

TrpRS (16-R): sc-100984

BACKGROUND

Tryptophanyl-tRNA synthetases are essential enzymes that catalyze the aminoacylation of tRNA (Trp) with tryptophan, an essential function of the cell's protein synthesis machinery. 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

1. Jorgensen, R., Sogaard, T.M., Rossing, A.B., Martensen, P.M. and Justesen, J. 2000. Identification and characterization of human mitochondrial tryptophanyl-tRNA synthetase. *J. Biol. Chem.* 275: 16820-16826.
2. 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/>
3. Wakasugi, K., Slike, B.M., Hood, J., Otani, A., Ewalt, K.L., Friedlander, M., Cheresch, D.A. and Schimmel, P. 2002. A human aminoacyl-tRNA synthetase as a regulator of angiogenesis. *Proc. Natl. Acad. Sci. USA* 99: 173-177.
4. Otani, A., Slike, B.M., Dorrell, M.I., Hood, J., Kinder, K., Ewalt, K.L., Cheresch, D., Schimmel, P. and Friedlander, M. 2002. A fragment of human TrpRS as a potent antagonist of ocular angiogenesis. *Proc. Natl. Acad. Sci. USA* 99: 178-183.
5. Yang, X.L., Schimmel, P. and Ewalt, K.L. 2004. Relationship of two human tRNA synthetases used in cell signaling. *Trends Biochem. Sci.* 29: 250-256.

CHROMOSOMAL LOCATION

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

SOURCE

TrpRS (16-R) is a mouse monoclonal antibody raised against recombinant TrpRS of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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.

APPLICATIONS

TrpRS (16-R) is recommended for detection of TrpRS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

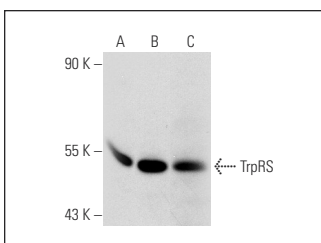
Molecular Weight of TrpRS: 53 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, TrpRS (m): 293T lysate: sc-124308 or Jurkat nuclear extract: sc-2132.

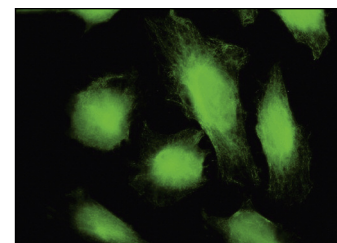
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



TrpRS (16-R): sc-100984. Western blot analysis of TrpRS expression in non-transfected 293T: sc-117752 (A), mouse TrpRS transfected 293T: sc-124308 (B) and HeLa (C) whole cell lysates.



TrpRS (16-R): sc-100984. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear and cytoplasmic localization.

PROTOCOLS

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