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BRSK1 Antibody
Catalog # ASC10519

Specification

BRSK1 Antibody - Product Information

Application	**WB, IHC-P, IF, E**
Primary Accession	Q8TDC3
Other Accession	Q8TDC3, 34395684
Reactivity	**Human, Mouse, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**IgG**
Application Notes	**BRSK1 antibody can be used for detection of BRSK1 by Western blot at 0.5 - 2 µg/mL. Antibody can also be used for immunohistochemistry starting at 5 µg/mL. For immunofluorescence start at 20 µg/mL.**

BRSK1 Antibody - 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.

BRSK1 Antibody - 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).

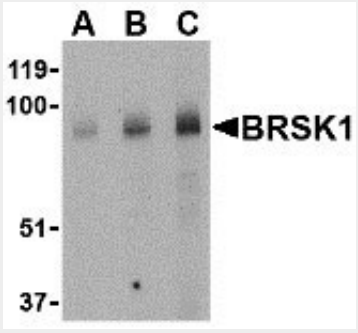
Tissue Location
Widely expressed, with highest levels in brain and testis. Protein levels remain constant throughout the cell cycle

BRSK1 Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

BRSK1 Antibody - 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.

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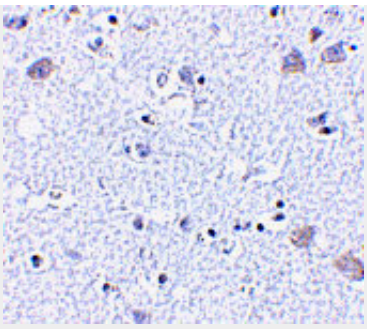
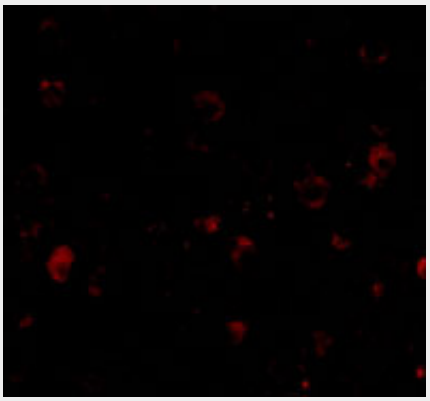


Immunohistochemistry of BRSK1 in human brain tissue with BRSK1 antibody at 5 µg/mL.



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

BRSK1 Antibody - 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.

BRSK1 Antibody - 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.