

# TyrRS (C-18): sc-26209

## 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 $\gamma$ . Although both human full-length TrpRS and mini TrpRS are enzymatically active in aminoacylation, they differ in angiostatic activity. The tyrosyl-tRNA synthetase (TyrRS), a protein related to TrpRS, exists as a homodimeric enzyme that catalyzes the aminoacylation of tRNA(Tyr) by L-tyrosine.

## REFERENCES

1. Wakasugi, K., et al. 2002. A human aminoacyl-tRNA synthetase as a regulator of angiogenesis. *Proc. Natl. Acad. Sci. USA* 99: 173-177.
2. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 191050. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Jia, J., et al. 2003. Expression, purification, and characterization of human tyrosyl-tRNA synthetase. *Protein Expr. Purif.* 27: 104-8.
4. Yang, X.L., et al. 2004. Relationship of two human tRNA synthetases used in cell signaling. *Trends Biochem. Sci.* 29: 250-256.
5. Kise, Y., et al. 2004. A short peptide insertion crucial for angiostatic activity of human tryptophanyl-tRNA synthetase. *Nat. Struct. Mol. Biol.* 11: 149-156.
6. Bonnefond, L., et al. 2005. Human mitochondrial TyrRS disobeys the tyrosine identity rules. *RNA* 11: 558-562.
7. Bonnefond, L., et al. 2005. Toward the full set of human mitochondrial aminoacyl-tRNA synthetases: characterization of AspRS and TyrRS. *Biochemistry* 44: 4805-4816.

## CHROMOSOMAL LOCATION

Genetic locus: YARS (human) mapping to 1p35.1; Yars (mouse) mapping to 4 D2.2.

## SOURCE

TyrRS (C-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of TyrRS of human origin.

## 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.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-26209 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

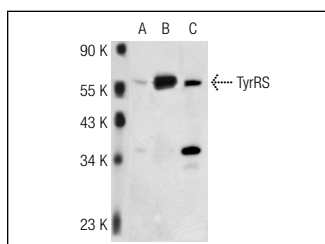
TyrRS (C-18) is recommended for detection of TyrRS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

TyrRS (C-18) is also recommended for detection of TyrRS in additional species, including bovine.

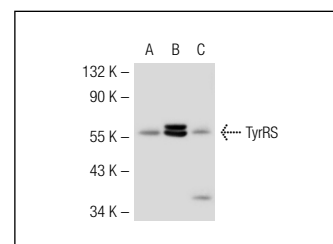
Suitable for use as control antibody for TyrRS siRNA (h): sc-37671, TyrRS siRNA (m): sc-37672, TyrRS shRNA Plasmid (h): sc-37671-SH, TyrRS shRNA Plasmid (m): sc-37672-SH, TyrRS shRNA (h) Lentiviral Particles: sc-37671-V and TyrRS shRNA (m) Lentiviral Particles: sc-37672-V.

Molecular Weight of TyrRS: 59 kDa.

## DATA



TyrRS (C-18): sc-26209. Western blot analysis of TyrRS expression in non-transfected 293T: sc-110760 (A), human TyrRS transfected 293T: sc-113365 (B) and HeLa (C) whole cell lysates.



TyrRS (C-18): sc-26209. Western blot analysis of TyrRS expression in non-transfected 293T: sc-117752 (A), mouse TyrRS transfected 293T: sc-126172 (B) and HeLa (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Jordanova, A., et al. 2006. Disrupted function and axonal distribution of mutant tyrosyl-tRNA synthetase in dominant intermediate Charcot-Marie-Tooth neuropathy. *Nat. Genet.* 38: 197-202.

## RESEARCH USE

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

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Try **TyrRS (H-11): sc-166741** or **TyrRS (A-10): sc-393787**, our highly recommended monoclonal alternatives to TyrRS (C-18).