

# SerRSmt (N-23): sc-130611

## 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. SerRSmt (seryl-tRNA synthetase, mitochondrial), also known as SARS2 or SARSM, is a 518 amino acid member of the class-II aminoacyl-tRNA synthetase family that catalyzes the tRNASer-serine aminoacylation reaction. Localized to the mitochondria, SerRSmt exists as a homodimer and contains a core catalytic domain and a tRNA-binding domain. SerRSmt catalyzes the attachment of serine to tRNA(Ser) and is also able to aminoacylate tRNA(Sec) with serine, to form the misacylated tRNA L-seryl-tRNA(Sec). Via this interaction, SerRSmt is implicated in selenocysteine (Sec) biosynthesis.

## REFERENCES

- Miseta, A., Woodley, C.L., Greenberg, J.R. and Slobin, L.I. 1991. Mammalian seryl-tRNA synthetase associates with mRNA *in vivo* and has homology to elongation factor 1  $\alpha$ . *J. Biol. Chem.* 266: 19158-19161.
- Wu, X.Q. and Gross, H.J. 1993. The long extra arms of human tRNA(Ser) and tRNA(Sec) function as major identify elements for serylation in an orientation-dependent, but not sequence-specific manner. *Nucleic Acids Res.* 21: 5589-5594.
- Vincent, C., Tarbouriech, N. and Härtlein, M. 1997. Genomic organization, cDNA sequence, bacterial expression, and purification of human seryl-tRNA synthase. *Eur. J. Biochem.* 250: 77-84.
- Heckl, M., Busch, K. and Gross, H.J. 1998. Minimal tRNA(Ser) and tRNA(Sec) substrates for human seryl-tRNA synthetase: contribution of tRNA domains to serylation and tertiary structure. *FEBS Lett.* 427: 315-319.
- Yokogawa, T., Shimada, N., Takeuchi, N., Benkowski, L., Suzuki, T., Omori, A., Ueda, T., Nishikawa, K., Spremulli, L.L. and Watanabe, K. 2000. Characterization and tRNA recognition of mammalian mitochondrial seryl-tRNA synthetase. *J. Biol. Chem.* 275: 19913-19920.
- Shimada, N., Suzuki, T. and Watanabe, K. 2001. Dual mode recognition of two isoacceptor tRNAs by mammalian mitochondrial seryl-tRNA synthetase. *J. Biol. Chem.* 276: 46770-46778.
- Chimnarong, S., Gravers Jeppesen, M., Suzuki, T., Nyborg, J. and Watanabe, K. 2005. Dual-mode recognition of noncanonical tRNAs(Ser) by seryl-tRNA synthetase in mammalian mitochondria. *EMBO J.* 24: 3369-3379.
- Sherrer, R.L., Ho, J.M. and Söll, D. 2008. Divergence of selenocysteine tRNA recognition by archaeal and eukaryotic O-phosphoserine-tRNA(Sec) kinase. *Nucleic Acids Res.* 36: 1871-1880.

## CHROMOSOMAL LOCATION

Genetic locus: SARS2 (human) mapping to 19q13.2.

## RESEARCH USE

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

## SOURCE

SerRSmt (N-23) is a purified rabbit polyclonal antibody raised against a peptide mapping near the N-terminus of SerRSmt of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

SerRSmt (N-23) is recommended for detection of SerRSmt of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SerRSmt siRNA (h): sc-97305, SerRSmt shRNA Plasmid (h): sc-97305-SH and SerRSmt shRNA (h) Lentiviral Particles: sc-97305-V.

Molecular Weight of SerRSmt: 58 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 A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.