SANTA CRUZ BIOTECHNOLOGY, INC.

ValRS (aL-12): sc-83181

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. ValRS (valyl-tRNA synthetase), also known as Protein G7a, belongs to the class-I aminoacyl-tRNA synthetase family that includes the related proteins, LeuRS and IleRS. These proteins are large monomeric proteins and play a major role in catalyzing the aminoacylation of tRNA by their cognate amino acid. ValRS joins Val to tRNA(Val) at its synthetic active site. At its CP1 editing active site, ValRS hydrolyzes or deacylates tRNA(Thr) that is incorrectly joined to Val. ValRS forms aggregates with EF-1 (elongation factor 1) and, via this complex, catalyzes the aminoacylation of tRNA and its transfer to EF-1. In addition, ValRS may be regulated by PKC-dependent phosphorylation.

REFERENCES

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2. Nordin, B.E. and Schimmel, P. 2003. Transiently misacylated tRNA is a primer for editing of misactivated adenylates by class I aminoacyl-tRNA synthetases. Biochemistry 42: 12989-12997.
3. Fukai, S., et al. 2003. Mechanism of molecular interactions for tRNA(Val) recognition by valyl-tRNA synthetase. RNA 9: 100-111.
4. Jiang, S., et al. 2005. Three-dimensional reconstruction of the valyl-tRNA synthetase/elongation factor-1H complex and localization of the δ subunit. FEBS Lett. 579: 6049-6054.
5. Fukunaga, R. and Yokoyama, S. 2005. Structural basis for non-cognate amino acid discrimination by the valyl-tRNA synthetase editing domain. J. Biol. Chem. 280: 29937-29945.
6. Fukunaga, R. and Yokoyama, S. 2005. Crystal structure of leucyl-tRNA synthetase from the archaeon *Pyrococcus horikoshii* reveals a novel editing domain orientation. J. Mol. Biol. 346: 57-71.
7. Shitivelband, S. and Hou, Y.M. 2005. Breaking the stereo barrier of amino acid attachment to tRNA by a single nucleotide. J. Mol. Biol. 348: 513-521.
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SOURCE

ValRS (aL-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of ValRS of *Arabidopsis thaliana* 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 or our catalog for detailed protocols and support products.

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-83181 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-83181 X, 200 µg/0.1 ml.

APPLICATIONS

ValRS (aL-12) is recommended for detection of ValRS of *Arabidopsis thaliana* 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).

ValRS (aL-12) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

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.

RESEARCH USE

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