

p-Btk (Ser 180): sc-133285

BACKGROUND

The Tec family of non-receptor tyrosine kinases is composed of six proteins designated Tec, Emt (also known as Itk or Tsk), Btk (previously known as Atk, BPK or Emb), Bmx, Txk (also known as Rlk) and Dsrc28C. All members of the family contain SH3 and SH2 domains and, with the exception of Txk and Dsrc28C, also contain a pleckstrin homology (PH) and a Tec homology (TH) domain in their amino termini. Btk is necessary for proper B cell development, and mutations in the gene encoding Btk have been associated with families suffering from X-linked agammaglobulinemia, also referred to as Bruton's disease. Btk becomes activated upon phosphorylation and is catalytically inactive in its non-phosphorylated form. Phosphorylation by PKC II at Serine 180 leads to Btk translocation to the cytoplasmic fraction. Btk also becomes phosphorylated at Tyrosine 551 in the plasma membrane, followed by autophosphorylation of Tyrosine 223, creating a docking site for SH2 containing proteins. Serine 21 and 115 are also susceptible to phosphorylation.

REFERENCES

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2. Vetrie, D., et al. 1993. The gene involved in X-linked agammaglobulinemia is a member of the src family of protein-tyrosine kinases. *Nature* 361: 226-233.
3. Hagemann, T.L., et al. 1994. Genomic organization of the Btk gene and exon scanning for mutations in patients with X-linked agammaglobulinemia. *Hum. Mol. Genet.* 3: 1743-1749.
4. Rohrer, J., et al. 1994. The genomic structure of human BTK, the defective gene in X-linked agammaglobulinemia. *Immunogenetics* 40: 319-324.
5. Oeltjen, J.C., et al. 1995. Sixty-nine kilobases of contiguous human genomic sequence containing the α -galactosidase A and Bruton's tyrosine kinase loci. *Mamm. Genome* 6: 334-338.
6. Kang, S.W., et al. 2001. PKC β modulates antigen receptor signaling via regulation of Btk membrane localization. *EMBO J.* 20: 5692-5702.
7. Nore, B.F., et al. 2003. Identification of phosphorylation sites within the SH3 domains of Tec family tyrosine kinases. *Biochim. Biophys. Acta* 1645: 123-132.
8. Venkataraman, C., et al. 2006. Selective role of PKC β enzymatic function in regulating cell survival mediated by B cell antigen receptor cross-linking. *Immunol. Lett.* 105: 83-89.

CHROMOSOMAL LOCATION

Genetic locus: BTK (human) mapping to Xq21.33-q22, Btk (mouse) mapping to X E3.

SOURCE

p-Btk (Ser 180) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 180 phosphorylated Btk of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-133285 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Btk (Ser 180) is recommended for detection of Ser 180 phosphorylated Btk of mouse and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of p-Btk: 77 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.