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

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

Applications
1) It is extremely effective for screening new specific inhibitors for HIV virus as a drug for treating AIDS (Ref.3).
2) Generally, Gag and Env proteins are employed as antigens for detecting anti-HIV-1 antibody. However, by using this enzyme in combination as an antigen, the detection will be more sensitive.
3) Reverse transcriptases are used in the first step of RT-PCR reaction for converting RNA to DNA. The HIV-1 reverse transcriptase can also be applied for RT-PCR method.
4) Standards for SDS-PAGE (Fig.1), Western blotting (Fig.2), Dot blotting, ELISA

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

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 dTTP ([³²P]dTTP, ~1 x 10⁵ cpm), and 10-50 units/ml reverse transcriptase.

Purity: Over 90% by SDS-PAGE (CBB staining)
Protein concentration: 0.4 mg/ml as measured by BCA method
Activity: 4,000 units/ml
Form: 50% glycerol, 40 mM Tris-HCl (pH8.3), 50 mM NaCl, 5 mM MgCl₂, 0.1% Triton X-100, 1 mM DTT
Size: 1000 unit
Storage: -20°C
Data Link  GenBank: AAA44988.1
References


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

**Fig. 2.** Western blotting of functional recombinant full-length HIV-1 reverse transcriptase by using anti-HIV-1 Reverse Transcriptase antibody (#65-001).

1; 40 ng / lane
2; 20 ng / lane
3; 4 ng / lane
4; 2 ng / lane

Anti-HIV-1 RT antibody was used at 1/2,000 dilution. As second antibody, goat anti-rabbit IgG antibody conjugated with HRP was used at 1/5,000 dilution. ECL system was used.