

# NEURONAL MARKER ANTIBODIES

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## Focus On WFS1

Catalog Number  
**11558-1-AP**

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

**24 Publications**

**KD/KO Validated**

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

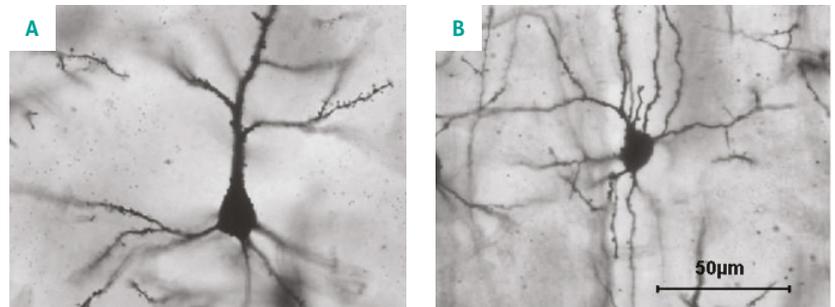
cell in the entorhinal cortex that process the 'when' and 'where' signals in the brain - 'island' and 'ocean' cells.

### 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**

**53 Publications**

**KD/KO Validated**

**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

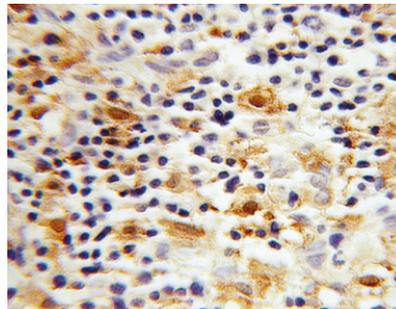
exposed to noise, the expression of IBA1 significantly increased for up to 14 days suggesting that chronic noise exposure may induce profound microglia activation, which may play a role in neuroinflammation and neurodegeneration.

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.

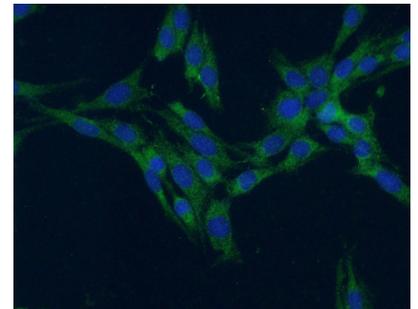
A recent study by Popiolek-Barczyk et al. examined the use of the compound parthenolide on the ability to activate M2 microglia/macrophages following sciatic nerve injury. The authors demonstrated that parthenolide increased the levels of IBA1 using our antibody alongside a reduction in pain.

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.

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



*Immunofluorescent analysis of fixed C6 cells (-20°C Ethanol) using IBA1 antibody (10904-1-AP) at a 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- $\beta$  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.

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- Open access validation data on the website.
- Antibodies raised against whole protein immunogens.
- Next day delivery.
- 20µl sample size vials available.

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ABAT  
→ Galectin-3

# ANTIBODY PRODUCT LIST

Antibody Name	Cat. No.	Type	Applications
ABAT	<b>1</b> 11349-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
ABCA2	20681-1-AP	Rabbit Poly	ELISA, IF, WB
ADH1B	<b>1</b> 17165-1-AP	Rabbit Poly	ELISA, WB
ALDH1L1	17390-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
Aquaporin 4	<b>8</b> 16473-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
BCL11B	55414-1-AP	Rabbit Poly	ELISA, IF, IP, WB
BCRP/ABCG2	<b>5</b> 10051-1-AP	Rabbit Poly	ELISA, IHC, WB
beta Tubulin	<b>42</b> 10094-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
beta Tubulin	<b>19</b> 10068-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
beta Tubulin	<b>6</b> 66240-1-Ig	Mouse Mono	ELISA, IF, IHC, IP, WB
BRN2	<b>1</b> 14596-1-AP	Rabbit Poly	ELISA, IHC, WB
BRN2-Specific	18998-1-AP	Rabbit Poly	ELISA, IHC, WB
Calretinin	12278-1-AP	Rabbit Poly	ELISA, IHC, WB
CAMSAP1L1	<b>K</b> <b>13</b> 17880-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
CD11B/ Integrin alpha M	<b>4</b> 20991-1-AP	Rabbit Poly	ELISA, FC, IHC, WB
CD11B/ Integrin alpha M	21851-1-AP	Rabbit Poly	ELISA, IHC
CD133	18495-1-AP	Rabbit Poly	ELISA, IHC, WB
CD133	<b>K</b> <b>38</b> 18470-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, WB
CD133-1, 2	19946-1-AP	Rabbit Poly	ELISA, IP, WB
CD133-1, 2, 4, 7	19945-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
CD24	<b>2</b> 18330-1-AP	Rabbit Poly	ELISA, WB
CD24	10600-1-AP	Rabbit Poly	ELISA, IHC, WB
CHAT	<b>5</b> 20747-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
CHAT	24418-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
CHT1	21848-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
Claudin 11	<b>1</b> 12152-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, WB

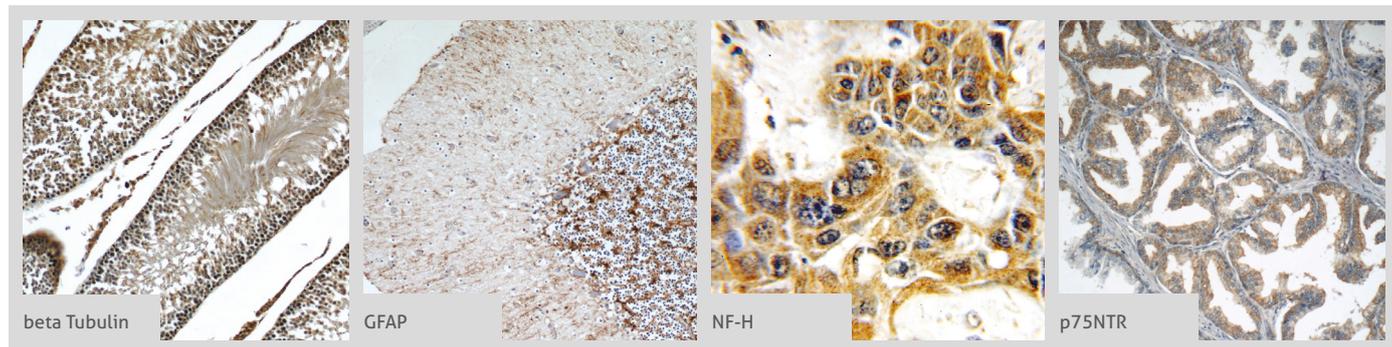
Antibody Name	Cat. No.	Type	Applications
CNPase	<b>1</b> 13427-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
CUX1	<b>K</b> <b>2</b> 11733-1-AP	Rabbit Poly	ELISA, IF, IP, WB
CUX2	24902-1-AP	Rabbit Poly	ELISA, WB
DACH1	<b>K</b> <b>31</b> 10914-1-AP	Rabbit Poly	ChIP, ELISA, IF, IHC, IP, WB
DAT	<b>6</b> 22524-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
DCX	13925-1-AP	Rabbit Poly	ELISA, WB
DOPA decarboxylase	<b>3</b> 10166-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
DRD1	<b>K</b> <b>3</b> 17934-1-AP	Rabbit Poly	ELISA, WB
DRD2	<b>K</b> <b>2</b> 55084-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
DRD5	<b>K</b> <b>3</b> 20310-1-AP	Rabbit Poly	ELISA, FC, WB
DYNC1H1	<b>K</b> <b>10</b> 12345-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
EAAT2	<b>1</b> 22515-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
EAAT3	<b>1</b> 12686-1-AP	Rabbit Poly	ELISA, IHC, WB
EAAT4	12876-1-AP	Rabbit Poly	ELISA, WB
FABP7	17456-1-AP	Rabbit Poly	ELISA, WB
FABP7	<b>1</b> 51010-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
FABP7-Specific	14836-1-AP	Rabbit Poly	ELISA, IHC, WB
Ferritin light chain	<b>K</b> <b>11</b> 10727-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
FEV	25058-1-AP	Rabbit Poly	ELISA, WB
FOXA1	20411-1-AP	Rabbit Poly	ELISA, IHC, WB
FOXA2	22474-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
FOXP2	20529-1-AP	Rabbit Poly	ELISA, IP, WB
GAC-specific	<b>8</b> 19958-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
GAD2	21760-1-AP	Rabbit Poly	ELISA, IP, WB
GAD2	<b>2</b> 20746-1-AP	Rabbit Poly	ELISA, IF, IP, WB
Galectin-3	<b>K</b> <b>4</b> 14979-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB

**00** This number shows the amount of times our antibody has been cited in a publication.

**K** This icon shows that the antibody has been validated using siRNA knockdown/knockout experiment.

Galectin-3  
PAX3 ←

More validation images available on our website.



Antibody Name	Cat. No.	Type	Applications
Galectin-3	<b>K</b> 6	60207-1-Ig	Mouse Mono ELISA, IF, IHC, WB
GATA2	2	11103-1-AP	Rabbit Poly ELISA, IF, IHC, WB
GATA3	<b>K</b> 9	10417-1-AP	Rabbit Poly ChIP, ELISA, IHC, WB
GATA3		22343-1-AP	Rabbit Poly ELISA, WB
GFAP		23935-1-AP	Rabbit Poly ELISA, IHC, IP, WB
GFAP	32	16825-1-AP	Rabbit Poly ELISA, IF, IHC, WB
GFAP	8	60190-1-Ig	Mouse Mono ELISA, IF, IHC, IP, WB
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, FC, IHC, WB
GOT1	3	14886-1-AP	Rabbit Poly ELISA, IF, IP, WB
GOT1	1	60317-1-Ig	Mouse Mono ELISA, IHC, WB
HES5		22666-1-AP	Rabbit Poly ELISA, IHC, WB
HMGB1	<b>K</b> 27	10829-1-AP	Rabbit Poly ChIP, ELISA, FC, IF, IHC, IP, WB
HTR3A	1	10443-1-AP	Rabbit Poly ELISA, FC, IHC, WB
HuC/D		13032-1-AP	Rabbit Poly ELISA, IHC, IP, WB
HuD		24992-1-AP	Rabbit Poly ELISA, IF, IP, WB
IBA1	<b>K</b> 53	10904-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
Integrin beta-4	1	21738-1-AP	Rabbit Poly ELISA, FC, IHC, IP, WB
Islet 1		15661-1-AP	Rabbit Poly ELISA, IHC, IP, WB
KGA/GAC	<b>K</b> 24	12855-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB Wes System
KGA/GAM/GAC	1	23549-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
KGA-Specific	4	20170-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
KIF5B	<b>K</b> 2	21632-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
LHX5		21567-1-AP	Rabbit Poly ELISA, WB
LMX1B		18278-1-AP	Rabbit Poly ELISA, IF, WB
MAG		14386-1-AP	Rabbit Poly ELISA, IHC, WB
MAP1B	3	21633-1-AP	Rabbit Poly ELISA, FC, IF, IHC, WB
MAP2	24	17490-1-AP	Rabbit Poly ELISA, FC, IF, IHC, IP, WB
MOG	3	12690-1-AP	Rabbit Poly ELISA, Inhibition Assay, WB

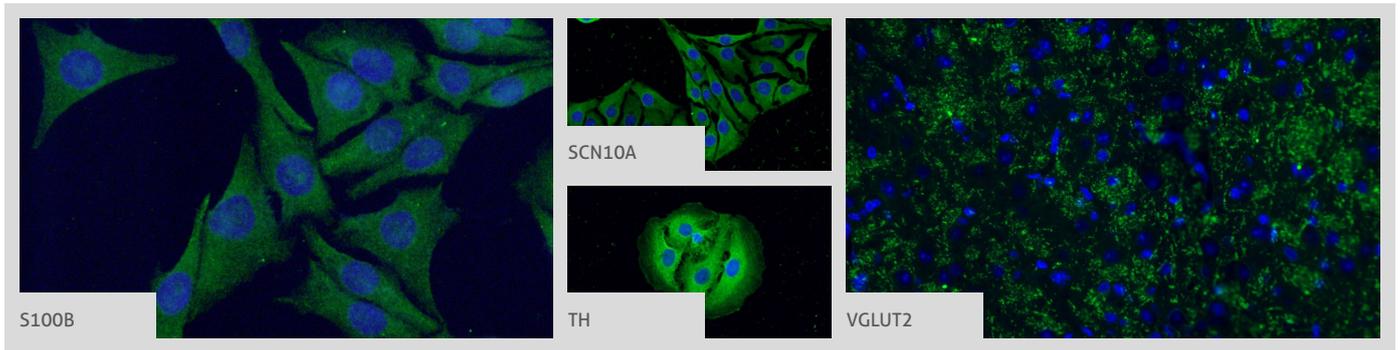
Antibody Name	Cat. No.	Type	Applications
Myelin basic protein	4	10458-1-AP	Rabbit Poly ELISA, IHC, WB
NANOG	<b>K</b> 13	14295-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
Nestin	8	19483-1-AP	Rabbit Poly ELISA, IF, IHC, WB
NeuN	3	23060-1-AP	Rabbit Poly ELISA, IHC, WB
NF200		60331-1-Ig	Mouse Mono ELISA, IF, IHC, WB
NF-H	7	18934-1-AP	Rabbit Poly ELISA, IHC, WB
NF-H		21471-1-AP	Rabbit Poly ELISA, IHC, WB
NFIA		11750-1-AP	Rabbit Poly ELISA, IHC, IP, WB
NF-L		60189-1-Ig	Mouse Mono ELISA, IHC, WB
NF-L	2	12998-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
NF-M-Specific		20664-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
NKX2-2	<b>K</b>	13013-1-AP	Rabbit Poly ELISA, IF, WB
NOTCH1	3	20687-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
Notch1	<b>K</b> 8	10062-2-AP	Rabbit Poly ELISA, IHC, IP, WB
NR2B	2	19954-1-AP	Rabbit Poly ELISA, FC, IF, WB
NR2B	7	21920-1-AP	Rabbit Poly ELISA, FC, IF, IHC, IP, WB
NR2F1		24573-1-AP	Rabbit Poly ELISA, IHC, WB
NSE		55235-1-AP	Rabbit Poly ELISA, IHC, WB
NSE		10149-1-AP	Rabbit Poly ELISA, IHC, IP, WB
NSE		66150-1-Ig	Mouse Mono ELISA, IF, IHC, WB
Nurr1/NR4A2	2	10975-2-AP	Rabbit Poly ELISA, IHC, WB
OCT4		60242-1-Ig	Mouse Mono ELISA, IHC, WB
OCT4	<b>K</b> 35	11263-1-AP	Rabbit Poly ELISA, IF, IHC, WB
Oct6-Specific		18997-1-AP	Rabbit Poly ELISA, WB
OLIG2	7	13999-1-AP	Rabbit Poly ELISA, IF, IHC, IP, WB
OLIG2		25754-1-AP	Rabbit Poly ELISA, WB
p75NTR	4	55014-1-AP	Rabbit Poly ELISA, FC, IF, IHC, IP, WB
PAX2	2	21385-1-AP	Rabbit Poly ELISA, IF, WB
PAX3		21386-1-AP	Rabbit Poly ELISA, IP, WB
PAX3		51036-2-AP	Rabbit Poly ELISA, WB

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**K** This icon shows that the antibody has been validated using siRNA knockdown/knockout experiment.

PAX7  
→ WFS1

More validation images available on our website. 



Antibody Name	Cat. No.	Type	Applications
PAX7	20570-1-AP	Rabbit poly	ELISA, WB
Peripherin	 17399-1-AP	Rabbit poly	ELISA, IHC, WB
PHOX2B	  25276-1-AP	Rabbit poly	ELISA, IF, IHC, WB
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, IHC, IP, WB
S100B	  15146-1-AP	Rabbit poly	ELISA, IF, IHC, WB
SCN10A	 55334-1-AP	Rabbit poly	ELISA, IF
SCN9A/ Nav1.7-Specific	 20257-1-AP	Rabbit poly	ELISA, IF, IHC, WB
Somatostatin -Specific	17512-1-AP	Rabbit poly	ELISA, IHC, WB
SOX10	10422-1-AP	Rabbit poly	ELISA, WB
SOX2	  20118-1-AP	Rabbit poly	ELISA, IHC, WB

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Antibody Name	Cat. No.	Type	Applications
SOX2	 11064-1-AP	Rabbit poly	ELISA, IF, IHC, WB
TAC1	13839-1-AP	Rabbit poly	ELISA, IHC, WB
TBR1	 20932-1-AP	Rabbit poly	ELISA, IF, IHC, IP, WB
TH	  25859-1-AP	Rabbit poly	ELISA, IF, IHC, IP, WB
TPH1	20879-1-AP	Rabbit poly	ELISA, WB
TPH2	22590-1-AP	Rabbit poly	ELISA, WB
TrkB	13129-1-AP	Rabbit poly	ELISA, IHC, IP, WB
VGLUT1	55491-1-AP	Rabbit poly	ELISA, FC, IHC
VGLUT2	 25261-1-AP	Rabbit poly	ELISA, IF, WB
Vimentin	22031-1-AP	Rabbit poly	ELISA, IHC, WB
Vimentin	  60330-1-Ig	Mouse Mono	ELISA, IF, IHC, WB
Vimentin	  10366-1-AP	Rabbit poly	ELISA, FC, IF, IHC, WB
WFS1	  11558-1-AP	Rabbit poly	ColP, ELISA, IF, IHC, IP, WB

 This icon shows that the antibody has been validated using siRNA knockdown/knockout experiment.



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