

Glycoprotein F (+) Fd THS DS-Cav1 from Human Respiratory Syncytial Virus (RSV), A2 with C-Terminal Histidine Tag, Recombinant from HEK293F Cells

Catalog No. NR-59413

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

For research use only. Not for use in humans.

Contributor:

Barney Graham, M.D., Ph.D., Deputy Director and Chief, Vaccine Research Center, National Institutes of Health, Bethesda, Maryland, USA

Manufacturer:

BEI Resources

Product Description:

NR-59413 was produced from an expression vector (BEI Resources NR-55425), encoding human respiratory syncytial virus (RSV), A2 recombinant prefusion F glycoprotein variant DS-Cav1.¹ The construct consists of synthesized, mammalian codon-optimized RSV F(+) residues 1 to 513 [containing two sets of mutations: S155C and S290C (DS) and S190F-V207L (Cav1)], a C-terminal T4 fibrin trimerization motif, thrombin cleavage site, hexa-histidine tag, and Strep-tag®II.¹ The RSV F (+) variant is derived from A2 strain (GenPept: [P03420](#)) with three naturally occurring substitutions (P102A, I379V and M447V) for enhanced protein expression.¹ The recombinant protein was expressed in human embryonic kidney HEK293F cells and purified by affinity chromatography. The predicted protein sequence is shown in Figure 1. NR-59413 comprises 568 amino acids with a theoretical molecular weight of 63,146 daltons.

Material Provided:

Each vial contains approximately 100 µg to 500 µg of purified recombinant protein in sterile 18 mM Tris-HCl (pH 7.5), 225 mM NaCl and 10% glycerol. The concentration, expressed as mg/mL, is shown on the Certificate of Analysis.

Packaging/Storage:

Purified recombinant RSV protein is packaged aseptically, in plastic cryovials. This product is provided on dry ice and should be stored at -20°C immediately upon arrival.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: Glycoprotein F (+) Fd THS DS-Cav1 from Human Respiratory Syncytial Virus (RSV), A2 with C-Terminal Histidine Tag, Recombinant from HEK293F Cells, NR-59413.”

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). Current Edition. Washington, DC: U.S. Government Printing Office.

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 makes 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 regarding 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.

References:

1. McLellan, J. S. et al. “Structure-Based Design of a fusion Glycoprotein vaccine for Respiratory Syncytial Virus.” *Science* 342 (2013): 592-598. PubMed: 24179220.
2. McLellan, J. S. et al. “Structure of RSV Fusion Glycoprotein Trimer Bound to a Prefusion-Specific Neutralizing Antibody.” *Science* 340 (2013): 1113-11137. PubMed: 23618766.
3. McLellan, J. S., W. C. Ray and M. E. Peeples. “Structure and Function of Respiratory Syncytial Virus Surface Glycoproteins.” *Curr. Top. Microbiol. Immunol.* 372 (2013) 83-104. PubMed: 24362685.

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



Figure 1: Predicted Protein Sequence

```

1  MELLILKANA  ITTILTAVTF  CFASQONITE  EFYQSTCSAV  SKGYLSALRT
51  GWYTSVITIE  LSNIKENKCN  GTDAKVKLIK  QELDKYKNAV  TELQLMQST
101 PATNNRARRE  LPRFMNYTLN  NAKKTNVTLN  KKRKRRLGFG  LLGVGSAIAS
151 GVAVCKVLHL  EGEVNKIKSA  LLSTNKAVVS  LSNGVSVLTF  KVLDLKNYID
201 KQLLPILNKQ  SCSISNIETV  IEFQQKNRNL  LEITREFSVN  AGVTPVSTY
251 MLTNSELLSL  INDMPIITNDQ  KKLMSNNVQI  VRQQSYSIMC  IIKEEVLAYV
301 VOLPLYGVID  TPCWKLHTSP  LCTTNTKEGS  NICLTRDRG  WYCDNAGSVS
351 FFPQAETCKV  QSNRVFCDTM  NSLTLPSEVN  LCNVDIFNPK  YDCKIMTSKT
401 DVSSSVITSL  GAIVSCYGKT  KCTASNKNRG  IIKTFSNGCD  YVSNKGVDTV
451 SVGNTLYYVN  KQEGKSLYVK  GEPIINFYDP  LVFPSDEFDA  SISQVNEKIN
501 QSLAFIRKSD  ELLSAIGGYI  PEAPRDGQAY  VRKDGWVLL  STFLGGLVPR
551 GSHHHHHHSA  WSHPQFEK

```

Glycoprotein F (+) Fd THS DS-Cav1 – **Residues 1 to 513** [represents amino acid residues 1 to 513 (GenPept: [P03420](#))]

Plasmid-derived amino acids – Residues 514 to 517, 545 to 546 and 559 to 560

SS to CC (DS) mutations – **Residues 155 and 290**

S190F and V207L mutations (Cav1) – **Residues 190 and 207**

Naturally occurring substitutions (P102A, I379V and M447V) – **Residues 102, 379 and 447**

Trimerization foldon domain - 518 to 544

Thrombin cleavage site - Residues 547 to 552

Hexa-histidine tag - Residues 553 to 558

Strep-tag®II - Residues 561 to 568