

Table S1. Genes in which SNPs have been identified by GWAS, the proteins they encode and their functions according to UNIPROT

Gene	Protein	Function
SLC37A1	Glucose-6-phosphate exchanger SLC37A1	Inorganic phosphate and glucose-6-phosphate antiporter. May transport cytoplasmic glucose-6-phosphate into the lumen of the endoplasmic reticulum and translocate inorganic phosphate into the opposite direction. Independent of a luminal glucose-6-phosphatase. May not play a role in homeostatic regulation of blood glucose levels.
CCDC15	Coiled-coil domain containing 15	No information
CEP162		Required to promote assembly of the transition zone in primary cilia. Acts by specifically recognizing and binding the axonemal microtubule. Localizes to the distal ends of centrioles before ciliogenesis and directly binds to axonemal microtubule, thereby promoting and restricting transition zone formation specifically at the cilia base. Required to mediate CEP290 association with microtubules.
CSF2RB	Cytokine receptor common subunit beta	CSF2RB is adapter protein containing an immunoreceptor tyrosine-based activation motif (ITAM) that transduces activation signals from various immunoreceptors. As a component of the high-affinity immunoglobulin E (IgE) receptor, mediates allergic inflammatory signaling in mast cells. As a constitutive component of interleukin-3 receptor complex, selectively mediates interleukin 4/IL4 production by basophils priming T-cells toward effector T-helper 2 subset. Associates with pattern recognition receptors CLEC4D and CLEC4E to form a functional signaling complex in myeloid cells. Binding of mycobacterial trehalose 6,6'-

		<p>dimycolate (TDM) to this receptor complex leads to phosphorylation of ITAM, triggering activation of SYK, CARD9 and NF-kappa-B, consequently driving maturation of antigen-presenting cells and shaping antigen-specific priming of T-cells toward effector T-helper 1 and T-helper 17 cell subtypes. May function cooperatively with other activating receptors. Functionally linked to integrin beta-2/ITGB2-mediated neutrophil activation. Also involved in integrin alpha-2/ITGA2-mediated platelet activation.</p>
CSN3	Kappa-casein	<p>Kappa-casein stabilizes micelle formation, preventing casein precipitation in milk.</p> <p>Casoxins A, B and C have opioid antagonist activity. Casoxin C causes biphasic ileal contractions through the binding to the complement C3a receptors. Casoplatelin inhibits platelet aggregation.</p>
CUX1	Homeobox protein cut-like 1	<p>Transcription factor involved in the control of neuronal differentiation in the brain, regulates dendrite development and branching, and dendritic spine formation in cortical layers II-III. Also involved in the control of synaptogenesis. In addition, it has probably a broad role in mammalian development as a repressor of developmentally regulated gene expression. May act by preventing binding of positively-activating CCAAT factors to promoters. Component of nf-munr repressor; binds to the matrix attachment regions (MARs) (5' and 3') of the immunoglobulin heavy chain enhancer. Represses T-cell receptor (TCR) beta enhancer function by binding to MARbeta, an ATC-rich DNA sequence located upstream of the TCR beta enhancer. Binds to the TH enhancer; may</p>

		require the basic helix-loop-helix protein TCF4 as a coactivator.
DISP1	Protein dispatched homolog 1	Functions in hedgehog (Hh) signaling. Regulates the release and extracellular accumulation of cholesterol-modified hedgehog proteins and is hence required for effective production of the Hh signal (By similarity). Synergizes with SCUBE2 to cause an increase in SHH secretion
EPHB2	Ephrin type-B receptor 2	Receptor tyrosine kinase which binds promiscuously transmembrane ephrin-B family ligands residing on adjacent cells, leading to contact-dependent bidirectional signaling into neighboring cells. The signaling pathway downstream of the receptor is referred to as forward signaling while the signaling pathway downstream of the ephrin ligand is referred to as reverse signaling. Functions in axon guidance during development. In addition to axon guidance, also regulates dendritic spines development and maturation and stimulates the formation of excitatory synapses.
GNG2	Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2	Guanine nucleotide-binding proteins (G proteins) are involved as a modulator or transducer in various transmembrane signaling systems. The beta and gamma chains are required for the GTPase activity, for replacement of GDP by GTP, and for G protein-effector interaction.
JARID2	Protein Jumonji	Jumonji and AT-rich interaction domain containing 2 (JARID2) is regulator of histone methyltransferase complexes that plays an essential role in embryonic development, including heart and liver development, neural tube fusion process and hematopoiesis. Acts as an accessory subunit for the core PRC2 (Polycomb repressive

		<p>complex 2) complex, which mediates histone H3K27 (H3K27me3) trimethylation on chromatin. Binds DNA and mediates the recruitment of the PRC2 complex to target genes in embryonic stem cells, thereby playing a key role in stem cell differentiation and normal embryonic development. In cardiac cells, it is required to repress expression of cyclin-D1 (CCND1) by activating methylation of 'Lys-9' of histone H3 (H3K9me) by the GLP1/EHMT1 and G9a/EHMT2 histone methyltransferases. Also acts as a transcriptional repressor of ANF via its interaction with GATA4 and NKX2-5. Participates in the negative regulation of cell proliferation signaling. Does not have histone demethylase activity.</p>
KDR	Vascular endothelial growth factor receptor 2	<p>Tyrosine-protein kinase that acts as a cell-surface receptor for VEGFA, VEGFC and VEGFD. Plays an essential role in the regulation of angiogenesis, vascular development, vascular permeability, and embryonic hematopoiesis. Promotes proliferation, survival, migration and differentiation of endothelial cells. Promotes reorganization of the actin cytoskeleton. Isoforms lacking a transmembrane domain, such as isoform 2 and isoform 3, may function as decoy receptors for VEGFA, VEGFC and/or VEGFD. Isoform 2 plays an important role as negative regulator of VEGFA- and VEGFC-mediated lymphangiogenesis by limiting the amount of free VEGFA and/or VEGFC and preventing their binding to FLT4. Modulates FLT1 and FLT4 signaling by forming heterodimers. Binding of vascular growth factors to isoform 1 leads to the activation of several signaling cascades. Activation of PLCG1 leads to the production of the cellular</p>

		<p>signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate and the activation of protein kinase C. Mediates activation of MAPK1/ERK2, MAPK3/ERK1 and the MAP kinase signaling pathway, as well as of the AKT1 signaling pathway. Mediates phosphorylation of PIK3R1, the regulatory subunit of phosphatidylinositol 3-kinase, reorganization of the actin cytoskeleton and activation of PTK2/FAK1. Required for VEGFA-mediated induction of NOS2 and NOS3, leading to the production of the signaling molecule nitric oxide (NO) by endothelial cells. Phosphorylates PLCG1. Promotes phosphorylation of FYN, NCK1, NOS3, PIK3R1, PTK2/FAK1 and SRC.</p>
DISC1	Disrupted in schizophrenia 1 homolog	<p>Involved in the regulation of multiple aspects of embryonic and adult neurogenesis. Required for neural progenitor proliferation in the ventricular/subventricular zone during embryonic brain development and in the adult dentate gyrus of the hippocampus. Participates in the Wnt-mediated neural progenitor proliferation as a positive regulator by modulating GSK3B activity and CTNNB1 abundance. Plays a role as a modulator of the AKT-mTOR signaling pathway controlling the tempo of the process of newborn neurons integration during adult neurogenesis, including neuron positioning, dendritic development and synapse formation. Inhibits the activation of AKT-mTOR signaling upon interaction with CCDC88A. Regulates the migration of early-born granule cell precursors toward the dentate gyrus during the hippocampal development. Inhibits ATF4 transcription factor activity in neurons by disrupting ATF4 dimerization and DNA-binding.</p>

		Plays a role, together with PCNT, in the microtubule network formation.
ME1	NADP-dependent malic enzyme	Catalyzes the oxidative decarboxylation of (S)-malate in the presence of NADP ⁺ and divalent metal ions, and decarboxylation of oxaloacetate.
NCOR2	Nuclear receptor corepressor 2	Mediates the transcriptional repression activity of some nuclear receptors by promoting chromatin condensation, thus preventing access of the basal transcription. Isoform 1 and isoform 4 have different affinities for different nuclear receptors. Involved in the regulation BCL6-dependent of the germinal center (GC) reactions, mainly through the control of the GC B-cells proliferation and survival. Recruited by ZBTB7A to the androgen response elements/ARE on target genes, negatively regulates androgen receptor signaling and androgen-induced cell proliferation
NOL4	Nucleolar protein 4	no information
RIMBP2	RIMS-binding protein 2	Plays a role in the synaptic transmission as bifunctional linker that interacts simultaneously with RIMS1, RIMS2, CACNA1D and CACNA1B.
TBC1D23	TBC1 domain family member 23	Putative Rab GTPase-activating protein which plays a role in vesicular trafficking. Involved in endosome-to-Golgi trafficking. Acts as a bridging protein by binding simultaneously to golgins, including GOLGA1 and GOLGA4, located at the trans-Golgi, and to the WASH complex, located on endosome-derived vesicles. Together with WDR11 complex facilitates the golgin-mediated capture of vesicles generated using AP-1. Plays a role in brain development, including in cortical neuron

		<p>positioning.</p> <p>May also be important for neurite outgrowth, possibly through its involvement in membrane trafficking and cargo delivery, 2 processes that are essential for axonal and dendritic growth.</p> <p>May act as a general inhibitor of innate immunity signaling, strongly inhibiting multiple TLR and dectin/CLEC7A-signaling pathways. Does not alter initial activation events, but instead affects maintenance of inflammatory gene expression several hours after bacterial lipopolysaccharide (LPS) challenge.</p>
	Teneurin-3	Involved in neural development by regulating the establishment of proper connectivity within the nervous system. Acts in both pre- and postsynaptic neurons in the hippocampus to control the assembly of a precise topographic projection: required in both CA1 and subicular neurons for the precise targeting of proximal CA1 axons to distal subiculum, probably by promoting homophilic cell adhesion. Required for proper dendrite morphogenesis and axon targeting in the vertebrate visual system, thereby playing a key role in the development of the visual pathway. Regulates the formation in ipsilateral retinal mapping to both the dorsal lateral geniculate nucleus (dLGN) and the superior colliculus (SC). May also be involved in the differentiation of the fibroblast-like cells in the superficial layer of mandibular condylar cartilage into chondrocytes.
TENM3		
TMPRSS13	Transmembrane protease serine 13	No information
TRIM37	E3 ubiquitin-protein ligase TRIM37	E3 ubiquitin-protein ligase required to prevent centriole reduplication /. Probably acts by ubiquitinating positive regulators of centriole reduplication /.

		<p>Mediates monoubiquitination of 'Lys-119' of histone H2A (H2AK119Ub), a specific tag for epigenetic transcriptional repression: associates with some Polycomb group (PcG) multiprotein PRC2-like complex and mediates repression of target genes/</p> <p>Also acts as a positive regulator of peroxisome import by mediating monoubiquitination of PEX5 at 'Lys-472': monoubiquitination promotes PEX5 stabilitation by preventing its polyubiquitination and degradation by the proteasome.</p>
ZC3H12C	Probable ribonuclease ZC3H12C	May function as RNase and regulate the levels of target RNA species.
ZNF891	Zinc finger protein 891	May be involved in transcriptional regulation.