abcam

ab221212

# Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free

Recombinant | RabMAb

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Constituents: PBS |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Carrier free** | Yes |
| **Clone number** | EP1039Y |
| **Purification technique** | Affinity purification Protein A |
| **Dissociation constant** | 3.25 x $10^{-10}$ M |
| **Concentration** | 1.018 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### IP

**Tested**

| | |
|---|---|
| **Species** | Rat |

| | |
|---|---|
| **Dilution info** | - |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Human, Mouse |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Rat, Human, Mouse |
| **Dilution info** | - |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Human, Mouse |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |

| | |
|---|---|
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Human, Mouse |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

# Target data

See full target information NGFR

| | |
|---|---|
| **Function** | Low affinity receptor which can bind to NGF, BDNF, NTF3, and NTF4. Forms a heterodimeric receptor with SORCS2 that binds the precursor forms of NGF, BDNF and NTF3 with high affinity, and has much lower affinity for mature NGF and BDNF (PubMed:24908487). Plays an important role in differentiation and survival of specific neuronal populations during development (By similarity). Can mediate cell survival as well as cell death of neural cells. Plays a role in the inactivation of RHOA (PubMed:26646181). Plays a role in the regulation of the translocation of GLUT4 to the cell surface in adipocytes and skeletal muscle cells in response to insulin, probably by regulating RAB31 activity, and thereby contributes to the regulation of insulin-dependent glucose uptake (By similarity). Necessary for the circadian oscillation of the clock genes BMAL1, PER1, PER2 and NR1D1 in the suprachiasmatic nucleus (SCmgetaN) of the brain and in liver and of the genes involved in glucose and lipid metabolism in the liver (PubMed:23785138). Together with BFAR negatively regulates NF-kappa-B and JNK-related signaling pathways (PubMed:22566094). |

## Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | +4°C |
| **Storage information** | Do Not Freeze |

## Notes

ab221212 is the carrier-free version of ab52987.

**Patented technology**
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

**Conjugation ready**
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

**Compatibility**
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

**What does low endotoxin mean?**
Our low endotoxin, azide-free formats have low endotoxin level (1 EU/mg, determined by the TAL assay) and are free from azide, to achieve consistent experimental results in functional assays.

## Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

| | |
|---|---|
| **Activity summary** | The p75 NGF receptor also known as p75 NGFR or anti-NTR is a transmembrane protein with a molecular mass of approximately 75 kDa. It is a member of the tumor necrosis factor receptor superfamily. This receptor is widely expressed in the nervous system particularly in neurons glial cells and Schwann cells. The p75 receptor primarily binds to neurotrophins such as nerve growth factor (NGF) influencing neuronal survival apoptosis and growth. |
| **Biological function summary** | The p75 receptor functions as an important part of a signaling complex that mediates diverse cellular responses. It often forms complexes with other receptors like TrkA but can also signal independently. In particular the p75 protein can form a biological chimera with different co-receptors influencing its downstream effects. This makes it significant in processes like apoptosis and neuronal differentiation as well as influencing neurotrophin-mediated signaling. |
| **Pathways** | The p75 receptor plays an important role in pathways involving neuronal survival and apoptosis. One key pathway involves the nerve growth factor (NGF) signaling pathway where p75 collaborates with Trk receptors enhancing or inhibiting NGF signaling based on cellular context. Another pathway is the JNK signaling pathway where the p75 receptor interacts with proteins like sortilin contributing to apoptosis and stress responses in neurons. These interactions determine the outcome of neurotrophic signaling highlighting its role in cell fate decisions. |
| **Associated diseases and disorders** | P75 receptor is associated with several neurodegenerative conditions and cancers. Its involvement in Alzheimer's disease is significant because altered p75 expression and function can contribute to neurodegeneration through apoptosis pathways. This receptor is also linked to glioblastoma where it might promote tumor progression in coordination with proteins such as sortilin. These links make p75 receptor a target of interest for therapeutic intervention in these diseases. |

## Product promise

**Tested**

We have tested this species and application combination and it works. It is covered by our product promise.

**Expected**

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

**Predicted**

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

**Not recommended**

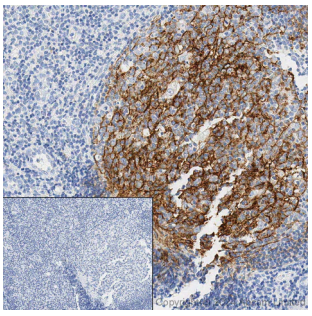
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

## 11 product images



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

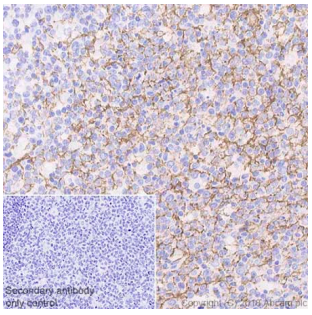
P75 NGF Receptor Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human tonsil using rabbit Anti-p75 NGF Receptor antibody

This data was developed using ab52987, the same antibody clone in a different buffer formulation.

Immunohistochemical analysis of formalin fixed paraffin embedded human tonsil labelling p75 NGF Receptor with ab52987 at a concentration of 0.1µg/ml. The immunostaining was performed on a Ventana DISCOVERY ULTRA (Roche Tissue Diagnostics) instrument with a OptiView DAB IHC Detection Kit. Heat mediated antigen retrieval was performed with DISCOVERY cell conditioning solution (CC1) 100°C, pH8.5 for 32mins.

Anti-p75 NGF Receptor antibody [EP1039Y] ab52987 was incubated for 16mins at 37°C. Sections were counterstained with Hematoxylin II. Image inset shows absence of staining in secondary antibody only control.

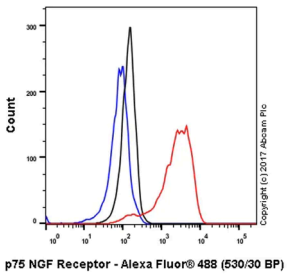
Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual).



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-p75 NGF Receptor antibody

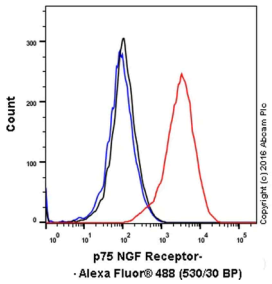
Purified ab52987 staining p75 NGF receptor in paraffin embedded Human tonsil tissue sections by Immunohistochemistry. Antigen retrieval was by heat mediation using ab93684 (Tris/EDTA buffer, pH 9.0). Samples were incubated with primary antibody at 3.3µg/ml. A ready to use Goat Anti-Rabbit IgG H&L (HRP) was used as the secondary antibody. Hematoxylin was used as a counterstain. Positive staining on germinal centre of human tonsil.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab52987).




## Flow Cytometry (Intracellular) - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Flow Cytometry (Intracellular) staining using rabbit Anti-p75 NGF Receptor antibody

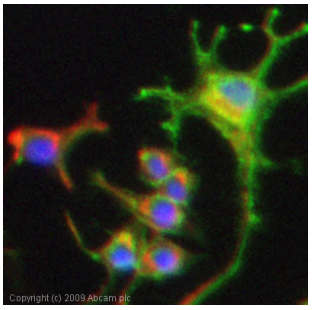
Intracellular Flow Cytometry analysis of PC-12 (rat adrenal gland pheochromocytoma) cells labeling p75 NGF Receptor with purified ab52987 at 1/80 dilution (1ug/mL) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor®488) at 1/2000 dilution was used as the secondary antibody. Rabbit monoclonal IgG (ab172730) (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) was used as the unlabeled control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab52987).




## Flow Cytometry (Intracellular) - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Flow Cytometry (Intracellular) staining using rabbit Anti-p75 NGF Receptor antibody

Intracellular Flow Cytometry analysis of PC-12 (rat adrenal gland pheochromocytoma) cells labeling p75 NGF Receptor with unpurified ab52987 at 1/60 dilution (10ug/mL) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor®488) at 1/2000 dilution was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) was used as the unlabeled control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab52987).

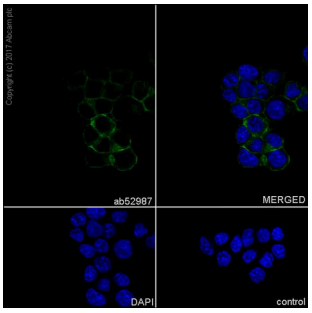



## Immunocytochemistry/ Immunofluorescence - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-p75 NGF Receptor antibody

ICC/IF image of ab52987 stained PC12 cells. The cells were 100% methanol fixed (5 min) and then incubated in 1% BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1 hour to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab52987, 1 µg/mL) overnight at 4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1 hour. Alexa Fluo® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1 hour. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.4 µM.

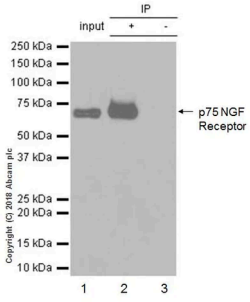
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab52987).




## Immunocytochemistry/ Immunofluorescence - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-p75 NGF Receptor antibody

Purified ab52987 staining p75 NGF receptor in PC-12 (rat adrenal gland pheochromocytoma) by ICC/IF (Immunocytochemistry/Immunofluorescence). Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% TritonX-100. Samples were incubated with primary antibody at 3.9 µg/ml. An AlexaFluor®488 Goat anti-Rabbit was used as the secondary antibody at 2 µg/ml. DAPI was used as a nuclear counterstain. Confocal image showing cytoplasmic and Membranous staining in PC-12 cells.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab52987).




## Immunoprecipitation - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

**Lane 1 (input):** PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate 10µg
**Lane 2 (+):** PC-12 whole cell lysate
**Lane 3 (-):** Rabbit monoclonal IgG (ab172730) instead of ab52987 in PC-12 whole cell lysate

ab52987 immunoprecipitating p75 NGF receptor in PC-12 whole cell lysates. For western blotting, primary antibody used was ab52987 at 1.6 µg/ml. ab131366 VeriBlot for IP (HRP) was used for detection at 1/1000 dilution. Capture antibody was used at 1:40 dilution (2µg in 0.35mg lysates). Blocking and diluting buffer: 5% NFDM/TBST.

**Exposure:** 10 seconds

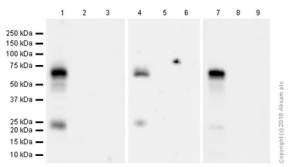
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab52987).

All lanes:
Immunoprecipitation - Anti-p75 NGF Receptor antibody [EP1039Y] (ab52987)

Predicted band size: 45 kDa

Observed band size: 75 kDa

Exposure time: 10s




## Western blot - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Western blot staining using rabbit Anti-p75 NGF Receptor antibody

This data was developed using ab52987, the same antibody clone in a different buffer formulation. Blocking and diluting buffer: 5% NFDM/TBST.

ab52987 fails to detect band of interest in hippocampus and cortex lysates (positive, PMID: 25180603, 28507518, 18930453, 20937383, 21059364), indicating its low affinity in some p75 NGF Receptor positive materials.

**Exposure:**
Lane 1-3: 8 seconds

Lane 4-6: 180 seconds
Lane 7-9: 30 seconds
All lanes:
Western blot - Anti-p75 NGF Receptor antibody [EP1039Y] (ab52987) at 1/1000 dilution

Lane 1:
SW480 (Human colorectal adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
Human hippocampus tissue lysates at 20 µg

Lane 3:
Human brain cortex tissue lysates at 20 µg

Lane 4:
Neuro-2a (Mouse neuroblastoma neuroblast) whole cell lysates at 20 µg

Lane 5:
Mouse hippocampus tissue lysates at 20 µg

Lane 6:
Mouse cerebral cortex lysates at 20 µg

Lane 7:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysates at 20 µg

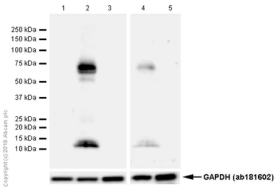
Lane 8:
Rat hippocampus tissue lysates at 20 µg

Lane 9:
Rat brain cortex tissue lysates at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 45 kDa




## Western blot - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Western blot staining using rabbit Anti-p75 NGF Receptor antibody

This data was developed using ab52987, the same antibody clone in a different buffer formulation. Blocking and diluting buffer: 5% NFDM/TBST.

ab52987 fails to detect band of interest in Capan-1 (positive, PMID: 14613990) and brain lysates (positive, PMID: 21413144, 21541365), indicating its low affinity in some p75 NGF Receptor positive materials.

All lanes:
Western blot - Anti-p75 NGF Receptor antibody [EP1039Y] (ab52987) at 1/1000 dilution

Lane 1:
Capan-1 (Human pancreas adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
Mouse uterus tissue lysates at 20 µg

Lane 3:

Mouse brain tissue lysates at 20 µg

Lane 4:
Rat uterus tissue lysates at 20 µg

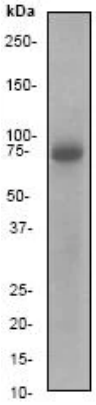
Lane 5:
Rat brain tissue lysates at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 45 kDa

Exposure time: 180s




## Western blot - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

P75 NGF Receptor Western blot staining of PC12 cell lysate using rabbit Anti-p75 NGF Receptor antibody

This data was developed using ab52987, the same antibody clone in a different buffer formulation.

All lanes:
Western blot - Anti-p75 NGF Receptor antibody [EP1039Y] (ab52987) at 1/50000 dilution

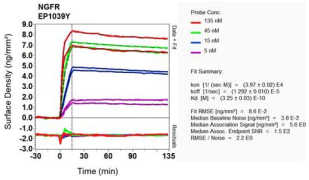
All lanes:
PC12 cell lysate at 10 µg

Secondary

All lanes:
goat anti-rabbit HRP labelled at 1/2000 dilution

Predicted band size: 45 kDa

Observed band size: 75 kDa




## OI-RD Scanning - Anti-p75 NGF Receptor antibody [EP1039Y] - Low endotoxin, Azide free (ab221212)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.