**Additional Table 1. CpG-sites differentially methylated by early-PN versus late-PN**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CpG-site** | **Gene symbol** | **Gene-related protein function** | **Gene section** | **More methylated in** |
|  |  |  |  |  |
| cg10732094 a |  |  | Intergenic | Control |
| cg26308668 | SRGAP1 | regulating neuronal development and migration; mental retardation; autism; schizophrenia | Intron | Control |
| cg06449934 a | GPER1 | numerous intracellular signaling pathways among the cardiovascular, endocrine, reproductive, immune and central nervous systems; regulation of hippocampal memory and cognition; social and spatial recognition learning; working memory; synaptic transmission; anxiety  | 5' UTR | Control |
| cg08948258 |  |  | Intergenic | Control |
| cg10422093 |  |  | Intergenic | Control |
| cg02918489 |  |  | Intergenic | Control |
| cg17522929 | PKM | glycolysis; transcriptional activation; caspase-independent cell death of tumor cells; may mediate metabolic effects of thyroid hormone; involved in bacterial pathogenesis (adherence of bacteria to human cells); brain development; neuronal differentiation | 5' UTR/ Intron | Control |
| cg04483721 |  |  | Intergenic | Control |
| cg14364797 a | FNBP1 | regulation of the actin cytoskeleton; spine formation/neurite branching; neuronal network formation; information processing | 3' UTR | Patient |
| cg14109551 b | CEP85L | brain tumors; attention deficit hyperactivity disorder (ADHD); bipolar disorders | Intron | Control |
| cg05174290 | ATAD2B | chromatin-related function; neuronal differentiation; tumor progression | Intron/ Non-coding | Patient |
| cg26683792 | SLC35E1 | unknown (putative transporter) | Intron | Patient |
| cg14172797 | PRKCA | many different cellular processes, such as cell proliferation, differentiation and apoptosis, cell cycle checkpoint, and cell volume control; cancer development; episodic remembering (memory); mood regulation; behaviour; choroid gliomas; highly expressed in brain | Intron | Control |
| cg16301196 | PLA2G15 | hydrolyzing lysophosphatidylcholine to glycerophosphorylcholine and a free fatty acid; phospholipid degradation  | 3' UTR | Control |
| cg14450616 | PLD3 | hydrolysis of membrane phospholipids and processing of amyloid-beta precursor protein; neuronal development and survival, neurotransmission; visual learning, memory, speed and flexibility; Alzheimer’s disease; highly expressed in the brain | 5' UTR | Control |
| cg17533201 | RAB11FIP4 | regulating endocytic traffic; cytokinesis | Intron | Control |
| cg14071298 |  |  | Intergenic | Patient |
| cg07375256 a | ZSCAN25 | transcriptional regulation (DNA binding and protein-protein interactions); genetic variation in ZSCAN25 has been associated with body weight, hip and brachial circumference.  | Intron | Patient |
| cg01842756 | RNF217 | apoptosis signaling | Intron/ Non-coding | Control |
| cg22076676 b | THADA | apoptosis; adaptive thermogenesis; homeostasis; neuroinflammation and multiple sclerosis | Intron/ Non-coding | Control |
| cg11047783 | KAT6B | transcriptional regulation; cerebral cortex development; cognition; ADHD; intellectual disability; microcephaly and growth regulation | Intron | Control |
| cg12928479 | NLRC5 | regulating the NF-kappa-B and type I interferon signaling pathways; immunity; neuroimmune and neuroinflammatory processes | Exon | Control |
| cg05371584 | TBC1D8 | unknown (putative role in GTPase-activation of Rab family proteins) | Intron/ Non-coding | Control |
| cg00687889 |  |  | Intergenic | Control |
| cg23053742 a | LACTB2-AS1 | non-coding RNA | Non-coding | Patient |
| cg12274883 |  |  | Intergenic | Control |
| cg14748515 |  |  | Intergenic | Control |
| cg14800111 |  |  | Intergenic | Control |
| cg04193065 a |  |  | Intergenic | Control |
| cg24475272 a | SETD7 | histone methylation, with impact on transcriptional activation of genes such as collagenase or insulin | 3' UTR/ Intron | Control |
| cg17804886 a | RASA3 | negatively regulating the Ras signaling pathway | 5' UTR/ Intron | Patient |
| cg11919725 |  |  | Intergenic | Patient |
| cg22645359 | TCF7L2 | transcriptional regulation in the Wnt signaling pathway; blood glucose homeostasis; related to neurodevelopment and plasticity of mature neurons; memory, visual motor/fine motor function, emotional functioning, behaviour and speech; schizophrenia; ADHD | 3' UTR/ Intron | Control |
| cg05038391 |  |  | Intergenic | Control |
| cg27215601 | NSMCE2 | nuclear transport, transcription, chromosome segregation and DNA repair; key role in genome maintenance, suppression of mitotic recombination; dwarfism; bipolar disorder | Intron/ Non-coding | Patient |
| cg23084667 | GRAP2 | leukocyte-specific protein-tyrosine kinase signaling; RET signaling which is involved in brain development and maturation of dopaminergic neurons | 5' UTR | Patient |
| cg02293222 |  |  | Intergenic | Control |
|  |  |  |  |  |

Source of gene-related protein function: Entrez Gene Summary at Pubmed.com and UniProt database (www.uniprot.org), complemented with updated literature searches for links with brain and development.

a,b: Only for 10 of the 37 CpG sites a cross-tissue blood-brain comparison of methylation status was possible with use of the BECon tool or the Brain Epigenomics blood brain DNA methylation comparison tool, showing a significant correlation between blood and brain for 8 (a) but not for the other 2 (b) [1-4].

Abbreviations: ADHD, attention deficit hyperactivity disorder; ATAD2B, ATPase Family AAA Domain Containing 2B; CEP85L, Centrosomal Protein 85 Like; DNA, deoxyribonucleic acid; FNBP1, Formin Binding Protein 1; GPER1, G Protein-Coupled Oestrogen Receptor 1; GRAP2, Growth factor Receptor-bound Protein 2-Related Adaptor Protein 2; KAT6B, Lysine Acetyltransferase 6B; LACTB2-AS1, Lactamase Beta 2 Antisense ribonucleic acid 1; NLRC5, NLR Family CARD Domain Containing 5; NSMCE2, Non-SMC Element 2 Methyl Methanesulfonate Sensitivity Gene 21 Homolog; PKM, Pyruvate Kinase Muscle; PLA2G15, Phospholipase A2 Group XV; PLD3, Phospholipase D Family Member 3; PRKCA, Protein Kinase C Alpha; RAB11FIP4, RAB11 Family Interacting Protein 4; RASA3, RAS P21 Protein Activator 3; RNA, ribonucleic acid; RNF217, Ring Finger Protein 217; SETD7, SET Domain Containing Lysine Methyltransferase 7; SLC35E1, Solute Carrier Family 35 Member E1; SRGAP1, SLIT-ROBO Rho GTPase Activating Protein 1; TBC1D8, TBC1 Domain Family Member 8; TCF7L2, Transcription Factor 7 Like 2; THADA, Thyroid Adenoma-Associated Protein; UTR, untranslated region; ZSCAN25, Zinc Finger And SCAN Domain Containing 25.

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2. Edgar RD, Jones MJ, Meaney MJ, Turecki G, Kobor MS. BECon: a tool for interpreting DNA methylation findings from blood in the context of brain. Transl Psychiatry 2017;7:e1187
3. https://redgar598.shinyapps.io/BECon/ [Accessed May 20th, 2019]
4. https://epigenetics.essex.ac.uk/bloodbrain/ [Accessed May 20th, 2019]