

HIV-1 Reverse Transcriptase

05-002 1,000 units

HIV-1 reverse transcriptase is an RNA-dependent DNA polymerase of HIV-1 (AIDS virus), subtype B origin (1). It also has RNaseH activity and is an enzyme indispensable to the reproduction of AIDS virus.

The product is uniquely over-expressed as a recombinant protein in *E. coli* by a patented method and highly purified (2). It is composed of two subunits (molecular weight of 66 kD and 51 kD), same as the enzyme purified from AIDS virus particles (Fig 1).

Usage

- 1) It is highly effective for the screening of specific inhibitors for new AIDS treatment (3).
- 2) Generally Gag and Env proteins are employed as antigens for anti-HIV-1 antibody detection. However, more sensitive detection can be obtained by using this enzyme as antigen in combination.
- 3) Reverse transcriptases are used in the first stage of RT-PCR reaction for converting RNA to DNA. The HIV-1 reverse transcriptase can be also applied for RT-PCR method.

Specification

Definition of activity: Activity of 1 nanomole intake of dTMP in 10 min is considered 1 unit with poly(rA) and oligo(dT) as template and primer at 37°C.

Conditions of measurement: 50 mM Tris-HCl (pH 8.3), 10 mM MgCl₂, 50mM KCl, 3 mM DTT, 0.1% Nonidet P-40, 20 µg/ml poly(rA) · oligo(dT)₁₂₋₁₈, 0.5 mM [³H]dTTP, and 10-50 units/ml reverse transcriptase.

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

Protein concentration: 0.37 mg/ml as measured by BCA method

Specific activity: 10,000-20,000 units/mg

Form: 50% glycerol, 40 mM Tris-HCl (pH8.3), 50 mM NaCl, 5 mM MgCl₂
0.1% Triton X-100, 10 mM mercaptoethanol

Storage: -20°C

Reference:

1. Adachi A, et al., *J. Virol.* 59, 284 (1986)
2. Saito A, et al., *Microbiol. Immunol.* 34:509-521 (1990)
3. Fischl MA, et al., *N. Engl. J. Med.* 317,185 (1987)



Fig. 1 Polyacrylamide gel electrophoresis of HIV-1 reverse transcriptase protein