



Product Information Sheet for HRP-2222

Tat Protein from Human Immunodeficiency Virus Type 1 (HIV-1) IIB, Recombinant from *Escherichia coli*

Catalog No. HRP-2222

For research use only. Not for use in humans.

Contributor:

Division of AIDS (DAIDS), National Institute of Allergy and Infectious Diseases (NIAID)

Manufacturer:

ImmunoDX LLC, Woburn, Massachusetts, USA

Product Description:

HRP-2222 is a full-length (2 exons; 86 amino acids), biologically-active, recombinant form of the Tat protein from human immunodeficiency virus type 1 (HIV-1) IIB, which was produced in an *Escherichia coli* (*E. coli*) expression system and purified by ion affinity and reverse phase chromatography.

Tat protein plays a key role in the life cycle of HIV by transactivating its transcription *in vivo* and *in vitro*.^{1,2,3} This Tat preparation can be used for anti-Tat drug screening, immunization and transcriptional activation and protein binding assays.

Material Provided:

Each vial of HRP-2222 contains approximately 25 µg of purified recombinant protein lyophilized in 0.2% potassium chloride (KCl), 5 mM dithiothreitol (DTT), 50 mM Tris and 2 mg/mL trehalose, pH 8.0.

Packaging/Storage:

HRP-2222 was packaged in glass serum vials. The product is provided lyophilized and should be placed in a closed, dry environment at 4°C or colder immediately upon arrival.

Functional Activity:

The Tat protein binds to murine monoclonal antibodies of defined epitope specificity and HIV-1 converted human serum polyclonal antibodies in ELISA and Western ELISA. The biological activity of Tat protein was determined by LTR-CAT activation in scrapie-loaded HeLa Cells, and in U373 MG astrocytoma cells in the presence of 100 µM chloroquine diphosphate. Tat protein concentrations in the 1 µg/mL range produced at least a 25-fold increase in CAT activity. The protein inhibits dipeptidyl peptidase 4 (DPP4) activity *in vitro* and DPP4-dependent T-cell activation *in vivo*.⁴

Transcriptional activation assays are generally performed with Tat protein in the 1-5 µg/mL range. ELISA and Western ELISA require the protein in the 10-100 ng range.

Reconstitution:

HRP-2222 should be reconstituted in deionized water. The stock solution should be diluted in saline-citrate buffer (150 mM NaCl, 50 mM sodium citrate, pH 6.5) immediately before use. For tissue culture/cell activation assays, the protein can be diluted directly into the tissue culture medium. Recommended concentrations for use are approximate values. A dose-dependent response assay should be performed to determine the optimal concentration for use in specific applications. Short-term cultures may be performed in the presence of antibiotics; long-term cultures should be performed with sterile-filtered HRP-2222. Tat readily oxidizes in buffer solutions which may change its LTR-dependent transcriptional activation activity.

Storage of Reconstitution Protein:

Once resuspended, working aliquots can be stored at -20°C for the short term, and at -70°C for long-term storage. The vial should be centrifuged prior to opening. Freeze-thaw cycles should be avoided.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH HIV Reagent Program, NIAID, NIH: Tat Protein from Human Immunodeficiency Virus Type 1 (HIV-1) IIB, Recombinant from *Escherichia coli*, HRP-2222, contributed by DAIDS, NIAID."

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](#). 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 NIH HIV Reagent Program Material Transfer Agreement (MTA). The MTA is available on our Web site at www.hivreagentprogram.org.

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References:

1. Ensoli, B., et al. "Release, Uptake, and Effects of Extracellular Human Immunodeficiency Virus Type 1 Tat Protein on Cell Growth and Viral Transactivation." *J. Virol.* 67 (1993): 277-287. PubMed: 8416373.
2. Bohan, C. A., et al. "Analysis of Tat Transactivation of Human Immunodeficiency Virus Transcription *in vitro*." *Gene Expr.* 2 (1992): 391-407. PubMed: 1282057.
3. Kashanchi, F., et al. "Direct Interaction of Human TFIIID with the HIV-1 Transactivator Tat." *Nature* 367 (1994): 295-299. PubMed: 8121496.
4. Tansi, F. L., et al. "Interaction of Human Dipeptidyl Peptidase IV and Human Immunodeficiency Virus Type-1 Transcription Transactivator in Sf9 cells." *Viol. J.* 7 (2010): PubMed: 20942971.

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