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BRSK1 Antibody

Catalog # ASC10519

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q8TDC3
Other Accession	Q8TDC3, 34395684
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	85087
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	BRSK1 antibody can be used for detection of BRSK1 by Western blot at 0.5 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	84446
Other Names	BRSK1 Antibody: hSAD1, KIAA1811, SAD1, SADB, Brain-selective kinase 1, SAD1 homolog, BR serine/threonine kinase 1
Target/Specificity	BRSK1;
Reconstitution & Storage	BRSK1 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	BRSK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	BRSK1
Synonyms	KIAA1811, SAD1, SADB
Function	Serine/threonine-protein kinase that plays a key role in polarization of neurons and centrosome duplication. Phosphorylates CDC25B, CDC25C, MAPT/TAU, RIMS1, TUBG1, TUBG2 and WEE1. Following phosphorylation and activation by STK11/LKB1, acts as a key regulator of polarization of cortical neurons, probably by mediating phosphorylation of microtubule-associated proteins such as MAPT/TAU at 'Thr-529' and 'Ser-579'. Also regulates neuron polarization by mediating phosphorylation of WEE1 at 'Ser-642' in postmitotic

	neurons, leading to down-regulate WEE1 activity in polarized neurons. In neurons, localizes to synaptic vesicles and plays a role in neurotransmitter release, possibly by phosphorylating RIMS1. Also acts as a positive regulator of centrosome duplication by mediating phosphorylation of gamma-tubulin (TUBG1 and TUBG2) at 'Ser-131', leading to translocation of gamma-tubulin and its associated proteins to the centrosome. Involved in the UV-induced DNA damage checkpoint response, probably by inhibiting CDK1 activity through phosphorylation and activation of WEE1, and inhibition of CDC25B and CDC25C.
Cellular Location	Cytoplasm. Nucleus. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Synapse {ECO:0000250|UniProtKB:B2DD29}. Presynaptic active zone {ECO:0000250|UniProtKB:B2DD29}. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle {ECO:0000250|UniProtKB:B2DD29}. Note=Nuclear in the absence of DNA damage. Translocated to the nucleus in response to UV- or MMS-induced DNA damage (By similarity).
Tissue Location	Widely expressed, with highest levels in brain and testis. Protein levels remain constant throughout the cell cycle

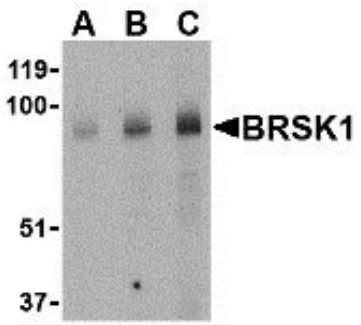
Background

BRSK1 Antibody: BRSK1 was initially identified as a mammalian homolog to the fission yeast S. pombe Cdr2, a mitosis-regulatory kinase and also shows significant homology to the C. elegans neuronal cell polarity regulator SAD1. BRSK1 is unbiquitously expressed, with highest levels of expression in the brain and testes. Similar to its yeast homolog, BRSK1 is thought to be involved in stress-induced cell cycle arrest. Overexpression of this protein leads to the G2/M arrest in HeLa S2 cells and UV-induced G2/M arrest could be partially abrogated by reduced expression of BRSK1 through the use of siRNA, indicating its role in DNA damage checkpoint function. More recently, it has been shown that both BRSK1 and the related protein BRSK2 are required for mammalian neuronal polarization. While BRSK1- and BRSK2-null mice were viable, double-mutant mice died within two hours of birth. Neurons from these mice showed uniformly-sized neurites as opposed to the normal long axon and multiple shorter dendrites. These neurites also displayed both axonal and dendritic markers. At least two isoforms of BRSK1 are known to exist.

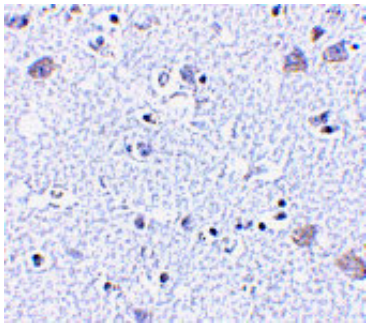
References

Lu R, Niida H, and Nakanishi M. Human SAD1 kinase is involved in UV-induced DNA damage checkpoint function. J. Biol. Chem.2004; 279:31164-70.
Kishi M, Pan YA, Crump J, et al. Mammalian SAD kinases are required for neuronal polarization. Science2005; 307:929-32.

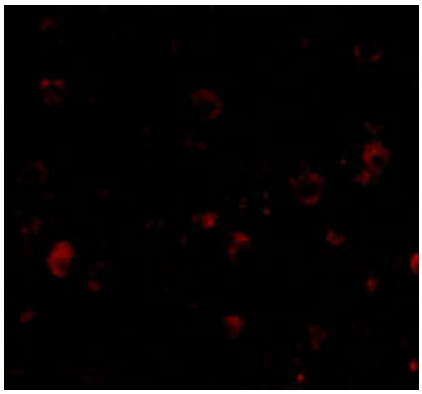
Images



Western blot analysis of BRSK1 in human brain tissue lysate with BRSK1 antibody at (A) 0.5, (B) 1 and (C) 2 µg/mL.



Immunohistochemistry of BRSK1 in human brain tissue with BRSK1 antibody at 5 µg/mL.



Immunofluorescence of BRSK1 in Human Brain cells with BRSK1 antibody at 20 µg/mL.

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