10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Aak1 Antibody

Catalog # ASC10782

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q2M2I8
Other Accession	NP_055726, 148277037
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	103885
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Aak1 antibody can be used for detection of Aak1 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	22848
Other Names	AP2-associated protein kinase 1, 2.7.11.1, Adaptor-associated kinase 1, AAK1, KIAA1048
Target/Specificity	AAK1;
Reconstitution & Storage	Aak1 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	Aak1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	AAK1
Synonyms	KIAA1048
Function	Regulates clathrin-mediated endocytosis by phosphorylating the AP2M1/mu2 subunit of the adaptor protein complex 2 (AP-2) which ensures high affinity binding of AP-2 to cargo membrane proteins during the initial stages of endocytosis (PubMed:11877457, PubMed:11877461, PubMed:12952931, PubMed:14617351, PubMed:17494869, PubMed:25653444). Isoform 1 and isoform 2 display similar levels of kinase activity towards AP2M1 (PubMed:17494869). Preferentially, may

	phosphorylate substrates on threonine residues (PubMed:11877457, PubMed:18657069). Regulates phosphorylation of other AP-2 subunits as well as AP-2 localization and AP-2-mediated internalization of ligand complexes (PubMed:12952931). Phosphorylates NUMB and regulates its cellular localization, promoting NUMB localization to endosomes (PubMed:18657069). Binds to and stabilizes the activated form of NOTCH1, increases its localization in endosomes and regulates its transcriptional activity (PubMed:21464124).
Cellular Location	Cell membrane {ECO:0000250|UniProtKB:F1MH24}; Peripheral membrane protein {ECO:0000250|UniProtKB:F1MH24}. Membrane, clathrin-coated pit. Presynapse {ECO:0000250|UniProtKB:P0C1X8}. Note=Active when found in clathrin- coated pits at the plasma membrane. In neuronal cells, enriched at presynaptic terminals. In non-neuronal cells, enriched at leading edge of migrating cells. {ECO:0000250|UniProtKB:P0C1X8}
Tissue Location	Detected in brain, heart and liver. Isoform 1 is the predominant isoform in brain.

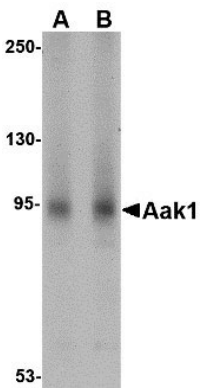
Background

Aak1 Antibody: AP2-associated protein kinase 1 (Aak1) is a member of the Ark1/Prk1 subfamily of Ser/Thr protein kinases that are thought to regulate endocytosis by phosphorylating the accessory endocytic components. Aak1 interacts with and phosphorylates the mu2 subunit of the AP-2 complex, which promotes binding of the AP-2 to tyrosine based (Yxxphi) internalization motif-containing receptors and subsequent receptor endocytosis. At least two isoforms of Aak1 are known to exist; the longer isoform contains an extended carboxy-terminus that contains an additional clathrin-binding domain. Overexpression of this long isoform or Aak1 depletion by RNA interference impairs transferrin recycling from the early/sorting endosome, suggesting that Aak1 functions at multiple steps of the endosomal pathway by regulating transferrin internalization and its recycling back to the plasma membrane.

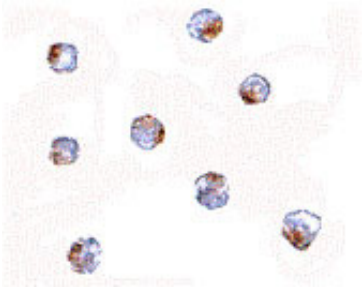
References

Connor SD and Schmid SL. Identification of an adaptor-associated kinase, AAK1, as a regulator of clathrin-mediated endocytosis. J. Cell Biol.2002; 156:921-9.
Smythe E and Ayscough KR. The Ark1/Prk1 family of protein kinases. Regulators of endocytosis and the actin skeleton. EMBO Rep.2003; 4:246-51.
Ricotta D, Connor SD, Schmid SL, et al. Phosphorylation of the AP2 m2 subunit by AAK1 mediates high affinity binding to membrane protein sorting signals. J. Cell Biol.2002; 156:791-5.
Connor SD and Henderson DM. A novel AAK1 splice variant functions at multiple steps of the endocytic pathway. Mol. Biol. Cell2007; 18:2698-706.

Images



Western blot analysis of Aak1 in A-20 lysate with Aak1 antibody at (A) 1 and (B) 2 µg/mL.



Immunocytochemistry of Aak1 in A-20 cells with Aak1 antibody at 5 µg/mL.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.