



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant HIV-1 Nef Protein
Catalog Number: vRP-1245
Manufacturer: LD Biopharma, Inc.

Introduction

Nef is a multi-functional protein encoded by HIV-1 that modulates cell surface expression of a variety of cellular receptor and increases the infectivity of progeny. It is required for optimal virus replication. As one of the earliest and most abundantly expressed HIV-1 viral proteins during HIV-1 infection, Nef protein can alter numerous pathways of T-lymphocyte function and down-regulate immunity surface molecules in order to evade host defense and increase viral infectivity. It also alters the functionality of other immunity cells, like dendritic cells, monocytes/macrophages and NK cells. In infected CD4⁺ T-lymphocytes, Nef down-regulates the surface MHC-I, mature MHC-II, CD4, CD28, CCR5 and CXCR4 molecules. Nef can also mediate internalization and degradation of host CD4 through the interaction of with the cytoplasmic tail of CD4, the recruitment of AP-2 (clathrin adapter protein complex 2), internalization through clathrin coated pits, and subsequent transport to endosomes and lysosomes for degradation. Diverts host MHC-I molecules to the trans-Golgi network-associated endosomal compartments by an endocytic pathway to finally target them for degradation. In consequence infected cells are masked for immune recognition by cytotoxic T-lymphocytes. Decreasing the number of immune receptors also prevents re-infection by more HIV particles (super-infection)

Full-length HIV-1 Nef gene cDNA (206 aa, derived from NL4-3 strain) was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein is expressed in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: HIV-1 Nef
Accession Number: AGL78171
Species: HIV-1
Size: 25 µg / Vial



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Composition: 0.5 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Sucrose.

Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Heigle A, et al., *HIV-1 Accessory proteins: Nef*. Methods Mol Biol. 1087: 115-23. (2012).

Aqil M. et al., The HIV-1 Nef protein binds argonaute-2 and functions as a viral suppressor of RNA interference. PloS One. 4: 8 (9): e74472. (2013)

Witkowski W, et al., Contribution of HIV-1 Nef to immune dysregulation of HIV-infected patients: a therapeutic target ?. Expert Opin Ther targets. Nov;17(11): 1345-56. (2013).

Applications

1. May be used for in vitro HIV-1 Nef protein mediated CD4⁺ cell proliferation regulation and MHC adaptation study with this protein as either coating matrix protein or as soluble factor. Intracellularly delivery of Nef protein could be achieved using “ProFectin” reagent.
2. May be used for HIV-1 protein – protein interaction assay.
3. Enzymatic substrate for various proteases.
4. May be used for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGFGGKWSKSSVIGWPAVRERMRAEPAADGVGAVSRDL
EKHGAI TSSNTAANNAACAWLEAQEEEEVGFVPTPQVPLRPM TYKAAVDLSHFLKEKGGLEGLI
HSQRRQDILD LWIYHTQGYFPDWQNYTPGPGVRYPLTFGW CYKLVPEPDKVEEANKGENTSL L
HPVSLHGMDPPEREVLEWRFD SRLFHHVARELHPEYFKNC