

TrpRS (C-7): sc-374401

BACKGROUND

Tryptophanyl-tRNA synthetases are essential enzymes that catalyze the amino-acylation of tRNA(Trp) with tryptophan, an essential function of the protein synthesis machinery of the cell. Two forms of tryptophanyl-tRNA synthetase exist: a cytoplasmic form, named TrpRS (also known as WARS), and a mitochondrial form, named WARS2. In normal cells, human TrpRS exists as a full length form and as a truncated form designated mini TrpRS, which is produced by alternative splicing. Expression of mini TrpRS is highly stimulated in human cells by the addition of IFN- γ . Although both human full-length TrpRS and mini TrpRS are enzymatically active in aminoacylation, they differ in angiostatic activity. The gene encoding human TrpRS maps to chromosome 14q32.2 and the gene encoding human WARS2 maps to chromosome 1p12. The first 18 amino acids of WARS2 constitute the mitochondrial localization signal sequence.

REFERENCES

- Jorgensen, R., et al. 2000. Identification and characterization of human mitochondrial tryptophanyl-tRNA synthetase. *J. Biol. Chem.* 275: 16820-16826.
- Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 604733. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Wakasugi, K., et al. 2002. A human aminoacyl-tRNA synthetase as a regulator of angiogenesis. *Proc. Natl. Acad. Sci. USA* 99: 173-177.
- Otani, A., et al. 2002. A fragment of human TrpRS as a potent antagonist of ocular angiogenesis. *Proc. Natl. Acad. Sci. USA* 99: 178-183.

CHROMOSOMAL LOCATION

Genetic locus: WARS (human) mapping to 14q32.2; Wars (mouse) mapping to 12 F1.

SOURCE

TrpRS (C-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 3-37 near the N-terminus of TrpRS of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TrpRS (C-7) is available conjugated to agarose (sc-374401 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374401 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374401 PE), fluorescein (sc-374401 FITC), Alexa Fluor® 488 (sc-374401 AF488), Alexa Fluor® 546 (sc-374401 AF546), Alexa Fluor® 594 (sc-374401 AF594) or Alexa Fluor® 647 (sc-374401 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374401 AF680) or Alexa Fluor® 790 (sc-374401 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374401 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

TrpRS (C-7) is recommended for detection of TrpRS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

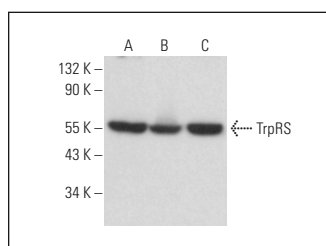
TrpRS (C-7) is also recommended for detection of TrpRS in additional species, including canine and porcine.

Suitable for use as control antibody for TrpRS siRNA (h): sc-37673, TrpRS siRNA (m): sc-37674, TrpRS shRNA Plasmid (h): sc-37673-SH, TrpRS shRNA Plasmid (m): sc-37674-SH, TrpRS shRNA (h) Lentiviral Particles: sc-37673-V and TrpRS shRNA (m) Lentiviral Particles: sc-37674-V.

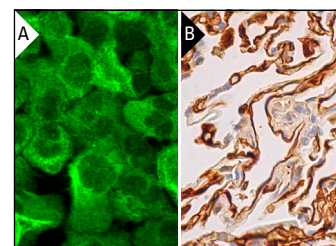
Molecular Weight of TrpRS: 53 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HUV-EC-C whole cell lysate: sc-364180 or HEL 92.1.7 cell lysate: sc-2270.

DATA



TrpRS (C-7): sc-374401. Western blot analysis of TrpRS expression in HeLa (A), HUV-EC-C (B) and HEL 92.1.7 (C) whole cell lysates.



TrpRS (C-7): sc-374401. Immunofluorescence staining of formalin-fixed A-431 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing cytoplasmic and membrane staining of pneumocytes and macrophages. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ: BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216 (B).

SELECT PRODUCT CITATIONS

- Rajasekaran, S., et al. 2021. Integrated multi-omics analysis of RB-loss identifies widespread cellular programming and synthetic weaknesses. *Commun. Biol.* 4: 977.
- Bögershausen, N., et al. 2022. WARS1 and SARS1: two tRNA synthetases implicated in autosomal recessive microcephaly. *Hum. Mutat.* 43: 1454-1471.

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.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA