SANTA CRUZ BIOTECHNOLOGY, INC.

Brk (5G1): sc-66003

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 autophosphorylation, which may play a role in its regulation.

REFERENCES

1. 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.
2. Lee, S.T., et al. 1993. A survey of protein tyrosine kinase mRNAs expressed in normal human melanocytes. Oncogene 8: 3403-3410.
3. Siyanova, E.Y., et al. 1994. Tyrosine kinase gene expression in the mouse small intestine. Oncogene 9: 2053-2057.
4. 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.
5. Vasioukhin, V., et al. 1995. A novel intracellular epithelial cell tyrosine kinase is expressed in the skin and gastrointestinal tract. Oncogene 10: 349-357.
6. 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.
7. Haegebarth, A., et al. 2004. The nuclear tyrosine kinase BRK/Sik phosphorylates and inhibits the RNA-binding activities of the Sam68-like mammalian proteins SLM-1 and SLM-2. J. Biol. Chem. 279: 54398-54404.
8. Kasprzycka, M., et al. 2006. Expression and oncogenic role of Brk (PTK6/Sik) protein tyrosine kinase in lymphocytes. Am. J. Pathol. 168: 1631-1641.

CHROMOSOMAL LOCATION

Genetic locus: PTK6 (human) mapping to 20q13.33.

SOURCE

Brk (5G1) is a mouse monoclonal antibody raised against purified truncated recombinant Brk of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Brk (5G1) is recommended for detection of Brk of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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

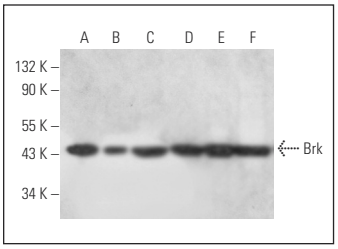
Molecular Weight of Brk: 50 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, SW480 cell lysate: sc-2219 or ZR-75-1 cell lysate: sc-2241.

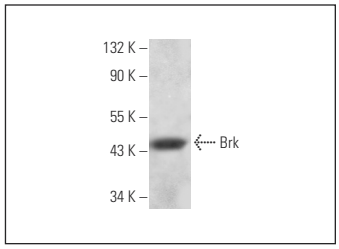
RECOMMENDED SUPPORT REAGENTS

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).

DATA



Brk (5G1): sc-66003. Western blot analysis of Brk expression in MCF7 (**A**), SW480 (**B**), T24 (**C**), ZR-75-1 (**D**), HeLa (**E**) and Hep G2 (**F**) whole cell lysates.



Brk (5G1): sc-66003. Western blot analysis of Brk expression in human colon tissue extract.

SELECT PRODUCT CITATIONS

1. Aubele, M., et al. 2008. Prognostic value of protein tyrosine kinase 6 (PTK6) for long-term survival of breast cancer patients. Br. J. Cancer 99: 1089-1095.
2. Gao, Y., et al. 2012. Suppressor of cytokine signaling 3 inhibits breast tumor kinase activation of STAT3. J. Biol. Chem. 287: 20904-20912.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.