

# BRSK1 (E-13): sc-167221

## BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. BRSK1 (BR serine/threonine-protein kinase 1), also known as SAD1, is a 794 amino acid protein that localizes to both the nucleus and the cytoplasm and contains one UBA domain and one protein kinase domain. Expressed in a variety of tissues with highest expression in testis and brain, BRSK1 uses magnesium as a cofactor to catalyze the ATP-dependent phosphorylation of target proteins, including Wee 1 and Cdc25B. Via its kinase activity toward proteins that are involved in microtubule assembly, BRSK1 plays an essential role in neuronal polarization and may be involved in regulating cell cycle arrest in response to DNA damage. Two isoforms of BRSK1 exist due to alternative splicing events.

## REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609235. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Lizcano, J.M., et al. 2004. LKB1 is a master kinase that activates 13 kinases of the AMPK subfamily, including MARK/PAR-1. *EMBO J.* 23: 833-843.
3. Lu, R., et al. 2004. Human SAD1 kinase is involved in UV-induced DNA damage checkpoint function. *J. Biol. Chem.* 279: 31164-31170.
4. Kishi, M., et al. 2005. Mammalian SAD kinases are required for neuronal polarization. *Science* 307: 929-932.
5. Inoue, E., et al. 2006. SAD: a presynaptic kinase associated with synaptic vesicles and the active zone cytomatrix that regulates neurotransmitter release. *Neuron* 50: 261-275.
6. King, M.C., et al. 2008. A network of nuclear envelope membrane proteins linking centromeres to microtubules. *Cell* 134: 427-438.
7. Bright, N.J., et al. 2008. Investigating the regulation of brain-specific kinases 1 and 2 by phosphorylation. *J. Biol. Chem.* 283: 14946-14954.

## CHROMOSOMAL LOCATION

Genetic locus: BRSK1 (human) mapping to 19q13.42; Brsk1 (mouse) mapping to 7 A1.

## SOURCE

BRSK1 (E-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of BRSK1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-167221 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

BRSK1 (E-13) is recommended for detection of BRSK1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with BRSK2.

BRSK1 (E-13) is also recommended for detection of BRSK1 in additional species, including equine and canine.

Suitable for use as control antibody for BRSK1 siRNA (h): sc-97540, BRSK1 siRNA (m): sc-141754, BRSK1 shRNA Plasmid (h): sc-97540-SH, BRSK1 shRNA Plasmid (m): sc-141754-SH, BRSK1 shRNA (h) Lentiviral Particles: sc-97540-V and BRSK1 shRNA (m) Lentiviral Particles: sc-141754-V.

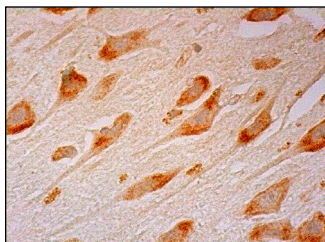
Molecular Weight of BRSK1: 87 kDa.

Positive Controls: mouse liver extract: sc-2256.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



BRSK1 (E-13): sc-167221. Immunoperoxidase staining of formalin fixed, paraffin-embedded human hippocampus tissue showing cytoplasmic staining of neuronal cells and glial cells.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.