

# IBtk (A-14): sc-168122

## BACKGROUND

IBtk (inhibitor of Bruton agammaglobulinemia tyrosine kinase), also known as BTKI or RP1-93K22.1, is a 1,353 amino acid peripheral membrane protein containing 3 ANK repeats, 2 BTB (POZ) domains and 3 RCC1 repeats. Existing as three alternatively spliced isoforms, IBtk down-regulates BTK kinase activity and disrupts BTK-mediated calcium mobilization, thereby negatively regulating the activation of nuclear factor- $\kappa$ -B (NF $\kappa$ B) driven transcription. IBtk isoform 1 is the predominant isoform expressed in all tissues and translocates to the plasma membrane upon IgM stimulation, whereas isoform 2 localizes to the nucleus. Required for B-cell development, IBtk acts as an inhibitor of BTK tyrosine kinase activity. The gene encoding IBtk maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome.

## REFERENCES

1. Yamadori, T., et al. 1999. Bruton's tyrosine kinase activity is negatively regulated by Sab, the Btk-SH3 domain-binding protein. *Proc. Natl. Acad. Sci. USA* 96: 6341-6346.
2. Khan, W.N. 2001. Regulation of B lymphocyte development and activation by Bruton's tyrosine kinase. *Immunol. Res.* 23: 147-156.
3. Liu, W., et al. 2001. Direct inhibition of Bruton's tyrosine kinase by IBtk, a Btk-binding protein. *Nat. Immunol.* 2: 939-946.
4. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 606457. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Yu, L., et al. 2008. Proteasome-dependent autoregulation of Bruton tyrosine kinase (Btk) promoter via NF $\kappa$ B. *Blood* 111: 4617-4626.
6. Spatuzza, C., et al. 2008. Physical and functional characterization of the genetic locus of IBtk, an inhibitor of Bruton's tyrosine kinase: evidence for three protein isoforms of IBtk. *Nucleic Acids Res.* 36: 4402-4416.
7. Narula, G., et al. 2008. Transient myelodysplastic syndrome in X-linked agammaglobulinemia with a novel Btk mutation. *Pediatr. Blood Cancer* 51: 826-828.
8. Fiume, G., et al. 2009. Computational analysis and *in vivo* validation of a microRNA encoded by the IBTK gene, a regulator of B-lymphocytes differentiation and survival. *Comput. Biol. Chem.* 33: 434-439.
9. Mohamed, A.J., et al. 2009. Bruton's tyrosine kinase (Btk): function, regulation, and transformation with special emphasis on the PH domain. *Immunol. Rev.* 228: 58-73.

## CHROMOSOMAL LOCATION

Genetic locus: IBTK (human) mapping to 6q14.1; Ibtkt (mouse) mapping to 9 E3.1.

## SOURCE

IBtk (A-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of IBtk of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-168122 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

IBtk (A-14) is recommended for detection of IBtk isoforms  $\alpha$  and  $\beta$  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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); not recommended for detection of IBtk isoform  $\gamma$ .

IBtk (A-14) is also recommended for detection of IBtk isoforms  $\alpha$  and  $\beta$  in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for IBtk siRNA (h): sc-95065, IBtk siRNA (m): sc-146131, IBtk shRNA Plasmid (h): sc-95065-SH, IBtk shRNA Plasmid (m): sc-146131-SH, IBtk shRNA (h) Lentiviral Particles: sc-95065-V and IBtk shRNA (m) Lentiviral Particles: sc-146131-V.

Molecular Weight of IBtk: 26 kDa.

## 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.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.