abcam

ab264097

Anti-beta III Tubulin antibody [2G10] - BSA and Azide free

Recombinant | KO Validated

Key facts

Isotype	IgG2a
Host species	Mouse
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	2G10
Purification technique	Affinity purification Protein A
Concentration	1.045 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	-

Notes	-

Expected

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

Predicted

Species	Dogfish, Catshark, Common marmoset, Cow, Cat, Quail
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Dogfish, Catshark, Common marmoset, Cow, Cat, Quail
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

Predicted

Species	Dogfish, Catshark, Common marmoset, Cow, Cat, Quail
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Predicted

Species	Dogfish, Catshark, Common marmoset, Cow, Cat, Quail
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse, Rat
Dilution info	-
Notes	-

Expected

Species	Human

Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Dogfish, Catshark, Common marmoset, Cow, Cat, Quail
Dilution info	-
Notes	-

Target data

See full target information Tubb3

Function	Tubulin is the major constituent of microtubules, protein filaments consisting of alpha- and beta-tubulin heterodimers (By similarity). Microtubules grow by the addition of GTP-tubulin dimers to the microtubule end, where a stabilizing cap forms (By similarity). Below the cap, alpha-beta tubulin heterodimers are in GDP-bound state, owing to GTPase activity of alpha-tubulin (By similarity). TUBB3 plays a critical role in proper axon guidance and maintenance (By similarity). Binding of NTN1/Netrin-1 to its receptor UNC5C might cause dissociation of UNC5C from polymerized TUBB3 in microtubules and thereby lead to increased microtubule dynamics and axon repulsion (By similarity). Plays a role in dorsal root ganglion axon projection towards the spinal cord (By similarity).

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

ab264097 is the carrier-free version of ab78078.
Abcam recommended secondaries - Goat Anti-Mouse HRP (ab205719) and Goat Anti-Mouse Alexa Fluor® 488 (ab150113). Or search our wide range of secondary antibodies for use with your experiment.

The production method for this product has been switched from hybridoma to recombinant on 7th Sept 2026.

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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 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.

Supplementary info

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

Activity summary	Beta III tubulin often referred to as βIII tubulin or beta-tubulin 3 is a microtubule element involved in the cellular cytoskeleton structure. This protein with a molecular mass of approximately 55 kDa plays an important role in the development and maintenance of neuron structures. It is most prominently expressed in neurons within the central and peripheral nervous systems. In these cells beta III tubulin contributes to microtubule polymerization facilitating the formation of the intricate network necessary for cell shape intracellular transport and division.
Biological function summary	Beta III tubulin acts in stabilizing microtubules which are essential for proper neuronal function. It exists as part of the tubulin dimer complex partnering with alpha-tubulin to form the building blocks of microtubules. This particular isotype is often used as a marker for neuronal differentiation due to its specific expression pattern in neural tissues. Its regulation and expression levels are important for neurogenesis and maintaining neuronal plasticity.
Pathways	Beta III tubulin plays a role in neuron-specific intracellular transport and signaling pathways like the Rho GTPase and MAPK signaling pathways. These pathways are involved in cell cycle regulation and apoptotic processes. Relationships with other proteins such as kinesins and dyneins are important in these pathways influencing intracellular transport and signaling through binding and moving along the microtubule tracks created by beta-tubulin isotypes including beta III tubulin.

Associated diseases and disorders	Abnormal beta III tubulin expression has been associated with cancer particularly in tumors originating from neuronal lineage such as glioblastomas. Overexpression or mutations can contribute to chemoresistance complicating treatment for certain types of cancer. Beta III tubulin is also linked to neurodevelopmental disorders as it affects proper neural network formation and stability. Its relationship with tumor protein p53 is noted in cancer pathways as p53 can influence beta III tubulin expression impacting cellular proliferation and apoptosis in oncogenic processes.

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

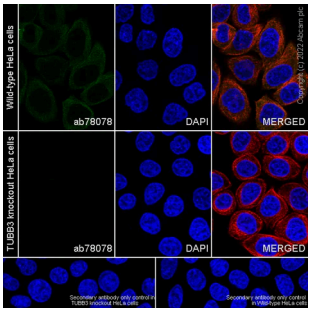
We do not recommend this combination. It is not covered by our product promise.

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



Immunocytochemistry/ Immunofluorescence - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

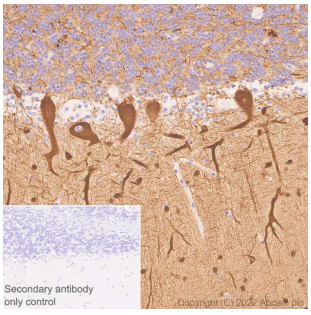
Beta III Tubulin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized TUBB3 KO HeLa (ab255358) / wild-type HeLa cells labelling beta III Tubulin with ab78078 at 1/200 dilution followed by a secondary antibody ab150117 Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (Green).

Confocal image showing cytoplasmic staining in parental HeLa cell line, and no staining in TUBB3 HeLa KO cell line. Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). The counterstain was observed in red. Nuclear DNA was labelled with DAPI (shown in blue).

ab206369 Anti-beta Tubulin rabbit monoclonal antibody (Alexa Fluor® 594) was used to counterstain beta Tubulin at 1/100 dilution (Red). The Nuclear counterstain was DAPI (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human cerebellum using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Immunohistochemical analysis of paraffin-embedded Human cerebellum tissue labelling beta III Tubulin with ab78078 at 1/5000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

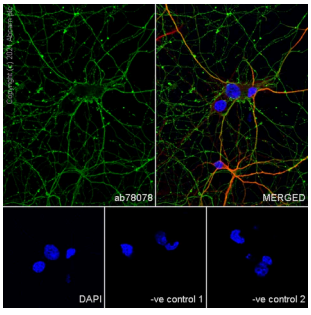
Positive staining on human cerebellum.
The section was incubated with ab78078 for 30 mins at room temperature, followed by anti-mouse IgG2a antibody for 8 mins during the LeicaDS9800 kit staining procedure.

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 LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins



Immunocytochemistry/ Immunofluorescence - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Immunocytochemistry/ Immunofluorescence staining of rat primary neural/glia cell using mouse Anti-beta III Tubulin antibody

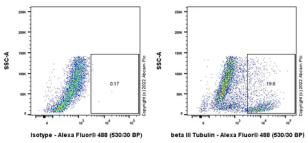
This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized rat primary neural/glia cells labelling beta III Tubulin with ab78078 at 1/200 dilution followed by a secondary antibody ab150113 Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) at 1/1000 dilution (Green).

Confocal image showing positive staining in rat primary neuron. Confocal scanning Z step was set as 0.3 µm followed by image processing with maximum Z projection. Image was taken with a

confocal microscope (Leica-Microsystems, TCS SP8). The counterstain was observed in red. Nuclear DNA was labelled with DAPI (shown in blue).

ab183830 Anti-MAP2 rabbit monoclonal antibody was used to counterstain MAP2 at 1/1000 dilution followed by a secondary antibody ab150080 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 594) at 1/500 dilution (Red). The Nuclear counterstain was DAPI (Blue).



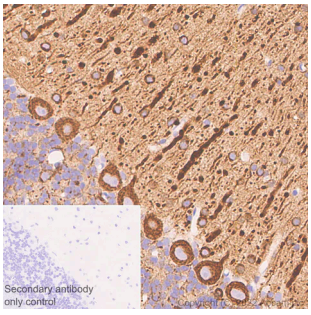
Flow Cytometry (Intracellular) - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Flow Cytometry (Intracellular) staining of Mouse primary neuron cell using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Mouse primary neuron cell labelling beta III Tubulin with ab78078 at 1/1000 dilution (0.1µg)/ Right compared with a Mouse monoclonal IgG Isotype Control Antibody /Left.

Goat anti-Mouse IgG (Alexa Fluor® 488) (ab150113) at 1/2000 dilution was used as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Rat cerebellum using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Immunohistochemical analysis of paraffin-embedded Rat cerebellum tissue labelling beta III Tubulin with ab78078 at 1/5000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

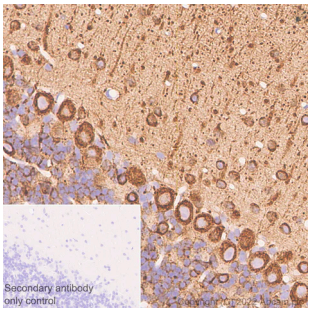
Positive staining on rat cerebellum.
The section was incubated with ab78078 for 30 mins at room temperature, followed by anti-mouse IgG2a antibody for 8 mins during the LeicaDS9800 kit staining procedure.

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 LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse cerebellum using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Immunohistochemical analysis of paraffin-embedded Mouse cerebellum tissue labelling beta III Tubulin with ab78078 at 1/5000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on mouse cerebellum.
The section was incubated with ab78078 for 30 mins at room temperature, followed by anti-mouse IgG2a antibody for 8 mins during the LeicaDS9800 kit staining procedure.

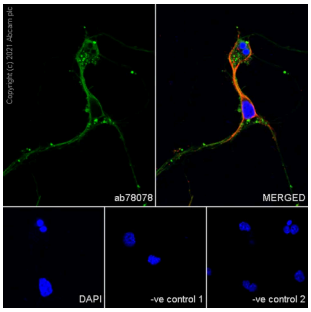
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins

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Immunocytochemistry/ Immunofluorescence - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

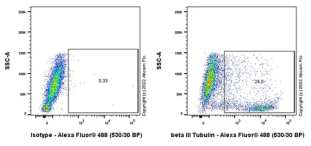
Beta III Tubulin Immunocytochemistry/ Immunofluorescence staining of mouse primary neural/glia cell using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized mouse primary neural/glia cells labelling beta III Tubulin with ab78078 at 1/200 dilution followed by a secondary antibody ab150113 Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) at 1/1000 dilution (Green).

Confocal image showing positive staining in mouse primary neuron. Confocal scanning Z step was set as 0.3 µm followed by image processing with maximum Z projection. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). The counterstain was observed in red. Nuclear DNA was labelled with DAPI (shown in blue).

ab183830 Anti-MAP2 rabbit monoclonal antibody was used to counterstain MAP2 at 1/1000 dilution followed by a secondary antibody ab150080 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 594) at 1/500 dilution (Red). The Nuclear counterstain was DAPI (Blue).



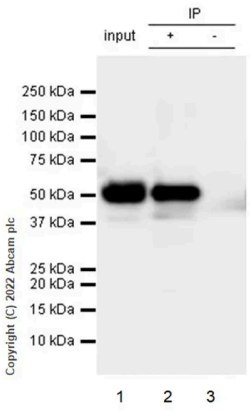
Flow Cytometry (Intracellular) - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Flow Cytometry (Intracellular) staining of Rat primary neuron cell using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Rat primary neuron cell labelling beta III Tubulin with ab78078 at 1/1000 dilution (0.1µg)/ Right compared with a Mouse monoclonal IgG Isotype Control Antibody /Left.

Goat anti-Mouse IgG (Alexa Fluor® 488) (ab150113) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

beta III Tubulin was immunoprecipitated from Mouse brain tissue lysate 10 µg with ab78078 at 1/50 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab78078 at 1/1000 dilution.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-beta III Tubulin antibody [2G10] - Neuronal Marker (ab78078) at 1/50 dilution

Lane 1:
Mouse brain tissue lysate (Input) at 10 µg

Lane 2:
Mouse brain tissue lysate (+)

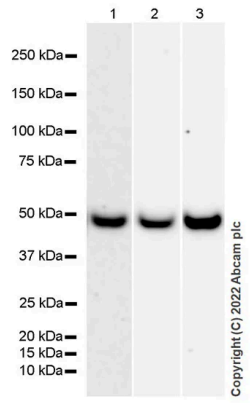
Lane 3:
Mouse IgG1, kappa monoclonal isotype control (ab18443) instead of ab78078 in mouse brain tissue lysate (-)

Secondary

All lanes:
Immunoprecipitation - Anti-mouse IgG for IP (HRP) (ab131368) at 1/5000 dilution

Observed band size: 50 kDa

Exposure time: 1s



Western blot - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Western blot staining using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

Blocking and diluting buffer and concentration: 5% NFDM/TBST

Exposure Time:
Lane 1: 136 seconds
Lane 2,3: 15 seconds

All lanes:
Western blot - Anti-beta III Tubulin antibody [2G10] - Neuronal Marker (ab78078) at 1/2000 dilution

Lane 1:
293T (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

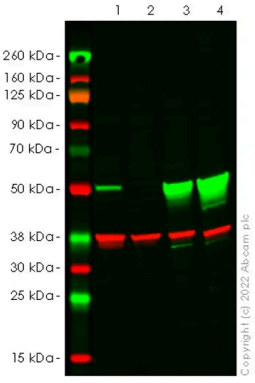
Lane 2:
HeLa (human epithelial cell line from cervical adenocarcinoma) whole cell lysate at 20 µg

Lane 3:
PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-Conjugated Goat anti-Mouse IgG (H+L) at 1/50000 dilution

Observed band size: 50 kDa



Western blot - Anti-beta III Tubulin antibody [2G10] - BSA and Azide free (ab264097)

Beta III Tubulin Western blot staining using mouse Anti-beta III Tubulin antibody

This data was developed using the same antibody clone in a different formulation containing PBS and Azide (ab78078).

False colour image of Western blot: Anti-beta III Tubulin antibody [2G10] staining at 1/1000 dilution, shown in green; Rabbit anti-GAPDH antibody ab181602 loading control staining at 1/20000 dilution, shown in red.

In Western blot, ab78078 was shown to bind specifically to beta III Tubulin. A band was observed at 50 kDa in wild-type HeLa cell lysates with no signal observed at this size in the beta III Tubulin knockout cell line. To generate this image, wild-type and beta III Tubulin knockout HeLa cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a PVDF-FL membrane. Membranes were blocked in Odyssey diluted in equal volume of 0.1 % TBS before incubation with primary antibodies overnight at 4°C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat Anti-Mouse IgG H&L (IRDye® 800CW) (ab216772) and Goat Anti-Rabbit IgG H&L (IRDye® 680RD) (ab216777) at 1/10000 dilution.

All lanes:
Western blot - Anti-beta III Tubulin antibody [2G10] - Neuronal Marker (ab78078) at 1/1000 dilution

Lane 1:
Wild-type HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
TUBB3 knockout HeLa whole cell lysate at 20 µg

Lane 3:
SH-SY5Y (human neuroblastoma epithelial cell), whole cell lysate at 20 µg

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

Secondary

Lanes 1 - 4:
Western blot - Goat anti-Mouse IgG H&L (IRDye® 800CW) preadsorbed (ab216772) at 1/10000 dilution

Lanes 1 - 4:
Western blot - Goat Anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed (ab216777) at 1/10000 dilution

Performed under reducing conditions.

Observed band size: 50 kDa

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