



HIV-1 Gag p24

BACKGROUND

HIV-1 Gag p24 is a capsid protein that constitutes the core of AIDS virus, HIV-1, and is produced by digestion of its precursor, Gag p55, by HIV-1 protease. This protein is indispensable for reproduction of AIDS virus and constitutes an essential element in the virus particle (1). As this protein is detectable from the early stage of AIDS virus infection, and reflects the amount of virus in the blood, it is used as a marker for observing the patient's condition during and after treatment.

This protein was over-expressed as a recombinant protein in E. coli with a plasmid carrying the Gag p24 coding region of HIV-1 virus, subtype B (2), and highly purified by several steps of chromatography (3). Its molecular weight is 24 kD, same as that of p24 purified from HIV-1 virus particles (Fig 1).

Applications:

1. It can be used as a standard in titration of p24 antigens as it indicates the amount of HIV-1 virus. This measurement is useful for diagnosis of virus infection and assessing the amount of virus during and after treatment.
2. It can be used as antigen for Western blotting or ELISA of anti-HIV-1 p24 antibody.
3. It can be used in the studies of structure and function of HIV-1 virus as it constitutes HIV-1 core as a capsid protein.

Size: 100 µg

Purity: Over 90% purity by SDS-PAGE (CBB staining)

Protein concentration: 1 mg/ml measured by BCA method

Form: 50% glycerol, 20mM Tris-HCl (pH7.5), 50mM NaCl, 10mM mercaptoethanol

Measurement of the activity: The ED50 as determined by a cell proliferation assay using MTS assay kit (CellTiter 96, Promega) with human keratinocyte JCRB141cells was <10 ng/ml.

Storage: -20°C (long period, -80°C)

Data Link GenBank: [AAA44988.1](https://www.ncbi.nlm.nih.gov/nuccore/AAA44988.1)

References:

- 1) Freed EO "HIV-1 gag proteins: diverse functions in the virus life cycle."Virology 251:1-15 (1998) PMID:[9813197](https://pubmed.ncbi.nlm.nih.gov/9813197/)
- 2) Adachi A et al "Production of acquired immunodeficiency syndrome-associated retrovirus in human and nonhuman cells transfected with an infectious molecular clone."J Virol 59:284 -291(1986) PMID:[3016298](https://pubmed.ncbi.nlm.nih.gov/3016298/)
- 3) Tanaka N et al "A simple method for overproduction and purification of p24 Gag protein of human immunodeficiency virus type 1."Microbiol Immunol 36: 823-831 (1992) PMID:[1474933](https://pubmed.ncbi.nlm.nih.gov/1474933/)
- 4) Saito A et al "Overproduction, purification, and diagnostic use of the recombinant HIV-1 Gag proteins, the precursor protein p55 and the processed products p17, p24, and p15." Microbiol Immunol 39:473-483 (1995) PMID: [8569532](https://pubmed.ncbi.nlm.nih.gov/8569532/)

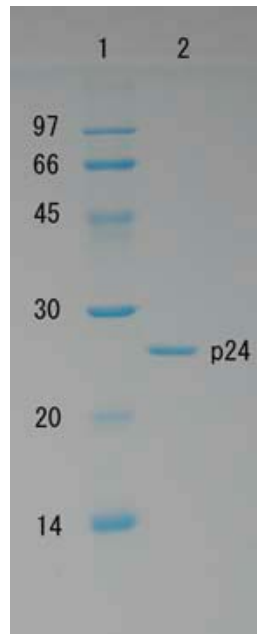


Fig.1 Polyacrylamide gel electrophoresis of HIV-1 p24 protein

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TOYO 2CHOME, KOTO-KU, TOKYO, 135-0016, JAPAN

URL: <http://www.cosmobio.co.jp>

e-mail: export@cosmobio.co.jp

[Outside Japan] Phone : +81-3-5632-9617

[国内連絡先] Phone : +81-3-5632-9610

FAX : +81-3-5632-9618

FAX : +81-3-5632-9619