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MANF Antibody

Catalog # ASC10591

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	P55145
Other Accession	P55145, 23503040
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	20700
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	MANF antibody can be used for detection of MANF by Western blot at 1 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 2.5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	7873
Other Names	Mesencephalic astrocyte-derived neurotrophic factor, Arginine-rich protein, Protein ARMET, MANF, ARMET, ARP
Target/Specificity	ARMET; This antibody does not cross-react with CDNF.
Reconstitution & Storage	MANF antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	MANF Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MANF (HGNC:15461)
Synonyms	ARMET, ARP
Function	Selectively promotes the survival of dopaminergic neurons of the ventral mid-brain (PubMed:12794311). Modulates GABAergic transmission to the dopaminergic neurons of the substantia nigra (By similarity). Enhances spontaneous, as well as evoked, GABAergic inhibitory postsynaptic currents in dopaminergic neurons (By similarity). Inhibits cell proliferation and endoplasmic reticulum (ER) stress-induced cell death (PubMed:18561914, PubMed:22637475, PubMed:29497057, PubMed:36739529). Retained in the

	ER/sarcoplasmic reticulum (SR) through association with the endoplasmic reticulum chaperone protein HSPA5 under normal conditions (PubMed:22637475). Stabilizes HSPA5/BiP in its substrate-bound ADP state, which facilitates HSPA5/BiP incorporation into chaperone-client complexes during endoplasmic reticulum stress, its interaction with HSPA5/BiP inhibits ATP binding to HSPA5/BiP and subsequent nucleotide exchange (By similarity). As a result acts as a repressor of the unfolded protein response (UPR) pathway (By similarity). Up-regulated and secreted by the ER/SR in response to ER stress and hypoxia (PubMed:22637475). Following secretion by the ER/SR, directly binds to 3-O-sulfogalactosylceramide, a lipid sulfatide in the outer cell membrane of target cells (PubMed:29497057). Sulfatide binding promotes its cellular uptake by endocytosis, and is required for its role in alleviating ER stress and cell toxicity under hypoxic and ER stress conditions (PubMed:29497057). Essential for embryonic lung development (By similarity). Required for the correct postnatal temporal and structural development of splenic white pulp (By similarity). Required for the repair-associated myeloid response in skeletal muscle, acts as a regulator of phenotypic transition towards prorepair macrophages in response to muscle injury and as a result limits excessive proinflammatory signaling (By similarity). Represses RELA expression and therefore NF-kB signaling in the myocardium, as a result limits macrophage infiltration of injured tissue and M1 macrophage differentiation in response to myocardial injury (By similarity). Required for endochondral ossification in long bones and the skull during postnatal development (By similarity).
Cellular Location	Secreted. Endoplasmic reticulum lumen. Sarcoplasmic reticulum lumen. Note=Retained in the endoplasmic reticulum (ER), and sarcoplasmic reticulum (SR) under normal conditions (PubMed:22637475). Up-regulated and secreted by the ER/SR in response to ER stress and hypoxia (PubMed:22637475, PubMed:29497057)

Background

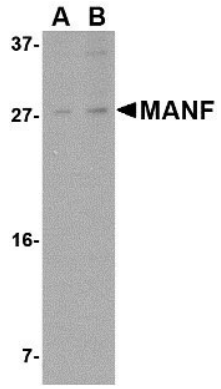
MANF Antibody: MANF, also known as ARMET, was initially identified as a protein containing an arginine-rich region that was highly mutated in a variety of tumors. More recently it was identified as a mesencephalic astrocyte-derived neurotrophic factor with selectivity for dopaminergic neurons, similar to glial cell line-derived neurotrophic factor (GDNF) and CDNF. In rat brain slices, MANF enhanced nigral gamma-aminobutyric acid release. Like GDNF and CDNF, MANF has selective neuroprotective activity for dopaminergic neurons suggesting that it may be indicated for the treatment of Parkinson's disease. Expression of MANF has also been shown to be induced during ER stress, suggesting that it may play a role in protein quality control during ER stress.

References

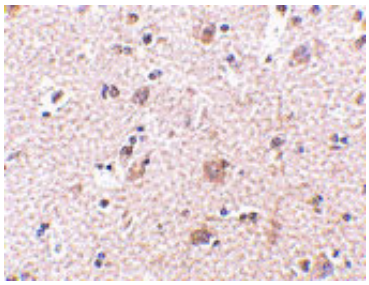
Shridhar V, Rivard S, Shridhar R, et al. A gene from human chromosomal band 3p21.1 encodes a highly conserved arginine-rich protein and is mutated in renal cell carcinomas. Oncogene 1996; 12:1931-9.
Shridhar R, Shridhar V, Rivard S, et al. Mutations in the arginine-rich protein gene, in lung, breast, and prostate cancers, and in squamous cell carcinoma of the head and neck. Cancer Res. 1996; 56:5576-8.
Petrova P, Raibekas A, Pevsner J, et al. MANF: a new mesencephalic, astrocyte-derived neurotrophic factor with selectivity for dopaminergic neurons. J. Mol. Neurosci. 2003; 20:173-88.
Lindholm P, Voutilainen MH, Lauren J, et al. Novel neurotrophic factor CDNF protects and rescues midbrain dopamine neurons in vivo. Nature 2007; 448:73-7.

Images

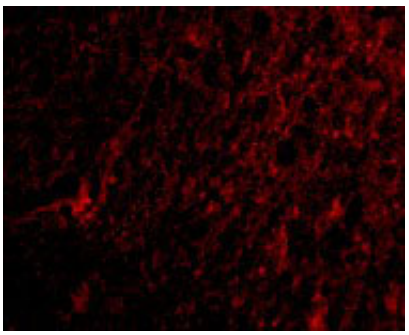
Western blot analysis of MANF in rat brain tissue lysate



with MANF antibody at (A) 1 and (B) 2 µg/mL.



Immunohistochemistry of MANF in human brain tissue with MANF antibody at 2.5 µg/mL.



Immunofluorescence of MANF in Human Brain tissue with MANF antibody at 20 µg/mL.

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