

Mouse GAP43 Monoclonal Antibody | anti-GAP43 antibody

GAP43

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA76610	Mouse	Human, Mouse, Rat	Immunofluorescence, Immunohistochemistry, Western Blot, Immunocytochemistry

PRODUCT SYNONYMS

GAP43; Monoclonal Antibody; anti-GAP43 antibody

PRODUCT SPECIFICATIONS

Host	Mouse
Reactivity	Human, Mouse, Rat
Clonality	Monoclonal
Isotype	IgM
Purity/Purification	Affinity Purified
Form/Format	Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN ₃
Sequence Length	274
Applicable Applications for anti-GAP43 antibody	IF (Immunofluorescence), IHC (Immunohistochemistry), WB (Western Blot), ICC (Immunocytochemistry)
Immunogen	Recombinant full-length Human GAP43

Immunostaining of cells in tissue culture

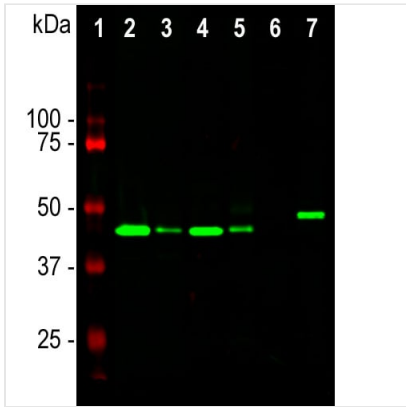
The purpose of fixation is denaturing the components of cells enough so that they stay on the dish and can be bound by antibodies, hopefully without destroying cellular morphology. Fixatives such as formalin, paraformaldehyde and glutaraldehyde chemically cross-link proteins, by binding to amino acid side chains, generally the most chemically reactive ones like amines (Lysine, Arginine, Glutamine and Asparagine). This chemical modification can also have the consequence of blocking antibody binding sites. Substances such as acetone and methanol are not true fixatives but are denaturants, which precipitate proteins without covalently modifying them. We routinely use a combination of mild formalin fixation followed by cold methanol for neurons, mixed neuron/glia cultures and most of the widely used human and rodent cell lines. The formalin preserves the cellular morphology quite well, while the methanol further denatures the proteins of the cells and helps keep what is left of the cell adherent to the dish. For soluble proteins it may be necessary to miss the methanol step, but in this case you have to be very careful with the washing steps, as the cells tend to wash off the dish. Certain antibodies may be very sensitive to formalin fixation, so you may have to experiment a little, perhaps missing out that step. The following procedure works for antibodies to most cytoskeletal and signaling molecules. This procedure is good for cells in 6 well tissue culture plates or in 35mm tissue culture dishes. These are just big enough that you can look from above with a typical immunofluorescence microscope through a glass coverslip. This allows you to see the specimens very well and take very high quality pictures. (However note that it's a pain to change lenses on the microscope if you use the 6 well dishes, since you have to rack the lens right the way up to do this, and you have to take out the two neighboring lenses in the turret since they will hit the other wells of the dish! It's less of a problem with 35mm dishes but still a pain. No procedure is perfect....).

1. Draw off culture medium with aspirator and add 1 mL of 3.7 % formalin in PBS solution to the dish. (make up from 10 mLs Fisher 37% formalin plus 90mLs PBS, the Fisher formalin contains 37% formaldehyde plus about 1% methanol which may be relevant sometimes). Let sit at room temp for 1 minute. (can add 0.1% Tween 20 to PBS used here and all subsequent steps to reduce background; probably best not to do this first time round though as it may extract your antigen or help wash your cells off the dish).
2. Take off the formalin/PBS and add 1ml of cold methanol (-20°C, kept in well-sealed bottle in fridge). Let sit for no more than 1 minute.
3. Take off methanol and add 1ml of PBS, not letting the specimen dry out. To block nonspecific antibody binding can add ~10 uL (=1%) of goat serum, and can incubate for 30 minutes. Can then add antibody reagents. Typically, 100 uL of hybridoma tissue culture supernatant or 1ml of mouse ascites fluid or crude serum. Incubate for 1 hour at room temp. (or can go at 37°C for 30 minutes to 1 hour, or can do 4°C overnight, exact time not too critical). Can do very gentle shaking for well adherent cell lines (3T3, HEK293 etc.).
4. Remove primary antibody and replace with 1 mL of PBS. Let sit for 5-10 minutes, replace PBS and repeat twice, to give three washes in PBS.
5. Add 0.5 uLs of secondary antibody. These are fluorescently labeled Goat anti mouse or rabbit antibodies and are conjugated to ALEXA dyes and were originally marketed by Molecular Probes (Eugene Oregon, the ALEXA dyes are sulphonated rhodamine compounds and are much more stable to UV than FITC, TRITC, Texas red etc. Molecular Probes was bought by Invitrogen, which now markets these reagents). Typically make 1:2,000 dilutions of these secondaries in PBS plus 1% goat serum, BSA or non fat milk carrier. Incubate for 1 hour at room temp. (or can go at 37°C for 30 minutes to 1 hour, or can do 4°C overnight). Can do gentle shaking for well adherent cell lines (3T3, HEK293 etc.).
6. Remove secondary antibody and replace with 1 ml of PBS. Let sit for 5-10 minutes, replace PBS and repeat twice, to give three washes in PBS.
7. Drop on one drop of Fisher mounting medium onto dish and apply 22 mm square coverslip. View in the microscope!

Preparation and Storage

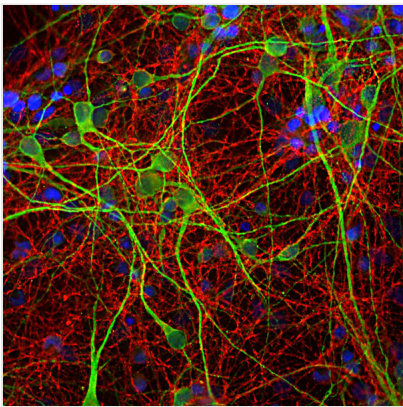
Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

IMAGES



WB (Western Blot)

Western blot analysis of different tissue and cell lysates using mouse mAb to GAP43, MO22170, dilution 1:5,000, in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord, [6] C6 cells, [7] SH-SY5Y cells. The single band at the 43kDa mark corresponds to the GAP43 protein.



IF (Immunofluorescence)

Immunofluorescent analysis of cortical neuron-glia cell culture from E20 rat stained with mouse mAb to GAP43, AAA76610, dilution 1:1,000, in red, and costained with chicken pAb to MAP2, dilution 1:10,000, in green. The blue is DAPI staining of nuclear DNA. GAP43 antibody labels protein expressed in the axonal membrane of the neuronal cells, while the MAP2 antibody stains dendrites and perikarya of neurons

ADDITIONAL INFORMATION

Related Product Information for anti-GAP43 antibody

Growth associated protein 43 (GAP43) is very abundant in the nervous system and is found concentrated in the axons and synapses of neurons. It was discovered as one of three proteins which becomes greatly upregulated during the regeneration of toad optic nerve following nerve section. Upregulation of this protein in other situations is frequently seen as indicative of ongoing CNS remodeling. GAP43 antibodies are therefore useful for identifying synapses and axons and monitoring neuronal plasticity.

NCBI AND UNIPROT INFORMATION

NCBI GI #	194248057
NCBI GeneID	2596
NCBI Accession #	NP_001123536.1
NCBI GenBank Nucleotide #	NM_001130064.1
UniProt Accession #	P17677
NCBI Official Full Name	neuromodulin isoform 1
NCBI Official Synonym Full Names	growth associated protein 43
NCBI Official Symbol	GAP43
NCBI Official Synonym Symbols	B-50; PP46
NCBI Protein Information	neuromodulin
UniProt Protein Name	Neuromodulin
UniProt Gene Name	GAP43
UniProt Entry Name	NEUM_HUMAN

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