## SANTA CRUZ BIOTECHNOLOGY, INC.

# PSTK (B-5): sc-373991



### BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. PSTK (phosphoseryl-tRNA kinase), also known as L-seryl-tRNA<sup>Sec</sup> kinase, is a 348 amino acid enzyme belonging to the L-seryl-tRNA<sup>Sec</sup> kinase family. An essential RNA-dependent kinase, PSTK plays a role in aminoacyl-tRNA synthesis and the biosynthesis of selenocysteine, the 21st natural amino acid. Utilizing magnesium as a cofactor, PSTK converts seryl-tRNA<sup>Sec</sup> to O-phosphoseryl-tRNA<sup>Sec</sup>, the immediate precursor of selenocysteinyl-tRNA<sup>Sec</sup>. PSTK exists as two alternatively spliced isoforms and is encoded by a gene mapping to human chromosome 10q26.13.

#### **REFERENCES**

- Carlson, B.A., et al. 2004. Identification and characterization of phosphoseryl-tRNA<sup>[Ser]Sec</sup> kinase. Proc. Natl. Acad. Sci. USA 101: 12848-12853.
- Lux, R., et al. 2005. A novel bacterial signalling system with a combination of a Ser/Thr kinase cascade and a His/Asp two-component system. Mol. Microbiol. 58: 345-348.
- Yuan, J., et al. 2006. RNA-dependent conversion of phosphoserine forms selenocysteine in eukaryotes and archaea. Proc. Natl. Acad. Sci. USA 103: 18923-18927.
- Araiso, Y., et al. 2008. Structural insights into RNA-dependent eukaryal and archaeal selenocysteine formation. Nucleic Acids Res. 36: 1187-1199.
- Sherrer, R.L., et al. 2008. Characterization and evolutionary history of an archaeal kinase involved in selenocysteinyl-tRNA formation. Nucleic Acids Res. 36: 1247-1259.

#### **CHROMOSOMAL LOCATION**

Genetic locus: PSTK (human) mapping to 10q26.13; Pstk (mouse) mapping to 7 F3.

#### SOURCE

PSTK (B-5) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of PSTK of human origin.

#### PRODUCT

Each vial contains 200  $\mu g$  IgG1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PSTK (B-5) is available conjugated to agarose (sc-373991 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373991 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373991 PE), fluorescein (sc-373991 FITC), Alexa Fluor<sup>®</sup> 488 (sc-373991 AF488), Alexa Fluor<sup>®</sup> 546 (sc-373991 AF546), Alexa Fluor<sup>®</sup> 594 (sc-373991 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-373991 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-373991 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-373991 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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#### **APPLICATIONS**

PSTK (B-5) is recommended for detection of PSTK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 PSTK siRNA (h): sc-90790, PSTK siRNA (m): sc-152568, PSTK shRNA Plasmid (h): sc-90790-SH, PSTK shRNA Plasmid (m): sc-152568-SH, PSTK shRNA (h) Lentiviral Particles: sc-90790-V and PSTK shRNA (m) Lentiviral Particles: sc-152568-V.

Molecular Weight of PSTK: 40 kDa.

Positive Controls: PSTK (m): 293T Lysate: sc-127415.

## **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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

#### DATA





PSTK (B-5): sc-373991. Western blot analysis of PSTK expression in non-transfected: sc-117752 (**A**) and mouse PSTK transfected: sc-127415 (**B**) 293T whole cell lysates.

PSTK (B-5): sc-373991. Western blot analysis of PSTK expression in non-transfected: sc-117752 (**A**) and mouse PSTK transfected: sc-127415 (**B**) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

 Fujita, H., et al. 2024. PRDX6 augments selenium utilization to limit iron toxicity and ferroptosis. Nat. Struct. Mol. Biol. 31: 1277-1285.

#### **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.