

## IleRS (D-16): sc-34676

### BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Accurate discrimination of the structurally similar amino acids valine and isoleucine by isoleucyl-tRNA synthetase (IleRS) results, in part, from a hydrolytic editing reaction, which prevents misactivated valine from being stably joined to tRNA<sup>Ile</sup>. IleRS joins Ile to tRNA(Ile) at its synthetic active site and hydrolyzes incorrectly acylated amino acids at its editing active site. A member of the aminoacyl-tRNA synthetase family, human IleRS has been identified as a target of antibodies in the autoimmune disease polymyositis.

### REFERENCES

- Nichols, R.C., et al. 1995. Human isoleucyl-tRNA synthetase: sequence of the cDNA, alternative mRNA splicing, and the characteristics of an unusually long C-terminal. *Gene* 155: 299-304.
- Nordin, B.E., et al. 1999. RNA determinants for translational editing. Mischarging a minihelix substrate by a tRNA synthetase. *J. Biol. Chem.* 274: 6835-6838.
- Silvian, L.F., et al. 1999. Insights into editing from an Ile-tRNA synthetase structure with tRNA<sup>Ile</sup> and mupirocin. *Science* 285: 1074-1077.
- Nakama, T., et al. 2001. Structural basis for the recognition of isoleucyl-adenylate and an antibiotic, mupirocin, by isoleucyl-tRNA synthetase. *J. Biol. Chem.* 276: 47387-47393.
- Nordin, B.E., et al. 2003. Transiently misacylated tRNA is a primer for editing of misactivated adenylates by class I aminoacyl-tRNA synthetases. *Biochemistry* 42: 12989-12997.
- SWISS-PROT/TrEMBL (P41252). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

### CHROMOSOMAL LOCATION

Genetic locus: IARS (human) mapping to 9q22.31; lars (mouse) mapping to 13 A5.

### SOURCE

IleRS (D-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of IleRS of human origin.

### PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34676 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### 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

IleRS (D-16) is recommended for detection of IleRS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

IleRS (D-16) is also recommended for detection of IleRS in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for IleRS siRNA (h): sc-45473, IleRS siRNA (m): sc-45474, IleRS shRNA Plasmid (h): sc-45473-SH, IleRS shRNA Plasmid (m): sc-45474-SH, IleRS shRNA (h) Lentiviral Particles: sc-45473-V and IleRS shRNA (m) Lentiviral Particles: sc-45474-V.

Molecular Weight of IleRS: 145 kDa.

Positive Controls: Ramos cell lysate: sc-2216.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.