abcam

ab278054

# Anti-GFAP antibody [RM1003] - Astrocyte Marker

Anti-GFAP antibody [RM1003] (ab278054) is a rabbit recombinant multiclonal antibody detecting GFAP in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, IHC-Fr, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA |
| **Form** | Liquid |
| **Clonality** | Multiclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Clone number** | RM1003 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.471 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 0.1-1 µg/mL |

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

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 0.1-1 µg/mL |
| **Notes** | - |

### Expected

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

## IP

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/30 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/30 |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/1000 |

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

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/1000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | - |

## IHC-Fr

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/700 |
| **Notes** | Heat mediated antigen retrieval using sodium citrate buffer (10mM citrate pH 6.0 + 0.05% Tween-20). |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/700 |
| **Notes** | Heat mediated antigen retrieval using sodium citrate buffer (10mM citrate pH 6.0 + 0.05% Tween-20). |

### Expected

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

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

### Expected

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

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/2000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/2000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/2000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

# Target data

See full target information GFAP

| | |
|---|---|
| **Function** | GFAP, a class-III intermediate filament, is a cell-specific marker that, during the development of the central nervous system, distinguishes astrocytes from other glial cells. |

# Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage duration** | 1-2 weeks |

| | |
|---|---|
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | -20°C |
| **Aliquoting information** | Upon delivery aliquot |
| **Storage information** | Avoid freeze / thaw cycle |

## Notes

**What is this antibody validated in?**
Anti-GFAP antibody [RM1003] (ab278054) is a rabbit recombinant recombinant multiclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunohistochemistry (IHC-Fr), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

**What is the molecular weight of GFAP?**
Anti-GFAP [RM1003] (ab278054) specifically detects a band for GFAP (UniProt: P14136) at a molecular weight of 49kDa.

**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.

**Trial sizes available!**
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

## 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**

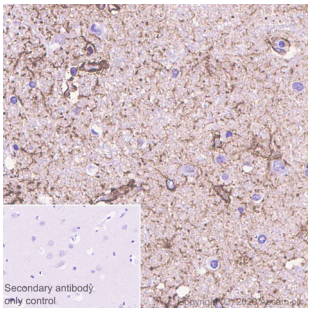
We do not recommend this combination. It is not covered by our product promise.

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.

## 10 product images

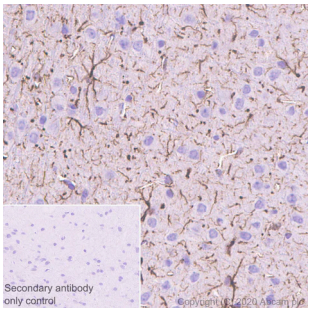



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GFAP antibody

Immunohistochemical analysis of paraffin-embedded human cerebrum tissue labeling GFAP with ab278054 at 1/2000 (0.235 µg/ml) dilution followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on human cerebrum. The section was incubated with ab278054 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

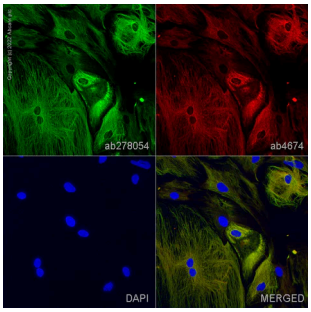



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GFAP antibody

Immunohistochemical analysis of paraffin-embedded rat cerebrum tissue labeling GFAP with ab278054 at 1/2000 (0.235 µg/ml) dilution followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on rat cerebrum. The section was incubated with ab278054 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

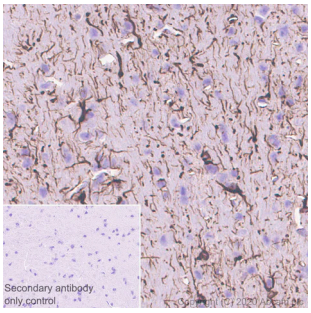
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.




## Immunocytochemistry/ Immunofluorescence - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-GFAP antibody

Immunofluorescence staining of GFAP using ab278054 in primary rat hippocampal mixed glia, (prepared from P2 rat hippocampal brain area, obtained from Transnetyx Tissue by BrainBits, LLC, cat.no. SDPHP4m), DIV4. The cells were fixed with 100% MeOH (5 min), permeabilized with 0.1% Triton-X-100 (in PBS) for 5 mins and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab278054 at 0.1 µg/ml and ab4674, Anti-GFAP antibody, at 1/1000 dilution. Cells were then incubated with ab150081, Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150176, Goat Anti-Chicken IgY H&L (Alexa Fluor® 594) preadsorbed at 1/1000 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue). Images were acquired with the Perkin Elmer Operetta HCA and a maximum intensity projection of confocal sections is shown. The antibody ab278054 gave comparable results using 4% formaldehyde fixation (10 min).

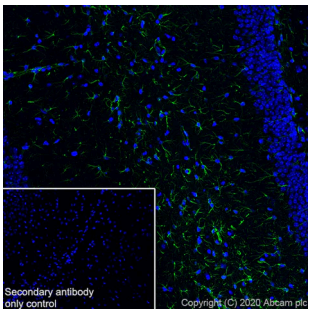



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GFAP antibody

Immunohistochemical analysis of paraffin-embedded mouse cerebrum tissue labeling GFAP with ab278054 at 1/2000 (0.235 µg/ml) dilution followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on mouse cerebrum. The section was incubated with ab278054 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

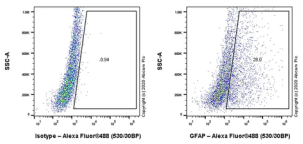



## Immunohistochemistry (Frozen sections) - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Immunohistochemistry (Frozen sections) staining using rabbit Anti-GFAP antibody

Immunohistochemical analysis of 4% PFA-fixed, 0.2% Triton X-100 permeabilized mouse cerebrum tissue labeling GFAP with ab278054 at 1/700 (0.938 µg/ml) dilution followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at a 1/1000 dilution. Nuclear counterstain is DAPI. Positive staining on mouse cerebrum.
Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) used at a 1/1000 dilution.

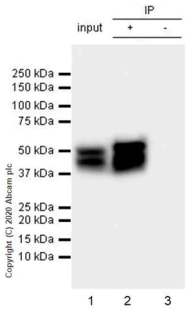
Heat mediated antigen retrieval using sodium citrate buffer (10 mM citrate pH 6.0 + 0.05% Tween-20).



## Flow Cytometry (Intracellular) - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Flow Cytometry (Intracellular) staining using rabbit Anti-GFAP antibody

Flow Cytometry analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized mouse primary brain cells labeling GFAP using ab278054 at a 1/500 dilution (0.1 µg) (Right panel) compared to Rabbit monoclonal IgG (ab172730) (Left panel).
Secondary antibody is Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) used at a 1/2000 dilution.




## Immunoprecipitation - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP was immunoprecipitated from 0.35 mg mouse brain lysate with ab278054 at 1/30 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab278054 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP)(ab131366) was used at 1/5000 dilution.
**Lane 1:** Mouse brain lysate 10 µg.
**Lane 2:** ab278054 IP in mouse brain lysate.
**Lane 3:** Rabbit monoclonal IgG (ab172730) instead of ab278054 in mouse brain lysate.

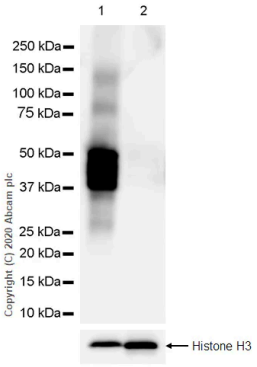
Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 seconds.
The molecular weight observed is consistent with the literature (PMID: 824020; PMID:2294; PMID: 6340792).

All lanes:
Immunoprecipitation - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

Predicted band size: 49 kDa

Observed band size: 40-54 kDa

Exposure time: 3s




## Western blot - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Western blot staining using rabbit Anti-GFAP antibody

**Negative control:** Human liver. (PMID: 25975510).
The molecular weight observed is consistent with the literature (PMID: 25975510).
Blocking/Diluting buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054) at 1/1000 dilution

Lane 1:
Human brain lysate at 20 µg

Lane 2:
Human liver lysate at 20 µg

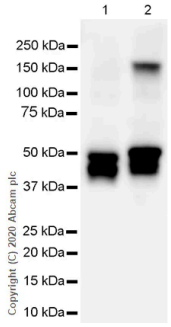
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 49 kDa

Observed band size: 40-54 kDa

Exposure time: 3s




## Western blot - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Western blot staining using rabbit Anti-GFAP antibody

The molecular weight observed is consistent with the literature (PMID: 25975510).
Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054) at 1/1000 dilution

Lane 1:
Mouse brain lysate at 20 µg

Lane 2:
Rat brain lysate at 20 µg

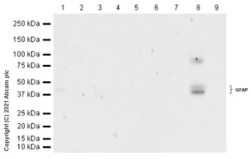
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 49 kDa

Observed band size: 40-54 kDa

Exposure time: 3s



## Western blot - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054)

GFAP Western blot staining using rabbit Anti-GFAP antibody

Blocking and Diltuing buffer and concentration: 5% NFDM/TBST
GFAP is expressed primarily by astrocytes in the CNS as astrocytes marker. We have no suitable astrocyte for western blot testing.
U-87 MG and C6 were reported to express low level of GFAP (PMID: 23839947, PMID: 22096544, PMID: 20669222).

NIH/3T3, IMR-32, HeLa and PC-12 were reported as negative cell lines for GFAP (PMID: 824020; PMID:2294; PMID: 6340792; PMID:9466565, PMID:7895062, PMID: 28700643, PMID: 19272755).

No literature was found to support the expression in SH-SY5Y, Neuro-2a and SK-N-BE (2) cell.

All lanes:
Western blot - Anti-GFAP antibody [RM1003] - Astrocyte Marker (ab278054) at 1/1000 dilution

Lane 1:
U-87 MG (Human glioblastoma-astrocytoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
SH-SY5Y (Human neuroblastoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
SK-N-BE (2) (Human neuroblastoma neuroblast) whole cell lysate at 20 µg

Lane 4:
IMR-32 (Human lung fibroblast) whole cell lysate at 20 µg

Lane 5:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 6:
Neuro-2a (Mouse neuroblastoma neuroblast) whole cell lysate at 20 µg

Lane 7:
NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate at 20 µg

Lane 8:
C6 (Rat glial tumor glial cell) whole cell lysate at 20 µg

Lane 9:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/20000 dilution

Predicted band size: 49 kDa

Observed band size: 40-54 kDa

Exposure time: 180s

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