

# NEURONAL MARKER ANTIBODIES

## Focus On WFS1

Catalog Number  
**11558-1-AP**

Applications  
**ELISA, IHC, IP, WB**

**13 Publications**

**si** Tested with siRNA

Wolfram syndrome protein (WFS1), also known as Wolframin, is a ubiquitously expressed protein with the highest levels of expression found in the brain, pancreas, heart, and insulinoma beta-cell lines. WFS1 is involved in the regulation of calcium homeostasis, which aids in the maintenance of the endoplasmic reticulum. Mutations in the WFS1 gene are associated with Wolfram syndrome, an autosomal recessive neurodegenerative disorder characterized by diabetes mellitus, optic atrophy, and various additional problems involving the urinary tract, brain, and hearing.

### Island and Ocean Cells

Neuroscientists based at MIT (Massachusetts Institute of Technology), led by Nobel Prize-winning scientist Susumu Tonegawa, have identified and characterized two types of

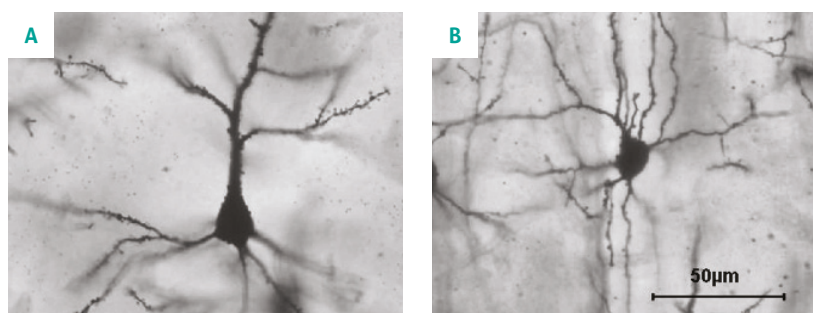
cell in the entorhinal cortex that process the 'when' and 'where' signals in the brain - 'island' and 'ocean' cells.

### Proteintech's WFS1 Antibody in Action

Island and ocean cells are distinguishable by their expression of certain neuronal markers. Ocean cells are identifiable as reelin-positive stellate cells, (Fig.B), whereas island cells are pyramidal neurons that stain positive for WFS1, (Fig.A). Though wolframin expression is

ubiquitous throughout the body, Tonegawa's group found that it is only present in island cells in the entorhinal cortex. The group used Proteintech's anti-WFS1 antibody (11558-1-AP) to selectively stain island cells within their research, as shown in several papers.

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Golgi stained examples of A) a pyramidal cell and B) a stellate cell. (Churchill et al. *BMC Neuroscience* 2004 5:43 doi:10.1186/1471-2202-5-43 Figure 1).

Staining the two populations of cells with their specific markers allowed the Tonegawa group to map the trajectory of their connections to other parts of the brain. It became clear that island cells and ocean cells, though close in

proximity, had different targets: island cells plug into the CA1 region of the hippocampus, whereas ocean cells connect to the dentate gyrus and CA3 region of the hippocampus.

## Focus On IBA1

Catalog Number  
**10904-1-AP**

Applications  
**ELISA, IF, IHC, IP, WB**

**25 Publications**

**si** Tested with siRNA

**Ionized calcium binding adapter molecule 1 (IBA1), is an inflammatory response protein expressed by monocytes and macrophages and is primarily considered a marker of macrophage activation.**

IBA1 is commonly used as a marker for microglial cells. Microglial cells are resident macrophages found in the CNS and play an important role in modulating inflammatory responses within the brain. Microglia are known to scavenge both the brain and spinal cord for pathogens and cells undergoing apoptosis and aid in their removal through phagocytosis.

Activation of microglia are one of the characteristic cellular changes that occurs during neurodegenerative processes such as Parkinson's disease and Alzheimer's disease. A recent study by Cui et al. has examined the etiological association between noise exposure and Alzheimer's disease. It has long been known that Alzheimer's disease results in neuroinflammation, therefore, Cui et al. examined the level of neuroinflammation present in the brains of mice exposed to chronic noise. Using Proteintech's antibody IBA1 as a marker for microglia, the authors were able to detect neuroglial activation during neuroinflammation through Western blot analysis.

Furthermore, Cui et al. were able to demonstrate that when the mice were exposed to noise, the expression of IBA1 significantly increased for up to 14 days suggesting that chronic noise exposure may induce profound microglia activation,

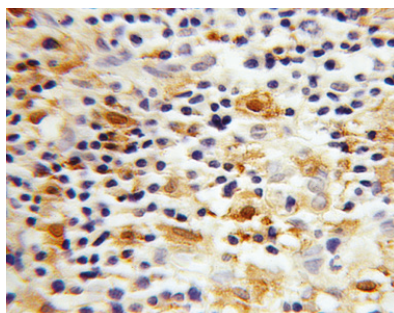
which may play a role in neuroinflammation and neurodegeneration.

As well as playing an important role in neurodegenerative disorders, IBA1 is also thought to be involved in neuropathic pain, a condition characterised by damage to the somatosensory nervous system.

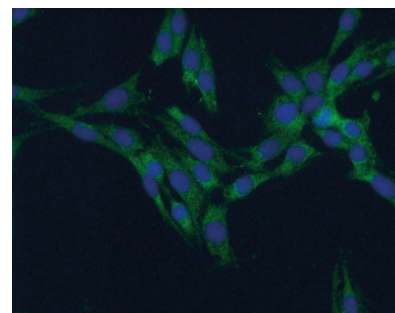
A recent study by Popiolek-Barczyk et al. examined the use of the compound parthenolide on the ability to activate M2 microglia/macrophages following sciatic nerve injury. The authors demonstrated that parthenolide increased the levels of IBA1 using our antibody alongside a reduction in pain.

IBA1 clearly plays an important role in a variety of neurological conditions including neurodegenerative processes and pain. The Proteintech IBA1 antibody has been extensively validated in-house, including specificity testing using siRNA. Furthermore, it has been used in 25 peer-reviewed publications.

Download this catalog and lots like it at [www.ptglab.com](http://www.ptglab.com).



*Immunohistochemical of paraffin-embedded human lymphoma using IBA1 antibody (10904-1-AP) at dilution of 1:100 (under 40x lens).*



*Immunofluorescent analysis of fixed C6 cells (-20°C Ethanol) using 10904-1-AP (IBA1 Antibody) at dilution of 1:50 and Alexa Fluor 488-conjugated AffiniPure Goat Anti-Rabbit IgG (H+L).*

### References

Cui B, Li K, Gai Z, et al. Chronic Noise Exposure Acts Cumulatively to Exacerbate Alzheimer's Disease-Like Amyloid-β Pathology and Neuroinflammation in the Rat Hippocampus. *Scientific Reports*. 2015;5:12943. doi:10.1038/srep12943.

Popiolek-Barczyk K, Kolosowska N, Piotrowska A, et al. Parthenolide Relieves Pain and Promotes M2 Microglia/Macrophage Polarization in Rat Model of Neuropathy. *Neural Plasticity*. 2015;2015:676473. doi:10.1155/2015/676473.

# THE BENCHMARK IN ANTIBODIES

Proteintech's founding principle was to make all of its products to the highest standards possible, whilst taking complete responsibility for the quality of each product.

- **Proteintech makes every single antibody in its 12,000-strong catalog.**
- **Each Proteintech product is unique and cannot be bought under a different label.**
- **Antibodies tested in siRNA knockdown experiment to demonstrate specificity.**
- **It works in any species and any application or get a full money-back refund.**

ABAT  
→ Ferritin Light Chain

# ANTIBODY PRODUCT LIST

Antibody Name	Cat No.	Type	Applications
ABAT	11349-1-AP	Rabbit poly	ELISA, WB, IHC, IP
ABCA2	20681-1-AP	Rabbit poly	ELISA, WB
ADH1B	17165-1-AP	Rabbit poly	ELISA, WB
ALDH1L1	17390-1-AP	Rabbit poly	ELISA, WB, IHC, IP
Aquaporin 4	16473-1-AP	Rabbit poly	ELISA, IHC, WB
BCL11B	55414-1-AP	Rabbit poly	ELISA, WB, IP, IF
BCRP/ABCG2	10051-1-AP	Rabbit poly	ELISA, WB, IHC
beta Tubulin	10094-1-AP	Rabbit poly	ELISA, WB, IF, IP, IHC, FC
beta Tubulin	10068-1-AP	Rabbit poly	ELISA, WB, IHC, IF, IP
beta Tubulin	66240-1-Ig	Mouse mono	ELISA, WB, IHC, IF, IP
BRN2	14596-1-AP	Rabbit poly	ELISA, IHC, WB
BRN2-Specific	18998-1-AP	Rabbit poly	ELISA, WB, IHC
Calretinin	12278-1-AP	Rabbit poly	ELISA, WB, IHC
CAMSAP1L1	17880-1-AP	Rabbit poly	ELISA, WB, IHC
CD11B/Integrin alpha M	20991-1-AP	Rabbit poly	ELISA, IHC, WB
CD11B/Integrin alpha M	21851-1-AP	Rabbit poly	ELISA, IHC
CD133	18495-1-AP	Rabbit poly	ELISA, WB
CD133	18470-1-AP	Rabbit poly	ELISA, WB
CD133-1,2,3	19946-1-AP	Rabbit poly	ELISA, WB
CD133-1,2,3,5,7	19945-1-AP	Rabbit poly	ELISA, WB, IP
CD24	18330-1-AP	Rabbit poly	ELISA, WB
CD24	10600-1-AP	Rabbit poly	ELISA, WB

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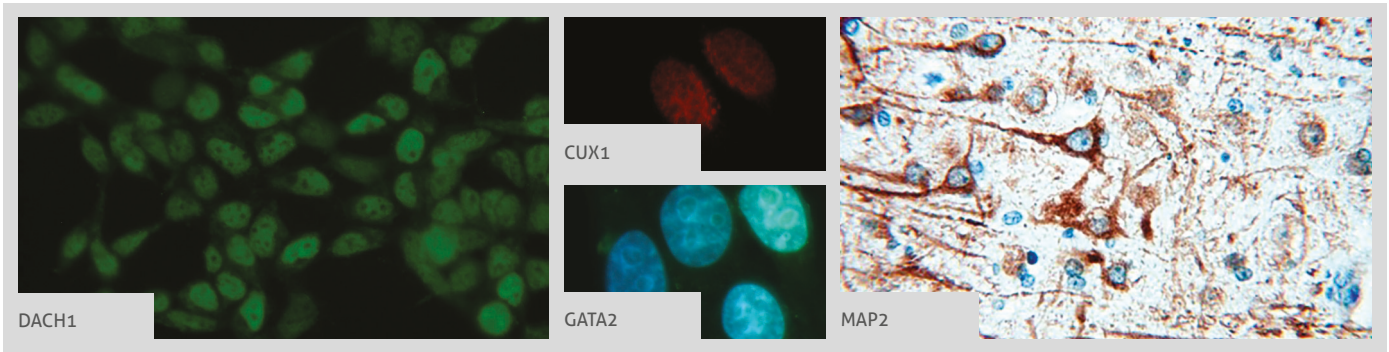
Antibody Name	Cat No.	Type	Applications
CHAT	20747-1-AP	Rabbit poly	ELISA, WB, IF, IHC, IP
CHAT	24418-1-AP	Rabbit poly	ELISA, WB, IHC, IP
CHT1	21848-1-AP	Rabbit poly	ELISA, WB, IHC, IP
Claudin 11	12152-1-AP	Rabbit poly	ELISA, WB, IHC, IF, FC
CNPase	13427-1-AP	Rabbit poly	ELISA, WB, IHC
CUX1	11733-1-AP	Rabbit poly	ELISA, WB, IF, IP
CUX2	24902-1-AP	Rabbit poly	ELISA, WB
DACH1	10914-1-AP	Rabbit poly	ELISA, IHC, IP, WB, IF
DAT	22524-1-AP	Rabbit poly	ELISA, IHC, WB, IP
DCX	13925-1-AP	Rabbit poly	ELISA, WB, IHC
DOPA decarboxylase	10166-1-AP	Rabbit poly	ELISA, WB, IHC, IP
DRD1	17934-1-AP	Rabbit poly	ELISA, WB
DRD2	55084-1-AP	Rabbit poly	ELISA, WB, IP
DRD5	20310-1-AP	Rabbit poly	ELISA, WB
DYNC1H1	12345-1-AP	Rabbit poly	ELISA, WB, IHC, IF
EAAT2	22515-1-AP	Rabbit poly	ELISA, WB, IHC, IP
EAAT3	12686-1-AP	Rabbit poly	ELISA, WB, IHC
EAAT4	12876-1-AP	Rabbit poly	ELISA, WB
FABP7	17456-1-AP	Rabbit poly	ELISA, WB
FABP7	51010-1-AP	Rabbit poly	ELISA, WB, IHC
FABP7-Specific	14836-1-AP	Rabbit poly	ELISA, WB, IHC
Ferritin light chain	10727-1-AP	Rabbit poly	ELISA, WB, IP, IHC, IF

**si** This icon shows the antibody has been tested in siRNA treated samples.



FEV  
→ NF-L

More validation images available on our website.



Antibody Name	Cat No.	Type	Applications
FEV	25058-1-AP	Rabbit poly	ELISA, WB
FOXA1	20411-1-AP	Rabbit poly	ELISA, WB, IHC
FOXA2	22474-1-AP	Rabbit poly	ELISA, IP, WB, IHC, IF
FOXP2	20529-1-AP	Rabbit poly	ELISA, WB, IP
GAC-specific	4 19958-1-AP	Rabbit poly	ELISA, IHC, WB, IP
GAD2	21760-1-AP	Rabbit poly	ELISA, WB, IP
GAD2	1 20746-1-AP	Rabbit poly	ELISA, WB, IF, IP
Galectin-3	2 14979-1-AP	Rabbit poly	ELISA, IP, IHC, WB, IF
Galectin-3	1 60207-1-Ig	Mouse mono	ELISA, WB, IF, IHC
GATA2	1 11103-1-AP	Rabbit poly	ELISA, IHC, IF, WB
GATA3	7 10417-1-AP	Rabbit poly	ELISA, WB, IHC
GATA3	22343-1-AP	Rabbit poly	ELISA, WB
GFAP	23935-1-AP	Rabbit poly	ELISA, WB, IHC, IP
GFAP	10 16825-1-AP	Rabbit poly	ELISA, WB, IHC
GFAP	3 60190-1-Ig	Mouse mono	ELISA, WB, IHC, IP
GFAP	10 16825-1-AP	Rabbit poly	ELISA, WB, IHC
GFAP	23935-1-AP	Rabbit poly	ELISA, WB, IHC, IP
GIRK2	21647-1-AP	Rabbit poly	ELISA, WB
GLAST	20785-1-AP	Rabbit poly	ELISA, IHC, WB
Glutamine synthetase	4 11037-2-AP	Rabbit poly	ELISA, WB, IHC, FC
GOT1	2 14886-1-AP	Rabbit poly	ELISA, WB, IP
GOT1	60317-1-Ig	Mouse mono	ELISA, WB
HES5	22666-1-AP	Rabbit poly	ELISA, WB, IHC
HMGB1	si 18 10829-1-AP	Rabbit poly	ELISA, WB, IHC, IP
HTR3A	1 10443-1-AP	Rabbit poly	ELISA, IHC, WB

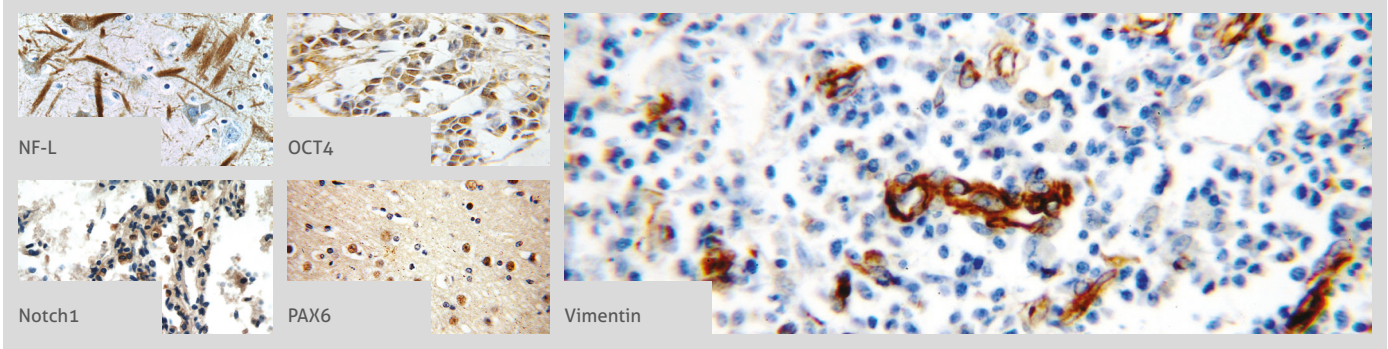
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Antibody Name	Cat No.	Type	Applications
HuC/D	13032-1-AP	Rabbit poly	ELISA, WB, IHC, IP
HuD	24992-1-AP	Rabbit poly	ELISA, WB, IF
IBA1	si 25 10904-1-AP	Rabbit poly	ELISA, WB, IP, IHC, IF
Integrin beta-4	21738-1-AP	Rabbit poly	ELISA, WB, IHC, FC, IP
Islet 1	15661-1-AP	Rabbit poly	ELISA, WB, IP, IHC
KGA/GAC	si 15 12855-1-AP	Rabbit poly	ELISA, IHC, IP, WB
KGA/GAM/GAC	23549-1-AP	Rabbit poly	ELISA, IHC, IF, WB, IP
KGA-Specific	2 20170-1-AP	Rabbit poly	ELISA, IHC, WB, IP
KIF5B	si 1 21632-1-AP	Rabbit poly	ELISA, IHC, WB, IP
LHX5	21567-1-AP	Rabbit poly	ELISA, WB
LMX1B	18278-1-AP	Rabbit poly	ELISA, WB, IF
LMX1B	18278-1-AP	Rabbit poly	ELISA, WB, IF
MAG	14386-1-AP	Rabbit poly	ELISA, WB, IHC
MAP1B	21633-1-AP	Rabbit poly	ELISA, WB, IHC, FC, IF
MAP2	10 17490-1-AP	Rabbit poly	ELISA, WB, IF, IP, IHC
MOG	2 12690-1-AP	Rabbit poly	ELISA, WB
Myelin basic protein	10458-1-AP	Rabbit poly	ELISA, WB, IHC
NANOG	1 14295-1-AP	Rabbit poly	ELISA, IF, WB, IP
Nestin	5 19483-1-AP	Rabbit poly	ELISA, WB, IHC, IF
NeuN	23060-1-AP	Rabbit poly	ELISA, WB, IHC
NF200	60331-1-Ig	Mouse mono	ELISA, WB, IF, IHC
NF-H	3 18934-1-AP	Rabbit poly	ELISA, WB, IHC
NF-H	21471-1-AP	Rabbit poly	ELISA, WB, IHC
NFIA	11750-1-AP	Rabbit poly	ELISA, WB, IHC, IP
NF-L	60189-1-Ig	Mouse mono	ELISA, WB

si This icon shows the antibody has been tested in siRNA treated samples.

NF-M-Specific  
→ WFS1

More validation images available on our website.



Antibody Name	Cat No.	Type	Applications
NF-L	1 12998-1-AP	Rabbit poly	ELISA, WB, IP, IHC, IF
NF-M-Specific	20664-1-AP	Rabbit poly	ELISA, IF, WB, IP, IHC
NKX2-2	13013-1-AP	Rabbit poly	ELISA, WB, IF
NOTCH1	3 20687-1-AP	Rabbit poly	ELISA, WB, IP, IHC
Notch1	2 10062-2-AP	Rabbit poly	ELISA, WB, IP
NR2B	2 19954-1-AP	Rabbit poly	ELISA, WB, IF
NR2B	1 21920-1-AP	Rabbit poly	ELISA, WB, IHC, IP, IF
NR2F1	24573-1-AP	Rabbit poly	ELISA, WB, IHC
NSE	55235-1-AP	Rabbit poly	ELISA, WB, IHC
NSE	10149-1-AP	Rabbit poly	ELISA, WB, IHC, IP
NSE	66150-1-Ig	Mouse mono	ELISA, WB, IHC, IF
Nurr1/NR4A2	2 10975-2-AP	Rabbit poly	ELISA, IHC
OCT4	60242-1-Ig	Mouse mono	ELISA, WB, IHC
OCT4	13 11263-1-AP	Rabbit poly	ELISA, IHC, IF, WB
Oct6-Specific	18997-1-AP	Rabbit poly	ELISA, WB
OLIG2	1 13999-1-AP	Rabbit poly	ELISA, WB, IHC, IF, IP
OLIG2	25754-1-AP	Rabbit poly	ELISA, WB
p75NTR	1 55014-1-AP	Rabbit poly	ELISA, WB, IHC, IP, FC, IF
PAX2	1 21385-1-AP	Rabbit poly	ELISA, IF, WB
PAX3	21386-1-AP	Rabbit poly	ELISA, WB, IP
PAX3	51036-2-AP	Rabbit poly	ELISA, WB
PAX6	6 12323-1-AP	Rabbit poly	ELISA, IHC, WB, IF
PAX7	20570-1-AP	Rabbit poly	ELISA, WB
Peripherin	17399-1-AP	Rabbit poly	ELISA, WB, IHC
PHOX2B	25276-1-AP	Rabbit poly	ELISA, WB, IF, IHC

Antibody Name	Cat No.	Type	Applications
PHOX2B	66254-1-Ig	Mouse mono	ELISA, IHC, WB
PLAGL1	25864-1-AP	Rabbit poly	ELISA, WB
RELN	20689-1-AP	Rabbit poly	ELISA, IHC
RORB	17635-1-AP	Rabbit poly	ELISA, WB, IHC, IP
S100B	3 15146-1-AP	Rabbit poly	ELISA, WB, IHC, IF
SCN10A	55334-1-AP	Rabbit poly	ELISA, IF
SCN9A/Nav1.7-Specific	20257-1-AP	Rabbit poly	ELISA, WB, IF, IHC
Somatostatin-Specific	17512-1-AP	Rabbit poly	ELISA, WB, IHC
SOX10	10422-1-AP	Rabbit poly	ELISA, WB
SOX10	10422-1-AP	Rabbit poly	ELISA, WB
SOX2	1 20118-1-AP	Rabbit poly	ELISA, WB
SOX2	6 11064-1-AP	Rabbit poly	ELISA, IF, WB, IHC
TAC1	13839-1-AP	Rabbit poly	ELISA, IHC, WB
TBR1	7 20932-1-AP	Rabbit poly	ELISA, WB, IHC, IP
TH	25859-1-AP	Rabbit poly	ELISA, WB, IF, IHC
TPH1	20879-1-AP	Rabbit poly	ELISA, WB
TPH2	22590-1-AP	Rabbit poly	ELISA, WB
TrkB	13129-1-AP	Rabbit poly	ELISA, WB
VGLUT1	55491-1-AP	Rabbit poly	ELISA, IHC, FC
VGLUT2	25261-1-AP	Rabbit poly	ELISA, WB
Vimentin	22031-1-AP	Rabbit poly	ELISA, WB
Vimentin	60330-1-Ig	Mouse mono	ELISA, WB, IF
Vimentin	33 10366-1-AP	Rabbit poly	ELISA, IF, IHC, WB, FC
WFS1	13 11558-1-AP	Rabbit poly	ELISA, IHC, IP, WB

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