# Drug-Resistant HIV-1 RT Gene Mutations in Patients under Treatment with Antiretroviral Drugs (HAART) in Iran

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## Abstract

**Background and Objective:** Highly Active Antiretroviral Therapy **(**HAART) can effectively prevent the progression of HIV-1 replication and increase life expectancy. There are numerous causes of treatment failure and the leading one is drug resistance. Thus, we aimed to determine the HIV RT gene drug resistance mutations in patients treated with antiretroviral medications.

**Material and Methods**: In this cross - sectional study, venous blood was taken from 130 HIV-positive patients treated with antiretroviral medications. In order to determine drug resistance mutations, RT-PCR and PCR steps were performed using RT gene specific primers. Subtypes and mutations in the virus genome were determined using the Stanford HIV drug resistance sequence database.

**Results:** In 122 treating patients, most of the major mutations were associated with nucleoside and non-nucleoside drugs. subtype A in 66.4%, subtype D in 26.2% and subtype B in 7.4% of the participants were reported. They were resistant to Nucleoside RT Inhibitor drugs (23.7%) and Non-Nucleoside RT Inhibitor drugs(30.3%). The highest were related to Nevirapine (21.3%) and Efavirenz (19.7%) and the lowest to both Tenofovir and Zidovudine (91.5%).

**Conclusion:** The use of two nucleoside RT inhibitor drugs combined with one protease inhibitor drug could be effective in the treatment of HAART.

**Key words:** HIV, Nucleoside RT Inhibitor, Non- Nucleoside RT Inhibitor

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