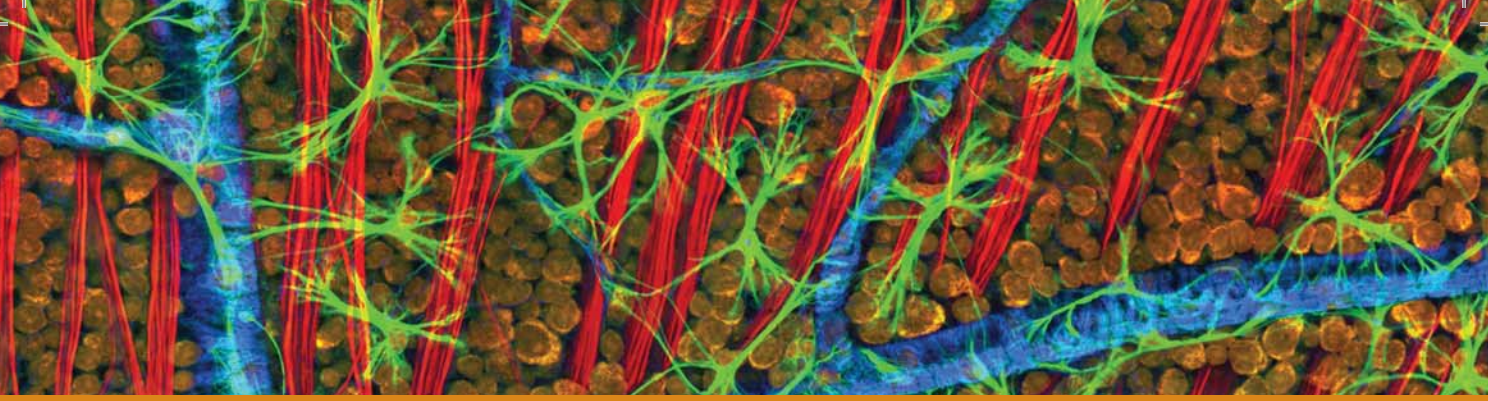
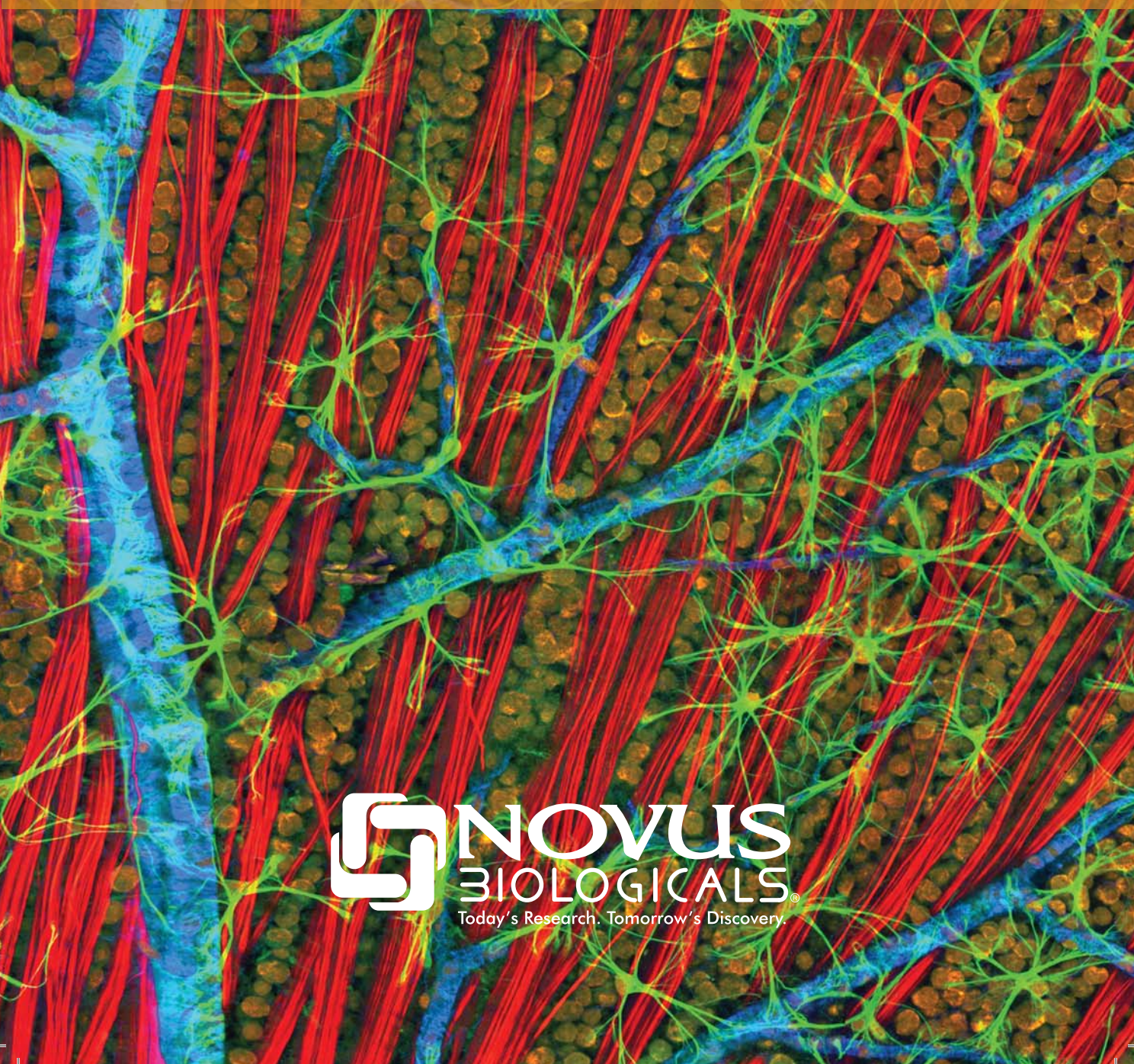


CATALOG OF ANTIBODIES FOR

NEUROSCIENCE



NOVUS BIOLOGICALS®

Today's Research. Tomorrow's Discovery.

Table of Contents

Application Key

ELISA - Elisa

FACS - Fluorescent Activated Cell Sorting

ICC - Immunocytochemistry

IF - Immunofluorescence

IHC - Immunohistochemistry

IHC-Fr - Immunohistochemistry Frozen

IHC-P - Immunohistochemistry Paraffin

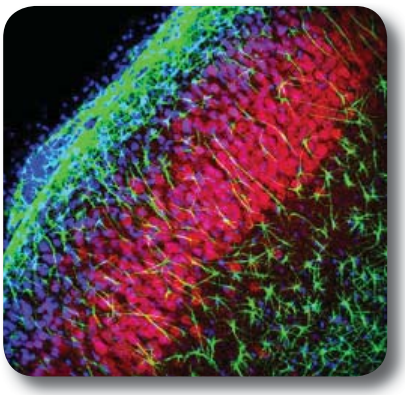
IP - Immunoprecipitation

WB - Western Blot

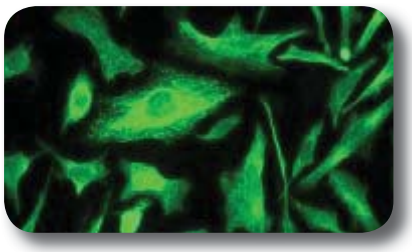
Reactivity Key

Av - Avian
Bv - Bovine
Ca - Canine
Ch - Chicken
Eq - Equine
Fe - Feline
Gp - Guinea Pig
Ha - Hamster
Hu - Human
Ma - Mammal
Mk - Monkey
Mu - Mouse
Po - Porcine
Rb - Rabbit
Rt - Rat
Sh - Sheep
Xp - Xenopus
Ze - Zebra Fish

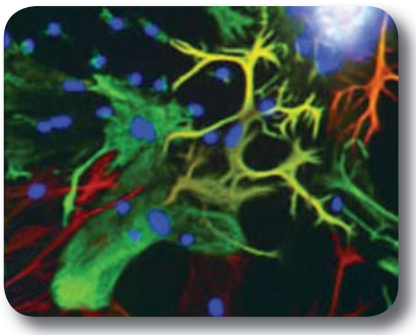
Neuroscience Antibodies



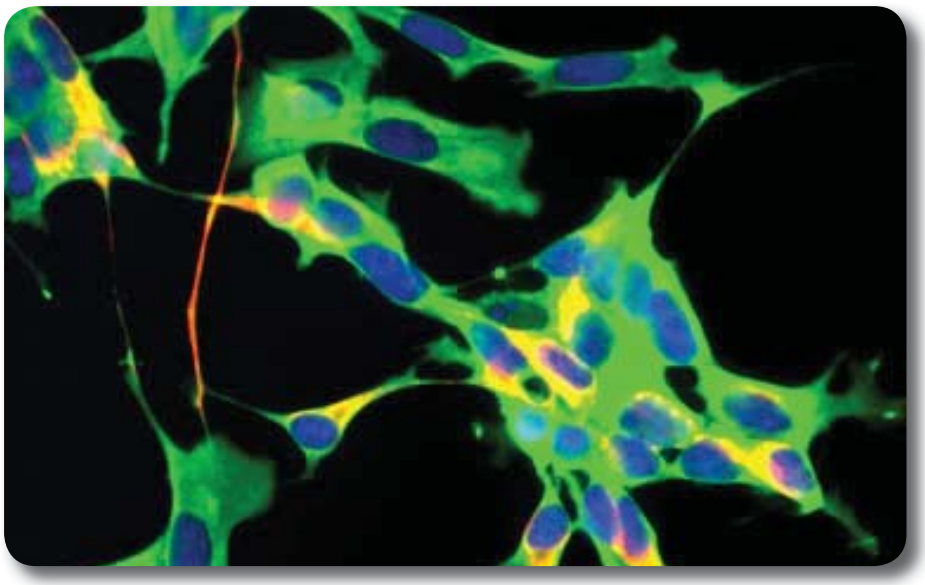
TRPM2



SOD1



Vimentin



GAPDH

About the Cover Image

Quadruple fluorescence image of mouse retina stained to reveal the distribution of GFAP in glial cells (green), f-actin in endothelial cells (blue), neurofilament 68kd in optic nerve axons (red), and DNA/RNA in cell nuclei and cytoplasm (orange).

Mitochondrial Dynamics

Mitochondria in healthy cells constantly cycle through fission and fusion. These mitochondrial dynamics are essential for mitochondrial energy production as well as regulation of cell proliferation and death via apoptosis.

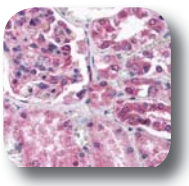
Problems with mitochondrial fusion and fission can be responsible for cell death leading to organism death in the fetal stages or neurodegenerative conditions such as Parkinson's disease later in life.

DRP1

A human dynamin-related protein, DRP1 contributes to mitochondrial division in mammalian cells. It plays this important role in mitochondrial fission at steady state and during apoptosis. DRP1 is required for proper cellular distribution of mitochondria and is important in regulating apoptosis and triggering cell death through increased mitochondrial fission. Overexpression promotes apoptosis.

Sample sizes are available for all products on this page.

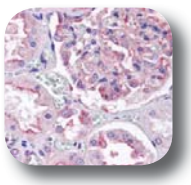
DRP1 Antibody
NB110-55237



Staining of renal tubular epithelium and visceral epithelial cells of glomerulus using NB110-55237.

Species: Hu, Mu
Applications: IHC, WB

DRP1 Antibody
NB110-55288



Staining of renal tubular epithelium and visceral epithelial cells of the glomerulus using NB110-55288.

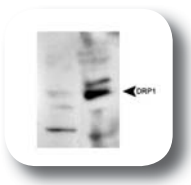
Species: Hu, Mu
Applications: IHC, WB

DRP1 Antibody
NB110-55237

Detection of DRP-1 in mouse embryonic fibroblast post-nuclear extracts using NB110-55237.

Species: Hu, Mu
Applications: IHC, WB

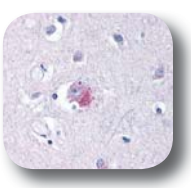
DRP1 Antibody
NB110-55288



Lane 1: DRP1 knockout
Lane 2: Detection of DRP-1 in wildtype MEF lysates using NB110-55288.

Species: Hu, Mu
Applications: IHC, WB

Mitofusin1 Antibody
NB110-58853



Intracellular staining of MFN-1 in neuronal cell body detected in sectioned human brain using NB110-58853.

Species: Hu, Mu
Applications: IHC, WB

Mitofusin1 Antibody
NB110-58853

Detection of MFN1 using NB110-58853.

Species: Hu, Mu
Applications: IHC, WB

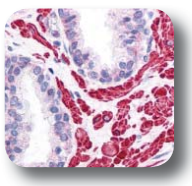
Mitofusin 1

A GTPase embedded in the outer membrane of the mitochondrion, Mfn1, along with Mfn2, is an essential promoter of mitochondrial fusion in mammalian cells. Overexpression of Mfn1 causes extensive tethering of mitochondria and an inhibition of apoptosis. Mfn1 is crucial to mediating the cycled balance between mitochondrial fusion and fission in mammalian cells.

OPA1

OPA1 is a dynamin-related protein on the inner membrane of the mitochondrion and is required for mitochondrial fusion. OPA1 is similar to dynamin-GTPases such as mitofusin 1. OPA1 is required for regulation of apoptosis via mitochondrial fusion. Mutations in the OPA1 gene cause the dominant disease Optic Atrophy type 1.

OPA1 Antibody
NB110-55290



Staining in prostatic smooth muscle and glandular epithelium using NB110-55290.

Species: Hu, Mu
Applications: IHC, WB

OPA1 Antibody
NB110-55290

Detection of Opa-1 in post-nuclear extracts of mouse embryonic fibroblasts using NB110-55290.

Species: Hu, Mu
Applications: IHC, WB

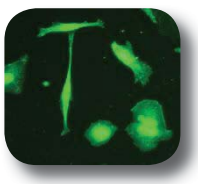
Parkinson's Disease

Parkinson's Disease (PD) is a neurodegenerative condition that primarily affects motor coordination. PD generally affects the elderly, although early-onset cases do occur. Protein aggregates called Lewy bodies develop inside neural cells and displace other cellular contents in PD, leading to the neurodegeneration that is characteristic of the disease.

Alpha Synuclein

Alpha-synuclein is a presynaptic neuronal protein that is thought to be involved in the formation of SNARE complexes. Alpha-synuclein aggregations are a major component of the Lewy bodies that cause Parkinson's Disease. Alpha-synuclein aggregations can also be found in other neurodegenerative conditions. Mutations in alpha-synuclein, thought to be responsible for this aggregation, are linked to familial Parkinson's Disease.

Alpha synuclein Antibody
NB110-57475



Immunofluorescent staining of PC12 cells using NB110-57475.

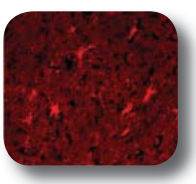
Species: Hu, Mu, Rt
Applications: ICC, WB

Alpha synuclein Antibody [Ser129]
NB110-57476

Detection of phospho-alpha synuclein in fetal brain lysates using NB110-57476.

Species: Hu
Applications: WB

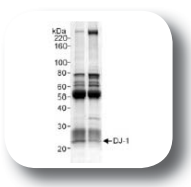
DJ-1 Antibody
NB300-270



Staining of human cortex using NB300-270.

Species: Hu, Mu
Applications: ICC, IHC, IP, WB

DJ-1 Antibody
NB100-2272



Detection of Human DJ-1 in HeLa whole cell extracts using NB100-2272.

Species: Hu
Applications: IP, WB

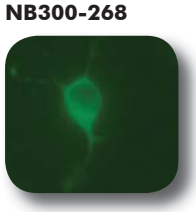
DJ-1 (PARK7)

DJ-1 (PARK7) is related to autosomal-recessive early-onset Parkinsonism. DJ-1 works with alpha-synuclein to protect neuronal cells from oxidative damage, and downregulation or mutation of DJ-1 eliminates this protection, leading to neural degeneration. Several distinct types of DJ-1 mutations have been linked to PD.

LRRK2 (PARK8)

This gene is a member of the leucine-rich repeat kinase family and encodes a protein with an ankryin repeat region, a leucine-rich repeat (LRR) domain, a kinase domain, a DFG-like motif, a RAS domain, a GTPase domain, an MLK-like domain, and a WD40 domain. The protein is present largely in the cytoplasm but also associates with the mitochondrial outer membrane. Mutations in this gene have been associated with PD.

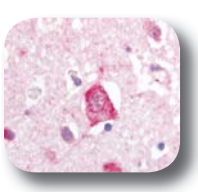
LRRK2 Antibody
NB300-268



Detection of LRRK2 in transfected mouse CAD cells using NB300-268.

Species: Bv, Hu
Applications: IF, IHC, IP, WB

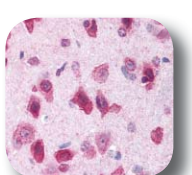
LRRK2 Antibody
NB300-267



Staining of neurons and glia in human brain using NB300-267.

Species: Hu
Applications: IHC-P, WB

LRRK2 Antibody
NB110-55289



Staining of neurons and glia in mouse brain using NB110-55289.

Species: Mu
Applications: IHC-P, WB

LRRK2 Antibody
NB110-58771

Staining of mouse brainstem using NB110-58771.

Species: Hu, Mu
Applications: IHC-Fr, WB

NEW

LRRK2 Antibody
NB110-78625

Detection of LRRK2 in human brain using NB110-78625.

Species: Hu
Applications: WB

LRRK2 Antibody
NB110-78628

Detection of LRRK2 in human brain using NB110-78628.

Species: Hu
Applications: WB

1. [LRRK2 NB300-267] Kingsbury AE, Sancho RM, Law B, Caley A, Lees AJ, Harvey K. Interaction of the Multidomain Protein Lrrk2 with Tubulin. 12th International Congress of Parkinson Disease and Movement Disorders; June 22 2008. Chicago, IL; USA.

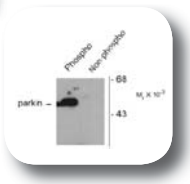
2. [LRRK2 NB300-268] Melrose, HL, et al. A comparative analysis of leucine-rich repeat kinase 2 (Lrrk2) expression in mouse brain and Lewy Body disease. Neurosci. 147: 1047-1058 (2007) [Western Blot, Immunohistochemistry]

Parkin

Mutations in the Parkin (PARK2) gene appear to be responsible for autosomal recessive juvenile Parkinsonism. Parkin plays a role in the ubiquitin-mediated proteolytic pathway by removal and/or detoxification of abnormally folded or damaged protein. Loss of this ubiquitin ligase activity appears to be the mechanism underlying pathogenesis of Parkin.

NEW

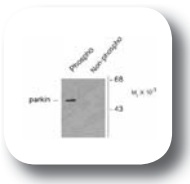
Parkin Antibody [Ser101]
NB100-61106



Detection of Parkin [Ser101] using NB100-61106. A. HEK293 cells transfected with phospho Parkin. B. HEK293 non-phospho Parkin.

Species: Hu
Applications: WB

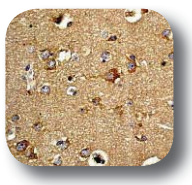
Parkin Antibody [Ser378]
NB100-61107



Detection of Parkin [Ser378] using NB100-61107. A. HEK293 cells transfected with phospho Parkin. B. HEK293 non-phospho Parkin.

Species: Hu
Applications: WB

Parkin Antibody
NB110-57319

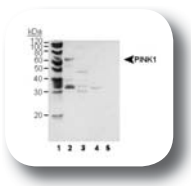


Staining of paraffin-embedded human brain using NB110-57319.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, WB

Pink1 antibody, BC100-494 is used in J. Neurosci., Nov 2007; 27:12413-12418 and Human Molecular Genetics. 2008; 17: 602-616 p.

PINK1 Antibody
NB100-493



Detection of murine PINK1 in MES cell mitochondrial extracts using NB100-493.

Species: Mu
Applications: WB

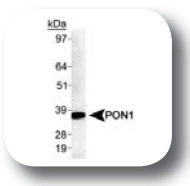
PINK1

PTEN induced putative kinase 1 (Pink1) is found in the mitochondria and its homozygous C-terminus mutation has been implicated in the early development of PD.

PON1

PON1 is found on high-density lipoproteins (HDL) and can prevent neuronal damage by protecting against the accumulation of oxidized proteins in low-density lipoproteins (LDLs). PON1 expression levels are reduced in Alzheimer's Disease, and PON1 polymorphisms are involved in the development of both Parkinson's and Alzheimer's diseases.

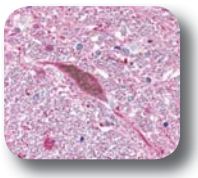
PON1 Antibody
NB110-39114



Detection of PON1 in HeLa whole cell extract using NB110-39114.

Species: Hu
Applications: WB

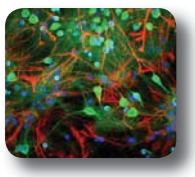
PGP9.5 Antibody
NB300-675



Staining of neurons and cell processes using NB300-675.

Species: Hu
Applications: IHC-P, WB

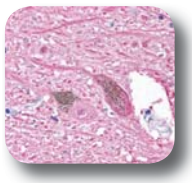
UCLH1 Antibody
NB110-58872



Rat mixed neuron/ glial cultures stained with anti-UCHL1 (green) and glial fibrillary acidic protein (GFAP-red), NB300-141. Blue is a DNA stain.

Species: Hu, Rt
Applications: IF, WB

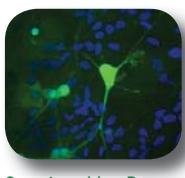
UCHL1 Antibody
NB300-676



Staining of neurons and cell processes using NB300-676.

Species: Hu
Applications: IHC-P, WB

PGP9.5 Antibody
NB110-58874



Rat mixed neuron/ glial cultures stained with anti-UCHL1 (green). Blue is a DNA stain.

Species: Hu, Rt
Applications: IF, WB

UCHL1 (PGP9.5)

Ubiquitin C-terminal hydrolase 1 (UCHL1), also known as PGP9.5, was originally identified as a major component of the neuronal cytoplasm from 2-dimensional gel analysis of brain tissues. Point mutations in the UCHL1 gene are associated with some forms of PD. Recent studies suggest that UCHL1 also has a ubiqutinyl ligase activity, being able to couple ubiquitin monomers by linking the C-terminus of one with lysine 63 of the other.

Alzheimer's Disease

Alzheimer's Disease (AD) is a progressive neurodegenerative condition that affects mental capacity, especially memory and behavior, as a result of amyloid plaques that accumulate in the brain of Alzheimer's patients. These plaques are believed to release radicals that kill local neurons by way of oxidative stress, reducing the number of neurons in AD sufferers.

Amyloid Beta

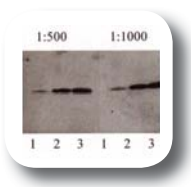
Amyloid beta-protein (Aβ) is associated with neuronal injury and death in Alzheimer's disease. Aβ can cluster into oligomers, which form fibrils and then amyloid plaques that accumulate in the brain. The accumulation of plaques causes oxidative stress that leads to neuronal damage and subsequently AD. There are two types of Aβ, Aβ 40 and Aβ 42. Aβ 42 is more soluble and tends to aggregate into plaques more than Aβ 40.

Amyloid Beta 40 Antibody
NB300-225

Detection of Abeta 40 on 5 ng of peptide per lane using NB 300-225. Lane 1: Abeta-40, lane 2: Abeta-42, lane 3: Abeta-40 and -42 mix.

Species: Hu, Mu
Applications: IP, WB

Amyloid Beta 42 Antibody
NB300-226



Detection of Abeta 42 on 5 ng of peptide per lane using NB 300-226. Lane 1: Abeta-40, lane 2: Abeta-42, lane 3: Abeta-40 and -42 mix.

Species: Hu, Mu
Applications: IP, WB

ApoE/ApoER2

Apolipoprotein E is a lipoprotein involved in cholesterol transport. There are three isoforms of the ApoE lipoprotein, the ApoE4 has been been suggested to play a role in type 2 (late onset) Alzheimer disease. ApoE2 seems to be one of several genetic factors that plays a part in increased risk of heart attacks and strokes.

ApoE Antibody
NB100-1530

Detection of ApoE in human brain lysate using NB100-1530.

Species: Hu, Mu
Applications: ELISA, WB

ApoE Antibody
NB110-60531

Detection of ApoE in human tissue lysate using NB110-60531. Lane 1: liver Lane 2: brain

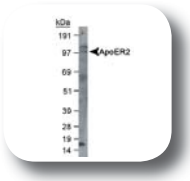
Species: Hu
Applications: ELISA, WB

ApoE Antibody
NB100-79899

Detection of ApoE in fetal liver lysate using NB100-79899.

Species: Hu
Applications: FACS, IHC, IP, WB

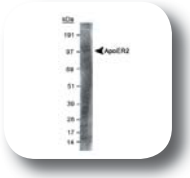
ApoER2 Antibody
NB100-2216



Detection of ApoER2 in mouse brain lysate using NB100-2216.

Species: Mu
Applications: WB

ApoER2 Antibody
NB100-2217



Detection of ApoER2 in mouse brain membrane lysate using NB100-2217.

Species: Mu
Applications: WB

NEW

ApoE Antibody
NB100-79899

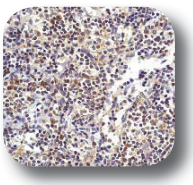
Detection of ApoE in fetal liver lysate using NB100-79899.

Species: Hu
Applications: FACS, IHC, IP, WB

Bax

A pro-apoptotic protein found in the cytoplasm, mitochondria, and nucleus, Bax binds the anti-apoptotic protein Bcl-2 as a heterodimer or forms homodimers. The relative levels of pro-apoptotic proteins such as Bax and anti-apoptotic proteins such as Bcl-2 determine whether cell death will occur following an apoptotic stimulus. Increases in Bax expression promote the degeneration that comes as a result of increased apoptosis in progressing Alzheimer's. Bax plays a similar role in Huntington's Disease.

Bax Antibody
NB110-55492



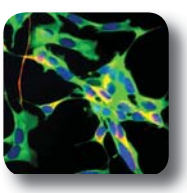
Staining of paraffin-embedded human lymph node using NB110-55492.

Species: Hu, Mu, Rt
Applications: IHC, IP, WB

GAPDH

Glyceraldehyde 3-Phosphate Dehydrogenase (GAPDH) is a tetramer composed of four subunits and a metabolic enzyme responsible for catalyzing the reversible oxidative phosphorylation of glyceraldehyde 3-phosphate, one step in the glycolytic pathway. GAPDH is reported to bind to a variety of other proteins, including the amyloid precursor protein, mutations, which cause some forms of Alzheimer's disease, and the polyglutamine tracts of Huntingtin. The protein may also have a role in the regulation of apoptosis and migrates from the cytoplasm into the nucleus when cells become apoptotic.

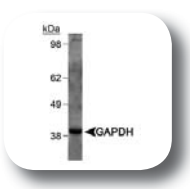
GAPDH Antibody
NB300-221



Human neuroblastma line Sh-SY5Y stained with anti-GAPDH (NB300-221) [green].

Species: Bv, Hu, Mu, Po, Rt, Av
Applications: IF, WB

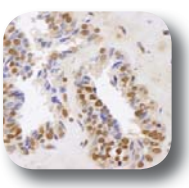
GAPDH Antibody
NB300-328



Detection of GAPDH in mouse liver using NB300-328.

Species: Hu, Mu
Applications: ICC, IF, WB

GAPDH Antibody
NB110-40628

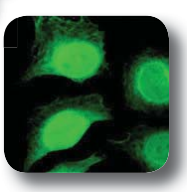


Staining of human prostate adenocarcinoma using NB110-40628.

Species: Hu, Mu
Applications: IHC

NEW

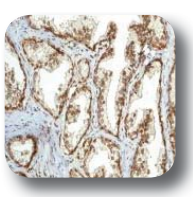
GAPDH Antibody
H00002597-B01



Immunofluorescent staining of HeLa cells using H00002597-B01.

Species: Hu
Applications: ELISA, IF, WB

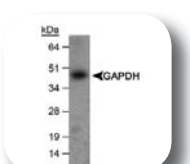
GAPDH Antibody
NB100-79955



Staining of paraffin-embedded human colon adnocarcinoma using NB100-79955.

Species: Hu, Mu, Rt
Applications: ICC, IHC, IP, WB

GAPDH Antibody
NB300-327



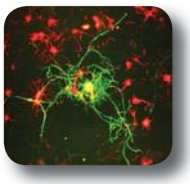
Detection of GAPDH in mouse liver using NB300-327.

Species: Bv, Hu, Mu, Po, Rt, Av
Applications: IF, WB

Neurofilament M

Neurofilaments are intermediate filament proteins found specifically in neurons. NF-M is the medium neurofilament subunit. Antibodies to NF-M are useful to detect this protein and identify neurons and their processes in tissue sections and in tissue culture. NF-M can also be useful in studies of neurofilament accumulations seen in many neurological diseases, such as AD or ALS.

Neurofilament M Antibody
NB300-134



Staining of adult neural cells using NB300-134.

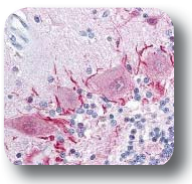
Species: Hu, Ma, Mu, Av
Applications: ICC, IHC, WB

Neurofilament M Antibody
NB300-133

Detection of NF-M in rat cerebellum homogenate using NB300-133.

Species: Bv, Hu, Ma, Mu, Po, Rt, Fe, Av
Applications: ICC, IF, IHC-Fr, IHC-P, WB

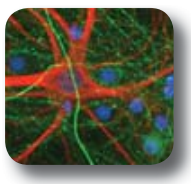
Neurofilament M Antibody
NB100-78451



Staining of formalin-fixed paraffin-embedded human cerebellum tissue using NB100-78451.

Species: All
Applications: ICC, IHC, WB

Neurofilament M Antibody
NB110-58372

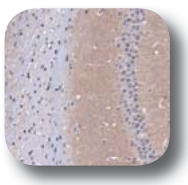


Staining of neurites (green) using NB110-58372.

Species: Rt
Applications: ICC, IHC

NEW

BAI1 Antibody
NB110-81586



Staining of mouse brain using NB110-81586

Species: Hu, Mu
Applications: IHC-P

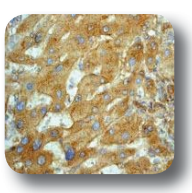
BAI1

BAI1, or brain specific angiogenesis inhibitor 1, is a phosphatidylserine receptor that is critical for the recognition and engulfment of apoptotic cells. Reduced blood flow and inhibition of formation of new vasculature are both present in neurodegenerative diseases such as Alzheimer's. Increased expression of BAI1 may be responsible for these reductions in angiogenesis, and may contribute to or be a by-product of neurodegeneration.

PSEN1/PSEN2

Alzheimer's disease patients with an inherited form of the disease carry mutations in the presenilin proteins (PSEN1; PSEN2). The discovery that a deficiency of PSEN1 decreases the production of amyloid beta-protein (Aβeta) identified the presenilins as important mediators of the gamma-secretase cleavage of beta-amyloid precursor protein (APP). It has been shown that two conserved transmembrane aspartates in PSEN1 are critical for Aβeta production, providing evidence that PS either functions as a required diaspartyl cofactor for gamma-secretase or is itself gamma-secretase. PSEN2 shares substantial sequence and possibly functional homology with PSEN1.

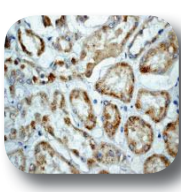
PSEN1 Antibody
NB110-59959



Immuno-histochemical staining of paraffin-embedded human liver using NB110-59959.

Species: Hu, Mu, Rt
Applications: ICC, IHC, IP, WB

PSEN2 Antibody
NB110-57435



Immuno-histochemical staining of paraffin-embedded human kidney using NB110-57435.

Species: Hu, Mu, Rt
Applications: ICC, IHC, IP, WB

NEW

PSEN1 Antibody
NB110-66667

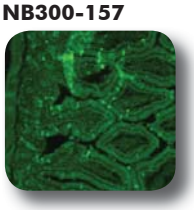
Western blot analysis on (A) Jurkat and (B) HEK293 cell lysates using NB110-66667.

Species: Hu, Mu, Rt
Applications: FACS, WB

Somatostatin Receptor 2

Somatostatin is a tetradecapeptide that is widely distributed in the body and functions as a neuropeptide affecting electrical activity of neurons. Somatostatin levels decrease with the development and progression of Alzheimer's disease and have been shown to be a reliable marker of AD. Somatostatin Receptor 2 expression has been shown to accurately reflect the changes in Somatostatin levels that come with AD.

Somatostatin Receptor 2 Antibody
NB300-157



Staining of paraffin embedded rat tissue using NB300-157.

Species: Hu, Mu, Rt
Applications: IF, IHC-P, WB

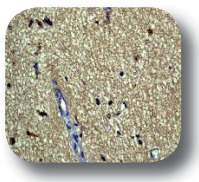
Huntington's Disease

Huntington's disease (HD) is a neurodegenerative disorder caused by an expanding polyglutamine repeat in the huntingtin gene. HD is a mid-life onset autosomal dominant neurodegenerative disease that is characterized by psychiatric disorders, dementia, and involuntary movements (chorea), leading to death in 10-20 years. The HD gene product is widely expressed in human tissues, with the highest level of expression in the brain.

Huntingtin

The huntingtin gene product is expressed at similar levels in patients and controls, which suggests that the expansion of the polyglutamine repeat induces a toxic gain of function perhaps through interactions with other cellular proteins. Huntingtin associated protein 1 (HAP1) has been identified as a protein that associates with huntingtin. In vitro data suggest that the association between HAP1 and huntingtin is enhanced by increasing length of glutamine repeat in huntingtin.

Huntingtin Antibody
NB110-57069



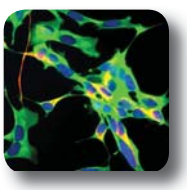
Staining of paraffin-embedded human brain tissue using NB110-57069.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, WB

GAPDH

Glyceraldehyde 3-Phosphate Dehydrogenase (GAPDH) is a tetramer composed of four subunits and a metabolic enzyme responsible for catalyzing the reversible oxidative phosphorylation of glyceraldehyde 3-phosphate, one step in the glycolytic pathway. GAPDH is reported to bind to a variety of other proteins, including the amyloid precursor protein, mutations in which cause some forms of Alzheimer's disease, and the polyglutamine tracts of Huntingtin, the protein product aberrant forms of which are causative of Huntington's disease. The protein may also have a role in the regulation of apoptosis and, interestingly, migrates from the cytoplasm into the nucleus when cells become apoptotic.

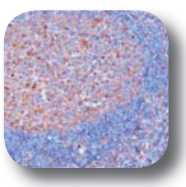
GAPDH Antibody
NB300-221



Human neuroblastma line Sh-SY5Y stained with anti-GAPDH (NB 300-221) [green].

Species: Hu, Mu, Rt
Applications: IF, IHC-P, WB

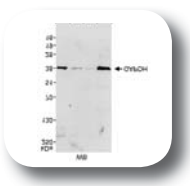
GAPDH Antibody
NB300-320



Staining of paraffin-embedded human tonsil using NB300-320.

Species: Hu, Mu
Applications: ELISA, IHC, IHC-P, WB

GAPDH Antibody
NB300-322



Detection of human and mouse GAPDH using NB300-322.

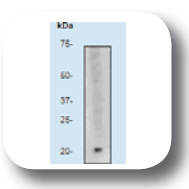
Species: Hu, Mu
Applications: WB

HIP1

The Huntingtin Interacting Protein 1 (HIP-1) is a reportedly proapoptotic, cargo-specific adaptor protein that may be involved in the pathogenesis of Huntington's disease. In addition to playing a role in Huntington's, it is likely to be involved in the recruitment of clathrin coats to lipid membranes and it may also factor in tumorigenesis by allowing the survival of precancerous and cancerous cells.

NB300-203 (clone 4B10) • NB300-204 (clone 1D11) • NB300-205 (clone IC5) • NB300-206 (clone 1E1)

Bax Antibody
NB110-55492



Detection of Bax in Jurkat cell lysate using NB110-55492.

Species: Hu, Mu, Rt
Applications: IHC, IP, WB

Bax

A pro-apoptotic protein found in the cytoplasm, mitochondria, and nucleus, Bax binds the anti-apoptotic protein Bcl-2 as a heterodimer or forms homodimers. The relative levels of pro-apoptotic proteins such as Bax and anti-apoptotic proteins such as Bcl-2 determine whether cell death will occur following an apoptotic stimulus. Increases in Bax expression promote the degeneration that comes as a result of increased apoptosis in progressing Alzheimer's. Bax appears to play a similar role in Huntington's Disease.

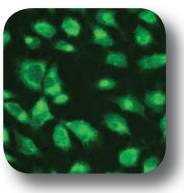
Amyotrophic Lateral Sclerosis

ALS is a neurodegenerative disease characterized by protein misfolding and aggregation, defective axonal transport, mitochondrial dysfunction and excitotoxicity. These molecular and cellular problems lead to neuronal death causing improper muscle function and, eventually, muscular atrophy, paralysis, and death.

SOD1

SOD1 is an antioxidant that is responsible for destroying radicals that cause oxidative stress in neurons and other cells in the body. Mutations in the SOD1 gene eliminate this protective activity and are the cause of 20% of all familial ALS cases. In addition, mutant SOD1 may accumulate in the mitochondria of affected neurons.

SOD1 Antibody
NB110-57590



Immuno-fluorescent staining of HeLa cells using NB110-57590.

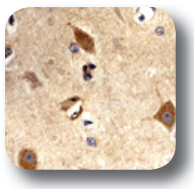
Species: Hu, Rt
Applications: FACS, ICC, IHC, WB

SOD1 Antibody
NB110-57590

Detection of SOD1 in Jurkat cell lysate using NB110-57590.

Species: Hu, Rt
Applications: FACS, ICC, IHC, WB

SOD1 Antibody
R-168-100



Staining of paraffin embedded human brain tissue using R-168-100.

Species: Hu
Applications: IHC, IHC-P, WB

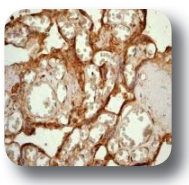
NEW

SOD1 Antibody
NB100-60944

Detection of SOD1 in mouse brain lysate using NB100-60944.

Species: Mu, Rt
Applications: ELISA, WB

SOD1 Antibody
NB100-80050



Staining of paraffin-embedded human placenta using NB100-80050.

Species: Hu
Applications: ICC, IHC, IHC-P, IP, WB

SOD1 Antibody
H00006647-B01

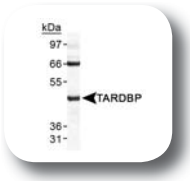
Detection of SOD1 using H00006647-B01. Lane 1: SOD1 transfected lysate. Lane 2: Non-transfected lysate.

Species: Hu
Applications: ELISA, WB

TARDBP

Tar DNA Binding Protein 43. While traditionally studied as an HIV transcription repressor, it has recently been shown that TDP-43 accumulates abnormally in post-mortem brain tissue from individuals diagnosed with both ALS and FTD (Frontal Temporal Dementia). This observation provides a long-sought connection between these two diseases that often over-lap clinically.

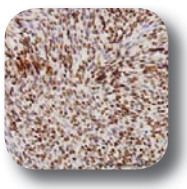
TARDBP Antibody
NB110-55376



Detection of TARDBP in HeLa WCE using NB110-55376.

Species: Hu
Applications: WB

TARDBP Antibody
H00023435-M01



Staining of formalin-fixed paraffin-embedded humain leiomyosarcoma using H00023435-M01.

Species: Hu
Applications: ELISA, IF, IHC-P, WB

1. [TARDBP H00023435-M01] Johnson BS, McCaffery JM, Lindquist S, Gitler AD. A yeast TDP-43 proteinopathy model: Exploring the molecular determinants of TDP-43 aggregation and cellular toxicity. PNAS. April 29, 2008;105(17):6439-44.

Sensory Systems

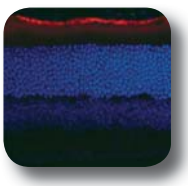
Vision

Vision is a complex process involving interactions between the surface and lens of the eye, the retina and neural receptors in and attached to the eye, and the processing by the brain of information collected from the eyes. Because there are many processes involved in eyesight, a wide range of genes are involved with the processes of collecting, relaying, and processing visual signals. Likewise, mutations to any of these genes can cause problems in a variety of areas including ocular development, retinal development or degeneration, or signal transmission to the brain. All of these potential problems can cause impaired sight or blindness.

RPE65

Highly conserved among vertebrate species, RPE65 is a major protein of the retinal pigment epithelium (RPE). RPE65 is essential for the regeneration of rhodopsin in the visual cycle. Mutations in RPE65 are responsible for certain forms of autosomal recessive severe retinal dystrophy, including Leber Congenital Amaurosis (LCA).

RPE65 Antibody
NB100-355



Staining of mouse retina tissue using NB100-355.

Species: Bv, Hu, Mu, Po
Applications: ICC, IHC, WB

1. [RPE65 NB100-355] Lall, M. M., et al. Iron Regulates L-Cystine Uptake and Glutathione Levels in Lens Epithelial and Retinal Pigment Epithelial Cells by Its Effect on Cytosolic Aconitase. Invest. Ophthalmol. Vis. Sci. Jan 2008; 49: 310-319.

Bestrophin

Bestrophin is a basolateral plasma membrane protein responsible for Best macular degeneration, the early-onset form of vitelliform macular dystrophy. Bestrophin is a chloride channel and is also a useful biochemical and histological marker of retinal pigment epithelial cells.

1. [Bestrophin NB300-164] Marmorstein, A.D., et al. Bestrophin, the product of the Best vitelliform macular dystrophy gene (VMD2), localizes to the basolateral plasma membrane of the retinal pigment epithelium. PNAS. 97(23): 12758-12763 (2000).

CaMKI Antibody
NB110-66656

Detection of CAMKI in SH-SY5Y cell lysate using NB110-66656.

Species: Hu
Applications: FACS, ICC, IP, WB

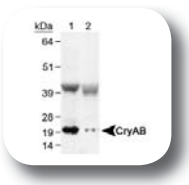
CaM Kinase 1

Calcium/calmodulin-dependent kinases (CaMKs) are a subfamily of the serine/threonine protein kinase family. There have been multiple substrates identified for CaMK1, including synapsin 1, synapsin 2, CREB, and CFTR. Studies suggest that CaMK1 plays an important role in retinal function and its expression is regulated by light stimulation. CAMK1 is also involved in neurite stimulation.

Crystallin AB

Crystallin AB is a protein that makes up a large part of the lens of the eye and is crucial to lens transparency. Crystallin AB is also important in protecting the retina from stress due to inflammation.

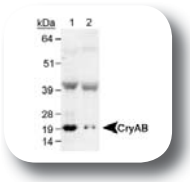
Crystallin AB Antibody
NB100-2520



Detection of CryAB using NB100-2520. Lane 1: Human skeletal muscle. Lane 2: Mouse skeletal muscle.

Species: Hu, Mu
Applications: WB

Crystallin AB Antibody
NB100-2519



Detection of CryAB using NB100-2519. Lane 1: Human skeletal muscle. Lane 2: Mouse skeletal muscle.

Species: Hu, Mu
Applications: WB

Crystallin AB Antibody
NB100-77336

Detection of CryAB in mouse eye lysate using NB100-77336.

Species: Hu, Mu
Applications: ELISA, WB

FOX E3

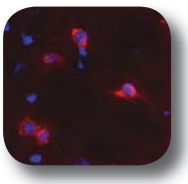
FOXE3 is involved in lens development and, specifically, is critical to the development of adhesive properties of the lens. PAX6 may be required for expression of FOXE3. Mutations can cause congenital primary aphakia, a condition in which the eye has no lens.

See Product NB100-1273

mGluR6

Metabotropic glutamate receptor 6 mutations lead to congenital stationary night blindness. The receptor is crucial for depolarizing ON bipolar cells and transmitting signals from photoreceptors to the ON bipolar cells. Mutations disrupt this signal transmission.

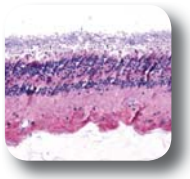
mGluR6 Antibody
NB300-189



Immunofluorescence detection of GluR6 in trapezoid body in mouse brain using NB300-189.

Species: Mu, Rt
Applications: IF, WB

mGluR6 Antibody
NLS4655



Staining of human retina using NLS4655.

Species: Hu
Applications: IHC-P, WB

NEW

Mucolipin-1 Antibody
NB110-82375

Detection of Mucolipin-1 in mouse brain lysates using NB110-82375.

Species: Hu, Mu
Applications: WB

Mucolipin-1

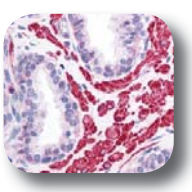
Defects in Mucolipin-1 are the cause of mucolipidosis type IV (MLIV), also known as sialolipidosis. MLIV is an autosomal recessive lysosomal storage disorder characterized by severe psychomotor retardation and ophthalmologic abnormalities, including corneal opacity, retinal degeneration and strabismus. Storage bodies of lipids and water-soluble substances are seen by electron microscopy in almost every cell type of the patients.

Nir2

Nir2, a human homolog of Drosophila melanogaster retinal degeneration B protein, is essential for cytokinesis. A specific Thr residue in the Nir2 PI-transfer domain provides a regulatory site for targeting to lipid droplets. Mutations cause retinal degeneration and may affect intracellular lipid trafficking.

See Product NB100-1417

Opa1 Antibody
NB110-55290



Staining of prostatic smooth muscle and glandular epithelium using NB110-55290.

Species: Hu, Mu
Applications: IHC, WB

Opa1 Antibody
NB110-55290

Detection of Opa-1 protein in post-nuclear extracts of mouse embryonic fibroblasts using NB110-52290.

Species: Hu, Mu
Applications: IHC, WB

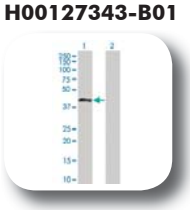
Opa1

OPA1 is a gene more commonly associated with mitochondrial dynamics, but it was originally characterized as an optic atrophy protein. Mutations in OPA1 eliminate the protection that OPA1 usually provides from oxidative stress. These mutations cause optic neuropathy resulting in a loss of vision and dominant optic atrophy.

DMBX1

DMBX1 is involved in promoting eye development and lens formation and is required for formation of the anterior neural structure. DMBX1 genes have been shown to regulate RAX expression. Mutations in DMBX1 can cause micropthalmia or anopthalmia.

DMBX1 Antibody
H00127343-B01



Detection of DMBX1 in transfected 293T cell line using H00127343-B01.
Lane 1: DMBX1 transfected lysate.
Lane 2: Non-transfected lysate.

Species: Hu
Applications: ELISA, WB

PAX6

Pax6 (aniridia) is a transcription factor involved in eye development and cell cycle regulation. Both overexpression and underexpression of PAX6 result in micropthalmia.

PAX6 Antibody
NB100-61654

Detection of PAX6 in mouse eye lysate using NB100-61654.

Species: Mu
Applications: ELISA, WB

PAX6 Antibody
NB300-750

Detection of PAX6 in rat whole eye extract using NB300-750.

Species: Ch, Hu, Mu, Rt, Sh, Xp
Applications: WB

RARA

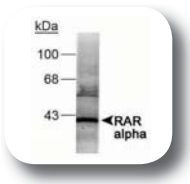
Retinoic Acid Receptor alpha (RARA) is expressed throughout the eye with highest expression in the retina. RARA may be involved in the development of ganglion cells in the eye.

RARA Antibody
NB300-969

Detectionf of RARA in human brain lysate using NB300-969.

Species: Hu
Applications: ELISA, WB

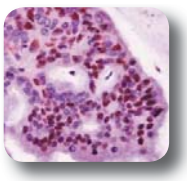
RARA Antibody
NB200-322



Detection of RAR-alpha in rat hippocampal lysate using NB 200-322.

Species: Hu, Rt
Applications: WB

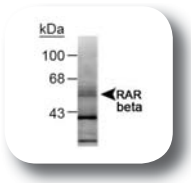
RARB Antibody
NB120-17835



Staining of human colon using NB120-17835.

Species: Hu
Applications: IHC-P

RARB Antibody
NB200-323



Detection of RAR-beta in rat hippocampal lysate using NB 200-323.

Species: Hu, Rt
Applications: WB

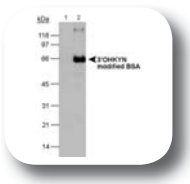
RARB

Retinoic Acid Receptor beta (RARB) is highly expressed especially in the sclera and the choroid and is expressed throughout the eye except in the lens. RARB is involved with eye weight, and an absence of RARB results in fewer eye cells.

3-OHKYN

3-hydroxykynurenine (3-OHKYN) is a UV protectant and an antioxidant in vertebrate lens. 3-OHKYN is critical to the maintenance of lens proteins by acting as a UV filter. 3-OHKYN also reacts with proteins to induce cross-linking.

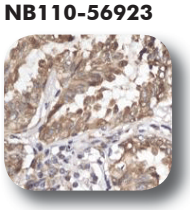
3-OHKYN Antibody
NB100-597



Detection of 3'OH-KYN in modified BSA using NB100-597.
Lane 1: BSA (-)
Lane 2: BSA (+)

Species: Hu, All
Applications: ICC, WB

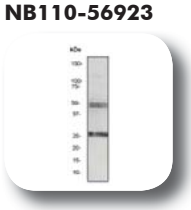
SHH Antibody
NB110-56923



Staining of paraffin-embedded human kidney tissue using NB110-56923.

Species: Hu
Applications: FACS, IHC, IP, WB

SHH Antibody
NB110-56923



Detection of SHH in fetal liver membrane using NB110-56923.

Species: Hu
Applications: FACS, IHC, IP, WB

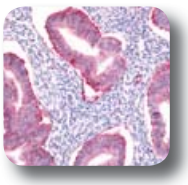
SHH

Sonic Hedgehog Protein (SHH) is important in retinal development. Mutations in the gene coding for the SHH protein cause micropthalmia and other ocular deformities that can cause childhood blindness.

SOX2

SOX2 is involved in promoting cell differentiation and proliferation in the developing eye as well as retinal development. SOX2 also regulates other genes such as RAX that control ocular development. Mutations in SOX2 lead to micropthalmia or anopthalmia.

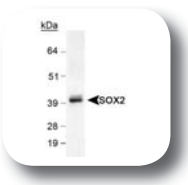
SOX2 Antibody
NB110-37235



Staining of uterus, endometrial glands using NB110-37235.

Species: Mu
Applications: IHC, WB

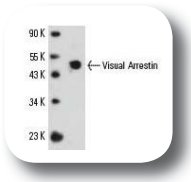
SOX2 Antibody
NB110-37235



Detection of SOX2 in mouse brain lysate using NB110-37235.

Species: Mu
Applications: IHC, WB

Visual Arrestin Antibody
NB100-2385



Detection of Visual Arrestin (PDS-1) in human retina tissue extract using NB100-2385.

Species: Bv, Hu, Po
Applications: IF, IHC-Fr, WB

Visual Arrestin

Visual arrestin is a protein involved in the regulation of phototransduction. It is crucial to the regulation of receptor signaling in the eye and the termination of signals. Mutations in visual arrestin can lead to photoreceptor cell death and retinal degeneration.

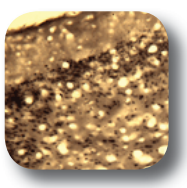
Hearing

Hearing is a complex interaction between many structures of the ear that work together to amplify sound vibrations, convert those vibrations into electrical signals, and then carry those signals to the brain. Because there are several steps between when sound enters the ear and when the brain receives the information, there are many places where problems can occur in hearing. Damaged ear structures, missing or damaged hair cells in the inner ear, and damaged signaling structures and signal carriers are all potential causes of hearing loss.

Arg3.1

ARC (Arg3.1) is a protein involved in maintaining synaptic plasticity as well as regulation of endocytosis. Decreased levels of ARC have been associated with tinnitus and subsequent hearing loss due to tinnitus.

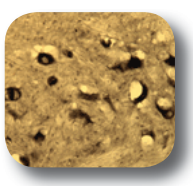
Arg3.1 Antibody
R-173-500



Staining of floating cryosectioned rat brain (Cortex) using R-173-500.

Species: Mu, Rt
Applications: IHC

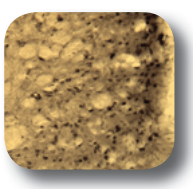
Arg3.1 Antibody
R-173-500



Staining of free floating cryosectioned rat spinal cord (ventral horn) using R-173-500.

Species: Mu, Rt
Applications: IHC

Arg3.1 Antibody
R-154-100



Staining of free floating cryosectioned rat spinal cord (dorsal horn) using R-154-100.

Species: Mu, Rt
Applications: IHC

Connexin 26

Connexin 26 (GJB2) is a component of gap junctions in the inner ear. Mutations in the gene encoding Connexin 26 are the most common cause of hereditary non-syndromic hearing loss. Connexin 26 is highly expressed in cochlear regions, and mutations interfere with gap junctions in the cochlea, leading to deafness.

Connexin 26 Antibody
NB100-57840

Detection of Connexin 26 in mouse brain lysate using NB100-57840.

Species: Mu
Applications: ELISA, WB

Channels

Channels are essential to signaling between different cells and cell types and enable interactions between different organ systems to occur. Channels act both as receptors that transfer signals and as openings in the plasma membrane to allow chemicals such as potassium and calcium to move into and out of a cell. In neuroscience, channels are especially important in transmitting signals from sensory organs to the brain.

CACNB4

CACNB4 encodes a member of the beta subunit family, a protein in the voltage-dependent calcium channel complex. This protein plays an important role in calcium channel function by modulating G protein inhibition, increasing peak calcium current, controlling the alpha-1 subunit membrane targeting and shifting the voltage dependence of activation and inactivation. Certain mutations in this gene have been associated with idiopathic generalized epilepsy (IGE) and juvenile myoclonic epilepsy (JME).

CACNB4 Antibody
NB100-1485

Detection of CACNB4 in human bone marrow lysate using NB100-1485.

Species: Hu
Applications: ELISA, WB

GRIN1 Antibody
NB100-41105

Detection of GRIN1 in rat brain lysate using NB100-41105.

Species: Rt
Applications: ELISA, WB

GRIN1

The GRIN1 gene encodes a critical subunit of N-methyl-D-aspartate receptors, members of the glutamate receptor channel superfamily which are heteromeric protein complexes with multiple subunits arranged to form a ligand-gated ion channel. These subunits play a key role in the plasticity of synapses believed to underlie memory and learning.

HTR3A

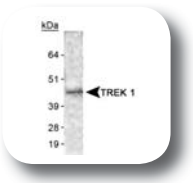
HTR3A encodes subunit A of the type 3 receptor for 5-hydroxytryptamine (serotonin), a biogenic hormone that functions as a neurotransmitter, a hormone, and a mitogen. A member of the ligand-gated ion channel receptor superfamily, this receptor causes fast, depolarizing responses in neurons after activation. It appears that the heteromeric combination of A and B subunits is necessary to provide the full functional features of this receptor, since either subunit alone results in receptors with very low conductance and response amplitude.

HTR3A Antibody
NB100-41382

Detection of HTR3A in human colon lysate using NB100-41382.

Species: Hu
Applications: ELISA, WB

TREK1 Antibody
NB110-41535



Detection of TREK 1 in human brain membrane lysate using NB110-41535.

Species: Hu
Applications: WB

TREK-1

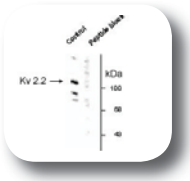
TREK-1 is a two-pore-domain background potassium channel expressed throughout the central nervous system. It is opened by polyunsaturated fatty acids and lysophospholipids and is regulated by various neurotransmitters. It has been shown that alterations in the functioning, regulation, or both of the TREK-1 channel may alter mood. TREK-1 is also activated by volatile anesthetics and has been suggested to be an important target in the action of these drugs. Therefore, this particular K+ channel emerges as a potential innovative target for developing new therapeutic agents for anesthesiology and neurology.

Voltage-Gated Potassium Channel, kv2.2 subunit and kv3.1 subunit

Voltage-gated potassium channels are important determinants of neuronal membrane excitability. Potassium channel expression patterns and densities contribute to the variations in action potential waveforms and repetitive firing patterns evident in different neuronal cell types. The kv2.2 subunit is expressed on all neuronal somata and proximal dendrites, while the kv3.1 subunit is expressed at high levels in neurons that characteristically fire rapid trains of action potentials, especially in the brainstem.

1. [Kv3.1-Subunit NB300-279] von Hehn CA, et al. Loss of Kv3.1 tonotopicity and alterations in cAMP response element-binding protein signaling in central auditory neurons of hearing impaired mice. J Neurosci (2004) 24:1936-1940.

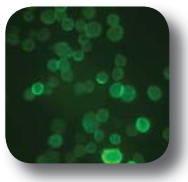
VGPC, kv2.2 Antibody
NB300-261



Detection of the 125k Voltage Gated Potassium Channel, Kv2.2-Subunit in rat brain homogenate using NB300-261.

Species: Rt, Xp
Applications: IHC, WB

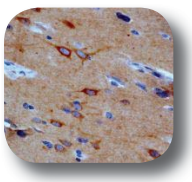
VGPC, kv3.1 Antibody
NB300-279



Staining of CHO cells expressing recombinant Voltage Gated Potassium Channel Kv3.1.

Species: Rt
Applications: IF, IHC, WB

VGPC, kv4.2 Antibody
NB110-57148



Immunohistochemical staining of paraffin-embedded human brain using NB110-57148.

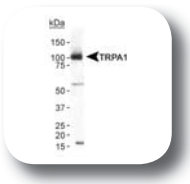
Species: Hu
Applications: FACS, IHC, WB

VGPC, kv3.3 Antibody
NB100-58961

Detection of KCNC3 in human brain (Frontal Cortex) lysate using NB100-58961.

Species: Hu
Applications: ELISA, WB

TRPA1 Antibody
NB110-40763



Detection of TRPA1 in human brain membrane fraction using NB110-40763.

Species: Hu, Mu
Applications: WB

TRPA1

TRPA1 is a TRP-related channel that responds to cold temperatures and pungent compounds and plays a role in both nociceptor and hair cell transduction. It is a transformation-associated gene product in lung epithelia, whereas its protein distribution is primarily restricted to sensory neurons. Blocking TRPA1 may be a therapeutic target for treating cold hyperalgesia caused by inflammation and nerve damage. The TRPA1 protein is also widely expressed outside of the CNS and is dys-regulated during oncogenic transformation.

TRPC3, TRPC4, and TRPC5

TRPC3, TRPC4, and TRPC5 are thought to form receptor-activated non-selective calcium permeant cation channels and are operated by a phosphatidylinositol second messenger system activated either by receptor tyrosine kinases or G-protein coupled receptors. TRPC4 and TRPC5 have also been shown to be calcium-selective and may also be activated by intracellular calcium store depletion. TRPC3, TRPC4, and TRPC5 are all expressed abundantly in the brain, with TRPC5 levels higher in the fetal brain. TRPC3 is concentrated in cerebellar Purkinje cells and sparsely localized in cerebellar granule lyer, pontine nuclei and the thalamus, while TRPC4 is concentrated in hippocampal CA1 pyramidal neurons, dentate gyrus granule cells, and cerebral cortical neurons.

TRPM2

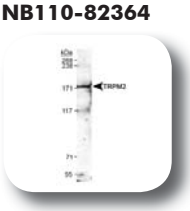
TRPM2 is part of the cation transport channel family, a group of proteins that have 6 transmembrane helices in which the last two helices flank a loop which determines ion selectivity. TRPM2 is a calcium and sodium channel that mediates the flow of these two ions in response to oxidative stress. In response to oxidative stress, TRPM2 can encourage cell death.

TRPM2 Antibody
NB110-81601

Staining of rat hippocampus using NB110-81601.

Species: Mu, Rt
Applications: IHC

TRPM2 Antibody
NB110-82364



Detection of TRPM2 in mouse brain membrane lysates using NB110-82364.

Species: Mu
Applications: WB

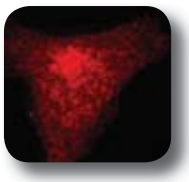
Signaling

Signaling proteins facilitate the cellular implementation of messages received from other cells and organ systems, providing a transition between neurons and the cells that they effect. Proteins involved in cell signaling are essential to virtually all processes in an organism, especially those involving the transmission of signals to the central nervous system and the brain.

Striatin

Striatin is found in all mammalian cells assayed and may be involved in vesicular transport, dendrite growth, and cellular signaling. It binds Protein phosphatase 2A, A and C subunits and calmodulin and appears to modulate PP2A activity.

Striatin Antibody
NB110-74571



Immunofluorescent staining of NIH3T3 using NB110-74571.

Species: Hu, Mu, Rt
Applications: IF, IP, WB

SG2NA Antibody
NB110-74572

Detection of SG2NA in NIH3T3 cell lysates using NB110-74572.

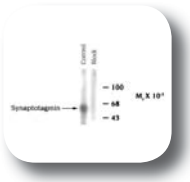
Species: Hu, Mu, Rt
Applications: IF, IP, WB

Synaptotagmin Antibody [Thr202]
NB300-235

Detection of phospho Synaptotagmin using NB300-235.

Species: Rt
Applications: IHC, WB

Synaptotagmin Antibody [Ser309]
NB300-236



Detection of phospho Synaptotagmin using NB300-236.

Species: Rt
Applications: WB

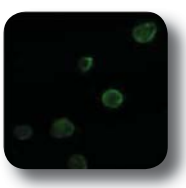
Synaptotagmin

Synaptotagmin is a calcium sensor for synaptic vesicle exocytosis and it can be phosphorylated by multiple protein kinases. This may play a key role in modulation of synaptotagmin's ability to influence both the exocytotic and endocytotic components of synaptic transmission.

Calreticulin

Calreticulin is a multifunctional, highly conserved calcuim-binding protein that is localized to the endoplasmic reticulum (ER). Calreticulin has also been shown to interact with the cytoskeleton and to be involved in the regulation of gene expression. Calreticulin may play a role in cellular proliferation including its apparent activity in the proliferation of certain viruses within mammalian host cells.

Calreticulin Antibody
NB600-101



Immunofluorescence staining of Calreticulin in HCT15 colon cancer cells using NB 600-101.

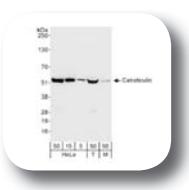
Species: Bv, Ha, Hu, Mu, Rt
Applications: ICC, IF, IHC, IP, WB

Calreticulin Antibody
NB600-103

Detection of Calreticulin in human kidney lysate using NB600-103.

Species: Hu
Applications: WB

Calreticulin Antibody
NB100-58808



Detection of human and mouse Calreticulin in HeLa and NIH/3T3 cells using NB100-58808.

Species: Hu, Mu
Applications: WB

1. [Calreticulin NB600-101] Jain, P., et al. Identification of Human T Cell Leukemia Virus Type 1 Tax Amino Acid Signals and Cellular Factors Involved in Secretion of the Viral Oncoprotein. J. Biol. Chem, Nov 2007; 282:34581-34593.

Calmodulin

Calmodulin is found in all eukaryotic cells and can bind up to four calcium ions. It acts as an important intracellular receptor for regulatory calcium signals. As it binds calcium, calmodulin undergoes conformational changes which can increase its affinity for target proteins.

Calmodulin Antibody
NB110-55649

Staining of paraffin-embedded human urinary bladder carcinoma using NB110-55649.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, IP, WB

Calreticulin Antibody
NB110-55649

Detection of Calreticulin in NIH 3T3 cell lysate using NB110-55649.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, IP, WB

SNAP25

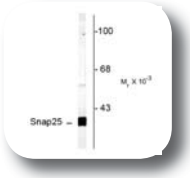
SNAP25, a presynaptic plasma membrane protein, is widely distributed throughout the brain and involved in the regulation of neurotransmitter release. Variations in SNAP25 levels are associated with Down Syndrome, Alzheimer's Disease, and Schizophrenia.

SNAP25 Antibody
NB100-1492

Detection of SNAP25 in mouse brain lysate using NB100-1492.

Species: Hu, Mu
Applications: WB

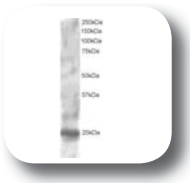
SNAP25 Antibody
NB300-737



Detection of SNAP25 in rat cortex lysate using NB300-737.

Species: Bv, Ca, Ch, Hu, Mu, Mk, Rt, Ze, Gp
Applications: WB

RGS1 Antibody
NB100-1029



Detection of RGS1 in HepG2 lysate using NB100-1029.

Species: Hu
Applications: WB

RGS1

This gene encodes a member of the regulator of G protein signaling family. The protein attenuates the signaling activity of G proteins by binding to activated, GTP bound G alpha subunits and acting as a GTPase activating protein, increasing the rate of conversion of the GTP to GDP. This hydrolysis allows the G alpha subunits to bind G beta/gamma subunit heterodimers, forming inactive G protein heterotrimers, thereby terminating the signal.

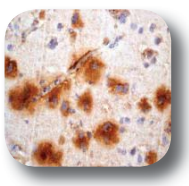
Neurotrophins

Neurotrophins and neurotrophic factors are responsible for promoting the growth of neurons and protecting their survival. Neurotrophic factors are antiapoptotic proteins that provide protection to neurons. Neurotrophin receptors likewise are important in neuron growth and survival.

NGF-beta

Nerve growth factor is important for the development and maintenance of the sympathetic and sensory nervous systems. It stimulates division and differentiation of sympathetic and embryonic sensory neurons.

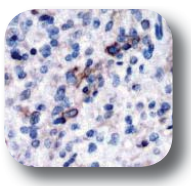
NGF-beta Antibody
NB110-57270



Staining of paraffin-embedded human brain using NB110-57270.

Species: Hu, Mu, Rt
Applications: ICC, IHC, IHC-P, WB

NGFR Antibody
NB110-58000



Staining of paraffin-embedded human brain glioma using NB110-58000.

Species: Hu, Mu, Rt
Applications: ICC, IHC, IP, WB

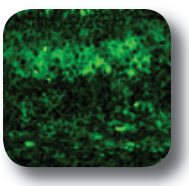
NGFR

The Nerve Growth Factor receptor is responsible for the mediations of cell survival, differentiation, growth cessation, and apoptosis in neurons. It stimulates division and differentiation of sympathetic and embryonic sensory neurons.

p75NTR

p75NTR was originally discovered as a low affinity nerve growth factor receptor and it was later found that p75NTR was the receptor for all neurotrophins. It mediates signals of neurotrophins for neuronal survival, apoptosis, neurite outgrowth and synaptic plasticity. Recently, it has been revealed that p75NTR is also a receptor for many other pathological ligands.

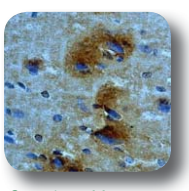
p75NTR Antibody
M-009-100



Staining of mouse brain (cerebellum) using M-009-100.

Species: Hu, Mu, Rt, Gp
Applications: IHC

BDNF Antibody
NB100-79901



Staining of paraffin-embedded human brain tissue using NB100-79901.

Species: Hu
Applications: IHC, IHC-P, WB

BDNF

Brain-derived neurotrophic factor (BDNF), is a polypeptidic factor initially regarded to be responsible for neuron proliferation, differentiation and survival. BDNF has been shown to be linked to a variety of neurological and psychological conditions such as Huntington's Disease, Alzheimer's, depression and anxiety. BDNF also enhances the neurite outgrowth on immature astrocytes.

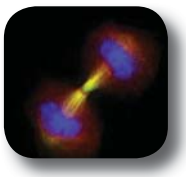
Neuronal Markers

There are many different antibodies that are useful as markers for a variety of specific types of neurons and other CNS-related cells. This is a small selection of our collection of neuronal markers, for a more extensive listing see our Markers catalog and our website, www.novusbio.com.

Survivin

Survivin encodes a structurally unique inhibitor of apoptosis that appears to be situated at the crossroads of cell death and cell division, governing a checkpoint involved in cytokinesis while also suppressing apoptosis. Survivin is abundantly expressed in brain tissues (astrocytes and some neurons) of adult rats following traumatic brain injury and has been found co-expressed with NeuN (mature neuronal marker) and PCNA (a cell cycle protein.

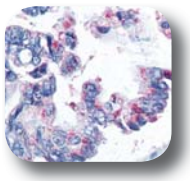
Survivin Antibody
NB500-201



Telophase with accumulation of survivin in the midbodies of two daughter cells.

Species: Ca, Hu, Mu, Rt, Fe
Applications: ICC, IF, IHC-P, IP, WB

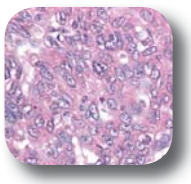
Survivin Antibody
NB500-237



Staining of lung carcinoma using NB500-237.

Species: Hu
Applications: IF, IHC, WB

Survivin Antibody
NB500-238



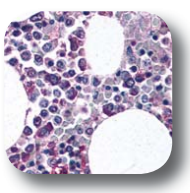
Staining of ovary carcinoma using NB500-238.

Species: Hu, Mu, Rt
Applications: ICC, IF, IHC, IHC-P, WB

CD11b/c

CD11b is implicated in various adhesive interactions of monocytes, macrophages and granulocytes as well as in mediating the uptake of complement coated particles. CD11b is commonly used as a microglial marker in nervous tissue.

CD11b/c Antibody
NB110-40766



Staining of bone marrow, myeloid precursors using NB110-40766.

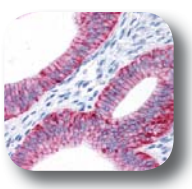
Species: Hu, Mu
Applications: IHC, IHC-P, WB

CD11b/c Antibody
NB110-40766

Detection of CD11(b/c) in RAW 264/7 cell lysate using NB110-40766.

Species: Hu, Mu
Applications: IHC, IHC-P, WB

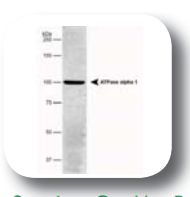
ATPase alpha 1 Antibody
NB300-146



Staining of endometrial glands within the uterus using NB300-146.

Species: Ca, Hu, Po, Mk, Rt, Rb, Sh, Xp
Applications: IHC, WB

ATPase alpha 1 Antibody
NB300-146



Detection of ATPase (alpha) in porcine proximal tubule protein, using NB300-146.

Species: Ca, Hu, Po, Mk, Rt, Rb, Sh, Xp
Applications: IHC, WB

ATPase alpha 1

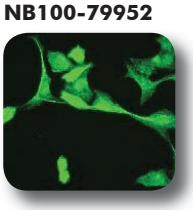
Na,K-ATPase is an integral membrane protein complex that hydrolyzes ATP to maintain the transmembrane gradients of Na+ and K+. The enzyme is comprised of an alpha and beta subunit. The alpha-polypeptide has been shown to be the catalytically active subunit, wherease the Beta-polypeptide appears necessary for assembly and transport of the sodium pump to the membrane.

1. [ATPase NB300-146] Burgess, B., et al. ABCG1 influences the brain cholesterol biosynthetic pathway but does not affect amyloid precursor protein or apolipoprotein E metabolism in vivo. J. Lipid Res.2008; 49: 1254-1267.

GAP43

GAP-43 is expressed by developing and regenerating neurons and, to a lesser extent, reactive glial cells. It is used widely to specifically label injured neurons and to score neuronal regeneration.

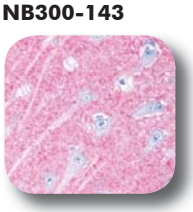
GAP43 Antibody
NB100-79952



Immuno-fluorescent staining of PC-12 cells using NB100-79952.

Species: Hu, Mu, Rt
Applications: FACS, ICC, IHC, IP, WB

GAP43 Antibody
NB300-143



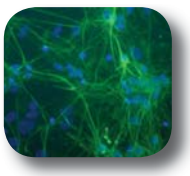
Staining of the hippocampus using NB300-143.

Species: Ch, Hu, Mu, Rt
Applications: IF, IHC-Fr, IHC-P, WB

Neurofilaments

Neurofilaments are the intermediate filaments found specifically in neuronal cells. Antibodies to the various neurofilament subunits are very useful cell type markers since the proteins are among the most abundant of the nervous system, are expressed only in neurons, and are biochemically very stable.

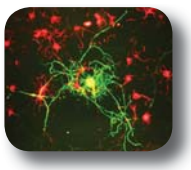
Neurofilament Light Antibody
NB300-132



Neurofilament staining of cultured neurons (green) with the Neurofilament light chain antibody (NB300-132).

Species: Hu, Ma, Av
Applications: IF, IHC, WB

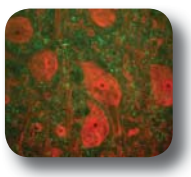
Neurofilament Medium Antibody
NB300-134



Staining of mature neurons using NB300-134.

Species: Hu, Ma, Mu, Av
Applications: IHC, WB

Neurofilament Heavy Antibody
NB300-135



Section of rat spinal cord stained with NB300-135 (green) and NB110-58869 (red).

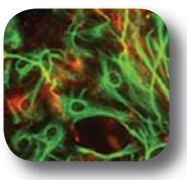
Species: Hu, Ma, Mu, Mk, Rt
Applications: IHC-Fr, IHC-P, WB

1. [Neurofilament Heavy Chain NB300-135] O'Donnell, L.A., et al. Human immunodeficiency virus (HIV)-induced neurotoxicity roles for the NMDA receptor subtypes. J. Neurosci. 2006; 26:981-990.

GFAP

Glial fibrillary acidic protein (GFAP) is a member of the class III intermediate filament protein family. It is heavily and specifically expressed in astrocytes and certain other astroglia in the central nervous system, in satellite cells in peripheral ganglia, and in non-myelinating Schwann cells in peripheral nerves. In addition neural stem cells frequently strongly express GFAP. Antibodies to GFAP are therefore very useful as markers of astrocytic cells. In addition many types of brain tumors, presumably derived from astrocytic cells, heavily express GFAP.

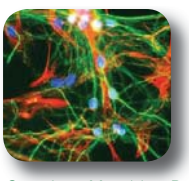
GFAP Antibody
NB300-141



Staining of typical astrocytic cells using NB 300-141 in neurons and glia of rat forebrain.

Species: Bv, Hu, Mu, Po, Rt, Fe
Applications: ICC, IF, IHC, IHC-Fr, IHC-P, WB

GFAP Antibody
NB300-142



Rat cortical neurons and glia in mixed tissue culture stained with chicken polyclonal to MAP2 - NB300-213 (green) and Mouse monoclonal to GFAP-NB300-142 (red).

Species: Hu, Ma, Rt
Applications: IF, WB

GFAP Antibody
NB110-58368

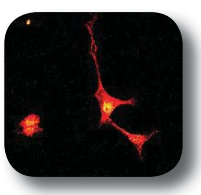
Staning of cultured GFAP positive rat astrocytes using NB110-58368.

Species: Hu, Mu, Rt
Applications: ICC, IHC

Synapsin 1

Synapsin is a neuron specific protein that is localized to nerve terminals. The synapsin protein is an excellent marker for synaptic terminals and it can be used to estimate synaptic density and or synaptogenesis. In addition to their role in neurotransmission, the synapsins are also thought to play a role in synapse formation.

Synapsin 1 Antibody
NB110-57605



Immuno-fluorescent staining of PC-12 cells using NB110-57605.

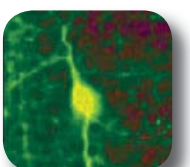
Species: Hu, Mu, Rt
Applications: ICC, WB

Synapsin 1 Antibody
NB300-104

Detection of Synapsin 1 in rat hippocampal lysate using NB300-104.

Species: Hu, Mu, Rt
Applications: IF, IHC, IP, WB

Tyrosine Hydroxylase Antibody
NB300-109



Immunohistochemical staining of retina tissue using NB300-109.

Species: Ma
Applications: ICC, IHC, IP, WB

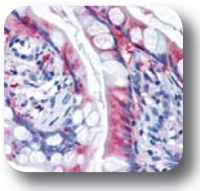
Tyrosine Hydroxylase

Tyrosine hydroxylase (TH) is the rate-limiting enzyme in the synthesis of the catecholamines dopamine, epinephrine and norepinephrine. Regulation of the TH enzyme represents the central means for controlling the synthesis of these important catecholamines. The presence of different DNA sequences at the TH locus confers susceptibility to various disorders of the brain including manic-depression and schizophrenia.

XCT

The XCT cystine/glutamic amino acid transporter has been proposed to be responsible for the cystine transport through the plasma membrane. In the brain, it has been proposed that XCT is up-regulated in glial cells upon oxidative stress and plays an essential role to protect neurons against oxidative stress.

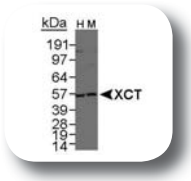
XCT Antibody
NB300-318



XCT staining in the absorptive epithelia of intestinal villi using NB300-318.

Species: Hu, Mu
Applications: IHC, WB

XCT Antibody
NB300-318



Detection of XCT in total human and mouse stomach lysate, respectively, using NB 300-318.

Species: Hu, Mu
Applications: IHC, WB

1. [XCT NB300-318] Liu, R., et al. Cystine-Glutamate Transporter SLC7A11 Mediates Resistance to Geldanamycin, but Not to 17-(Allylamino)-17-demethoxygeldanamycin. Mol. Pharmacol., Dec 2007;72:1637-1646.

Musashi-1

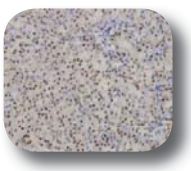
Musashi-1 (Msi-1), a neural RNA-binding protein, plays an important role in regulating cell differentiation in precursor cells. Musashi-1 has been shown to increase the accumulation of tau isoforms in intracellular inclusions in dementia and may play a role in various neurodegenerative disorders.

Musashi-1 Antibody
NB100-1759

Staining of neural rosettes using NB100-1759.

Species: Hu, Mu, Rt
Applications: ICC, IHC, IHC-P, WB

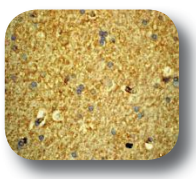
Musashi-1 Antibody
M-846-100



Staining of formalin-fixed, paraffin-embeded human pancreas using M-846-100.

Species: Hu, Mu, Rt
Applications: ELISA, IF, IHC, WB

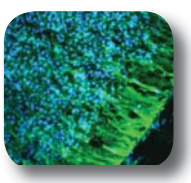
Musashi-1 Antibody
NB110-57235



Staining of paraffin-embedded human brain using NB110-57235.

Species: Hu, Rt
Applications: FACS, ICC, IHC, IP, WB

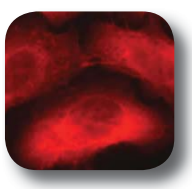
Nestin Antibody
NB100-1604



Staining of mouse brain showing Nestin (green staining) using NB100-1064.

Species: Mu
Applications: ICC, IHC

Nestin Antibody
NB300-266



Staining of PC-3 cells using NB300-266.

Species: Hu
Applications: ICC, IF, IHC, IHC-Fr, IHC-P, WB

Nestin

Nestin is a Class VI intermediate filament expressed in the developing central nervous system in early embryonic neuroepithelial stem cells. This protein has been widely used as a predominant marker for stem cells, progenitor cells, glioma cells, and tumor endothelial cells.

Vimentin

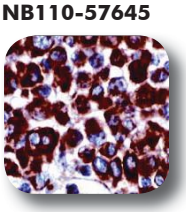
Vimentin is the intermediate filament protein subunit found in many mesenchymal and epithelial cells, in many cells in tissue culture, and in developing neuronal and astrocytic precursor cells in the central nervous system. Vimentin frequently forms co-polymers with other intermediate filament proteins. Vimentin antibodies are useful in studies of stem cells and are used to reveal the filamentous cytoskeleton.

Vimentin Antibody
NB300-223

View of mixed neuron/glial cultures stained with NB300-223 (green) and rabbit antibody to GFAP antibody NB300-141(red).

Species: Hu, Mu, Rt
Applications: IF, IHC-P, WB

Vimentin Antibody
NB110-57645



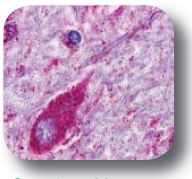
Staining of paraffin-embedded human melanoma stained with NB110-57645.

Species: Hu, Mu, Rt
Applications: IHC, IP, WB

GPCR

G-protein coupled receptors are a wide-ranging family of transmembrane proteins involved in signal transmission across the plasma membrane. The G-protein ligands that bind GPCRs often elicit sensory responses such as taste or smell. Neurotransmitters also stimulate GPCRs to relay messages across cell membranes.

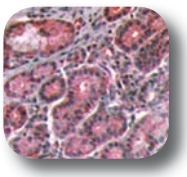
GPR49 Antibody
NLS1236



Staining of human brain, neurons and glia using NLS1236.

Species: Hu
Applications: IHC, IHC-P

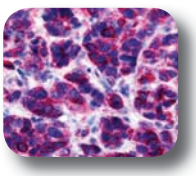
Bradykinin B1 Receptor Antibody
NLS3580



Staining of human nasal mucosa using NLS3580.

Species: Hu
Applications: IHC-P

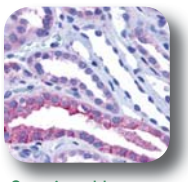
GPR30 Antibody
NLS1183



Staining of breast carcinoma using NLS1183.

Species: Hu
Applications: IHC, IHC-P, WB

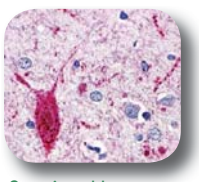
Mas Proto-Oncogene Antibody
NLS1531



Staining of kidney using NLS1531.

Species: Hu
Applications: IHC-P

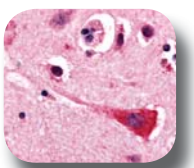
Edg1/S1P1 Antibody
NLS1013



Staining of human brain (Neurons and Glia) using NLS1013.

Species: Hu
Applications: IHC-P

GPR17 Antibody
NLS4229



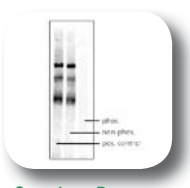
Staining of human brain (neurons and glia) using NLS4229.

Species: Hu
Applications: ICC, IHC-P

NMDA Receptors

NMDA receptors are ionotropic glutamate receptors that regulate the opening and closing of ion channels that control the flux of Ca2+, K+, and Na+ into and out of cells. Different NMDA receptors vary in the location and structure of the NMDA binding site as well as the interactions between the receptor and surrounding compounds. NMDA receptor interactions are crucial to proper cellular function and communication, especially in neurons. Malfunctioning NMDA receptors may be a crucial factor in Huntington's Disease.

NMDA NR2B Antibody [Tyr1472]
NB300-182



Detection of phospho NMDA NR2B in rat tissue lysate, using NB300-182. Immunolabeling of the 180 kDa NR2B protein is blocked by the phosphopeptide.

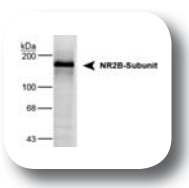
Species: Rt
Applications: WB

NMDA Receptor 2A Antibody
NB300-105

Detection of NMDA NR2A in rat hippocampal lysate using NB300-105.

Species: Hu, Rt
Applications: IHC, IP, WB

NMDA receptor 2B Antibody
NB300-106



Detection of NR2B in rat hippocampus using NB300-106.

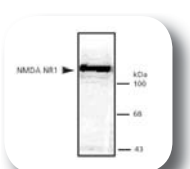
Species: Hu, Rt
Applications: IHC, IP, WB

NMDA Receptor 2C Antibody
NB300-107

Detection of NMDA NR2C in rat cerebellar lysate using NB300-107.

Species: Hu, Rt
Applications: IP, WB

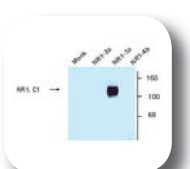
NMDA NR1 Pan Antibody
NB300-118



Detection of NMDA NR1 protein in rat brain lysate using NB300-118.

Species: Rt
Applications: WB

NMDA receptor C1 Antibody
NB300-115



Detection of NMDA NRC1 splice variant in HEK overexpression lysates using NB300-115.

Species: Rt
Applications: IHC, WB

IN THE NEWS

1. [Alpha-Internexin NB300-216] Yao F, et al. Angiotensin II increases GABAB receptor expression in nucleus tractus solitarii of rats. Am J Physiol Heart Circ Physiol 2008; 294(6):H2712-2720.

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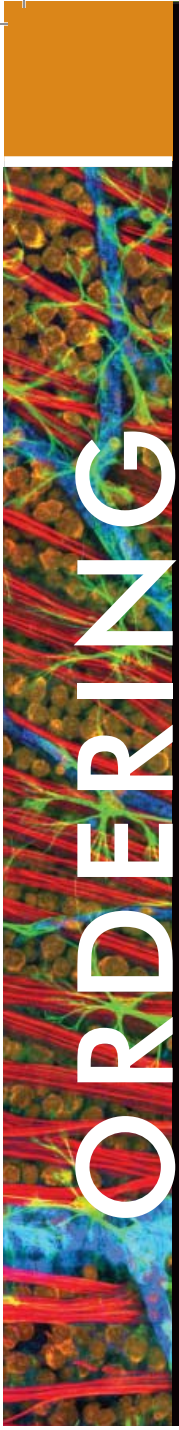

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