

ThrRS (A-3): sc-166147

BACKGROUND

Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. ThrRS (threonyl-tRNA synthetase), also known as TARS, is a 723 amino acid member of the class-II aminoacyl-tRNA synthetase family that catalyzes the tRNA(Thr)-threonine aminoacylation reaction. Localized to the cytoplasm, ThrRS contains a zinc-binding catalytic domain, a C-terminal tRNA-binding domain and an N-terminal editing domain. ThrRS has four mobile regions, three of which have a key residue that changes conformation throughout catalysis, thereby mediating the dynamics of the tRNA-amino acid reaction. The fourth mobile region contains an ordering loop which helps to close the active site once the substrate (threonine) is in place.

REFERENCES

1. Sankaranarayanan, R., Dock-Bregeon, A.C., Romby, P., Caillet, J., Springer, M., Rees, B., Ehresmann, C., Ehresmann, B. and Moras, D. 1999. The structure of threonyl-tRNA synthetase-tRNA(Thr) complex enlightens its repressor activity and reveals an essential zinc ion in the active site. *Cell* 97: 371-381.
2. Ishikura, H., Nagaoka, Y., Yokozawa, J., Umehara, T., Kuno, A. and Hasegawa, T. 2000. Threonyl-tRNA synthetase of archaea: importance of the discriminator base in the aminoacylation of threonine tRNA. *Nucleic Acids Symp. Ser.* 44: 83-84.
3. Torres-Larios, A., Sankaranarayanan, R., Rees, B., Dock-Bregeon, A.C. and Moras, D. 2003. Conformational movements and cooperativity upon amino acid, ATP and tRNA binding in threonyl-tRNA synthetase. *J. Mol. Biol.* 331: 201-211.
4. Ruan, B., Bovee, M.L., Sacher, M., Stathopoulos, C., Poralla, K., Francklyn, C.S. and Söll, D. 2004. A unique hydrophobic cluster near the active site contributes to differences in borrelidin inhibition among threonyl-tRNA synthetases. *J. Biol. Chem.* 280: 571-577.
5. Yamasaki, Y., Yamada, H., Nozaki, T., Akaogi, J., Nichols, C., Lyons, R., Loy, A.C., Chan, E.K., Reeves, W.H. and Satoh, M. 2006. Unusually high frequency of autoantibodies to PL-7 associated with milder muscle disease in Japanese patients with polymyositis/dermatomyositis. *Arthritis Rheum.* 54: 2004-2009.

CHROMOSOMAL LOCATION

Genetic locus: TARS (human) mapping to 5p13.3; Tars (mouse) mapping to 15 A1.

SOURCE

ThrRS (A-3) is a mouse monoclonal antibody raised against amino acids 1-98 mapping at the N-terminus of ThrRS of human origin.

PRODUCT

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

APPLICATIONS

ThrRS (A-3) is recommended for detection of ThrRS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 ThrRS siRNA (h): sc-76658, ThrRS siRNA (m): sc-76659, ThrRS shRNA Plasmid (h): sc-76658-SH, ThrRS shRNA Plasmid (m): sc-76659-SH, ThrRS shRNA (h) Lentiviral Particles: sc-76658-V and ThrRS shRNA (m) Lentiviral Particles: sc-76659-V.

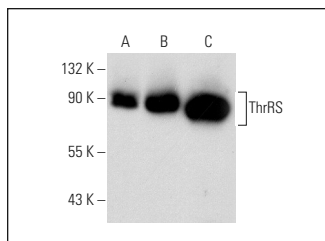
Molecular Weight of ThrRS: 83 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A549 cell lysate: sc-2413 or ThrRS (h): 293T Lysate: sc-113560.

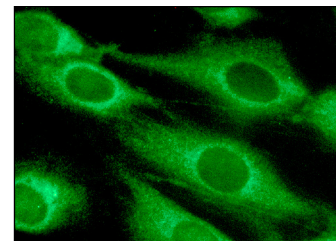
RECOMMENDED SUPPORT REAGENTS

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™ Molecular Weight Standards: sc-2035, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



ThrRS (A-3): sc-166147. Western blot analysis of ThrRS expression in non-transfected 293T: sc-117752 (A), human ThrRS transfected 293T: sc-113560 (B) and HeLa (C) whole cell lysates.



ThrRS (A-3): sc-166147. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

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 for detailed protocols and support products.