

# Aak1 Antibody

Catalog # ASC10777

# **Specification**

# **Aak1 Antibody - Product Information**

**Application Primary Accession** Other Accession Reactivity Host Clonality

Isotype

**Application Notes** 

WB. E **02M2I8** 

NP 055726, 148277037 Human, Mouse, Rat

**Rabbit Polyclonal** 

laG

Aak1 antibody can be used for detection of

Aak1 by Western blot at 1 - 2 μg/mL.

# **Aak1 Antibody - Additional Information**

Gene ID 22848

Target/Specificity

AAK1:

## **Reconstitution & Storage**

Aak1 antibody can be stored at 4°C for three months and -20°C, 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.

### **Aak1 Antibody - 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:<a

href="http://www.uniprot.org/citations/11877457" target=" blank">11877457</a>, PubMed:<a href="http://www.uniprot.org/citations/11877461" target="blank">11877461</a>, PubMed:<a href="http://www.uniprot.org/citations/12952931" target=" blank">12952931</a>, PubMed:<a href="http://www.uniprot.org/citations/14617351" target=" blank">14617351</a>, PubMed:<a href="http://www.uniprot.org/citations/17494869" target="blank">17494869</a>, PubMed:<a href="http://www.uniprot.org/citations/25653444" target="blank">25653444</a>). Isoform 1 and isoform 2 display similar levels of kinase activity towards AP2M1 (PubMed: <a href="http://www.uniprot.org/citations/17494869" target="\_blank">17494869</a>).

Preferentially, may phosphorylate substrates on threonine residues (PubMed: <a



href="http://www.uniprot.org/citations/11877457" target="\_blank">11877457</a>, PubMed:<a href="http://www.uniprot.org/citations/18657069" target="\_blank">18657069</a>). Regulates phosphorylation of other AP-2 subunits as well as AP-2 localization and AP-2-mediated internalization of ligand complexes (PubMed:<a href="http://www.uniprot.org/citations/12952931" target="\_blank">12952931</a>). Phosphorylates NUMB and regulates its cellular localization, promoting NUMB localization to endosomes (PubMed:<a

href="http://www.uniprot.org/citations/18657069" target="\_blank">18657069</a>). Binds to and stabilizes the activated form of NOTCH1, increases its localization in endosomes and regulates its transcriptional activity (PubMed:<a href="http://www.uniprot.org/citations/21464124" target="\_blank">21464124" target="\_blank">21464124</a>).

## **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**

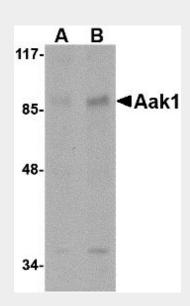
Detected in brain, heart and liver. Isoform 1 is the predominant isoform in brain.

# **Aak1 Antibody - Protocols**

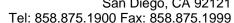
Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- <u>Immunoprecipitation</u>
- Flow Cytomety
- Cell Culture

# Aak1 Antibody - Images



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





# Aak1 Antibody - 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.

# **Aak1 Antibody - 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.