

Product Information

Jo-1, human

recombinant, expressed in *E. coli*

Catalog Number **J4144**

Storage Temperature $-70\text{ }^{\circ}\text{C}$

EC 6.1.1.21

Synonyms: histidyl-tRNA synthetase, HRS, HARS, histidyl-transfer ribonucleic acid synthetase, histidine tRNA-ligase

Product Description

Jo-1, or histidyl-transfer ribonucleic acid synthetase, is part of the class of aminoacyl-tRNA synthetases. This homodimeric enzyme catalyzes the coupling of histidine to its specific transfer RNA (tRNA), prior to transport of histidine to the ribosome, and subsequent incorporation of histidine into polypeptide chains.

Antibodies to Jo-1 have been associated with an increased frequency of interstitial pulmonary disease in polymyositis/dermatomyositis patients.^{1,2} Jo-1 has also been associated with T-cell mediated autoimmunity.^{3,4} All Jo-1 bands observed by SDS-PAGE react with a human Jo-1 antibody, as determined by Western blot analysis.

Native histidyl-tRNA synthetase from rat has been found to have a molecular mass of ~96 kDa, with a subunit molecular mass of ~50 kDa.⁵ Separate crystal structures of recombinant histidyl-tRNA synthetases from *E. coli*, *Thermus thermophilus*, and human have been reported.⁶⁻⁸

This recombinant Jo-1 product has a molecular mass of ~55 kDa (SDS-PAGE).

Components

This product is supplied as a solution in 6 M urea, 500 mM NaCl, and 10 mM Trizma®-HCl buffer, pH 8.0.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

References

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3. Ascherman, D.P. *et al.*, Critical Requirement for Professional APCs in Eliciting T Cell Responses to Novel Fragments of Histidyl-tRNA Synthetase (Jo-1) in Jo-1 Antibody-Positive Polymyositis. *J. Immunol.*, **169(12)**, 7127-7134 (2002).
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5. Fahoum, S.K., and Yang, D.C.H., Purification of Mammalian Histidyl-tRNA Synthetase and Its Interaction with Myositis-Specific Anti-Jo-1 Antibodies. *Biochemistry*, **26(18)**, 5871-5877 (1987).
6. Arnez, J.G. *et al.*, Crystal structure of histidyl-tRNA synthetase from *Escherichia coli* complexed with histidyl-adenylate. *EMBO J.*, **14(17)**, 4143-4155 (1995).
7. Åberg, A. *et al.*, Crystal Structure Analysis of the Activation of Histidine by *Thermus thermophilus* Histidyl-tRNA Synthetase. *Biochemistry*, **36(11)**, 3084-3094 (1997).
8. Kim, Y.K. *et al.*, Structural characteristics of human histidyl-tRNA synthetase. *Biodesign*, **002(04)**, 142-148 (2014).

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