

Brk (D-7): sc-137045

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

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.

CHROMOSOMAL LOCATION

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

SOURCE

Brk (D-7) 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 IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Brk (D-7) is available conjugated to agarose (sc-137045 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137045 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137045 PE), fluorescein (sc-137045 FITC), Alexa Fluor® 488 (sc-137045 AF488), Alexa Fluor® 546 (sc-137045 AF546), Alexa Fluor® 594 (sc-137045 AF594) or Alexa Fluor® 647 (sc-137045 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137045 AF680) or Alexa Fluor® 790 (sc-137045 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Brk (D-7) is recommended for detection of Brk of 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 shRNA Plasmid (h): sc-38937-SH and Brk shRNA (h) Lentiviral Particles: sc-38937-V.

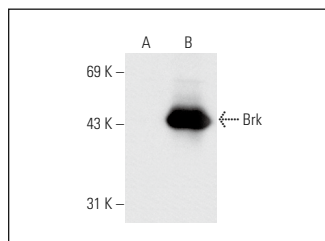
Molecular Weight of Brk: 50 kDa.

Positive Controls: Brk (h): 293T Lysate: sc-112582, ZR-75-1 cell lysate: sc-2241 or SW480 cell lysate: sc-2219.

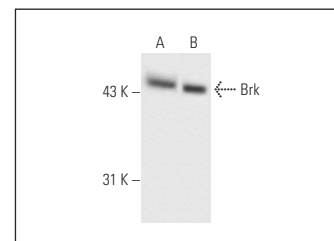
RECOMMENDED SUPPORT REAGENTS

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-7): sc-137045. Western blot analysis of Brk expression in non-transfected: sc-117752 (A) and human Brk transfected: sc-112582 (B) 293T whole cell lysates.



Brk (D-7): sc-137045. Western blot analysis of Brk expression in ZR-75-1 (A) and SW480 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ito, K., et al. 2016. PTK6 inhibition suppresses metastases of triple-negative breast cancer via SNAIL-dependent E-cadherin regulation. *Cancer Res.* 76: 4406-4417.
2. Ito, K., et al. 2017. PTK6 regulates growth and survival of endocrine therapy-resistant ER+ breast cancer cells. *NPJ Breast Cancer* 3: 45.
3. Sivakumaren, S.C., et al. 2020. Targeting the PI5P4K lipid kinase family in cancer using covalent inhibitors. *Cell Chem. Biol.* 27: 525-537.e6.

RESEARCH USE

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