

ESAT-6, Recombinant Protein Reference Standard

Catalog No. NR-49424

This reagent is the tangible property of the U.S. Government.

For research use only. Not for use in humans.

Contributor and Manufacturer:

BEI Resources

Product Description:

NR-49424 is a recombinant form of the early secretory antigenic target protein, ESAT-6.¹ The protein sequence consists of amino acid residues 1 to 103 including a hexahistidine tag at the C-terminus. The recombinant protein was expressed in *Escherichia coli* BL21 (DE3) pLysS cells and purified by immobilized-metal affinity chromatography. ESAT-6 has a theoretical molecular weight of approximately 11 kDa. The amino acid sequence of NR-49424 is shown below in Figure 1.

Note: This protein is provided as a reference standard and should be ordered with the corresponding plasmid (pMRLB.7; NR-50170).

Material Provided:

Each vial contains approximately 0.25 mg to 1 mg of lyophilized ESAT-6 in 10 mM ammonium bicarbonate.

Note: NR-49424 is soluble in 100 mM to 500 mM aqueous buffered salt solutions, such as phosphate buffered saline. A 10 mM ammonium bicarbonate solution can also be used.

Packaging/Storage:

NR-49424 was packaged aseptically in glass serum vials. The product is provided frozen on dry ice and should be stored at -80°C or colder immediately upon arrival. Freeze-thaw cycles should be avoided.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: ESAT-6, Recombinant Protein Reference Standard, NR-49424."

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories \(BMBL\)](#). 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale. This material may be subject to third party patent rights.

References:

1. MycoBrowser: [Rv3875](#)
2. Sørensen, A. L., et al. "Purification and Characterization of a Low-Molecular-Mass T-Cell Antigen Secreted by *Mycobacterium tuberculosis*." *Infect. Immun.* 63 (1995): 1710-1717. PubMed: 7729876.
3. Harboe, M., et al. "Evidence for Occurrence of the ESAT-6 Protein in *Mycobacterium tuberculosis* and Virulent *Mycobacterium bovis* and for Its Absence in *Mycobacterium bovis* BCG." *Infect. Immun.* 64 (1996): 16-22. PubMed: 8557334.
4. Skjøt, R. L., et al. "Comparative Evaluation of Low-Molecular-Mass Proteins from *Mycobacterium tuberculosis* Members of the ESAT-6 Family as Immunodominant T-Cell Antigens." *Infect. Immun.* 68 (2000): 214-220. PubMed: 10603390.
5. Singh, A., et al. "Dissecting Virulence Pathways of *Mycobacterium tuberculosis* Through Protein-Protein Association." *Proc. Natl. Acad. Sci. U. S. A.* 103 (2006): 11346-11351. PubMed: 16844784.

ATCC® is a trademark of the American Type Culture Collection.



Figure 1: ESAT-6 Amino Acid Sequence

MTEQQWNFAG IEAAASAIQG NVTSIHSLLD EGKQSLTKLA AAWGGSGSEA
YQGVQQKWDA TATELNALQ NLARTISEAG QAMASTE~~GNV~~ TGMFALEHHH HHH

Non-ESAT-6 protein residues are underlined.