

# TyrRS (H-11): sc-166741

## BACKGROUND

Tryptophanyl-tRNA synthetases are essential enzymes that catalyze the aminoacylation of tRNA<sup>Trp</sup> 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<sup>Tyr</sup> 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™. 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: 104-108.

## CHROMOSOMAL LOCATION

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

## SOURCE

TyrRS (H-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 440-465 near the C-terminus of TyrRS of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TyrRS (H-11) is available conjugated to agarose (sc-166741 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166741 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166741 PE), fluorescein (sc-166741 FITC), Alexa Fluor® 488 (sc-166741 AF488), Alexa Fluor® 546 (sc-166741 AF546), Alexa Fluor® 594 (sc-166741 AF594) or Alexa Fluor® 647 (sc-166741 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166741 AF680) or Alexa Fluor® 790 (sc-166741 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166741 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## RESEARCH USE

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

## APPLICATIONS

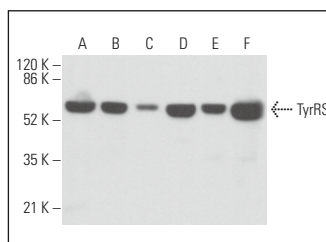
TyrRS (H-11) is recommended for detection of TyrRS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

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.

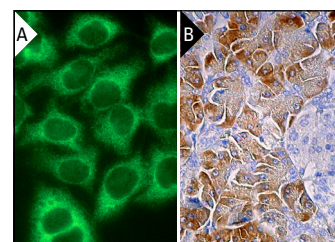
Molecular Weight of TyrRS: 59 kDa.

Positive Controls: ECV304 cell lysate: sc-2269, Ramos cell lysate: sc-2216 or Jurkat whole cell lysate: sc-2204.

## DATA



TyrRS (H-11): sc-166741. Western blot analysis of TyrRS expression in HeLa (A), ECV304 (B), SH-SY5Y (C), Jurkat (D), Ramos (E) and F9 (F) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



TyrRS (H-11): sc-166741. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

1. Gao, P., et al. 2019. Resveratrol targets TyrRS acetylation to protect against radiation-induced damage. *FASEB J.* 33: 8083-8093.
2. Jones, J.A., et al. 2023. Nuclear translocation of an aminoacyl-tRNA synthetase may mediate a chronic "integrated stress response". *Cell Rep.* 42: 112632.

## 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) for detailed protocols and support products.