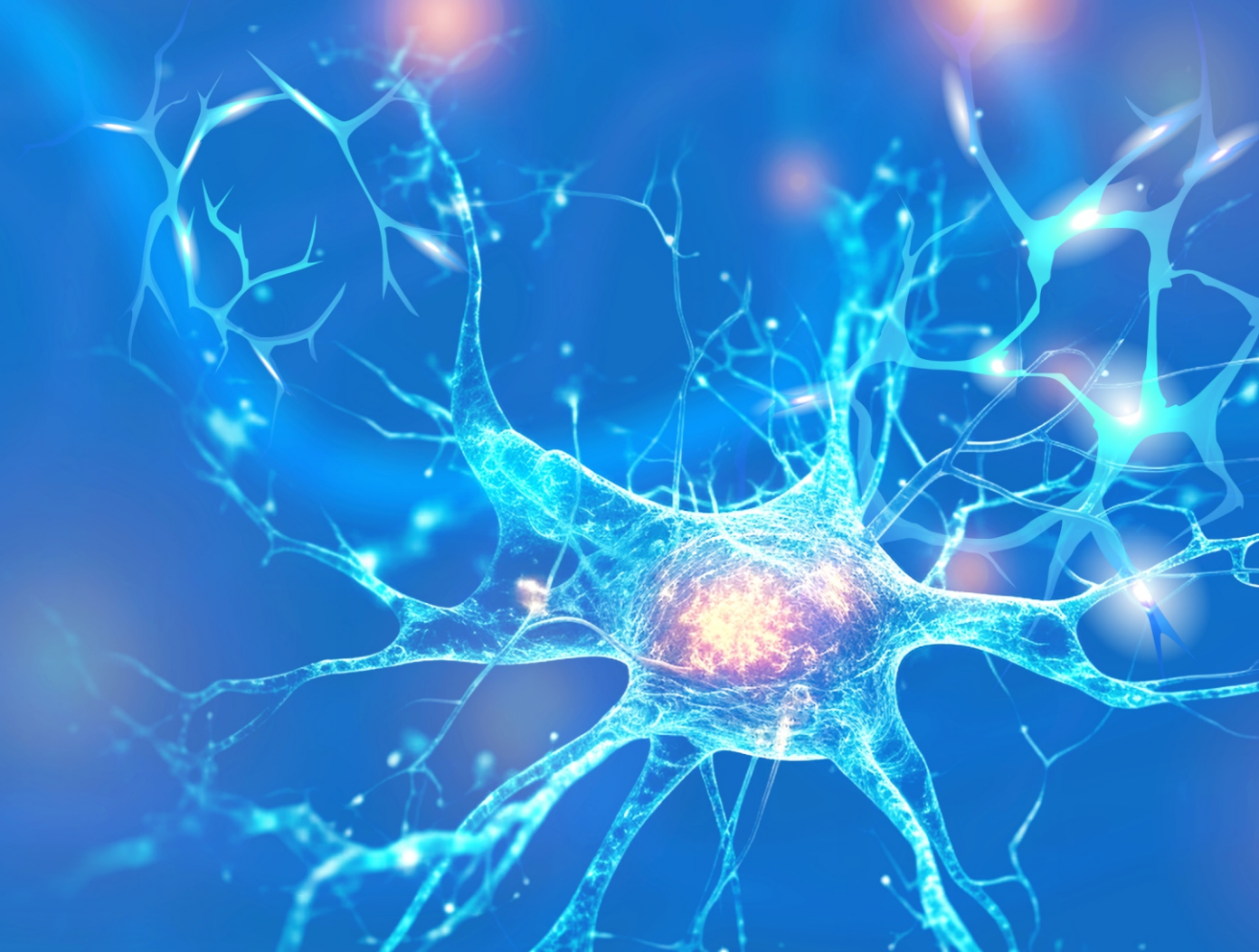




ELISA Kits for Neuroscience/Brain Science Research



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Neuroscience, also known as brain science, is a discipline that investigates the structure, function, development, and mechanisms of diseases in the nervous system, including the brain, spinal cord, and peripheral nerves. It integrates methods and principles from multiple disciplines such as biology, chemistry, physics, psychology, and computer science to understand the complex physiological and psychological processes involved in generating thoughts, emotions, behavior, and cognition.

The goals of neuroscience research are to explore the fundamental principles of neuronal function, organization and regulation of neural circuits, neurotransmitter transmission, neural development, and plasticity. These research efforts are crucial for enhancing our understanding of the nervous system disorders, developing new drugs and treatment methods, and improving the quality of human life.

What Are The Types of Neurological Diseases?

Classification of neurosystem-related diseases	
Tumors	Brain tumor, Neuroendocrine tumor, Neuroblastoma, Spinal cord tumor, etc
Mental disorder	Depression, Anxiety disorder, Schizophrenia, Bipolar disorder, etc
Neurodegenerative disease	Parkinson's disease, Alzheimer's disease, Huntington's disease, Amyotrophic lateral sclerosis (ALS), etc
Neuroimmune disease	Multiple sclerosis, Polymyositis and dermatomyositis, Paraneoplastic syndromes, Myasthenia gravis, etc
Epilepsy and epilepsy-related disease	Primary epilepsy, Secondary epilepsy, Epileptic encephalopathy, etc
Neuropathic pain	Neuralgia, Migraine, Pathological fractures, etc
Dyskinesia	Parkinson's disease, Essential tremor, Torsion spasm, Dystonia, etc
Cerebrovascular disease	Stroke, Cerebrovascular rupture, etc
Sleep disorder	Insomnia, Sleep apnea syndrome, Dreaminess, etc
Neurological infectious disease	Meningitis, Encephalitis, Cerebrospinal meningitis, etc
Neurodevelopmental abnormality	Autism spectrum disorders, Attention deficit hyperactivity disorder (ADHD), etc
Neuromuscular disease	Amyotrophy, Myasthenia gravis, Myoinflammatory myopathy, etc

CUSABIO ELISA Kits for Neuroscience Research

CUSABIO provides high-quality and high-sensitivity ELISA kits, which are widely used in neuroscience research, to provide reliable solutions for quantitative analysis of nervous system related proteins, cytokines and biomarkers, help reveal the mechanisms of nervous system function and diseases, and promote the progress of neuroscience/brain science research.

Target	Code	Product Name	Sensitivity
AANAT	CSB-EL001022HU	Human Serotonin N-acetyltransferase(AANAT) ELISA kit	7.81 pg/mL
AChE	CSB-E17001Fh	Fish Acetylcholinesterase(AChE)ELISA Kit	2.5 ng/mL
ADAMDEC1	CSB-EL001297HU	Human ADAM DEC1(ADAMDEC1) ELISA kit	15.6 pg/mL

Target	Code	Product Name	Sensitivity
ADM	CSB-E10061m	Mouse adrenomedullin,ADM ELISA Kit	1.2 pg/mL
ADM	CSB-E09146h	Human adrenomedullin,ADM ELISA Kit	0.078 pg/mL
AGRN	CSB-EL001461MO	Mouse Agrin(AGRN) ELISA kit	0.078 ng/mL
AGRP	CSB-E09299h	Human Agouti Related Protein,AGRP ELISA Kit	0.002 pg/mL
APH1B	CSB-E12142m	Mouse γ -Secretase ELISA kit	1.95 pg/mL
AQP4	CSB-E08254h	Human Aquaporin 4,AQP-4 ELISA Kit	0.039 ng/mL
A β 1-40	CSB-E08300m	Mouse amyloid beta peptide 1-40,A β 1-40 ELISA Kit	7.8 pg/mL
A β 1-40	CSB-E08299h	Human amyloid beta peptide 1-40,A β 1-40 ELISA Kit	31.25 pg/mL
A β 1-42	CSB-E10684h	Human amyloid beta peptide 1-42,A β 1-42 ELISA Kit	0.078 ng/mL
A β 1-42	CSB-E10787m	Mouse amyloid beta peptide 1-42,A β 1-42 ELISA Kit	3.9 pg/mL
BACE1	CSB-E09824h	Human β -site APP-Cleaving Enzyme 1,BACE1 ELISA kit	0.78 pg/mL
BDNF	CSB-E04505m	Mouse Brain derived neurotrophic factor,BDNF ELISA Kit	1.95 pg/mL
BDNF	CSB-E04504r	Rat Brain derived neurotrophic factor,BDNF ELISA Kit	0.078 ng/mL
BDNF	CSB-E04501h	Human Brain derived neurotrophic factor,BDNF ELISA Kit	0.063 ng/mL
CALB1	CSB-EL004432HU	Human Calbindin(CALB1) ELISA kit	3.9 pg/mL
CC16	CSB-E08680h	Human Clara cell protein,CC16 ELISA Kit	0.156 ng/ml
CIRBP	CSB-EL005440HU	Human Cold-inducible RNA-binding protein(CIRBP) ELISA kit	3.12 pg/mL
CLASP2	CSB-EL005472HU	Human CLIP-associating protein 2(CLASP2) ELISA kit	5.86 pg/mL
CNTF	CSB-E04527h	Human Ciliary Neurotrophic Factor,CNTF ELISA Kit	1.56 pg/mL
CRHBP	CSB-EL005964MO	Mouse Corticotropin-releasing factor-binding protein(CRHBP) ELISA kit	3.9 pg/mL
CTGF	CSB-E07877m	Mouse connective tissue growth factor,CTGF ELISA Kit	0.195 pg/mL
CTGF	CSB-E07875h	Human connective tissue growth factor (CTGF) ELISA kit	1.875 pg/mL
CXCL1	CSB-E09150h	Human growth-regulated oncogene/melanoma growth stimulating activity, GRO α /MGSA ELISA Kit	7.8 pg/mL
ENO1	CSB-E17177h	Human Alpha-enolase (ENO1/ENO1L1/MBPB1/MPB1) ELISA kit	0.078 ng/mL
ENO1 Ab (IgG)	CSB-EQ027775HU	Human alpha-enolase (ENO1) antibody (IgG) ELISA kit	Request Information
FOXO3	CSB-E11177h	Human forkhead box O3,FOXO3 ELISA Kit	0.39 pg/mL
GAD2	CSB-E14119h	Human glutamic acid decarboxylase 65,GAD65 ELISA Kit	0.039 ng/mL
GAL	CSB-EL009191MO	Mouse galanin prepropeptide (GAL) ELISA kit	7.81 pg/mL

Target	Code	Product Name	Sensitivity
GALP	CSB-EL009222HU	Human Galanin-like peptide(GALP) ELISA kit	0.039 ng/mL
GALP	CSB-EL009222MO	Mouse Galanin-like peptide(GALP) ELISA kit	5.8 pg/mL
GAP43	CSB-EL009231RA	Rat Neuromodulin(GAP43) ELISA kit	0.078 ng/mL
GDNF	CSB-E07341m	Mouse glial cell line-derived neurotrophic factor,GDNF ELISA KIT	10.9 pg/ml
GDNF	CSB-E04566r	Rat glial cell line-derived neurotrophic factor,GDNF ELISA KIT	7.81 pg/mL
GFAP	CSB-E14950p	Pig glial fibrillary acidic protein,GFAP ELISA Kit	0.05 ng/mL
GFAP	CSB-E08603m	Mouse glial fibrillary acidic protein,GFAP ELISA Kit	0.78 pg/mL
GFAP	CSB-E08601h	Human glial fibrillary acidic protein,GFAP ELISA Kit	0.156 ng/mL
GFAP	CSB-E08602r	Rat glial fibrillary acidic protein,GFAP ELISA Kit	19.5 pg/mL
GFRAL	CSB-EL009383MO	Mouse GDNF family receptor alpha-like(GFRAL) ELISA kit	6.25 pg/mL
GRIN2B	CSB-EL009913MO	Mouse Glutamate [NMDA] receptor subunit epsilon-2(GRIN2B) ELISA kit	7.8 pg/mL
GRP	CSB-EL009940MO	Mouse Gastrin-releasing peptide(GRP) ELISA kit	9.75 pg/mL
HNP1-3	CSB-E11742h	Human neutrophil peptide 1-3,HNP1-3 ELISA Kit	0.39 ng/mL
HTT	CSB-EL010905HU	Human Huntingtin(HTT) ELISA kit	3.125 pg/mL
iNOS	CSB-E17489p	Pig inducible nitric oxide synthase(iNOS)ELISA Kit	0.05 U/mL
L1CAM	CSB-E09145h	Human Neural cell adhesion molecule ligand 1,NCAM-L1 ELISA Kit	0.31 ng/mL
LGI1	CSB-EL012898HU	Human Leucine-rich glioma-inactivated protein 1(LGI1) ELISA kit	0.039 ng/mL
LGI3	CSB-EL012900HU	Human Leucine-rich repeat LGI family member 3(LGI3) ELISA kit	0.039 ng/mL
LZM	CSB-E17296Fh	Fish lysozyme (renal amyloidosis) (LZM) ELISA kit	1.56 ng/mL
MAP2	CSB-E09330h	Human microtubule-associated protein 2,MAP-2 ELISA Kit	0.039 ng/mL
MAPT	CSB-E12011h	Human Tau proteins ELISA kit	3.9 pg/mL
MBP	CSB-E08285m	Mouse myelin basic protein,MBP ELISA Kit	4.7 pg/mL
MOG	CSB-EL014709HU	Human Myelin-oligodendrocyte glycoprotein(MOG) ELISA kit	3.9 pg/mL
MT-RNR2	CSB-EL015084HU	Human Putative humanin peptide(MT-RNR2) ELISA kit	7 pg/mL
MYLK	CSB-E09048h	Human myosin light chain kinase,MLCK ELISA Kit	0.195 ng/mL
NCAM1	CSB-EL015511HU	Human Neural cell adhesion molecule 1(NCAM1) ELISA kit	7.81 pg/mL
NE	CSB-E08847r	Rat neutrophil elastase,NE ELISA Kit	3.12 ng/mL
NEFL	CSB-E16094h	Human Neurofilament protein L (NF-L) ELISA kit	7.8 pg/mL

Target	Code	Product Name	Sensitivity
NEFL	CSB-EL015688RA	Rat Neurofilament light polypeptide(NEFL) ELISA kit	1.95 pg/mL
NEO1	CSB-EL015712HU	Human Neogenin(NEO1) ELISA kit	19.5 pg/mL
Nesfatin-1	CSB-E15050h	Human Nesfatin-1 ELISA Kit	7.81 pg/mL
NF-κB	CSB-E13448p	Pig Nuclear factor-kappa B,NF-κB ELISA Kit	7.81 pg/mL
NGB	CSB-E08738r	Rat Neuroglobin,NGB ELISA Kit	3.9 ng/mL
NGF	CSB-E04684m	Mouse Nerve growth factor,NGF ELISA kit	15.6 pg/ml
NGF	CSB-E04685r	Rat Nerve growth factor,NGF ELISA kit	0.195 pg/mL
NGF	CSB-E04683h	Human Nerve growth factor,NGF ELISA kit	6.86 pg/ml
NINJ1	CSB-EL015808HU	Human Ninjurin-1(NINJ1) ELISA kit	6.25 pg/mL
NMP-22	CSB-E09037h	Human Nuclear matrix protein 22,NMP-22 ELISA Kit	0.156 ng/mL
NMU	CSB-EL015902MO	Mouse neuromedin U (NMU) ELISA kit	0.225 ng/mL
NOS1	CSB-E13872h	Human Neuronal Nitric Oxide Synthase (nNOS) ELISA Kit	0.039 IU/mL
NOS2	CSB-E08148h	Human inducible nitric oxide synthase,iNOS ELISA KIT	0.225 IU/mL
NOS3	CSB-E08324m	Mouse Endothelial nitric oxide synthase,eNOS ELISA Kit	0.078 IU/mL
NOTCH3	CSB-EL015952HU	Human Neurogenic locus notch homolog protein 3(NOTCH3) ELISA kit	31.25 pg/mL
NPTX2	CSB-EL016030HU	Human Neuronal pentraxin-2(NPTX2) ELISA kit	0.039 ng/mL
NPY	CSB-E08170m	Mouse neuropeptide Y (NPY) ELISA kit	0.46 pg/mL
NPY	CSB-E08168h	Human neuropeptide Y (NPY) ELISA kit	0.195 pg/mL
NRG2	CSB-EL016078HU	Human neuregulin-2 (NRG2) ELISA kit	7.81 pg/mL
NRG4	CSB-EL016080HU	Human neuregulin-4 (NRG4) ELISA kit	31.25 pg/mL
NRG4	CSB-EL016080MO	Mouse neuregulin-4 (NRG4) ELISA kit	0.78 ng/mL
NRN1	CSB-EL016088HU	Human Neuritin(NRN1) ELISA kit	7.81 pg/mL
NRP2	CSB-EL016092HU	Human Neuropilin-2(NRP2) ELISA kit	0.078 ng/mL
NRTN	CSB-EL016095MO	Mouse Neurturin(NRTN) ELISA kit	7.81 pg/mL
NTN1	CSB-E11899h	Human Netrin-1,Ntn1 ELISA Kit	7.81 pg/mL
NTN1	CSB-EL016127RA	Rat Netrin-1(NTN1) ELISA kit	4.7 pg/mL
NTS	CSB-E09144h	Human Neurotensin,NT ELISA Kit	3.9 pg/ml
NTS	CSB-EL016136RA	Rat neurotensin (NTS) ELISA kit	3.9 pg/mL

Target	Code	Product Name	Sensitivity
NTS	CSB-EL016136MO	Mouse neurotensin (NTS) ELISA kit	1.56 pg/mL
OPRM1	CSB-EL016361HU	Human Mu-type opioid receptor(OPRM1) ELISA kit	7.81 pg/mL
Orexin A	CSB-E08859h	Human Orexin A ELISA Kit	0.039 ng/mL
Orexin A	CSB-E08861m	Mouse Orexin A ELISA Kit	19.5 pg/mL
P2RX7	CSB-EL017325HU	Human P2X purinoceptor 7(P2RX7) ELISA kit	6.25 pg/mL
PEDF	CSB-E08818h	Human pigment epithelium-derived factor,PEDF ELISA Kit	0.039 ng/mL
PEDF	CSB-E08819r	Rat pigment epithelium-derived factor,PEDF ELISA Kit	1.56 pg/mL
PENK	CSB-EL017781HU	Human proenkephalin (PENK) ELISA kit	3.9 pg/mL
PLXNB1	CSB-EL018222HU	Human Plexin-B1(PLXNB1) ELISA kit	19.5 pg/mL
pMAPT /pTAU	CSB-E17929h	Human phosphorylated microtubule-associated protein tau (pMAPT /pTAU) ELISA kit	7.8 pg/mL
PMP2	CSB-E09601h	Human Myelin P2 protein (PMP2) ELISA kit	Request Information
PRNP	CSB-EL018739BO	Bovine Major prion protein(PRNP) ELISA kit	0.01 ng/ml
PROK2	CSB-EL018747HU	Human Prokineticin-2(PROK2) ELISA kit	1.56 pg/mL
proNGF	CSB-E17311h	Human Pro-Nerve growth factor(proNGF)ELISA kit	0.039 ng/mL
proNGF	CSB-EQ027721MO	Mouse Pro-Nerve growth factor (proNGF) ELISA kit	5.8 pg/mL
PTH1H	CSB-E08649h	Human Parathyroid Hormone Related Protein,PTHrP ELISA Kit	7.81 pg/mL
PYY	CSB-E13432r	Rat Polypeptide YY(PYY)ELISA Kit	1.95 pg/mL
REG3G	CSB-EL019549HU	Human Regenerating islet-derived protein 3-gamma(REG3G) ELISA kit	0.78 ng/mL
REG3G	CSB-EL019549MO	Mouse Regenerating islet-derived protein 3-gamma(REG3G) ELISA kit	3.9 pg/mL
RELN	CSB-EL019557MO	Mouse Reelin(RELN) ELISA kit	1.56 pg/mL
RELN	CSB-EL019557HU	Human Reelin(RELN) ELISA kit	0.009 ng/ml
S100A12	CSB-E13095h	Human S100 calcium binding protein A12/Calgranulin-C(S100A12) ELISA Kit	0.039ng/ml
S100A4	CSB-EL020632HU	Human Protein S100-A4(S100A4) ELISA kit	0.225 ng/mL
S100B	CSB-E08065h	Human Soluble protein-100B,S-100B ELISA Kit	19.5 pg/mL
S100B	CSB-EL020643MO	Mouse Protein S100-B(S100B) ELISA kit	0.78 pg/mL
S-100B	CSB-E14063p	Pig Soluble protein-100B,S-100B ELISA Kit	19.5 pg/mL
SAA	CSB-E13309p	Pig serum amyloid A,SAA ELISA Kit	19.53 pg/mL
SAA	CSB-E08590r	Rat Serum amyloid A,SAA ELISA Kit	19.5 ng/mL

Target	Code	Product Name	Sensitivity
SAA1	CSB-E08589h	Human Serum amyloid A,SAA ELISA Kit	39 ng/mL
SAA1	CSB-EL020656MO	Mouse serum amyloid A1 (SAA1) ELISA kit	0.78 ng/ml
SAA1	CSB-E08592b	Bovine Serum amyloid A,SAA ELISA Kit	0.05 µg/mL
SAA3	CSB-EL020658MO	Mouse serum amyloid A-3 protein (SAA3) ELISA kit	0.039 ng/mL
sAPPα	CSB-EQ027464HU	Human soluble amyloid precursor protein α (sAPPα) ELISA kit	3.12 ng/mL
SCUBE1	CSB-E15005h	Human Signal Peptide, CUB and EGF-like Domain-containing Protein 1(SCUBE1)ELISA Kit	0.156 ng/mL
SDC1	CSB-EL020888MO	Mouse Syndecan-1(SDC1) ELISA kit	15.6 pg/mL
SDC1	CSB-E17413p	Pig Syndecan-1/CD138(SDC1) ELISA Kit	1.25 ng/mL
SDC1	CSB-E14983h	Human Syndecan-1/CD138(SDC1) ELISA Kit	1.17 ng/mL
SDC1	CSB-E17115r	Rat Syndecan-1/CD138(SDC1) ELISA Kit	0.078 ng/mL
SDC2	CSB-EL020889HU	Human Syndecan-2(SDC2) ELISA kit	23.43 pg/mL
SDC2	CSB-EL020889RA	Rat Syndecan-2(SDC2) ELISA kit	0.78 ng/mL
SDC4	CSB-EL020891MO	Mouse syndecan 4 (SDC4) ELISA kit	0.78 pg/mL
SDF-1/CXCL12	CSB-E12656Rb	Rabbit stromal cell derived factor 1 (SDF-1/CXCL12) ELISA kit	0.36 pg/mL
SDF1A/CXCL12	CSB-EQ027490HU	Human stromal cell-derived factor 1 alpha (SDF1A) ELISA kit	7.81 pg/mL
SDF1a/CXCL12	CSB-E12055p	Pig Stromal cell derived factor 1a,SDF-1a ELISA Kit	0.078 ng/mL
SDF1A/CXCL12	CSB-EQ027494MO	Mouse stromal cell derived factor 1α(SDF-1α/SDF1A)ELISA kit	0.039 ng/mL
SERPINE2	CSB-EL021082MO	Mouse Glia-derived nexin(SERPINE2) ELISA kit	0.78 pg/mL
SERPINE2	CSB-EL021082HU	Human Glia-derived nexin(SERPINE2) ELISA kit	0.078 ng/mL
SMPDL3B	CSB-EL021850HU	Human Acid sphingomyelinase-like phosphodiesterase 3b(SMPDL3B) ELISA kit	0.156 ng/mL
SNCA	CSB-E18033h	Human synuclein, alpha (non A4 component of amyloid precursor) oligomer (SNCA oligomer) ELISA kit	0.078 ng/mL
SP	CSB-E08357h	Human Substance P,SP ELISA Kit	1.56 pg/mL
SP	CSB-E08359m	Mouse Substance P,SP ELISA Kit	0.78 pg/mL
SYP	CSB-E17406h	Human synaptophysin (SYP) ELISA kit	15.6 pg/mL
TARDBP	CSB-E17007h	Human TAR DNA-binding protein 43 (TARDBP/TDP43) ELISA kit	0.078 ng/mL
TGFBI	CSB-E16665h	Human Transforming growth factor-beta-induced protein ig-h3 (TGFBI/BIGH3) ELISA kit	19.5 pg/mL
TH	CSB-E13102r	Rat Tyrosine Hydroxylase(TH) ELISA Kit	19.5 pg/mL
TH	CSB-E17645m	Mouse tyrosine hydroxylase(TH)ELISA Kit	15.6 pg/mL

Target	Code	Product Name	Sensitivity
TH	CSB-E09661h	Human tyrosine hydroxylase,TH ELISA Kit	0.078 ng/mL
TNC	CSB-EL023954MO	Mouse Tenascin(TNC) ELISA kit	2.34 pg/mL
TREM2	CSB-EL024405MO	Mouse Triggering receptor expressed on myeloid cells 2(TREM2) ELISA kit	0.039 ng/mL
TREM2	CSB-EL024405RA	Rat triggering receptor expressed on myeloid cells 2(TREM2) ELISA kit	3.9 pg/mL
TRIM72	CSB-EL024511HU	Human Tripartite motif-containing protein 72(TRIM72) ELISA kit	6.25 pg/mL
TUBB3	CSB-E14121h	Human Tubulin Beta-3 Chain (TUBB3)ELISA Kit	0.156 ng/mL
TWSG1	CSB-EL025361HU	Human Twisted gastrulation protein homolog 1(TWSG1) ELISA kit	31.25 pg/mL
VCAN	CSB-E11884h	Human versican/PG-M/PG-350 ELISA kit	0.04 ng/ml
VGF	CSB-EL025847HU	Human VGF nerve growth factor inducible (VGF) ELISA kit	0.078 ng/mL
YBX1	CSB-EL026247HU	Human Nuclease-sensitive element-binding protein 1(YBX1) ELISA kit	7.8 pg/mL
β2TF	CSB-EQ027323HU	Human beta 2 transferrin (β2TF) ELISA kit	0.31 μg/mL
γ-Secretase	CSB-E13495h	Human γ-Secretase ELISA kit	7.8 pg/mL
	CSB-EL003433HU	Human Myeloid-derived growth factor(MYDGF) ELISA kit	

Main Research Direction of Neuroscience

● Neurotransmitter receptors:

include two types: ion channel receptors (such as acetylcholine receptors, glutamate receptors, and γ-aminobutyric acid (GABA) receptors) and G protein-coupled receptors (such as serotonin receptors, dopamine receptors, and adrenergic receptors). Neurotransmitter receptors bind with neurotransmitter molecules to trigger intracellular signaling pathways, thereby modulating the excitatory, inhibitory, and regulatory functions of neurons by altering the cell's membrane potential, ion channel activity, or intracellular metabolic processes.

Neurotransmitter receptors are often targeted by drugs. For example, CHAT enzyme is closely associated with the occurrence and development of various neurological diseases such as myasthenia gravis and autonomic neuropathy due to its involvement in acetylcholine synthesis. GABBR1, on the other hand, affects the excitatory-inhibitory balance of neurons by regulating the signaling of GABA, leading to epilepsy.

● Neurotrophic factors and receptors:

neurotrophic factors regulate the survival, development and function of nerve cells by binding to the corresponding receptors, to provide the necessary nutrition and support for neurons. Neurotrophic factors are essential for the development of the nervous system, learning and memory, neurodegenerative diseases and the repair of nervous system damage. Common neurotrophic factors include nerve growth factors (NGF), brain derived neurotrophic factors (BDNF), glial cell-derived neurotrophic factor (GDNF) etc.

● Glial cells:

include astrocytes, oligodendrocytes, and microglia, among others. The functions of glial cells include providing structural and support to neurons, maintaining the nourishment and metabolism of neurons, regulating ion balance in the nervous system, and participating in immune and inflammatory responses. Many experiments have shown that astrocytes, in particular, possess various neurotransmitter receptors. Consequently, neurotransmitters released during neuronal excitation also elicit complex physiological effects in glial cells. GFAP is a hallmark protein of glial cells, commonly used to label and study the function and

activity of glial cells. Abnormal expression of GFAP is associated with various neurological disorders, such as brain injuries, Parkinson's disease, and Alzheimer's disease.

● Neuroimmune regulation:

neuroimmune regulation affects the differentiation, activation and function of immune cells through the interaction of signaling molecules such as neurotransmitters, neuropeptides, cytokines and receptors, and regulates the immune inflammatory response, immune tolerance and the dynamic balance of immune cells. The neuroimmune regulation process involves multiple targets. For example, SEMA4D, as an immune-specific secreted and membrane-bound protein, plays a crucial role in oligodendrocyte migration, central nervous system inflammation, and neurodegeneration. Abnormal expression of SEMA4D can lead to neuroinflammatory demyelinating diseases and multiple sclerosis.

● Ion channel:

the protein channels responsible for regulating the membrane potential and ion flow of nerve cells, including Na⁺ channel, K⁺ channel, and Ca²⁺ channel. The research on the structure, function and regulatory mechanism of ion channels can reveal the correlation between ion channels and nervous system diseases, and provide the basis for the development of new drug targets and treatment strategies. For example, the development of drugs targeting specific ion channels to regulate the electrical activity and excitability of neurons and treat related neurological diseases.

● Synaptic proteins:

are a class of proteins that are present on the pre- and postsynaptic membranes. These proteins are involved in synaptic transmission and synaptic plasticity, influencing the communication and information transfer between neurons. Their abnormal expression and function may be associated with neurological disorders such as depression and schizophrenia. For example, aberrant expression of the synaptic vesicle protein Synaptophysin (Syn) may contribute to the occurrence of epilepsy.

Research in the field of neuroscience/brain science can help us gain a deeper understanding of the functioning of the nervous system and the underlying mechanisms of related diseases. It provides a theoretical foundation for the prevention, diagnosis, and treatment of diseases.

By investigating the neural pathways, neurotransmitters, receptors, and other components of the nervous system, researchers can identify targets and develop strategies for drug development. This allows for the development of new therapeutic approaches by modulating the function of the nervous system. Ultimately, neuroscience research contributes to advancements in disease management and the improvement of patient outcomes.