

Brk (D-6): sc-166243

BACKGROUND

Tyrosine protein kinases play crucial roles in cell proliferation, survival, adhesion and motility by regulating ligand-mediated signal transduction, cell-cycle progression and cytoskeleton function. Tyrosine kinases may also bring about the transformation of malignant cells. Breast tumor kinase, Brk (also known as PTK6), along with its murine homolog, Sik (Src-related intestinal kinase) is one such kinase. Brk is a member of a distinct family of intracellular tyrosine kinases thought to be related to the Src family of tumor-related kinases. Brk exhibits the features of a novel non-receptor tyrosine kinase, including N-terminal SH3 and SH2 domains. Brk is specifically expressed in epithelial tissues and is restricted to cell layers immediately above the proliferative cell zone in skin and alimentary canal lining. Expression of Brk in normal tissues is relatively restricted with the highest mRNA levels found in colon, small intestine and prostate. Brk is strongly expressed in many breast carcinomas but not in normal breast tissue. Brk protein is also capable of auto-phosphorylation, which may play a role in its regulation.

REFERENCES

- Wilks, A.F. 1989. Two putative protein-tyrosine kinases identified by application of the polymerase chain reaction. *Proc. Natl. Acad. Sci. USA* 86: 1603-1607.
- Lee, S.T., et al. 1993. A survey of protein tyrosine kinase mRNAs expressed in normal human melanocytes. *Oncogene* 8: 3403-3410.
- Siyanova, E.Y., et al. 1994. Tyrosine kinase gene expression in the mouse small intestine. *Oncogene* 9: 2053-2057.
- Mitchell, P.J., et al. 1994. Cloning and characterization of cDNAs encoding a novel non-receptor tyrosine kinase, Brk, expressed in human breast tumours. *Oncogene* 9: 2383-2390.
- Vasioukhin, V., et al. 1995. A novel intracellular epithelial cell tyrosine kinase is expressed in the skin and gastrointestinal tract. *Oncogene* 10: 349-357.
- Qiu, H. and Miller, W.T. 2002. Regulation of the nonreceptor tyrosine kinase Brk by autophosphorylation and by autoinhibition. *J. Biol. Chem.* 277: 34634-34641.

CHROMOSOMAL LOCATION

Genetic locus: PTK6 (human) mapping to 20q13.33; Ptk6 (mouse) mapping to 2 H4.

SOURCE

Brk (D-6) is a mouse monoclonal antibody raised against amino acids 106-195 mapping within an internal region of Brk of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

Brk (D-6) is recommended for detection of Brk of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Brk siRNA (h): sc-38937, Brk siRNA (m): sc-38940, Brk shRNA Plasmid (h): sc-38937-SH, Brk shRNA Plasmid (m): sc-38940-SH, Brk shRNA (h) Lentiviral Particles: sc-38937-V and Brk shRNA (m) Lentiviral Particles: sc-38940-V.

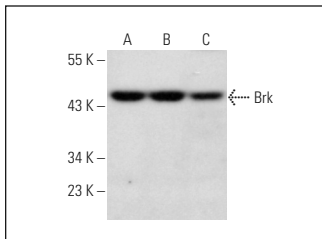
Molecular Weight of Brk: 50 kDa.

Positive Controls: HeLa whole cell lysate: sc-220, T-47D cell lysate: sc-2293 or Brk (h): 293T Lysate: sc-112582.

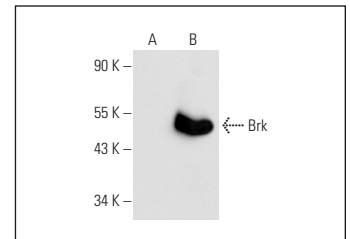
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Brk (D-6): sc-166243. Western blot analysis of Brk expression in HeLa (A), T-47D (B) and T24 (C) whole cell lysates.



Brk (D-6): sc-166243. Western blot analysis of Brk expression in non-transfected: sc-117752 (A) and human Brk transfected: sc-112582 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Patel, P., et al. 2015. Brk/protein tyrosine kinase 6 phosphorylates p27 Kip1, regulating the activity of cyclin D-cyclin-dependent kinase 4. *Mol. Cell. Biol.* 35: 1506-1522.
- Dwyer, A.R., et al. 2021. Breast tumor kinase (Brk/PTK6) mediates advanced cancer phenotypes via SH2-domain dependent activation of RhoA and aryl hydrocarbon receptor (AhR) signaling. *Mol. Cancer Res.* 19: 329-345.

STORAGE

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