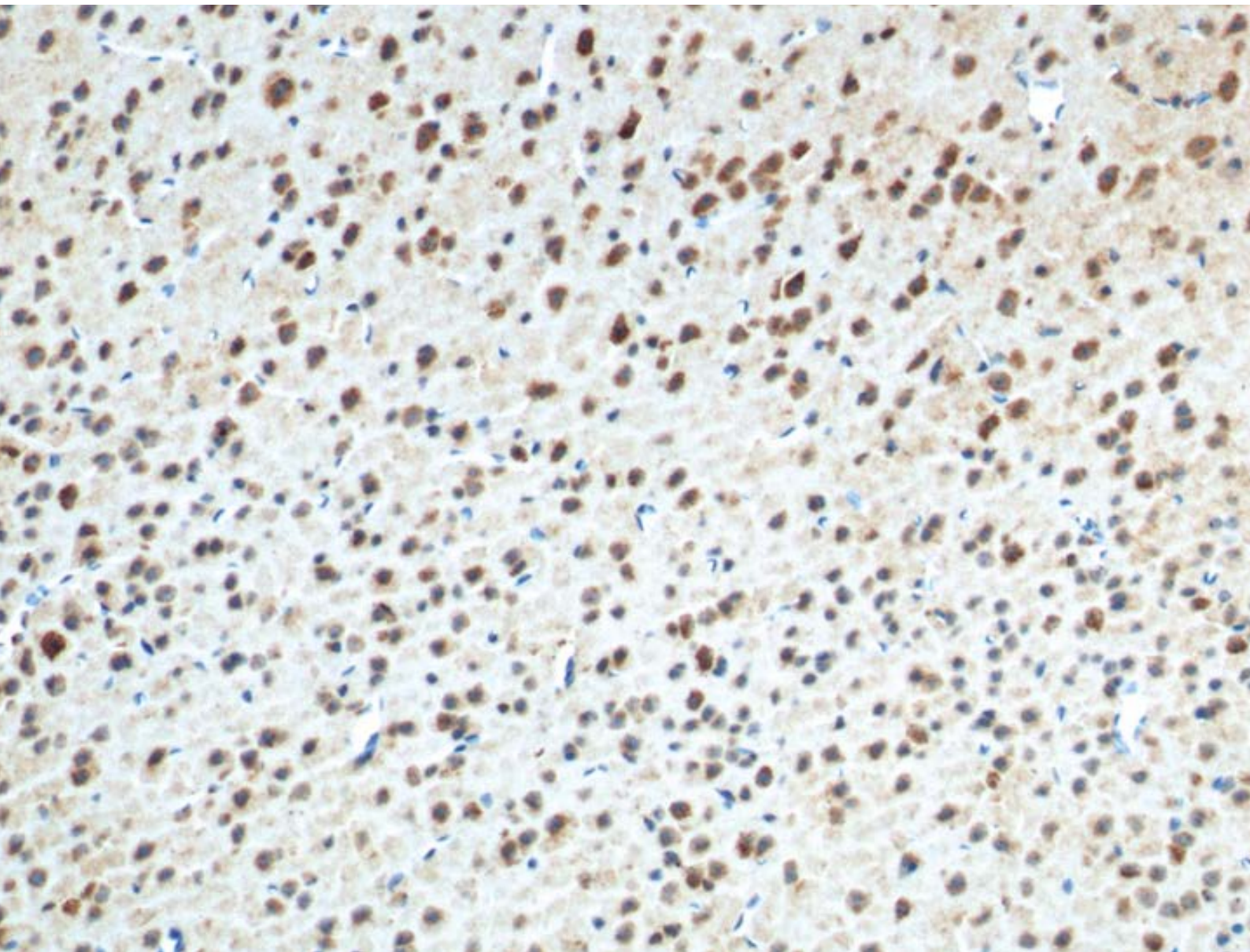


ANTIBODIES FOR NEUROCIRCUITRY

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Front Cover:

Immunohistochemical staining of paraffin-embedded mouse brain tissue slide using ADORA1 antibody (55026-1-AP) at a dilution of 1:200 (10x objective). Heat-mediated antigen retrieved with Tris-EDTA buffer (pH9).

WELCOME

Neurocircuitry, the neural wiring of the brain, is a term steeped in computer-based allegories that can oversimplify the complexity of the brain's neuronal activity. However, neuroscientists have long recognized that the brain is far more complex than any man-made machine. It's estimated that there are approximately 100 billion neurons in the human brain and up to ten times as many connections that form between them. These connections – in the form of synaptic junctions – can arise between the same two cells multiple times, between those adjacent to and distant from each other, and vary in strength. Adding to this complexity is an array of neurotransmitters, which can be either excitatory or inhibitory; some can even elicit their neuromodulatory effects at sites great distances from their release. In addition to these chemical signals, the existence of electrical gap junctions between neurons adds yet another layer of intricacy to the brain's neurocircuitry.

Though a variety of sophisticated technologies are at the forefront of neurocircuitry and neurophysiological research, antibodies also have a role to play. Here we present a selection of antibodies for studying the structure and function of synapses, which arguably provide the fundamental underpinning of neurocircuitry in the cerebral cortex and facilitate neuronal plasticity.

Neurocircuitry abnormalities remain incompletely understood and consequently current treatment options are unfortunately limited in efficacy.

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Since the day it was founded, Proteintech has been making all of its products to the highest standards possible while taking complete responsibility for the quality of each product.

- Proteintech makes every single antibody in its 12,000+ catalog.
- Each Proteintech product is unique and cannot be bought under a different label.
- Antibodies are tested with siRNA-treated samples to demonstrate specificity.
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Proteintech has over 12,000 antibodies in its extensive catalog, all fully validated and available for next day delivery.

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Antibodies Related To:

Addiction

Addiction is a chronic disorder that relapses. It is characterized by a need to take a drug and not being able to control its intake, accompanied by a negative emotional state when the intake is prevented.

Antibody Name	Catalog Number	Type	Applications
AGS3	11483-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
FAAH	1 17909-1-AP	Rabbit Poly	ELISA, IHC, WB
PPP3CA	13422-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
PPP3CA-specific	1 55147-1-AP	Rabbit Poly	ELISA, IHC, WB

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Antibodies Related To:

Attention Deficit Hyperactivity Disorder (ADHD)

Attention deficit hyperactivity disorder (ADHD) patients show different types of symptoms, such as hyperactivity, inattentiveness, or impulsiveness.

Antibody Name	Catalog Number	Type	Applications
CORO1A	2 17760-1-AP	Rabbit Poly	ELISA, IP, WB
DAT	2 22524-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
LPHN3	20045-1-AP	Rabbit Poly	ELISA, FC, IP, WB
SLC9A9	1 13718-1-AP	Rabbit Poly	ELISA, IF, WB
TPH2	22590-1-AP	Rabbit Poly	ELISA, WB

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PRODUCT FOCUS

DOCK3; MOCA

Catalog Number
20683-1-AP

Type
Rabbit Polyclonal

Applications
ELISA, WB

1 Publication

Dedicator of cytokinesis3 (DOCK3), also known as MOCA and PBP, is a ~180 kDa protein involved in signaling transduction. It is a potential guanine nucleotide exchange factor (GEF) that activates small GTPases by exchanging bound GDP for free GTP. DOCK3 is associated in Alzheimer's disease tangles and regulates the accumulation of amyloid precursor protein and beta-amyloid. Overexpression of DOCK3 in neural cells

promotes axonal outgrowth downstream of brain-derived neurotrophic factor (BDNF) signaling. DOCK3 binds to and inactivates glycogen synthase kinase-3 β (GSK-3 β) at the plasma membrane, thereby promoting axon branching and microtubule assembly. By stimulating actin polymerization and microtubule assembly, DOCK3 plays important roles downstream of BDNF signaling in the CNS.

Antibodies Related To:

Cognition

Decision making (DM) includes complex cooperation between cognition and emotion. How the neural system promotes the cooperation of cognitive and emotional remains unclear. Understanding the cellular and circuit mechanisms of cognition of the hippocampus and cortex system will provide critical support for diverse mental health issues.

Antibody Name		Catalog Number	Type	Applications
Adenosine A1 Receptor	1	55026-1-AP	Rabbit Poly	ELISA, IHC, WB
CBR3	1	15619-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
CHL1		25250-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
CHRNA7		21379-1-AP	Rabbit Poly	ELISA, WB
CTNS		13085-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
CUX2		24902-1-AP	Rabbit Poly	ELISA, WB
DGCR2		13705-1-AP	Rabbit Poly	ELISA, WB
DNAJB2	3	10838-1-AP	Rabbit Poly	ELISA, IP, WB
DOCK8	1	11622-1-AP	Rabbit Poly	ELISA, IHC, WB
ELN	2	15257-1-AP	Rabbit Poly	ELISA, IHC, IP
FMN2	1	11259-1-AP	Rabbit Poly	ELISA, IHC, WB
GNAS	1	10150-2-AP	Rabbit Poly	ELISA, IHC, IP, WB
GOSR2/Membrin		12095-1-AP	Rabbit Poly	ELISA, IF, WB
HDAC4	5	17449-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
HDAC4-specific	1	16165-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
HLA-DRA		17221-1-AP	Rabbit Poly	ELISA, IHC, WB
HOXA1		13513-1-AP	Rabbit Poly	ELISA, WB
HTR6		23561-1-AP	Rabbit Poly	ELISA, IHC
JAKMIP1	2	13846-1-AP	Rabbit Poly	ELISA, FC, IHC, IP, WB
KIF1C		12760-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
LHCGR	3	19968-1-AP	Rabbit Poly	ELISA, WB
LIMK1		19699-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
MAGT1	3	17430-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
MAOA	5	10539-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
NESP55,GNAS		66253-1-Ig	Mouse Mono	ELISA, WB
NIPBL		18792-1-AP	Rabbit Poly	ELISA, IF, WB
PANK2		11001-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
PEX16	3	14816-1-AP	Rabbit Poly	ELISA, IF, WB
PI3K p85(alpha)	1	60225-1-Ig	Mouse Mono	ELISA, IF, IHC, IP, WB
REEP2	2	15684-1-AP	Rabbit Poly	ELISA, FC, WB
RP9		16832-1-AP	Rabbit Poly	ELISA, WB
SLC1A4		13067-2-AP	Rabbit Poly	ELISA, IP, WB
SRGAP2		22519-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
SRPX2	3	11845-1-AP	Rabbit Poly	ELISA, IHC, WB

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Related Antibodies

Continued

Antibody Name	Catalog Number	Type	Applications
ST3GAL4	13546-1-AP	Rabbit Poly	ELISA, IHC, WB
STRA6	1 22001-1-AP	Rabbit Poly	ELISA, WB

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PRODUCT FOCUS

CHMP2B

Catalog Number
12527-1-AP

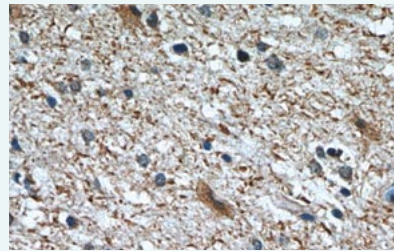
Type
Rabbit Polyclonal

Applications
ELISA, IF, IHC, WB

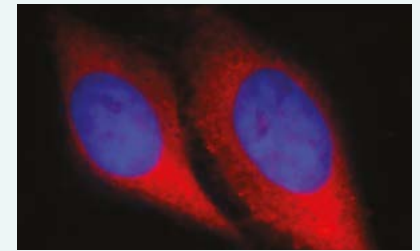
1 Publication

CHMP2B, chromatin-modifying protein 2b, also known as CHMP2.5, VPS2B, and VPS2 2, belongs to the chromatin-modifying protein/charged multivesicular body protein (CHMP) family. It is a component of the endosomal sorting complex required for transport III (ESCRT-III), which involves the endosomal and autophagic trafficking of proteins to lysosomes for degradation.

Mutations of CHMP2B lead to C-terminal truncation or to it being replaced with missplicing C-termini and causing frontotemporal lobar degeneration (FTLD). In CHMP2B mutation patients, p62- and ubiquitin-positive, but TDP-43 and FUS negative neural inclusions are formed, possibly caused by impaired lysosomal degradation through the autophagy and endosome-lysosome pathways.



Immunohistochemical staining of paraffin-embedded human brain using CHMP2B antibody (12527-1-AP) at a dilution of 1:50 (40x objective).



Immunofluorescence staining of HepG2 cells using CHMP2B antibody (12527-1-AP) at a dilution of 1:25 and goat anti-rabbit IgG rhodamine-labeled secondary antibody (red). Blue pseudocolor = DAPI (fluorescent DNA dye).

Adenosine A1 Receptor

Catalog Number
55026-1-AP

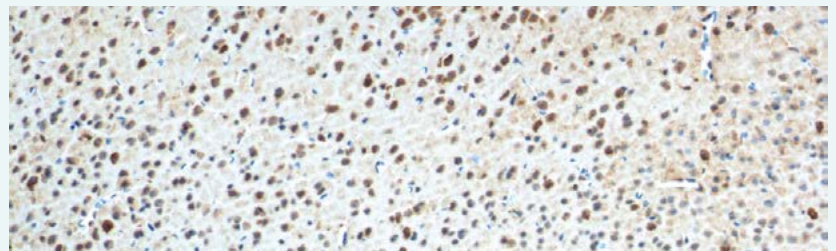
Type
Rabbit Polyclonal

Applications
ELISA, IHC, WB

1 Publication

ADORA1, also known as RDC7, is a receptor for adenosine. It is mediated by G proteins that inhibit adenylyl cyclase. Adenosine

is an important mediator of ethanol intoxication and exerts some of its effects via ADORA1 in the central nervous system.



Immunohistochemical staining of paraffin-embedded mouse brain tissue slide using ADORA1 antibody (55026-1-AP) at a dilution of 1:200 (10x objective). Heat-mediated antigen retrieved with Tris-EDTA buffer (pH9).

Antibodies Related To:

Depression

Depression is a common mental illness. Deeper insights into the neurocircuitry of mood disorders will help to elucidate the vulnerability of certain individuals to depression. During depression, different risk factors, such as environmental influences, trigger different cellular events leading to neuronal dysfunction and disruption of neurocircuitry. Better understanding of these mechanisms will help in the development of novel antidepressants.

Antibody Name	Catalog Number	Type	Applications
ABHD6	20494-1-AP	Rabbit Poly	ELISA, WB
ARF1	5 10790-1-AP	Rabbit Poly	ELISA, IHC, WB
CD38	1 25284-1-AP	Rabbit Poly	ELISA, FC, IHC, WB
CISD2	7 13318-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
CISD2-Specific	66082-1-Ig	Mouse Mono	ELISA, IF, IHC, WB
CPLX2	3 18149-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
DNMT1	3 24206-1-AP	Rabbit Poly	ELISA, IF, IP, WB
DRD1	2 17934-1-AP	Rabbit Poly	ELISA, WB
DRD5	3 20310-1-AP	Rabbit Poly	ELISA, FC, WB
FMR1	13755-1-AP	Mouse Mono	ELISA, IF, IHC, IP, WB
GLYAT	10900-1-AP	Rabbit Poly	ELISA, WB
GLYATL1	15717-1-AP	Rabbit Poly	ELISA, IHC, WB
KCNB1-Specific	1 19963-1-AP	Rabbit Poly	ELISA, IF
mGluR1	1 19955-1-AP	Rabbit Poly	ELISA, FC, IHC, WB
p150 glued	55182-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
PDLIM5	2 10530-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
PICK1	3 10983-2-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
PLK2	15956-1-AP	Rabbit Poly	ELISA, IP, WB
POLG2	10997-2-AP	Rabbit Poly	ELISA, IF, IHC, WB
PPP1R9A	18801-1-AP	Rabbit Poly	ELISA, IF, WB
PTEN	5 60300-1-Ig	Mouse Mono	ELISA, IF, IHC, WB
PYK2	17592-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
RRM2B, p53R2	18005-1-AP	Rabbit Poly	ELISA, WB
SERCA2	1 13985-1-AP	Rabbit Poly	ELISA, WB
SRF	1 16821-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
STXBP1	1 11459-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
TPH2	22590-1-AP	Rabbit Poly	ELISA, WB
TRPV1	22686-1-AP	Rabbit Poly	ELISA, IHC, WB
Twinkle	1 13435-1-AP	Rabbit Poly	ELISA, IHC, WB
XBP1	1 25997-1-AP	Rabbit Poly	ELISA, IHC, WB
XBP1S	24868-1-AP	Rabbit Poly	ELISA, IHC, WB

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PRODUCT FOCUS

WFS1

Catalog Number
11558-1-AP

Type
Rabbit Polyclonal

Applications
ELISA, IHC, IP, WB

17 Publications

Wolfram syndrome protein (WFS1), also called wolframin, is a transmembrane protein located primarily in the endoplasmic reticulum, the expression of which is induced in response to ER stress, partially through transcriptional activation. ER localization suggests that WFS1 protein has physiological functions in membrane trafficking, secretion,

processing, and/or regulation of ER calcium homeostasis. It is ubiquitously expressed at the highest levels in the brain, pancreas, heart, and insulinoma beta-cell lines. Mutations of the WFS1 gene are responsible for two hereditary diseases, autosomal recessive Wolfram syndrome and autosomal dominant low-frequency sensorineural hearing loss.



Western blotting of mouse brain tissue subjected to SDS PAGE with WFS1 antibody (11558-1-AP) at a dilution of 1:1500.

PAX6

Catalog Number
12323-1-AP

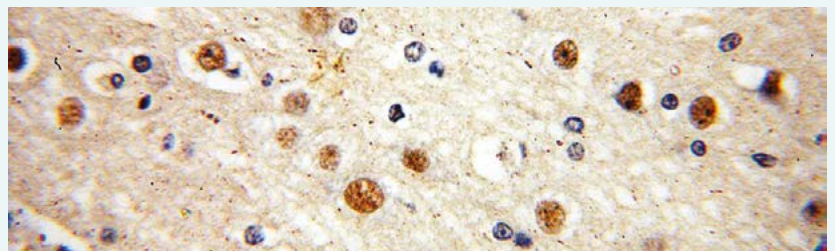
Type
Rabbit Polyclonal

Applications
ELISA, FC, IF, IHC, WB

6 Publications

PAX6 is a paired domain and homeodomain-containing transcription factor. Interaction with TRIM11 leads to ubiquitination of PAX6 and its proteasomal degradation. PAX6 is one of the earliest genes expressed in the

eye field and considered a master control gene for retinal and eye development. PAX6 also regulates the development of the olfactory and central nervous systems, pituitary, and pancreas.



Immunohistochemical staining of paraffin-embedded human brain using PAX6 antibody (12323-1-AP) at a dilution of 1:50 (40x objective).

Antibodies Related To:

Eating Disorders

Eating disorders are serious mental disorders with short lifetime. Bulimia and anorexia patients show distinct brain circuitry that may support the pathophysiology of eating disorders.

Antibody Name	Catalog Number	Type	Applications
BDNF	5 25699-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
CPT1A	32 15184-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB

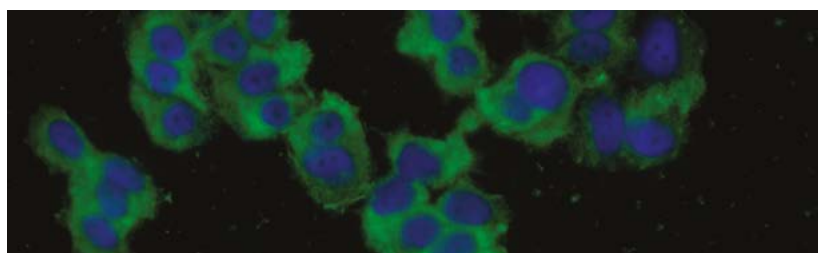
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Related Antibodies

Continued

Antibody Name	Catalog Number	Type	Applications
STAT3	9 10253-2-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
TH	25859-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
UCHL1	66230-1-Ig	Mouse Mono	ELISA, IF, IHC, WB

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Immunofluorescence staining of fixed PC-12 (-20°C Ethanol) cells using BDNF antibody (25699-1-AP) at a dilution of 1:50 and goat anti-rabbit IgG(H+L) Alexa Fluor 488-conjugated secondary antibody.

PRODUCT FOCUS

UCHL1/PGP9.5

Catalog Number
14730-1-AP

Type
Rabbit Polyclonal

Applications
ELISA, IF, IP, WB

3 Publications

UCHL1 (Ubiquitin carboxyl-terminal hydrolase isozyme L1) is a member of a gene family whose products hydrolyze small C-terminal adducts of ubiquitin to generate the ubiquitin monomer. Expression of UCHL1 is highly specific to neurons and to cells of the diffuse neuroendocrine system and their tumors. It is present in all neurons. This protein is present in the brain at concentrations at least 50 times greater than in other organs and is a major protein component of neuronal cytoplasm. UCHL1 is also a Parkinson's disease susceptibility gene.

Antibodies Related To:

Fear

Fear is a normal human emotion. Fear is an adaptive function and response to certain situations or contexts that depict danger.

Antibody Name	Catalog Number	Type	Applications
ALS2	13998-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
BCL2	138 12789-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB

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Related Antibodies

Continued

Antibody Name		Catalog Number	Type	Applications
CBP, EIF4E	3	11149-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, WB
CCK		13074-2-AP	Rabbit Poly	ELISA, IHC, WB
Connexin-43	4	15386-1-AP	Rabbit Poly	ELISA, FC, IHC, IP, WB
CRH/CRF	2	10944-1-AP	Rabbit Poly	ELISA, IHC, WB
DEAF1		18323-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
Dopamine beta Hydroxylase		10777-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
DPP4	3	10940-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
DRD1	2	17934-1-AP	Rabbit Poly	ELISA, WB
EIF4G1	3	15704-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
ESR2	6	14007-1-AP	Rabbit Poly	ELISA, IHC, WB
ESR2 Beta-3		55441-1-AP	Rabbit Poly	ELISA, IHC
ESR2 Beta-6		55471-1-AP	Rabbit Poly	ELISA, IHC, WB
GRIK2		13597-1-AP	Rabbit Poly	ELISA, FC, WB
HTR1A		55302-1-AP	Rabbit Poly	ELISA, IHC
MEF2C	15	10056-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
Midkine	1	11009-1-AP	Rabbit Poly	ELISA, IF, IHC
p70S6K	4	14485-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
Proenkephalin-A		13531-1-AP	Rabbit Poly	ELISA, WB
ProGRP	1	14646-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
Stathmin		66090-1-Ig	Mouse Mono	ELISA, IF, IHC, WB
Urocortin		19731-1-AP	Rabbit Poly	ELISA, WB
USP46		13502-1-AP	Rabbit Poly	ELISA, IHC, WB
VDAC1/Porin	19	10866-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB

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PRODUCT FOCUS

CRH/CRF

Catalog Number
10944-1-AP

Type
Rabbit Polyclonal

Applications
ELISA, IHC, WB

2 Publications

Corticotropin-releasing hormone (CRH), also called CRF or corticoliberin, is a peptide hormone and neurotransmitter involved in the stress response. It belongs to the corticotropin-releasing factor family. A marked reduction in this protein has been observed in association with Alzheimer's disease and autosomal recessive hypothalamic corticotropin deficiency has multiple and

potentially fatal metabolic consequences, including hypoglycemia and hepatitis. In addition to production in the hypothalamus, this protein is also synthesized in peripheral tissues, such as T lymphocytes, and is highly expressed in the placenta. In the placenta it is a marker that determines the length of gestation and the timing of parturition and delivery.

PRODUCT FOCUS

Stathmin 1

Catalog Number
11157-1-AP

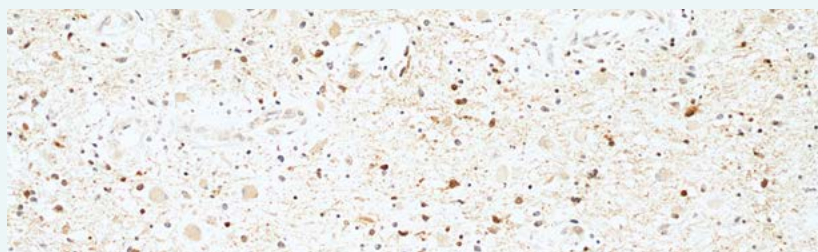
Type
Rabbit Polyclonal

Applications
ELISA, IF, IHC, WB

5 Publications

Stathmin 1 (STMN1) normally regulates microtubule dynamics either by sequestering free tubulin heterodimers or by promoting microtubule catastrophe. STMN1 is highly expressed in fetal and adult brain, spinal cord, and cerebellum. Many different phosphorylated forms are observed depending on specific combinations among the sites that can be phosphorylated. Phosphorylation of stathmin

is involved in response to NGF, neuron polarization, and microtubule polymerization inhibition activity. Increased expression of STMN1 has been observed in a variety of human malignancies, such as colorectal primary tumors and metastatic tissues, but its association with melanoma is so far not well known.



Immunohistochemical staining of paraffin-embedded human gliomas using STMN1 antibody (11157-1-AP) at a dilution of 1:50 (10x objective).

More Antibodies For Mood Disorders

Antibody Name	Catalog Number	Type	Applications
AVPR1B	14530-1-AP	Rabbit Poly	ELISA, IHC
CPLX2	3 18149-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
DISC1-long-specific	15500-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
EAAT3	12686-1-AP	Rabbit Poly	ELISA, IHC, WB
Ephrin B1	12999-1-AP	Rabbit Poly	ELISA, WB
FXYP6	15805-1-AP	Rabbit Poly	ELISA, FC, IHC, WB
HTR1A	12999-1-AP	Rabbit Poly	ELISA, IHC
HTR1B	22189-1-AP	Rabbit Poly	ELISA, IHC
ISYNA1	2 55142-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
PRODH	22980-1-AP	Rabbit Poly	ELISA, IHC, WB
RGS4	22590-1-AP	Rabbit Poly	ELISA, IF, IP, WB
SIGMAR1	1 15168-1-AP	Rabbit Poly	ELISA, IHC, WB
SMARCA2-Specific	26613-1-AP	Rabbit Poly	ELISA
TLE1	1 11284-1-AP	Rabbit Poly	ELISA, IHC
TPH2	55302-1-AP	Rabbit Poly	ELISA, WB

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