%, signal=16% |
| WP_TP53_NETWORK | 16 | 0.7703647 | 1.6672356 | 0.013 60544 2 | 0.0186729 | 0.823 | 2086 | tags=50%, list=14%, signal=58% |
| WP_MAMMARY_GLAND_DEVELOPMENT_PA THWAY_PREGNANCY_AND_LACTATION_STA GE_3_OF_4 | 20 | 0.7406678 | 1.6475257 | 0.011 74496 7 | 0.023873953 | 0.891 | 1447 | tags=45%, list=9%, signal=50% |
| WP_GPCRS_CLASS_A_RHODOPSINLIKE | 60 | 0.6040587 | 1.6462532 | 0.009 45945 9 | 0.023990309 | 0.892 | 927 | tags=23%, list=6%, signal=25% |
| WP_NETRINUNC5B_SIGNALING_PATHWAY | 44 | 0.6408413 | 1.6401695 | 0.005 76368 86 | 0.025722146 | 0.908 | 873 | tags=18%, list=6%, signal=19% |
| WP_PDGF_PATHWAY | 39 | 0.64215994 | 1.6357043 | 0.014 61988 3 | 0.026954645 | 0.919 | 1005 | tags=23%, list=7%, signal=25% |
| WP_PDGFRBETA_PATHWAY | 29 | 0.6759458 | 1.6316621 | 0.018 92744 6 | 0.02786297 | 0.928 | 1688 | tags=34%, list=11%, signal=39% |
| WP_MATRIX_METALLOPROTEINASES | 17 | 0.7523358 | 1.6300045 | 0.010 41666 7 | 0.028207548 | 0.93 | 754 | tags=35%, list=5%, signal=37% |
| WP_NRPITRIGGERED_SIGNALING_PATHWAY S_IN_PANCREATIC_CANCER | 46 | 0.6205853 | 1.6277413 | 0.007 32064 43 | 0.028646626 | 0.936 | 1995 | tags=33%, list=13%, signal=37% |
| WP_CCL18_SIGNALING_PATHWAY | 40 | 0.6499133 | 1.6275649 | 0.010 71975 5 | 0.028485691 | 0.936 | 1657 | tags=40%, list=11%, signal=45% |
| WP_IL3_SIGNALING_PATHWAY | 39 | 0.64902073 | 1.6089721 | 0.018 09954 8 | 0.03504387 | 0.967 | 1688 | tags=33%, list=11%, signal=37% |
| WP_B_CELL_RECEPTOR_SIGNALING_PATH WAY | 78 | 0.5675189 | 1.5991452 | 0.008 10810 8 | 0.038854055 | 0.979 | 2058 | tags=31%, list=13%, signal=35% |
| WP_COMPLEMENT_SYSTEM_IN_NEURONAL _DEVELOPMENT_AND_PLASTICITY | 74 | 0.5809284 | 1.5990539 | 0.014 98637 6 | 0.038630117 | 0.979 | 1271 | tags=26%, list=8%, signal=28% |
| WP_INTERFERON_TYPE_I_SIGNALING_PATH WAYS | 48 | 0.6167446 | 1.5960311 | 0.007 51879 7 | 0.0395745 | 0.979 | 1365 | tags=29%, list=9%, signal=32% |
| WP_ALZHEIMERS_DISEASE | 212 | 0.51283616 | 1.5950574 | 0.001 14155 25 | 0.03963491 | 0.982 | 2892 | tags=30%, list=19%, signal=37% |
| WP_PROSTAGLANDIN_SYNTHESIS_AND_REG ULATION | 33 | 0.6469734 | 1.5942667 | 0.012 38390 1 | 0.039654814 | 0.982 | 1746 | tags=36%, list=11%, signal=41% |
| WP_EPO_RECEPTOR_SIGNALING | 22 | 0.7114379 | 1.5918862 | 0.012 61829 7 | 0.04040636 | 0.984 | 2131 | tags=41%, list=14%, signal=47% |

| NAME | SIZE | ES | NES | NOM p-val | FDR q-val | FWER p-val | RANK AT MAX | LEADING EDGE |
|---|------|------------|-----------|---------------------|-------------|------------|-------------|--------------------------------|
| WP_SPHINGOLIPID_METABOLISM_OVERVIE W | 20 | 0.70340496 | 1.5904427 | 0.035 08772 | 0.04065786 | 0.985 | 733 | tags=20%, list=5%, signal=21% |
| WP_P38_MAPK_SIGNALING_PATHWAY | 34 | 0.6342597 | 1.577959 | 0.018 46153 8 | 0.04572554 | 0.989 | 2567 | tags=44%, list=17%, signal=53% |
| WP_ALZHEIMERS_DISEASE_AND_MIRNA_EF FECTS | 218 | 0.49975726 | 1.569135 | 0.0 | 0.04940418 | 0.992 | 2892 | tags=30%, list=19%, signal=37% |
| WP_KIT_RECEPTOR_SIGNALING_PATHWAY | 50 | 0.59421355 | 1.5683656 | 0.023 49486 | 0.049443617 | 0.993 | 2159 | tags=32%, list=14%, signal=37% |

Primary Progressive MS

| NAME | SIZE | ES | NES | NOM p-val | FDR q-val | FWER p-val | RANK AT MAX | LEADING EDGE |
|--|------|----------------|-----------|--------------|-----------|------------|----------------|-------------------------------|
| WP_NETWORK_MAP_OF_SARSCOV2_SIGNAL ING_PATHWAY | 140 | 0.841674 3 | 2.5171986 | 0.0 | 0.0 | 0.0 | 667 | tags=36%, list=5%, signal=37% |
| WP_SARSCOV2_INNATE_IMMUNITY_EVASIO N_AND_CELLSPECIFIC_IMMUNE_RESPONSE | 49 | 0.886783 24 | 2.3178513 | 0.0 | 0.0 | 0.0 | 538 | tags=43%, list=4%, signal=44% |
| WP_IL18_SIGNALING_PATHWAY | 205 | 0.726526 44 | 2.2894146 | 0.0 | 0.0 | 0.0 | 640 | tags=21%, list=5%, signal=22% |
| WP_APOPTOSIS | 72 | 0.812922 7 | 2.27818 | 0.0 | 0.0 | 0.0 | 1027 | tags=42%, list=7%, signal=45% |
| WP_OVERVIEW_OF_PROINFLAMMATORY_A ND_PROFIBROTIC_MEDIATORS | 41 | 0.887834 | 2.2694774 | 0.0 | 0.0 | 0.0 | 351 | tags=54%, list=3%, signal=55% |
| WP_BURN_WOUND_HEALING | 68 | 0.810561 24 | 2.2403815 | 0.0 | 0.0 | 0.0 | 531 | tags=34%, list=4%, signal=35% |
| WP_MEASLES_VIRUS_INFECTION | 98 | 0.762394 8 | 2.2009072 | 0.0 | 0.0 | 0.0 | 1027 | tags=33%, list=7%, signal=35% |
| WP_TYPE_II_INTERFERON_SIGNALING_IFN G | 25 | 0.948661 9 | 2.1853225 | 0.0 | 0.0 | 0.0 | 493 | tags=80%, list=4%, signal=83% |
| WP_ALLOGRAFT_REJECTION | 47 | 0.845591 3 | 2.1823392 | 0.0 | 0.0 | 0.0 | 544 | tags=36%, list=4%, signal=38% |
| WP_TCELL_RECEPTOR_TCR_SIGNALING_PA THWAY | 61 | 0.789179 5 | 2.1414387 | 0.0 | 0.0 | 0.0 | 804 | tags=28%, list=6%, signal=29% |
| WP_PHOTODYNAMIC_THERAPYINDUCED_N FKB_SURVIVAL_SIGNALING | 31 | 0.891613 84 | 2.1293588 | 0.0 | 0.0 | 0.0 | 916 | tags=58%, list=7%, signal=62% |

| WP_CYTOSOLIC_DNASENSING_PATHWAY | 50 | 0.816052 56 | 2.1234808 | 0.0 | 0.0 | 0.0 | 696 | tags=34%, list=5%, signal=36% |
|---|-----|----------------|-----------|-----|---------------|-------|------|--------------------------------|
| WP_LUNG_FIBROSIS | 41 | 0.842905 76 | 2.1137254 | 0.0 | 0.0 | 0.0 | 328 | tags=29%, list=2%, signal=30% |
| WP_IMMUNE_RESPONSE_TO_TUBERCULOSI S | 22 | 0.929373 15 | 2.111819 | 0.0 | 0.0 | 0.0 | 555 | tags=77%, list=4%, signal=80% |
| WP_TNFALPHA_SIGNALING_PATHWAY | 85 | 0.740361 15 | 2.0909088 | 0.0 | 0.0 | 0.0 | 1049 | tags=26%, list=8%, signal=28% |
| WP_TOLLLIKE_RECEPTOR_SIGNALING_PAT HWAY | 68 | 0.765821 75 | 2.0847425 | 0.0 | 0.0 | 0.0 | 1034 | tags=31%, list=8%, signal=33% |
| WP_APOPTOSIS_MODULATION_AND_SIGNAL ING | 77 | 0.748187 36 | 2.0831509 | 0.0 | 0.0 | 0.0 | 1027 | tags=38%, list=7%, signal=40% |
| WP_NOVEL_INTRACELLULAR_COMPONENT S_OF_RIGILIKE_RECEPTOR_RLR_PATHWAY | 47 | 0.809421 2 | 2.075123 | 0.0 | 0.0 | 0.0 | 640 | tags=32%, list=5%, signal=33% |
| WP_MIRNAS_INVOLVEMENT_IN_THE_IMMU NE_RESPONSE_IN_SEPSIS | 30 | 0.866755 07 | 2.0737503 | 0.0 | 0.0 | 0.0 | 352 | tags=40%, list=3%, signal=41% |
| WP_VITAMIN_D_RECEPTOR_PATHWAY | 87 | 0.731976 33 | 2.066398 | 0.0 | 0.0 | 0.0 | 601 | tags=21%, list=4%, signal=21% |
| WP_VITAMIN_B12_METABOLISM | 35 | 0.842199 4 | 2.0618591 | 0.0 | 0.0 | 0.0 | 640 | tags=31%, list=5%, signal=33% |
| WP_CHEMOKINE_SIGNALING_PATHWAY | 108 | 0.703501 34 | 2.0607824 | 0.0 | 0.0 | 0.0 | 749 | tags=20%, list=5%, signal=21% |
| WP_PHOTODYNAMIC_THERAPYINDUCED_HI FI_SURVIVAL_SIGNALING | 33 | 0.832294 7 | 2.050077 | 0.0 | 0.0 | 0.0 | 1018 | tags=52%, list=7%, signal=55% |
| WP_FOLATE_METABOLISM | 46 | 0.806521 53 | 2.0428612 | 0.0 | 0.0 | 0.0 | 640 | tags=28%, list=5%, signal=30% |
| WP_PROTEASOME_DEGRADATION | 60 | 0.75099 | 2.02764 | 0.0 | 0.0 | 0.0 | 2933 | tags=77%, list=21%, signal=97% |
| WP_TYPE_I_INTERFERON_INDUCTION_AND_ SIGNALING_DURING_SARSCOV2_INFECTION | 24 | 0.882519 54 | 2.0214198 | 0.0 | 4.8184156E-05 | 0.001 | 555 | tags=58%, list=4%, signal=61% |
| WP_HOSTPATHOGEN_INTERACTION_OF_HU MAN_CORONAVIRUSES_INTERFERON_INDU CTION | 32 | 0.835198 | 2.0213861 | 0.0 | 4.639956E-05 | 0.001 | 1027 | tags=53%, list=7%, signal=57% |
| WP_APOPTOSISRELATED_NETWORK_DUE_T O_ALTERED_NOTCH3_IN_OVARIAN_CANCER | 51 | 0.761743 6 | 2.0083542 | 0.0 | 9.085628E-05 | 0.002 | 1055 | tags=35%, list=8%, signal=38% |
| WP_PROSTAGLANDIN_SIGNALING | 16 | 0.943323 25 | 2.000777 | 0.0 | 8.77233E-05 | 0.002 | 300 | tags=56%, list=2%, signal=57% |
| | | • | | | - | | | |

| WP_NONGENOMIC_ACTIONS_OF_125_DIHYD ROXYVITAMIN_D3 | 57 | 0.756101 4 | 1.9950103 | 0.0 | 8.479919E-05 | 0.002 | 994 | tags=32%, list=7%, signal=34% |
|---|-----|----------------|-----------|-----|---------------|-------|------|--------------------------------|
| WP_SELENIUM_MICRONUTRIENT_NETWOR K | 62 | 0.744975 4 | 1.9938995 | 0.0 | 8.2063736E-05 | 0.002 | 1240 | tags=31%, list=9%, signal=34% |
| WP_COMPLEMENT_SYSTEM | 42 | 0.784026 74 | 1.9899573 | 0.0 | 7.9499245E-05 | 0.002 | 1006 | tags=38%, list=7%, signal=41% |
| WP_GLUCOCORTICOID_RECEPTOR_PATHW AY | 54 | 0.746505 6 | 1.9831179 | 0.0 | 1.1667203E-04 | 0.003 | 1283 | tags=31%, list=9%, signal=35% |
| WP_ONCOSTATIN_M_SIGNALING_PATHWAY | 59 | 0.725705 74 | 1.9765967 | 0.0 | 1.1324051E-04 | 0.003 | 749 | tags=32%, list=5%, signal=34% |
| WP_NUCLEOTIDEBINDING_OLIGOMERIZATI ON_DOMAIN_NOD_PATHWAY | 28 | 0.828578 8 | 1.9694114 | 0.0 | 1.47181E-04 | 0.004 | 640 | tags=29%, list=5%, signal=30% |
| WP_ANTIVIRAL_AND_ANTIINFLAMMATORY _EFFECTS_OF_NRF2_ON_SARSCOV2_PATHW AY | 24 | 0.852844 95 | 1.9599752 | 0.0 | 1.4309265E-04 | 0.004 | 1101 | tags=42%, list=8%, signal=45% |
| WP_SIGNAL_TRANSDUCTION_THROUGH_IL1 R | 30 | 0.819900 4 | 1.9494619 | 0.0 | 1.3922527E-04 | 0.004 | 804 | tags=33%, list=6%, signal=35% |
| WP_TCELL_ACTIVATION_SARSCOV2 | 56 | 0.728004 75 | 1.9483792 | 0.0 | 1.3556145E-04 | 0.004 | 804 | tags=20%, list=6%, signal=21% |
| WP_MITOCHONDRIAL_IMMUNE_RESPONSE_ TO_SARSCOV2 | 23 | 0.836705 2 | 1.9326507 | 0.0 | 2.3397E-04 | 0.007 | 315 | tags=30%, list=2%, signal=31% |
| WP_EBOLA_VIRUS_INFECTION_IN_HOST | 110 | 0.648540 6 | 1.9188993 | 0.0 | 3.2436053E-04 | 0.01 | 1883 | tags=33%, list=14%, signal=38% |
| WP_PHOTODYNAMIC_THERAPYINDUCED_A PI_SURVIVAL_SIGNALING | 43 | 0.748689 2 | 1.9147198 | 0.0 | 3.526586E-04 | 0.011 | 1200 | tags=30%, list=9%, signal=33% |
| WP_TNFRELATED_WEAK_INDUCER_OF_APO PTOSIS_TWEAK_SIGNALING_PATHWAY | 38 | 0.779679 | 1.9084976 | 0.0 | 3.733337E-04 | 0.012 | 1027 | tags=39%, list=7%, signal=43% |
| WP_OXIDATIVE_DAMAGE_RESPONSE | 35 | 0.776132 64 | 1.9069188 | 0.0 | 3.6465153E-04 | 0.012 | 1027 | tags=29%, list=7%, signal=31% |
| WP_16P112_DISTAL_DELETION_SYNDROME | 22 | 0.833397 75 | 1.8949335 | 0.0 | 5.100415E-04 | 0.017 | 767 | tags=32%, list=6%, signal=34% |
| WP_EBSTEINBARR_VIRUS_LMP1_SIGNALING | 21 | 0.827653 47 | 1.8890151 | 0.0 | 5.8683654E-04 | 0.02 | 640 | tags=29%, list=5%, signal=30% |
| WP_THYMIC_STROMAL_LYMPHOPOIETIN_T SLP_SIGNALING_PATHWAY | 36 | 0.757861 4 | 1.881513 | 0.0 | 7.7176205E-04 | 0.027 | 675 | tags=28%, list=5%, signal=29% |
| WP_TLR4_SIGNALING_AND_TOLERANCE | 25 | 0.805694 7 | 1.8719863 | 0.0 | 9.775457E-04 | 0.035 | 1665 | tags=44%, list=12%, signal=50% |
| | | | | L | | | | |

| WP_STING_PATHWAY_IN_KAWASAKILIKE_DI SEASE_AND_COVID19 | 16 | 0.875207 66 | 1.8679901 | 0.0 | 0.001041217 | 0.038 | 640 | tags=44%, list=5%, signal=46% |
|--|-----|----------------|-----------|------------------|--------------|-------|------|--------------------------------|
| WP_VITAMIN_D_IN_INFLAMMATORY_DISEA SES | 22 | 0.832773 | 1.867988 | 0.0 | 0.0010199677 | 0.038 | 640 | tags=32%, list=5%, signal=33% |
| WP_IL1_AND_MEGAKARYOCYTES_IN_OBESI TY | 15 | 0.883843 4 | 1.8678564 | 0.0 | 9.995683E-04 | 0.038 | 276 | tags=47%, list=2%, signal=48% |
| WP_UNFOLDED_PROTEIN_RESPONSE | 23 | 0.827905 65 | 1.8662845 | 0.0 | 0.0010574518 | 0.04 | 1442 | tags=48%, list=10%, signal=53% |
| WP_PHOTODYNAMIC_THERAPYINDUCED_U NFOLDED_PROTEIN_RESPONSE | 25 | 0.797610 46 | 1.8658231 | 0.0 | 0.0010371162 | 0.04 | 2033 | tags=64%, list=15%, signal=75% |
| WP_TCELL_ANTIGEN_RECEPTOR_TCR_PAT HWAY_DURING_STAPHYLOCOCCUS_AUREUS _INFECTION | 40 | 0.750591 9 | 1.8657905 | 0.0 | 0.0010175479 | 0.04 | 804 | tags=20%, list=6%, signal=21% |
| WP_RANKLRANK_SIGNALING_PATHWAY | 49 | 0.712551 53 | 1.8639175 | 0.0 | 0.0010473524 | 0.042 | 1027 | tags=24%, list=7%, signal=26% |
| WP_ACUTE_VIRAL_MYOCARDITIS | 61 | 0.692687 | 1.8583726 | 0.001490 313 | 0.0011940836 | 0.049 | 1731 | tags=31%, list=13%, signal=35% |
| WP_SARS_CORONAVIRUS_AND_INNATE_IMM UNITY | 16 | 0.852381 94 | 1.8566206 | 0.001808 3183 | 0.0011949668 | 0.05 | 1246 | tags=69%, list=9%, signal=75% |
| WP_NUCLEAR_RECEPTORS_METAPATHWAY | 203 | 0.594170 03 | 1.8520473 | 0.0 | 0.0013332726 | 0.056 | 1340 | tags=23%, list=10%, signal=25% |
| WP_FIBRIN_COMPLEMENT_RECEPTOR_3_SI GNALING_PATHWAY | 28 | 0.778631 15 | 1.848092 | 0.0 | 0.0014012238 | 0.06 | 640 | tags=21%, list=5%, signal=22% |
| WP_HEPATITIS_B_INFECTION | 122 | 0.629470 35 | 1.845948 | 0.0 | 0.0014642744 | 0.063 | 1731 | tags=28%, list=13%, signal=32% |
| WP_HOSTPATHOGEN_INTERACTION_OF_HU MAN_CORONAVIRUSES_APOPTOSIS | 17 | 0.839460 2 | 1.8346934 | 0.0 | 0.0018807881 | 0.083 | 972 | tags=29%, list=7%, signal=32% |
| WP_DEVELOPMENT_AND_HETEROGENEITY _OF_THE_ILC_FAMILY | 15 | 0.865418 7 | 1.834636 | 0.003552 398 | 0.0018499555 | 0.083 | 303 | tags=20%, list=2%, signal=20% |
| WP_MONOAMINE_TRANSPORT | 20 | 0.817820 8 | 1.828873 | 0.0 | 0.0020575777 | 0.094 | 446 | tags=30%, list=3%, signal=31% |
| WP_IL6_SIGNALING_PATHWAY | 38 | 0.721032 4 | 1.8256203 | 0.001594 8963 | 0.0022083637 | 0.103 | 994 | tags=29%, list=7%, signal=31% |
| WP_RAC1PAK1P38MMP2_PATHWAY | 58 | 0.679056 9 | 1.8200969 | 0.0 | 0.0025438587 | 0.12 | 852 | tags=22%, list=6%, signal=24% |
| WP_ADIPOGENESIS | 92 | 0.626539 | 1.8190545 | 0.0 | 0.0025444985 | 0.122 | 636 | tags=17%, list=5%, signal=18% |
| | • | | | • | • | | • | |

| WP_FAS_LIGAND_PATHWAY_AND_STRESS_IN DUCTION_OF_HEAT_SHOCK_PROTEINS | 39 | 0.733250 9 | 1.8166662 | 0.0 | 0.0025059455 | 0.122 | 804 | tags=23%, list=6%, signal=24% |
|--|----|----------------|-----------|------------------|--------------|-------|------|--------------------------------|
| WP_SMALL_CELL_LUNG_CANCER | 86 | 0.637381 7 | 1.8160564 | 0.0 | 0.0024685434 | 0.122 | 1958 | tags=34%, list=14%, signal=39% |
| WP_INTERLEUKINI_ILI_STRUCTURAL_PATH WAY | 47 | 0.698471 84 | 1.812858 | 0.0 | 0.0025096752 | 0.126 | 1049 | tags=26%, list=8%, signal=28% |
| WP_IL4_SIGNALING_PATHWAY | 43 | 0.714332 64 | 1.8088355 | 0.0 | 0.0026211268 | 0.134 | 994 | tags=33%, list=7%, signal=35% |
| WP_HOSTPATHOGEN_INTERACTION_OF_HU MAN_CORONAVIRUSES_MAPK_SIGNALING | 32 | 0.742132 8 | 1.8037353 | 0.0 | 0.0028862753 | 0.149 | 968 | tags=25%, list=7%, signal=27% |
| WP_COMPLEMENT_AND_COAGULATION_CA SCADES | 26 | 0.764246 | 1.8006864 | 0.001692 0473 | 0.003028475 | 0.156 | 328 | tags=31%, list=2%, signal=31% |
| WP_INTERLEUKINII_SIGNALING_PATHWAY | 38 | 0.716571 | 1.7989442 | 0.0 | 0.0031917891 | 0.164 | 1292 | tags=32%, list=9%, signal=35% |
| WP_IL1_SIGNALING_PATHWAY | 53 | 0.668548 | 1.7892919 | 0.0 | 0.0038209558 | 0.198 | 1034 | tags=21%, list=8%, signal=22% |
| WP_COMPLEMENT_SYSTEM_IN_NEURONAL _DEVELOPMENT_AND_PLASTICITY | 68 | 0.663631 56 | 1.7844312 | 0.001519 7569 | 0.0040876204 | 0.211 | 817 | tags=24%, list=6%, signal=25% |
| WP_SPINAL_CORD_INJURY | 83 | 0.624092 94 | 1.7763811 | 0.001490 313 | 0.0049236743 | 0.25 | 831 | tags=18%, list=6%, signal=19% |
| WP_HEPATITIS_C_AND_HEPATOCELLULAR_ CARCINOMA | 43 | 0.686025 86 | 1.7687712 | 0.0 | 0.0055072624 | 0.273 | 1122 | tags=33%, list=8%, signal=35% |
| WP_OREXIN_RECEPTOR_PATHWAY | 98 | 0.613247 63 | 1.767521 | 0.0 | 0.005573579 | 0.279 | 1020 | tags=22%, list=7%, signal=24% |
| WP_TP53_NETWORK | 15 | 0.817342 64 | 1.7516785 | 0.003539 823 | 0.0073940363 | 0.352 | 984 | tags=40%, list=7%, signal=43% |
| WP_TOLLLIKE_RECEPTOR_SIGNALING_REL ATED_TO_MYD88 | 23 | 0.781203 9 | 1.7515047 | 0.003603 6037 | 0.0073004407 | 0.352 | 1665 | tags=52%, list=12%, signal=59% |
| WP_IL2_SIGNALING_PATHWAY | 34 | 0.709180 8 | 1.7449714 | 0.001567 3981 | 0.008013962 | 0.387 | 994 | tags=26%, list=7%, signal=28% |
| WP_OVERVIEW_OF_NANOPARTICLE_EFFEC TS | 15 | 0.822800 76 | 1.7420025 | 0.001872 6592 | 0.008286352 | 0.399 | 551 | tags=20%, list=4%, signal=21% |
| WP_NAD_METABOLISM_IN_ONCOGENEINDU CED_SENESCENCE_AND_MITOCHONDRIAL_ DYSFUNCTIONASSOCIATED_SENESCENCE | 22 | 0.768784 2 | 1.7408184 | 0.005281 69 | 0.008318337 | 0.405 | 640 | tags=18%, list=5%, signal=19% |
| WP_CCL18_SIGNALING_PATHWAY | 37 | 0.689056 34 | 1.7312636 | 0.0 | 0.009528425 | 0.456 | 747 | tags=30%, list=5%, signal=31% |
| | | | | | | | | |

| WP_ARYL_HYDROCARBON_RECEPTOR_PAT HWAY_WP2873 | 27 | 0.729186 3 | 1.7254555 | 0.001592 3567 | 0.010161928 | 0.481 | 1200 | tags=33%, list=9%, signal=36% |
|---|-----|----------------|-----------|------------------|-------------|-------|------|--------------------------------|
| WP_NANOMATERIAL_INDUCED_APOPTOSIS | 18 | 0.790647 5 | 1.7169679 | 0.003322 259 | 0.011364071 | 0.521 | 1887 | tags=44%, list=14%, signal=51% |
| WP_NAD_METABOLISM | 16 | 0.807574 87 | 1.7121116 | 0.0 | 0.012195611 | 0.547 | 401 | tags=25%, list=3%, signal=26% |
| WP_HEMATOPOIETIC_STEM_CELL_DIFFERE NTIATION | 30 | 0.713213 56 | 1.7044069 | 0.006557 377 | 0.013501813 | 0.586 | 394 | tags=17%, list=3%, signal=17% |
| WP_NONALCOHOLIC_FATTY_LIVER_DISEAS E | 135 | 0.563865 | 1.6965148 | 0.0 | 0.01526785 | 0.638 | 1018 | tags=15%, list=7%, signal=16% |
| WP_MODULATORS_OF_TCR_SIGNALING_AN D_T_CELL_ACTIVATION | 39 | 0.671371 16 | 1.6957729 | 0.003194 8881 | 0.015260222 | 0.64 | 640 | tags=15%, list=5%, signal=16% |
| WP_KYNURENINE_PATHWAY_AND_LINKS_T O_CELL_SENESCENCE | 15 | 0.793357 5 | 1.687665 | 0.013769 363 | 0.016534481 | 0.673 | 26 | tags=13%, list=0%, signal=13% |
| WP_MALIGNANT_PLEURAL_MESOTHELIOM A | 328 | 0.511643 77 | 1.6818203 | 0.0 | 0.017922623 | 0.699 | 1707 | tags=21%, list=12%, signal=24% |
| WP_MAPK_SIGNALING_PATHWAY | 184 | 0.531756 16 | 1.678627 | 0.0 | 0.018383017 | 0.711 | 1253 | tags=16%, list=9%, signal=18% |
| WP_METABOLISM_OF_SPINGOLIPIDS_IN_ER _AND_GOLGI_APPARATUS | 19 | 0.776653 9 | 1.6786227 | 0.006956 522 | 0.018185351 | 0.711 | 336 | tags=21%, list=2%, signal=22% |
| WP_TRANSCRIPTION_FACTOR_REGULATIO N_IN_ADIPOGENESIS | 17 | 0.778565 6 | 1.6752648 | 0.005067 5673 | 0.018690156 | 0.725 | 636 | tags=29%, list=5%, signal=31% |
| WP_AGERAGE_PATHWAY | 53 | 0.636407 2 | 1.6690569 | 0.003139 7175 | 0.020156985 | 0.75 | 804 | tags=26%, list=6%, signal=28% |
| WP_P53_TRANSCRIPTIONAL_GENE_NETWO RK | 57 | 0.624465 05 | 1.6677601 | 0.006106 8702 | 0.020317603 | 0.758 | 515 | tags=18%, list=4%, signal=18% |
| WP_MAMMARY_GLAND_DEVELOPMENT_PA THWAY_PREGNANCY_AND_LACTATION_STA GE_3_OF_4 | 20 | 0.753779 9 | 1.6676412 | 0.005102 0407 | 0.020163873 | 0.759 | 1200 | tags=40%, list=9%, signal=44% |
| WP_VEGFAVEGFR2_SIGNALING_PATHWAY | 382 | 0.498900 7 | 1.6596291 | 0.0 | 0.022132237 | 0.795 | 2287 | tags=33%, list=17%, signal=38% |
| WP_MIRNA_REGULATION_OF_DNA_DAMAG E_RESPONSE | 64 | 0.596059 | 1.6577069 | 0.004464 286 | 0.022532197 | 0.808 | 3529 | tags=53%, list=26%, signal=71% |
| WP_PDGF_PATHWAY | 38 | 0.661020 04 | 1.6527823 | 0.006589 7857 | 0.02356589 | 0.83 | 994 | tags=21%, list=7%, signal=23% |
| WP_PI3KAKTMTOR_VITD3_SIGNALING | 17 | 0.743097 3 | 1.6513274 | 0.017825 311 | 0.023784863 | 0.835 | 640 | tags=29%, list=5%, signal=31% |
| | | | • | • | | - | - | |

| WP_DNA_IRDAMAGE_AND_CELLULAR_RESP ONSE_VIA_ATR | 79 | 0.582358 1 | 1.6494387 | 0.0 | 0.024180366 | 0.843 | 3441 | tags=41%, list=25%, signal=54% |
|--|-----|----------------|-----------|-----------------|-------------|-------|------|--------------------------------|
| WP_AMYOTROPHIC_LATERAL_SCLEROSIS_ ALS | 34 | 0.689197 6 | 1.6483077 | 0.013093 29 | 0.024367742 | 0.85 | 1622 | tags=26%, list=12%, signal=30% |
| WP_PROLACTIN_SIGNALING_PATHWAY | 67 | 0.599303 8 | 1.6470913 | 0.007788 162 | 0.024513533 | 0.855 | 1143 | tags=28%, list=8%, signal=31% |
| WP_TGFBETA_RECEPTOR_SIGNALING_IN_S KELETAL_DYSPLASIAS | 48 | 0.631982 7 | 1.6363595 | 0.009375 | 0.02759889 | 0.891 | 1006 | tags=29%, list=7%, signal=31% |
| WP_TYPE_I_COLLAGEN_SYNTHESIS_IN_THE _CONTEXT_OF_OSTEOGENESIS_IMPERFECT A | 24 | 0.694601 4 | 1.6335548 | 0.015100 671 | 0.028209673 | 0.902 | 2614 | tags=46%, list=19%, signal=56% |
| WP_TYROBP_CAUSAL_NETWORK_IN_MICR OGLIA | 31 | 0.681849 06 | 1.6248558 | 0.012924 071 | 0.030999875 | 0.92 | 2293 | tags=39%, list=17%, signal=46% |
| WP_DNA_DAMAGE_RESPONSE | 61 | 0.600519 96 | 1.6230221 | 0.007342 144 | 0.03121458 | 0.922 | 3529 | tags=54%, list=26%, signal=72% |
| WP_IL17_SIGNALING_PATHWAY | 26 | 0.701504 35 | 1.6203731 | 0.015652 174 | 0.031880267 | 0.93 | 1027 | tags=27%, list=7%, signal=29% |
| WP_ALZHEIMERS_DISEASE | 210 | 0.511524 14 | 1.6105969 | 0.0 | 0.035045013 | 0.951 | 1892 | tags=25%, list=14%, signal=29% |
| WP_APOPTOSIS_MODULATION_BY_HSP70 | 18 | 0.744675 34 | 1.6095091 | 0.014311 27 | 0.03512027 | 0.954 | 1887 | tags=50%, list=14%, signal=58% |
| WP_NOCGMPPKG_MEDIATED_NEUROPROTE CTION | 29 | 0.692349 4 | 1.6069976 | 0.006655 574 | 0.03589534 | 0.955 | 640 | tags=17%, list=5%, signal=18% |
| WP_TGFBETA_RECEPTOR_SIGNALING | 46 | 0.622368 | 1.604408 | 0.018062 398 | 0.03645236 | 0.956 | 1006 | tags=28%, list=7%, signal=30% |
| WP_COPPER_HOMEOSTASIS | 49 | 0.611353 75 | 1.6004493 | 0.009375 | 0.037858542 | 0.96 | 1757 | tags=33%, list=13%, signal=37% |
| WP_MATRIX_METALLOPROTEINASES | 15 | 0.765531 36 | 1.5998932 | 0.014388 49 | 0.037699807 | 0.96 | 282 | tags=27%, list=2%, signal=27% |
| WP_DNA_REPLICATION | 40 | 0.632597 | 1.5949621 | 0.009022 556 | 0.039485663 | 0.966 | 3285 | tags=63%, list=24%, signal=82% |
| WP_NUCLEOTIDE_METABOLISM | 17 | 0.730908 75 | 1.5937599 | 0.019784 173 | 0.0396792 | 0.968 | 1794 | tags=53%, list=13%, signal=61% |
| WP_ARYL_HYDROCARBON_RECEPTOR_PAT HWAY_WP2586 | 39 | 0.640319 65 | 1.5916295 | 0.014586 709 | 0.040290836 | 0.971 | 1210 | tags=26%, list=9%, signal=28% |
| WP_P38_MAPK_SIGNALING_PATHWAY | 32 | 0.650987 86 | 1.5827457 | 0.014950 166 | 0.043665115 | 0.98 | 968 | tags=22%, list=7%, signal=23% |
| | | | | | | L | L | l |

| WP_NETRINUNC5B_SIGNALING_PATHWAY | 42 | 0.628960 85 | 1.5825516 | 0.009740 2595 | 0.04333469 | 0.98 | 804 | tags=19%, list=6%, signal=20% |
|--|-----|----------------|-----------|------------------|-------------|-------|------|--------------------------------|
| WP_NEUROINFLAMMATION_AND_GLUTAMA TERGIC_SIGNALING | 105 | 0.543209 4 | 1.5797768 | 0.0 | 0.044114888 | 0.982 | 1355 | tags=23%, list=10%, signal=25% |
| WP_TGFBETA_SIGNALING_PATHWAY | 121 | 0.527366 64 | 1.5664101 | 0.001398 6015 | 0.04976126 | 0.989 | 1772 | tags=29%, list=13%, signal=33% |
| WP_RESISTIN_AS_A_REGULATOR_OF_INFLA MMATION | 27 | 0.668920 76 | 1.5653554 | 0.020066 889 | 0.04986163 | 0.989 | 879 | tags=19%, list=6%, signal=20% |