

# GAP-43 (31): sc-135915

## BACKGROUND

GAP-43 (growth associated protein 43, B-50, PP46, calmodulin-binding protein P-57, neuromodulin, neuron growth-associated protein 43, protein F1 is a crucial component for regenerative response in the nervous system. It is present at high levels in neuronal growth cones during development and axonal regeneration. GAP-43 is normally produced by neurons during developmental growth and axonal regeneration, but it is also expressed in specific regions of the normal adult nervous system. The neuron-specific Elav/Hu family member, HuD, interacts with and stabilizes GAP-43 mRNA in developing neurons and leads to increased levels of GAP-43 protein. Heterozygous GAP-43 knockout mice with GAP-43 levels reduced by one-half display significant memory impairments in cued conditioning or on tests of nociceptive or auditory perception.

## REFERENCES

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2. Neve, R.L., et al. 1998. The neuronal growth-associated protein GAP-43 interacts with RABAPTIN-5 and participates in endocytosis. *J. Neurosci.* 18: 7757-7767.
3. Arni, S., et al. 1998. Association of GAP-43 with detergent-resisting membranes requires two palmitoylated cysteine residues. *J. Biol. Chem.* 273: 28478-28485.
4. Sretavan, D.W., et al. 1998. Randomized retinal ganglion cell axon routing at the optic chiasm of GAP-43 deficient mice: association with midline recrossing and lack of normal ipsilateral axon turning. *J. Neurosci.* 18: 10502-10513.
5. Dent, E.W., et al. 1998. Distribution of phosphorylated GAP-43 (neuromodulin) in growth cones directly reflects growth cone behavior. *J. Neurobiol.* 35: 287-299.
6. Velasco, A., et al. 2003. Role of oleic acid as a neurotrophic factor is supported *in vivo* by the expression of GAP-43 subsequent to the activation of SREBP-1 and the up-regulation of stearyl-CoA desaturase during postnatal development of the brain. *Brain Res.* 977: 103-111.
7. Pascale, A., et al. 2004. Increase of the RNA-binding protein HuD and posttranscriptional up-regulation of the GAP-43 gene during spatial memory. *Proc. Natl. Acad. Sci. USA* 101: 1217-1222.
8. Shapiro, L.A., et al. 2004. Expression levels of cytoskeletal proteins indicate pathological aging of S100B transgenic mice: an immunohistochemical study of MAP-2, drebrin and GAP-43. *Brain Res.* 1019: 39-46.
9. Smith, C.L., et al. 2004. GAP-43 mRNA in growth cones is associated with HuD and ribosomes. *J. Neurobiol.* 61: 222-235.

## CHROMOSOMAL LOCATION

Genetic locus: GAP43 (human) mapping to 3q13.31; Gap43 (mouse) mapping to 16 B4.

## SOURCE

GAP-43 (31) is a mouse monoclonal antibody raised against amino acids 1-144 of GAP-43 of human origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

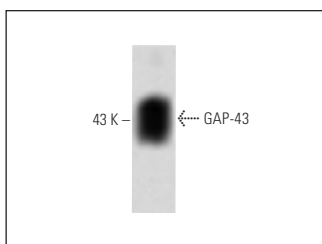
GAP-43 (31) is recommended for detection of GAP-43 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for GAP-43 siRNA (h): sc-35446, GAP-43 siRNA (m): sc-35447, GAP-43 shRNA Plasmid (h): sc-35446-SH, GAP-43 shRNA Plasmid (m): sc-35447-SH, GAP-43 shRNA (h) Lentiviral Particles: sc-35446-V and GAP-43 shRNA (m) Lentiviral Particles: sc-35447-V.

Molecular Weight of GAP-43: 43 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or rat cerebellum extract: sc-2398.

## DATA



GAP-43 (31): sc-135915. Western blot analysis of GAP-43 expression in rat cerebrum tissue extract.

## SELECT PRODUCT CITATIONS

1. Zhong, L.Y., et al. 2019. Hyperpolarization-activated cyclic nucleotide-gated ion (HCN) channels regulate PC12 cell differentiation toward sympathetic neuron. *Front. Cell. Neurosci.* 13: 415.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures. Not for resale.



See **GAP-43 (B-5): sc-17790** for GAP-43 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.