

Ordering Information

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HGNC name: GAP43

RRID: [AB_2572286](https://identifiers.org/AB_2572286)

Immunogen: Recombinant full-length Human GAP43

Format: Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN₃

Storage: Shipped on ice. Stable at 4°C for one year, for longer term store at -20°C

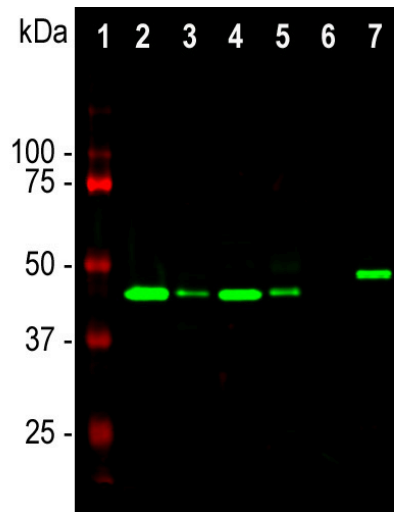
Recommended dilutions:

Western blots: 1:1,000-5,000 IF/ICC and IHC: 1:1,000-5,000

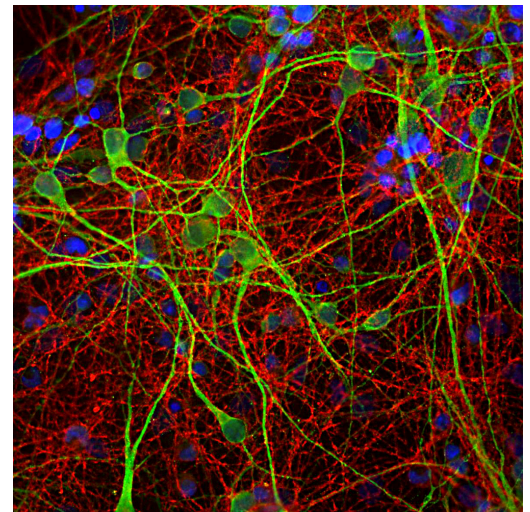
References:

1. Skene JH, Willard M. Changes in axonally transported proteins during axon regeneration in toad retinal ganglion cells. *J. Cell Biol.* 89:86-95 (1981).
2. Wiederkehr A, Staple J, Caroni P. The Motility-Associated Proteins GAP-43, MARCKS, and CAP-23 Share Unique Targeting and Surface Activity-Inducing Properties. *Exp. Cell Res.* 236:103-116 (1997).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
Western blot, ICC/IF, IHC	Mouse	IgM	43 kDa on SDS-PAGE, actually 23-26 kDa	Hu, Rt, Ms



Western blot analysis of different tissue and cell lysates using mouse mAb to GAP43, MCA-3H14, 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. The protein is expressed in rodent and human neurons and neuronal derived cells but not in C6 cells which are of glial origin.



Immunofluorescent analysis of cortical neuron-glia cell culture from E20 rat stained with mouse mAb to GAP43, MCA-3H14, dilution 1:1,000, in red, and costained with chicken pAb to MAP2, CPCA-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.

Background: GAP43 is a very abundant nervous system protein which is found concentrated in neurons. One group discovered it as one of three proteins which becomes unregulated during the regeneration of the toad optic nerve (1).

Three GAPs (Growth associated proteins) were discovered, and the number 43 comes from the apparent SDS-PAGE molecular weight of the one named GAP43. The HGNC name for this protein is, not surprisingly, GAP43. Later work showed that GAP43 does not run on SDS-PAGE in a fashion which accurately reflects its molecular weight, and that GAP43 proteins from different species may run at different apparent molecular weights. Partly due to these features GAP43 was independently discovered by several different groups and therefore has several alternate names, such as protein F1, pp46, neuromodulin, neural phosphoprotein B-50 and calmodulin-binding protein P-57. In each case the number reflects the apparent SDS-PAGE molecular weight, and underlines the unusual SDS-PAGE mobility properties of this molecule.

Mammalian GAP43 protein contains only 226-243 amino acids, and so the real molecular weight is 23.61-25.14 kDa (to perform such calculations yourself see [this link](#)). GAP43 is one of many highly negatively charged extended molecules which lack a well defined tertiary structure and contain few hydrophobic residues and which run anomalously on SDS-PAGE. Other examples are CAP23, MARCKS, microtubule associated proteins MAP2, tau and the Neurofilament subunits. GAP43 has been extensively studied and is known to be a major protein kinase C substrate and to bind calmodulin avidly. GAP43 is anchored to the plasma membrane by palmitoylation modifications.

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Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Bo—Cow Po—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.