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HAP1 Antibody

Catalog # ASC10534

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	P54257
Other Accession	CAC09418, 10241694
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	75506
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	HAP1 antibody can be used for detection of HAP1 by Western blot at 0.5 - 1 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	9001
Other Names	HAP1 Antibody: HLP, HAP2, HIP5, hHLP1, HLP1, Huntingtin-associated protein 1, Neuroan 1, HAP-1, huntingtin-associated protein 1
Target/Specificity	HAP1;
Reconstitution & Storage	HAP1 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	HAP1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HAP1
Synonyms	HAP2, HLP1
Function	Originally identified as neuronal protein that specifically associates with HTT/huntingtin and the binding is enhanced by an expanded polyglutamine repeat within HTT possibly affecting HAP1 interaction properties. Both HTT and HAP1 are involved in intracellular trafficking and HAP1 is proposed to link HTT to motor proteins and/or transport cargos. Seems to play a role in vesicular transport within neurons and axons such as from early endosomes to late endocytic compartments and to promote neurite outgrowth. The

	vesicular transport function via association with microtubule-dependent transporters can be attenuated by association with mutant HTT. Involved in the axonal transport of BDNF and its activity-dependent secretion; the function seems to involve HTT, DCTN1 and a complex with SORT1. Involved in APP trafficking and seems to facilitate APP anterograde transport and membrane insertion thereby possibly reducing processing into amyloid beta. Involved in delivery of gamma-aminobutyric acid (GABA(A)) receptors to synapses; the function is dependent on kinesin motor protein KIF5 and is disrupted by HTT with expanded polyglutamine repeat. Involved in regulation of autophagosome motility by promoting efficient retrograde axonal transport. Seems to be involved in regulation of membrane receptor recycling and degradation, and respective signal transduction, including GABA(A) receptors, tyrosine kinase receptors, EGFR, IP3 receptor and androgen receptor. Among others suggested to be involved in control of feeding behavior (involving hypothalamic GABA(A) receptors), cerebellar and brainstem development (involving AHI1 and NTRK1/TrkA), postnatal neurogenesis (involving hypothalamic NTRK2/TrkB), and ITPR1/InsP3R1-mediated Ca(2+) release (involving HTT and possibly the effect of mutant HTT). Via association with DCTN1/dynactin p150-glued and HTT/huntingtin involved in cytoplasmic retention of REST in neurons. May be involved in ciliogenesis. Involved in regulation of exocytosis. Seems to be involved in formation of cytoplasmic inclusion bodies (STBs). In case of anomalous expression of TBP, can sequester a subset of TBP into STBs; sequestration is enhanced by an expanded polyglutamine repeat within TBP. HAP1-containing STBs have been proposed to play a protective role against neurodegeneration in Huntigton disease (HD) and spinocerebellar ataxia 17 (SCA17).
Cellular Location	Cytoplasm. Cell projection, axon. Presynapse {ECO:0000250|UniProtKB:P54256}. Cytoplasm, cytoskeleton {ECO:0000250|UniProtKB:P54256}. Cell projection, dendritic spine {ECO:0000250|UniProtKB:P54256}. Cell projection, dendrite {ECO:0000250|UniProtKB:P54256}. Lysosome {ECO:0000250|UniProtKB:P54256}. Endoplasmic reticulum {ECO:0000250|UniProtKB:P54256}. Mitochondrion. Nucleus {ECO:0000250|UniProtKB:P54256} Cytoplasmic vesicle, autophagosome {ECO:0000250|UniProtKB:O35668} Early endosome {ECO:0000250|UniProtKB:P54256}. Cell projection, growth cone {ECO:0000250|UniProtKB:P54256}. Cell projection, neuron projection {ECO:0000250|UniProtKB:P54256}. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle {ECO:0000250|UniProtKB:P54256}. Note=Localizes to large nonmembrane-bound cytoplasmic bodies found in various types of neurons, called stigmoid bodies (STBs). Localization to neuronal processes and neurite tips is decreased by YWHAZ. In the nucleus localizes to nuclear rods. {ECO:0000250|UniProtKB:P54256}
Tissue Location	Predominantly expressed in brain. Selectively expressed in neurons

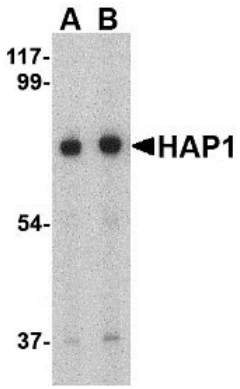
Background

HAP1 Antibody: Huntington's disease (HD), a neurodegenerative disorder characterized by loss of striatal neurons, is caused by an expansion of a polyglutamine tract in the HD protein huntingtin. HAP1 was initially identified through a two-hybrid library screening; the binding of HAP1 to huntingtin correlated with the expansion of the polyglutamine tract. HAP1 also interacts with two cytoskeletal proteins (dynactin and pericentriolar autoantigen protein 1), suggesting that HAP1 may play a role in vesicular trafficking or organelle transport. HAP1 is also involved with the huntingtin-enhanced BDNF transport along the cellular microtubles. Attenuation of this process led to the loss of neurotrophic support and neuronal toxicity, which suggests that loss of this function might contribute to pathogenesis. Several alternatively spliced isoforms have been described for HAP1.

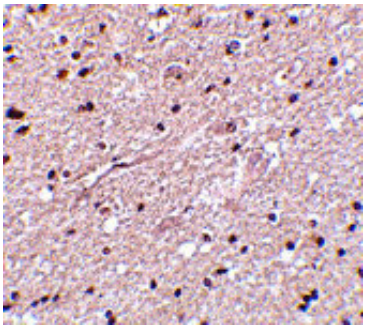
References

Borrell-Pagès M, Zala D, Humbert S, et al. Huntington's disease: from huntingtin function and dysfunction to therapeutic strategies. Cell Mol. Life Sci.2006; 63:2642-60.
Li X-J, L S-H, Sharp AH, et al. A huntingtin-associated protein enriched in brain with implications for pathology. Nature1995; 378:398-402.
Engelender S, Sharp AH, Colomer V, et al. Huntingtin-associated protein 1 (HAP1) interacts with the p150(Glued) subunit of dynactin. Hum. Molec. Genet.1997; 6:2205-12.
Gauthier LR, Charrin BC, Borrell-Pages M, et al. Huntingtin controls neurotrophic support and survival of neurons by enhancing BDNF vesicular transport along microtubules. Cell2004; 118:127-38.

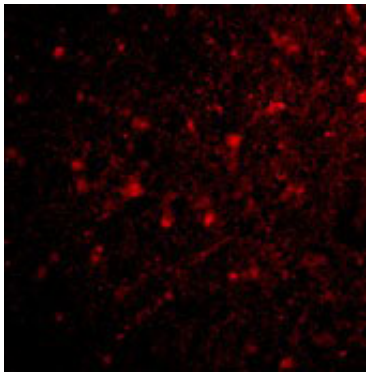
Images



Western blot analysis of HAP1 in mouse brain tissue lysate with HAP1 antibody at (A) 0.5 and (B) 1 µg/mL.



Immunohistochemistry of HAP1 in human brain tissue with HAP1 antibody at 2.5 µg/mL.



Immunofluorescence of HAP1 in Human Brain cells with HAP1 antibody at 20 µg/mL.