SANTA CRUZ BIOTECHNOLOGY, INC.

PSTK (h): 293T Lysate: sc-114328

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(Sec) kinase, is a 348 amino acid enzyme belonging to the L-seryl-tRNA(Sec) 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(Sec) to O-phosphoseryl-tRNA(Sec), the immediate precursor of selenocysteinyl-tRNA(Sec). PSTK exists as two alternatively spliced isoforms and is encoded by a gene mapping to human chromosome 10q26.13.

REFERENCES

1. Carlson, B.A., et al. 2004. Identification and characterization of phosphoseryl-tRNA[Ser]Sec kinase. Proc. Natl. Acad. Sci. USA 101: 12848-12853.
2. 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.
3. Yuan, J., et al. 2006. RNA-dependent conversion of phosphoserine forms selenocysteine in eukaryotes and archaea. Proc. Natl. Acad. Sci. USA 103: 18923-18927.
4. Araiso, Y., et al. 2008. Structural insights into RNA-dependent eukaryal and archaeal selenocysteine formation. Nucleic Acids Res. 36: 1187-1199.
5. 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.
6. Sherrer, R.L., et al. 2008. Divergence of selenocysteine tRNA recognition by archaeal and eukaryotic O-phosphoseryl-tRNASec kinase. Nucleic Acids Res. 36: 1871-1880.
7. Renko, K., et al. 2009. Down-regulation of the hepatic selenoprotein biosynthesis machinery impairs selenium metabolism during the acute phase response in mice. FASEB J. 23: 1758-1765.
8. Aeby, E., et al. 2009. The canonical pathway for selenocysteine insertion is dispensable in *Trypanosomes*. Proc. Natl. Acad. Sci. USA 106: 5088-5092.
9. Araiso, Y., et al. 2009. Structure of a tRNA-dependent kinase essential for selenocysteine decoding. Proc. Natl. Acad. Sci. USA 106: 16215-16220.

CHROMOSOMAL LOCATION

Genetic locus: PSTK (human) mapping to 10q26.13.

PRODUCT

PSTK (h): 293T Lysate represents a lysate of human PSTK transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

PSTK (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive PSTK antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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