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Anti-SMIT1 Antibody

Catalog # AP51521

Product Information

Application	WB, IHC
Primary Accession	P53794
Reactivity	Human, Rat, Rabbit, Pig, Bovine, Dog
Host	Rabbit
Clonality	Polyclonal
Calculated MW	79664

Additional Information

Gene ID	6526
Other Names	Sodium/myo-inositol cotransporter; Na(+)/myo-inositol cotransporter; Sodium/myo-inositol transporter 1; SMIT1; Solute carrier family 5 member 3
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the center region of human SMIT1. The exact sequence is proprietary.
Dilution	WB~~WB (1/500 - 1/1000) IHC~~1:100~500
Format	Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	SLC5A3 (HGNC:11038)
Function	Electrogenic Na(+)-coupled sugar symporter that actively transports myo-inositol and its stereoisomer scyllo-inositol across the plasma membrane, with a Na(+) to sugar coupling ratio of 2:1 (By similarity). Maintains myo-inositol concentration gradient that defines cell volume and fluid balance during osmotic stress, in particular in the fetoplacental unit and central nervous system (By similarity). Forms coregulatory complexes with voltage-gated K(+) ion channels, allosterically altering ion selectivity, voltage dependence and gating kinetics of the channel. In turn, K(+) efflux through the channel forms a local electrical gradient that modulates electrogenic Na(+)-coupled myo-inositol influx through the transporter (PubMed:24595108, PubMed:28793216). Associates with KCNQ1-KCNE2 channel in the apical membrane of choroid plexus epithelium and regulates the myo-inositol gradient between blood and cerebrospinal fluid with an impact on neuron excitability (By similarity) (PubMed:24595108). Associates with KCNQ2- KCNQ3 channel altering ion selectivity, increasing Na(+) and

Cs(+) permeation relative to K(+) permeation (PubMed:28793216). Provides myo- inositol precursor for biosynthesis of phosphoinositides such as PI(4,5)P2, thus indirectly affecting the activity of phosphoinositide- dependent ion channels and Ca(2+) signaling upon osmotic stress (PubMed:27217553).

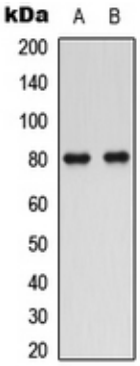
Cellular Location

Apical cell membrane {ECO:0000250|UniProtKB:Q9JKZ2}; Multi-pass membrane protein. Basolateral cell membrane {ECO:0000250|UniProtKB:Q9JKZ2}; Multi-pass membrane protein. Note=Colocalizes with KCNQ1 at the apical membrane of choroid plexus epithelium. {ECO:0000250|UniProtKB:Q9JKZ2}

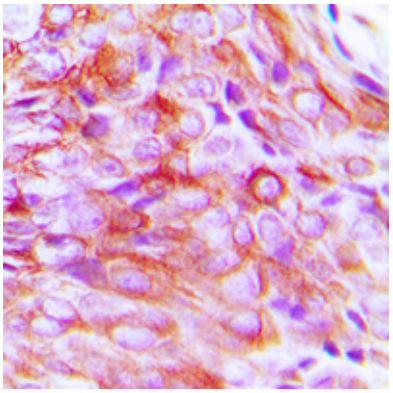
References

Berry G.T.,et al.Genomics 25:507-513(1995).
Berry G.T.,et al.Submitted (APR-2004) to the EMBL/GenBank/DDBJ databases.
Mallee J.J.,et al.Genomics 46:459-465(1997).
Hattori M.,et al.Nature 405:311-319(2000).

Images



Western blot analysis of SMIT1 expression in human prostate (A), rat kidney (B) whole cell lysates. (Predicted band size: 79 kD; Observed band size: 80 kD)



Immunohistochemical analysis of SMIT1 staining in human breast cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

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