**Table S1.** Probes and identified genes that overlapped between AN-active versus No Eating Disorder participants (NED) and

AN-active versus AN-remitted comparisons at *Q* <.01

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CpG** | **Gene Location** | | **Annotated Gene** | **Description of function and /or associated diseases** | ***t*-value** | |
| **chr** | **Relation to island** | **AN-active *vs*.**  **control** | **AN-active *vs*. remitted** |
| cg25924746 | chr13 | N\_Shore | IRS2 | Encodes the insulin receptor substrate 2 | -9.22 | -6.81 |
| cg18011760 | chr2 | OpenSea |  | - | -8.09 | -7.97 |
| cg04055490 | chr17 | N\_Shore | PER1 | Encodes components of the circadian rhythms of locomotor activity, metabolism, and behavior. | -7.85 | -7.62 |
| cg24166814 | chr2 | OpenSea |  | - | -7.74 | -7.12 |
| cg23597162 | chr7 | OpenSea | JAZF1 | Functions as a transcriptional repressor. Associated with endometrial stromal tumors and with type 2 diabetes and lipid metabolism. | 7.65 | 5.70 |
| cg11067407 | chr11 | OpenSea |  | - | 7.50 | 7.02 |
| cg24480146**B** | chr10 | S\_Shore |  | - | 7.40 | 6.64 |
| cg10438589 | chr4 | OpenSea | KLF9; MGC4836 | The protein encoded by this gene is a transcription factor that binds to GC box elements located in the promoter. | -7.15 | -5.21 |
| cg06983052 | chr1 | S\_Shore | LRRC8D | Acts as a regulator of glucose-sensing in pancreatic beta cells. | 7.10 | 6.66 |
| cg00323842 | chr5 | OpenSea | ZNF608 | Diseases associated with ZNF608 include leukodystrophy. | 7.08 | 8.26 |
| cg23198623 | chr2 | N\_Shelf | BUB1 | Encodes a serine/threonine-protein kinase that play a central role in mitosis. This protein may also function in the DNA damage response. Associated diseases are aneuploidy and several forms of cancer. | 7.06 | 6.61 |
| cg26033520 | chr10 | OpenSea |  | - | -6.95 | -6.00 |
| cg00049440 | chr9 | N\_Shore | KLF9 | The protein encoded by this gene is a transcription factor that binds to GC box elements located in the promoter. | 6.85 | 5.05 |
| cg05641843 | chr17 | S\_Shore | SENP3-EIF4A1;  SNORA48 | Affiliated with the lncRNA class. An important paralog of this gene is SENP3. | -6.81 | -5.66 |
| cg06804705 | chr21 | OpenSea | NCRNA00114 | RNA Gene, and is affiliated with the lncRNA class. One study showed an association with preterm birth (Xiumei et al., 2017) | -6.69 | -5.82 |
| cg26701785 | chr6 | OpenSea | SYNJ2; AK026758 | Associated diseases are Charcot-Marie-Tooth Disease, and amyotro-phic lateral sclerosis 11. | -6.69 | -5.21 |
| cg21416692 | chr1 | OpenSea | PHC2 | The specific function in human cells has not yet been determined. Associated diseases include conventional angiosarcoma and form agnosia. | -6.63 | -4.85 |
| cg07769588 | chr19 | S\_Shore | ATG4D | Plays a role in the biogenesis of autophagosomes, which sequester the cytosol and organelles for degradation by lysosomes | -6.54 | -6.28 |
| cg20975182 | chr1 | N\_Shore | BAI2 | Associated diseases include vibratory urticaria | -6.53 | -4.77 |
| cg25197194 | chr3 | OpenSea | CCDC48 | Associated diseases include nephronophthisis 1 | 6.43 | 5.53 |
| cg19257111 | chr15 | OpenSea | PTPLAD1 (aka HACD3) | Involved in biological processes. Promotes insulin receptor/INSR autophosphorylation and is involved in INSR internalization. | -6.42 | -5.67 |
| cg27554156 | chr12 | OpenSea | GSG1 | Plays a role in RNA polymerase binding | 6.30 | 5.62 |
| cg12999366 | chr7 | OpenSea | NOD1 | Plays a role in innate immunity (acts as a pattern-recognition receptor). Associated diseases include asthma, inflammatory bowel disease, bechet disease and sarcoidosis. | 6.25 | 4.52 |
| cg00602326 | chr5 | OpenSea | RNASEN (aka DROSHA) | Involved in the formation of GW bodies. Associated diseases include hereditary breast and ovarian cancer syndrome and pineoblastoma. | 6.25 | 5.8 |
| cg07027613 | chr12 | OpenSea | C1RL;  LOC283314 | Associated diseases include leukorrhea and ovary adenocarcinoma. | -6.23 | -4.58 |
| cg14422240 | chr6 | OpenSea | FTSJD2 | Associated diseases include murray valley encephalitis and vaccinia. | 6.19 | 5.75 |
| cg07134632 | chr4 | N\_Shelf | ADD1 | Associated with adipocytosis and insulin metabolism. Associated diseases include hypertension, essential and tracheoesophageal fistula | -6.15 | -5.57 |
| cg14195992 | chr8 | OpenSea | KIAA0146 | Associated diseases include ovarian dysgenesis 9 and genetic non-acquired premature ovarian failure. | -6.14 | -5.38 |
| cg01447828 | chr19 | OpenSea | PRX | Encodes a protein involved in peripheral nerve myelin upkeep | -6.01 | -6.61 |
| cg23944298 | chr3 | OpenSea | BX537548 | Unspecified. Associated diseases include Charcot-Marie-Tooth disease, Demyelinating and hypertrophic neuropathy of dejerine-sottas. | 5.98 | 4.75 |
| cg12671632 | chr6 | N\_Shore |  | - | -5.92 | -5.25 |
| cg05487134 | chr17 | OpenSea | STAT3 | Plays a key role in many cellular processes such as cell growth and apoptosis. This gene also plays a role in regulating host response to viral and bacterial infections. Associated diseases include infantile-onset multisystem autoimmune disease and hyper-immunoglobulin E syndrome. | 5.90 | 5.36 |
| cg06036471 | chr10 | OpenSea | CPEB3 | Nucleic acid binding and RNA binding. | 5.89 | 5.47 |
| cg17833746 | chr17 | OpenSea | STAT3 | Plays a key role in many cellular processes such as cell growth and apoptosis. This gene also plays a role in regulating host response to viral and bacterial infections. Associated diseases include infantile-onset multisystem autoimmune disease and hyper-immunoglobulin E syndrome. | 5.88 | 5.69 |
| cg18091264 | chr15 | OpenSea | SNORD18A; RPL4;  SNORD18B; SNORD16 | Encodes a ribosomal protein that is a component of the 60S subunit. Associated diseases include babesiosis and diamond-blackfan anemia | -5.86 | -4.60 |
| cg15512289 | chr1 | OpenSea |  | - | -5.84 | -4.54 |
| cg19373099 | chr2 | N\_Shelf |  | - | -5.78 | -5.53 |
| cg25221919 | chr1 | OpenSea |  | - | 5.76 | 5.08 |
| cg01883046 | chr2 | Island |  | - | 5.73 | 4.55 |
| cg22888848 | chr2 | OpenSea | EPHA4 | Implicated in mediating developmental events in the nervous system. | 5.71 | 4.56 |
| cg01423695 | chr7 | OpenSea | PRKAG2 | Monitors cellular energy status function, plays a key role in regulating cellular energy metabolism. | 5.67 | 5.27 |
| cg25570328 | chr2 | OpenSea | SULT1C2 | Encodes sulfotransferase activity | 5.58 | 5.03 |
| cg15104126 | chr12 | OpenSea | VWF | Encodes a glycoprotein involved in hemostasis. Function in the adhesion of platelets to sites of vascular injury and the transport of various proteins in the blood. | 5.57 | 4.88 |
| cg00024471 | chr3 | OpenSea | TPRG1 | Associated diseases include mixed liposarcoma. | 5.57 | 5.71 |
| cg26200585 | chr19 | OpenSea | PRX | Involved in peripheral nerve myelin upkeep. | -5.56 | -5.25 |
| cg05413285 | chr2 | OpenSea |  | - | -5.55 | -5.68 |
| cg17782974 | chr10 | S\_Shelf | TRIM8 | Regulation of gene may be altered in some cancers. Related to cytokine signaling in immune system. | -5.51 | -4.57 |
| cg15393221 | chr19 | OpenSea |  | - | -5.51 | -6.58 |
| cg14061067 | chr9 | OpenSea | BNC2 | Function in skin colour saturation. Associated with facial pigmented spots and adolescent idiopathic scoliosis. | -5.47 | -4.58 |
| cg07795968 | chr20 | OpenSea | JPH2 | Associated diseases include cardiomyopathy, familial hypertrophic, 17 and cardiomyopathy, dilated, 2E. | -5.46 | -5.45 |
| cg05901196 | chr10 | N\_Shore | CCDC6 | Encoded protein is ubiquitously expressed and may function as a tumor suppressor. Associated diseases include differentiated thyroid carcinoma and papillary carcinoma. Related pathway to endometrial cancer. | -5.44 | -5.39 |
| cg03546163 | chr6 | N\_Shore | FKBP5 | Stress, depression, immune functioning | -5.40 | -5.70 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| cg00968616 | chr17 | S\_Shelf | CUEDC1 | Inhibits epithelial-mesenchymal transition; Associated diseases include proximal symphalangism and Perrault syndrome. | 5.39 | 5.26 |
| cg21113746 | chr1 | N\_Shelf |  | - | -5.35 | -4.75 |
| cg01097897 | chr12 | OpenSea | PPM1H | Associated diseases include multiple endocrine neoplasia (type IV), and ADHD | 5.34 | 4.97 |
| cg10832076**A** | chr12 | OpenSea | SLCO1A2 | Mediating cellular uptake of organic ions in the liver. | -5.30 | -5.35 |
| cg17494199 | chr13 | OpenSea |  | - | -5.31 | -5.12 |
| cg01695994 | chr17 | N\_Shelf |  | - | 5.30 | 4.65 |
| cg07782285 | chr19 | OpenSea | DAND5 | May play a role in regulating organogenesis, body patterning, and tissue differentiation | -5.30 | -6.24 |
| cg15827092**A** | chr14 | OpenSea |  | - | -5.24 | -6.05 |
| cg22091236 | chr17 | N\_Shelf | RPTOR | Regulates cell growth in response to nutrient and insulin levels | 5.22 | 5.02 |
| cg12872357 | chr6 | N\_Shore |  | - | 5.22 | 4.59 |
| cg20552236 | chr15 | OpenSea | CSK | Associated diseases include osteopetrosis and lupus erythematosus. | -5.19 | -5.21 |
| cg03589820 | chr3 | OpenSea | ATG7 | Autophagy and cytoplasmic to vacuole transport. | 5.15 | 4.61 |
| cg05987787 | chr6 | OpenSea | SYNJ2 | Associated diseases include Charcot-Marie-Tooth Disease and amyotrophic lateral sclerosis. | -5.09 | -5.46 |
| cg08851837 | chr16 | N\_Shelf | CCDC102A | Associated diseases include diabetic cataract. | 5.08 | 5.36 |
| cg21130958 | chr8 | S\_Shore | CRISPLD1 | Specific function in humans is not known. Has been linked to heart failure. | -5.01 | -4.55 |
| cg15931839 | chr6 | OpenSea | TRAF3IP2 | Associated diseases include candidiasis, familial, 8 and psoriasis 13. | 5.00 | 5.01 |
| cg24577160 | chr3 | OpenSea | UBA5;  ACAD11 | UBA5: Associated diseases include spinocerebellar ataxia, autosomal recessive 24 and developmental and epileptic encephalopathy 44. ACAD11: Associated diseases include developmental and epileptic encephalopathy 44 and benign secondary hypertension. | 4.97 | 4.74 |
| cg05886321**A** | chr19 | OpenSea | SIRT2;  RINL | SIRT2: regulator of energy metabolism and insulin sensitivity ; RINL: Among its related pathways are vesicle-mediated transport and RAB GEFs exchange GTP for GDP on RABs. | -4.93 | -4.88 |
| cg26898099 | chr5 | OpenSea | C5orf27 | Affiliated with the lncRNA class. Associated diseases include esophageal cancer and pediculus humanus capitis infestation. | -4.85 | -4.85 |
| cg13374432 | chr15 | OpenSea | AKAP13 | Associated diseases include breast cancer and long Qt Syndrome. Also linked to body weight regulation, autism and compulsivity. | -4.89 | -4.65 |
| cg09253473 | chr17 | S\_Shore | MAFG;  SIRT7 | MAFG: Associated diseases include fibrosarcoma and Ayme-Gripp syndrome. SIRT7: Associated diseases include Monckeberg arteriosclerosis and body mass index quantitative trait locus 11. | 4.85 | 4.77 |
| cg08478016 | chr1 | N\_Shore |  | - | 4.82 | 5.34 |
| cg00832457 | chr12 | OpenSea | BICD1 | Associated diseases include Lissencephaly 1 and granulomatous disease. | -4.79 | -4.70 |
| cg01368219 | chr3 | OpenSea | CACNA2D3 | Associated diseases include Alkuraya-Kucinskas syndrome and Zimmermann-Laband syndrome. | -4.78 | -4.75 |
| cg00207226 | chr5 | N\_Shore | FLJ44606 | Associated diseases include cortical dysplasia and leukodystrophy. | 4.77 | 5.27 |
| cg01274421 | chr12 | OpenSea |  | - | -4.77 | -5.71 |
| cg21031035 | chr13 | OpenSea |  | - | -4.76 | -4.80 |
| cg09256413 | chr1 | OpenSea | NEGR1 | Associated diseases include Niemann-Pick Disease and leptin deficiency or dysfunction. | 4.72 | 4.82 |
| cg17560136 | chr8 | S\_Shore | EPB49 | Associated diseases include hereditary spherocytosis and hypotrichosis. | -4.69 | -5.26 |
| cg12053291 | chr12 | OpenSea | SCARB1 | Associated diseases include high density lipoprotein cholesterol level quantitative trait locus 6 and hepatitis C. | 4.67 | 4.83 |
| cg22893494 | chr3 | S\_Shore | ACPL2 | Associated diseases include 3-methylglutaconic aciduria, type Iv and nemaline myopathy 5. | 4.63 | 4.75 |
| cg20005742 | chr14 | N\_Shelf |  | - | -4.60 | -5.32 |
| cg25609878 | chr4 | OpenSea | MTHFD2L | Associated diseases include cutis laxa. | -4.59 | -4.80 |
| cg06853894 | chr1 | OpenSea | TNFRSF8 | Associated diseases include Peripheral T-Cell lymphoma and reticulosarcoma. | -4.56 | -5.31 |
| cg07223106 | chr1 | OpenSea | PCNXL2 | Associated diseases include latent syphilis and tabes dorsalis. | 4.49 | 4.66 |
| cg24667510 | chr17 | OpenSea | ITGAE | Associated diseases include hairy cell leukemia and splenic marginal zone lymphoma. | 4.47 | 5.21 |
| cg07312601 | chr1 | OpenSea | MRTO4 | Protein coding gene involved in mRNA turnover and ribosome assembly | -4.42 | -4.55 |
| cg15708127 | chr1 | OpenSea | CNIH3 | Associated diseases include schizophrenia. | -4.36 | -4.90 |
| cg23355492 | chr17 | OpenSea | SP6 | Associated diseases include amelogenesis imperfecta and Hermansky-Pudlak syndrome 6. | 4.35 | 4.61 |
| cg24312520 | chr17 | OpenSea | STAT3 | Plays a key role in many cellular processes such as cell growth and apoptosis and in regulating host response to viral and bacterial infections. Associated diseases include infantile-onset multisystem autoimmune disease and hyper-immunoglobulin E syndrome. | 4.34 | 5.19 |
| cg17041511 | chr17 | N\_Shelf | CYB561 | Associated diseases include orthostatic hypotension 2 and dopamine beta-hydroxylase deficiency. | -4.31 | -4.75 |
| cg22386583 | chr17 | OpenSea | RPTOR | Regulates cell growth in response to nutrient and insulin levels. | 4.30 | 5.46 |

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**A**SNP-related

**B** Non-specific

**Table S2.** Means and Standard deviations of the identified probes that overlapped between AN-active versus NED and AN-active versus AN-remitted comparisons at *Q* <.01

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CpG** | **Gene Location** | | **Annotated Gene** | **AN-active** | | **AN-remitted** | | **No Eating Disorder** | |
| **chr** | **Relation to island** | **Mean** | ***SD*** | **Mean** | ***SD*** | **Mean** | ***SD*** |
| cg25924746 | chr13 | N\_Shore | IRS2 | 0.62821614 | 0.04767649 | 0.64793566 | 0.03820156 | 0.66400167 | 0.03867149 |
| cg18011760 | chr2 | OpenSea |  | 0.74345631 | 0.06668624 | 0.80631729 | 0.04446978 | 0.81286265 | 0.03774925 |
| cg04055490 | chr17 | N\_Shore | PER1 | 0.4178639 | 0.0470374 | 0.46338969 | 0.03812694 | 0.47073912 | 0.03299823 |
| cg24166814 | chr2 | OpenSea |  | 0.71828829 | 0.04997319 | 0.76374439 | 0.02353611 | 0.76756763 | 0.0289874 |
| cg23597162 | chr7 | OpenSea | JAZF1 | 0.51422435 | 0.08502442 | 0.46679937 | 0.07240771 | 0.45547008 | 0.08004079 |
| cg11067407 | chr11 | OpenSea |  | 0.51387863 | 0.05776582 | 0.47063459 | 0.04065974 | 0.47097272 | 0.0481956 |
| cg24480146**B** | chr10 | S\_Shore |  | 0.67965882 | 0.04235332 | 0.63977087 | 0.05370446 | 0.64335086 | 0.03997276 |
| cg10438589 | chr4 | OpenSea | KLF9; MGC4836 | 0.39646356 | 0.06811335 | 0.40956765 | 0.05757986 | 0.42240518 | 0.06429392 |
| cg06983052 | chr1 | S\_Shore | LRRC8D | 0.59760246 | 0.04206847 | 0.56254232 | 0.03281665 | 0.56076102 | 0.04082557 |
| cg00323842 | chr5 | OpenSea | ZNF608 | 0.66377961 | 0.0503455 | 0.61666824 | 0.04338282 | 0.62175054 | 0.04956867 |
| cg23198623 | chr2 | N\_Shelf | BUB1 | 0.36731529 | 0.04542321 | 0.34723432 | 0.03323453 | 0.34194391 | 0.04288954 |
| cg26033520 | chr10 | OpenSea |  | 0.63259389 | 0.04023091 | 0.67331337 | 0.03624788 | 0.68192691 | 0.03409657 |
| cg00049440 | chr9 | N\_Shore | KLF9 | 0.18790432 | 0.03926569 | 0.16963942 | 0.03141965 | 0.16478925 | 0.02951949 |
| cg05641843 | chr17 | S\_Shore | SENP3-EIF4A1;  SNORA48 | 0.61672525 | 0.03350759 | 0.64111816 | 0.01986493 | 0.64483972 | 0.02511619 |
| cg06804705 | chr21 | OpenSea | NCRNA00114 | 0.71586683 | 0.05558407 | 0.75517629 | 0.0316339 | 0.76342944 | 0.03379024 |
| cg26701785 | chr6 | OpenSea | SYNJ2; AK026758 | 0.7742194 | 0.04314776 | 0.79994955 | 0.04273695 | 0.81209395 | 0.03423195 |
| cg21416692 | chr1 | OpenSea | PHC2 | 0.67268296 | 0.04024123 | 0.68507846 | 0.03305871 | 0.6953796 | 0.03292048 |
| cg07769588 | chr19 | S\_Shore | ATG4D | 0.46073297 | 0.03876167 | 0.49371312 | 0.02744394 | 0.4964101 | 0.03216432 |
| cg20975182 | chr1 | N\_Shore | BAI2 | 0.68896136 | 0.0430031 | 0.71198124 | 0.03552545 | 0.71932911 | 0.04032075 |
| cg25197194 | chr3 | OpenSea | CCDC48 | 0.50289248 | 0.05103559 | 0.46691078 | 0.03895887 | 0.46145562 | 0.04031585 |
| cg19257111 | chr15 | OpenSea | PTPLAD1 (aka HACD3) | 0.44299954 | 0.04022508 | 0.48259807 | 0.04537739 | 0.4873521 | 0.0372184 |
| cg27554156 | chr12 | OpenSea | GSG1 | 0.78424917 | 0.0306032 | 0.75952477 | 0.02818902 | 0.75644625 | 0.03289987 |
| cg12999366 | chr7 | OpenSea | NOD1 | 0.66973469 | 0.05932825 | 0.63286102 | 0.05170331 | 0.62312231 | 0.05969183 |
| cg00602326 | chr5 | OpenSea | RNASEN (aka DROSHA) | 0.71436688 | 0.0379466 | 0.67878157 | 0.03644769 | 0.67430201 | 0.04214124 |
| cg07027613 | chr12 | OpenSea | C1RL;  LOC283314 | 0.2099841 | 0.04063603 | 0.22202432 | 0.03909835 | 0.23516714 | 0.03872219 |
| cg14422240 | chr6 | OpenSea | FTSJD2 | 0.66406414 | 0.0741872 | 0.61267849 | 0.0577363 | 0.61020686 | 0.06737362 |
| cg07134632 | chr4 | N\_Shelf | ADD1 | 0.66385308 | 0.03810531 | 0.67675703 | 0.03339403 | 0.68043608 | 0.03292875 |
| cg14195992 | chr8 | OpenSea | KIAA0146 | 0.67475602 | 0.04835102 | 0.69663865 | 0.03441809 | 0.7036692 | 0.03640411 |
| cg01447828 | chr19 | OpenSea | PRX | 0.56648791 | 0.04063242 | 0.60039828 | 0.03356956 | 0.59311645 | 0.03364516 |
| cg23944298 | chr3 | OpenSea | BX537548 | 0.49323381 | 0.04038561 | 0.4717012 | 0.02976606 | 0.46121714 | 0.03561707 |
| cg12671632 | chr6 | N\_Shore |  | 0.63312424 | 0.06035542 | 0.67658649 | 0.04815616 | 0.68018316 | 0.05532938 |
| cg05487134 | chr17 | OpenSea | STAT3 | 0.52023363 | 0.06976815 | 0.50073684 | 0.05106459 | 0.49832189 | 0.06562157 |
| cg06036471 | chr10 | OpenSea | CPEB3 | 0.28050722 | 0.04968212 | 0.26903794 | 0.04222887 | 0.27193996 | 0.04977814 |
| cg17833746 | chr17 | OpenSea | STAT3 | 0.5098 | 0.058166 | 0.48875 | 0.041287 | 0.49097 | 0.04492 |
| cg18091264 | chr15 | OpenSea | SNORD18A; RPL4;  SNORD18B; SNORD16 | 0.45162577 | 0.04038346 | 0.47287485 | 0.02228888 | 0.48181209 | 0.0303311 |
| cg15512289 | chr1 | OpenSea |  | 0.56226006 | 0.05858034 | 0.59281869 | 0.06240637 | 0.6157227 | 0.04450991 |
| cg19373099 | chr2 | N\_Shelf |  | 0.50299379 | 0.06486129 | 0.53081158 | 0.05872006 | 0.53889886 | 0.06823008 |
| cg25221919 | chr1 | OpenSea |  | 0.59714366 | 0.04264013 | 0.57178022 | 0.03329282 | 0.56943884 | 0.03635567 |
| cg01883046 | chr2 | Island |  | 0.78690969 | 0.03219071 | 0.76697862 | 0.03832539 | 0.77340234 | 0.03569186 |
| cg22888848 | chr2 | OpenSea | EPHA4 | 0.50280122 | 0.03744547 | 0.4901901 | 0.02718684 | 0.48642606 | 0.04297689 |
| cg01423695 | chr7 | OpenSea | PRKAG2 | 0.68457736 | 0.04763585 | 0.64784889 | 0.03622544 | 0.64737081 | 0.03933134 |
| cg25570328 | chr2 | OpenSea | SULT1C2 | 0.53583383 | 0.05833343 | 0.50576929 | 0.04408223 | 0.50282953 | 0.049445 |
| cg15104126 | chr12 | OpenSea | VWF | 0.70766664 | 0.03652668 | 0.67655602 | 0.03282762 | 0.67121723 | 0.03529499 |
| cg00024471 | chr3 | OpenSea | TPRG1 | 0.61220342 | 0.04057389 | 0.58254634 | 0.03047272 | 0.58580771 | 0.03613672 |
| cg26200585 | chr19 | OpenSea | PRX | 0.80647802 | 0.0602714 | 0.83797561 | 0.02794637 | 0.83445518 | 0.03240889 |
| cg05413285 | chr2 | OpenSea |  | 0.6815778 | 0.04269869 | 0.70853937 | 0.03909993 | 0.70533016 | 0.04140721 |
| cg17782974 | chr10 | S\_Shelf | TRIM8 | 0.30516395 | 0.04091201 | 0.33290202 | 0.04079962 | 0.34346052 | 0.03598975 |
| cg15393221 | chr19 | OpenSea |  | 0.36949302 | 0.04488464 | 0.39866411 | 0.02480108 | 0.39181984 | 0.03039971 |
| cg14061067 | chr9 | OpenSea | BNC2 | 0.58795286 | 0.07653759 | 0.61383608 | 0.04814847 | 0.62315613 | 0.0735963 |
| cg07795968 | chr20 | OpenSea | JPH2 | 0.44520844 | 0.05411464 | 0.459523 | 0.04292926 | 0.46414308 | 0.05043514 |
| cg05901196 | chr10 | N\_Shore | CCDC6 | 0.29620354 | 0.04874185 | 0.33525182 | 0.04896234 | 0.33690531 | 0.04720246 |
| cg03546163 | chr6 | N\_Shore | FKBP5 | 0.46241301 | 0.07055516 | 0.51937985 | 0.04736799 | 0.52743589 | 0.05438046 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| cg00968616 | chr17 | S\_Shelf | CUEDC1 | 0.49332388 | 0.04855417 | 0.46088954 | 0.03644515 | 0.45870151 | 0.0419989 |
| cg21113746 | chr1 | N\_Shelf |  | 0.63033869 | 0.04889978 | 0.65871649 | 0.03802276 | 0.65843534 | 0.04331095 |
| cg01097897 | chr12 | OpenSea | PPM1H | 0.77300847 | 0.03065391 | 0.74634374 | 0.03076967 | 0.74703676 | 0.02985776 |
| cg10832076**A** | chr12 | OpenSea | SLCO1A2 | 0.41443173 | 0.04750795 | 0.44364779 | 0.04176572 | 0.45131786 | 0.04189626 |
| cg17494199 | chr13 | OpenSea |  | 0.47135818 | 0.04717109 | 0.48980376 | 0.04305986 | 0.49405519 | 0.04223705 |
| cg01695994 | chr17 | N\_Shelf |  | 0.68393868 | 0.03568805 | 0.65463858 | 0.0350128 | 0.65083517 | 0.03186028 |
| cg07782285 | chr19 | OpenSea | DAND5 | 0.43511987 | 0.04653751 | 0.46659909 | 0.03640601 | 0.4636524 | 0.03635505 |
| cg15827092**A** | chr14 | OpenSea |  | 0.542793 | 0.05459473 | 0.59002445 | 0.0420607 | 0.59118581 | 0.04533842 |
| cg22091236 | chr17 | N\_Shelf | RPTOR | 0.48207882 | 0.06138578 | 0.44586607 | 0.04221171 | 0.44324712 | 0.05014269 |
| cg12872357 | chr6 | N\_Shore |  | 0.58577363 | 0.05607413 | 0.54365588 | 0.05152036 | 0.54391393 | 0.05163775 |
| cg20552236 | chr15 | OpenSea | CSK | 0.59254288 | 0.03110937 | 0.61737151 | 0.02829562 | 0.61408299 | 0.03248963 |
| cg03589820 | chr3 | OpenSea | ATG7 | 0.60899495 | 0.04079262 | 0.57404795 | 0.03330007 | 0.57500132 | 0.03398699 |
| cg05987787 | chr6 | OpenSea | SYNJ2 | 0.85961902 | 0.03622493 | 0.8791106 | 0.03266023 | 0.87090231 | 0.0314277 |
| cg08851837 | chr16 | N\_Shelf | CCDC102A | 0.52686991 | 0.05636576 | 0.48815643 | 0.04101232 | 0.48828419 | 0.04378011 |
| cg21130958 | chr8 | S\_Shore | CRISPLD1 | 0.76923211 | 0.03758007 | 0.77870015 | 0.02915632 | 0.78614804 | 0.02768901 |
| cg15931839 | chr6 | OpenSea | TRAF3IP2 | 0.30885461 | 0.04492978 | 0.29844562 | 0.03234786 | 0.29495771 | 0.03148897 |
| cg24577160 | chr3 | OpenSea | UBA5;  ACAD11 | 0.70759524 | 0.03524899 | 0.68628736 | 0.03069113 | 0.68682192 | 0.03262775 |
| cg05886321**A** | chr19 | OpenSea | SIRT2;  RINL | 0.36817176 | 0.03863111 | 0.39474915 | 0.02593885 | 0.39412099 | 0.02370699 |
| cg26898099 | chr5 | OpenSea | C5orf27 | 0.5659837 | 0.05218236 | 0.5717995 | 0.04314227 | 0.57368447 | 0.04181332 |
| cg13374432 | chr15 | OpenSea | AKAP13 | 0.30483095 | 0.06315801 | 0.30666962 | 0.05178184 | 0.3090263 | 0.05357268 |
| cg09253473 | chr17 | S\_Shore | MAFG;  SIRT7 | 0.61866552 | 0.04654113 | 0.58156622 | 0.03628647 | 0.58244116 | 0.03772489 |
| cg08478016 | chr1 | N\_Shore |  | 0.71638982 | 0.03551278 | 0.68439435 | 0.03563327 | 0.68600515 | 0.03483747 |
| cg00832457 | chr12 | OpenSea | BICD1 | 0.5731306 | 0.04528051 | 0.59445136 | 0.0404705 | 0.59487307 | 0.04730757 |
| cg01368219 | chr3 | OpenSea | CACNA2D3 | 0.63683556 | 0.03759997 | 0.65999691 | 0.02596298 | 0.66365831 | 0.02829987 |
| cg00207226 | chr5 | N\_Shore | FLJ44606 | 0.53157525 | 0.06989101 | 0.49321071 | 0.05033908 | 0.49729826 | 0.06605217 |
| cg01274421 | chr12 | OpenSea |  | 0.78196747 | 0.03942622 | 0.81405713 | 0.02348567 | 0.80814674 | 0.02959894 |
| cg21031035 | chr13 | OpenSea |  | 0.42127466 | 0.03087052 | 0.43379177 | 0.03566461 | 0.43099217 | 0.03321668 |
| cg09256413 | chr1 | OpenSea | NEGR1 | 0.72201659 | 0.02756408 | 0.69526008 | 0.03306701 | 0.69593079 | 0.02774238 |
| cg17560136 | chr8 | S\_Shore | EPB49 | 0.66871177 | 0.03712484 | 0.68730521 | 0.02629347 | 0.68957315 | 0.02976691 |
| cg12053291 | chr12 | OpenSea | SCARB1 | 0.74170435 | 0.03478205 | 0.71248486 | 0.03136756 | 0.71037304 | 0.0335465 |
| cg22893494 | chr3 | S\_Shore | ACPL2 | 0.80173324 | 0.03200208 | 0.78045272 | 0.02572589 | 0.78132139 | 0.02839664 |
| cg20005742 | chr14 | N\_Shelf |  | 0.68671999 | 0.06102194 | 0.71670161 | 0.04313075 | 0.70814197 | 0.04695834 |
| cg25609878 | chr4 | OpenSea | MTHFD2L | 0.65829534 | 0.03667544 | 0.68641632 | 0.02833714 | 0.69068245 | 0.02536905 |
| cg06853894 | chr1 | OpenSea | TNFRSF8 | 0.24988828 | 0.04673609 | 0.25309079 | 0.04408954 | 0.25156561 | 0.05054283 |
| cg07223106 | chr1 | OpenSea | PCNXL2 | 0.43204452 | 0.05282586 | 0.40465278 | 0.04838726 | 0.41154087 | 0.05183209 |
| cg24667510 | chr17 | OpenSea | ITGAE | 0.68654065 | 0.03555025 | 0.66209313 | 0.03406314 | 0.67021175 | 0.03376197 |
| cg07312601 | chr1 | OpenSea | MRTO4 | 0.58068608 | 0.03695679 | 0.5976942 | 0.02317653 | 0.59993986 | 0.03259353 |
| cg15708127 | chr1 | OpenSea | CNIH3 | 0.75319061 | 0.04787774 | 0.78065979 | 0.04496263 | 0.78311408 | 0.03996211 |
| cg23355492 | chr17 | OpenSea | SP6 | 0.6302592 | 0.0362078 | 0.60422409 | 0.02922868 | 0.6063336 | 0.03505141 |
| cg24312520 | chr17 | OpenSea | STAT3 | 0.4911756 | 0.06717569 | 0.47689376 | 0.0518982 | 0.48501987 | 0.06143686 |
| cg17041511 | chr17 | N\_Shelf | CYB561 | 0.74734899 | 0.03127464 | 0.76239089 | 0.02441668 | 0.76764691 | 0.02456234 |
| cg22386583 | chr17 | OpenSea | RPTOR | 0.48045147 | 0.06515311 | 0.44268137 | 0.05163293 | 0.44639396 | 0.06355916 |

**A**SNP-related

**B** Non-specific

**Table S3.** Probes and genes associated with chronicity and BMI (all *Q* < .01).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CpG** | **Gene Location** | | **Annotated Gene** | **Description of gene function and/or associated diseases** | ***t* -value** |
| **Chronicity** | | | | | |
| cg03473532 | chr7 | N\_Shelf | MKLN1 | Associated with lissencephaly. | -6.96 |
| cg06819923 | chr16 | OpenSea | ZP2 | Associated with infertility. Component of the zona pellucida, an extracellular matrix surrounding oocytes which mediates sperm binding, prevents post-fertilization polyspermy | -6.07 |
| cg14255824 | chr9 | OpenSea | TJP2 | Associated with hypercholanemia and autosomal dominant deafness-51 | -5.94 |
| cg10501210**A** | chr1 | OpenSea | Nearby gene: MIR29B2CHG | RNA Gene, and is affiliated with the lncRNA class | -5.43 |
| cg15705813 | chr2 | OpenSea | PCBP1-AS1 | Associated with retinitis pigmentosa. | -5.33 |
| cg19995459 | chr3 | N\_Shore | TGFBR2 | Regulate the transcription of genes related to cell proliferation, cell cycle arrest, wound healing, immunosuppression, and tumorigenesis | -5.37 |
| cg21585627**A,B** | chr6 | Island | TUBB | Encodes a beta tubulin protein. Mutations in this gene cause cortical dysplasia, complex, with other brain malformations 6 | -5.35 |
| cg10323433 | chr13 | OpenSea | HTR2A | Encodes one of the receptors for serotonin. | -5.38 |
| cg11436113 | chr20 | N\_Shore |  | - | -5.33 |
| cg00329615 | chr3 | OpenSea | IGSF11 | Immunoglobulin (Ig) superfamily member that is preferentially expressed in brain and testis | -5.16 |
| cg27057509 | chr6 | S\_Shore | VARS2 | Associated with oxidative phosphorylation deficiency-20, and early-onset mitochondrial encephalopathies. | -5.27 |
| cg20595453 | chr6 | S\_Shore | VPS52, HCG25 | Involved in vesicle trafficking from both early and late endosomes, back to the trans-Golgi network | -5.22 |
| cg18738190 | chr10 | OpenSea | CHST3, ANAPC16 | CHST3: Associated with spondylepiphyseal dysplasia and humerospinal dysostosis ANAPC16: Associated with cornea cancer. | -5.18 |
| cg05175318 | chr14 | S\_Shore | NRXN3 | Proteins that function in the nervous system as receptors and cell adhesion molecules. | 5.17 |
| cg19344626 | chr19 | OpenSea | NWD1 | Modulates androgen receptor activity. | -5.19 |
| cg00387658 | chr20 | OpenSea | CASS4 | Associated diseases include astigmatism | -5.20 |
| cg19908207 | chr5 | S\_Shore | GFRA3 | Associated diseases include postsurgical hypothyroidism. | -5.14 |
| cg14829814 | chr12 | N\_Shelf | - | N/A. However, was associated with psychotic experiences in Roberts et al, 2019 | -5.14 |
| cg27209729 | chr11 | S\_Shore | NRXN2 | The products of these genes function as cell adhesion molecules and receptors in the vertebrate nervous system | -5.10 |
| **Body Mass Index** | | | | | |
| cg03546163 | chr6 | N\_Shore | FKBP5 | Immunoregulation and basic cellular processes involving protein folding and trafficking; Associated diseases include major depressive disorder and asthma | 6.98 |
| cg00323842 | chr5 | OpenSea | ZNF608 | Associated with leukodystrophy, demyelinating, adult-onset, autosomal dominant. | -6.72 |
| cg24166814 | chr2 | OpenSea | - | - | 6.23 |
| cg01579884 | chr7 | OpenSea | ELMO1 | Involved in cytoskeletal rearrangements required for phagocytosis of apoptotic cells and cell motility | -5.59 |
| cg14195992 | chr8 | OpenSea | KIAA0146 | Associated diseases include ovarian dysgenesis 9 and genetic non-acquired premature ovarian failure. | 5.66 |
| cg03607573 | chr11 | N\_Shelf | TAF1D | Component of the transcription factor SL1/TIF-IB complex, which is involved in the assembly of the PIC (preinitiation complex) during RNA polymerase I-dependent transcription. | 5.60 |
| cg04055490 | chr17 | N\_Shore | PER1 | Genes in this family encode components of the circadian rhythms of locomotor activity, metabolism, and behavior. | 5.63 |
| cg18702935 | chr13 | OpenSea |  | - | 5.55 |
| cg13649519**C** | chr17 | OpenSea | TRIM16 | E3 ubiquitin ligase that plays an essential role in the organization of autophagic response and ubiquitination upon lysosomal and phagosomal damages. Plays a role in the stress-induced biogenesis and degradation of protein aggresomes by regulating the p62-KEAP1-NRF2 signaling and particularly by modulating the ubiquitination levels and thus stability of NRF2. | 5.48 |
| cg20995564 | chr2 | OpenSea | ZEB2 | Transcriptional inhibitor that binds to DNA sequence 5'-CACCT-3' in different promoters | 5.45 |
| cg15466952 | chr1 | S\_Shelf | LEPR | Receptor for leptin. | 5.43 |
| cg15678744 | chr5 | OpenSea | SH3PXD2B | Adapter protein involved in invadopodia and podosome formation and extracellular matrix degradation. | 5.38 |
| cg02782634 | chr17 | OpenSea | TMEM49 | Phospholipid scramblase involved in lipid homeostasis and membrane dynamics processes | 5.31 |
| cg26314722 | chr1 | OpenSea | LINC01132 | RNA Gene, and is affiliated with the lncRNA class. | 5.22 |
| cg01059398 | chr3 | OpenSea | TNFSF10 | Induces apoptosis | 5.23 |
| cg12053291 | chr12 | OpenSea | SCARB1 | Associated with high density lipoprotein cholesterol level quantitative trait locus 6 and hepatitis C. | -5.17 |
| cg17417856 | chr19 | N\_Shore | PRMT1 | Plays an important role in the ligand-dependent activation of estrogen receptor target genes | 5.14 |
| cg26033520 | chr10 | OpenSea | Nearby ASCC1 | Associated diseases include Barrett Esophagus and spinal muscular atrophy | 5.10 |
| cg14849578 | chr12 | OpenSea | SCARB1 | Diseases associated with SCARB1 include high density lipoprotein cholesterol level quantitative trait locus 6 and hepatitis C. | -5.08 |
| cg06804705 | chr21 | OpenSea | LINC00114 | RNA Gene, and is affiliated with the lncRNA class. One study showed an association with preterm birth (Xiumei et al., 2017) | 5.05 |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**A** SNP-related

**B**non-specific

**C**hybridized