Drug resistance interpretation: PR — HIVDB 9.5.1 (2023-11-05)

PI Major Mutations: I54V • V82F • L90M
PI Accessory Mutations: G73C
PR Other Mutations: L10I • I15V • K20I • E35D • M36I • R57K • Q61N • I62V • L63C • T74S

| Protease Inhibitors | |
|---|---|
| **atazanavir/r (ATV/r)** | High-Level Resistance |
| **darunavir/r (DRV/r)** | Low-Level Resistance |
| **fosamprenavir/r (FPV/r)** | High-Level Resistance |
| **indinavir/r (IDV/r)** | High-Level Resistance |
| **lopinavir/r (LPV/r)** | High-Level Resistance |
| **nelfinavir (NFV)** | High-Level Resistance |
| **saquinavir/r (SQV/r)** | High-Level Resistance |
| **tipranavir/r (TPV/r)** | Low-Level Resistance |

**PR comments**

**Major**

- **I54V** is a non-polymorphic PI-selected mutation that contributes reduced susceptibility to each of the PIs except DRV.
- **V82F** is a nonpolymorphic mutation selected primarily by IDV and LPV. It reduces LPV and DRV susceptibility.
- **L90M** is a non-polymorphic PI-selected mutation that reduces susceptibility to ATV and to a lesser extent LPV.

**Accessory**

- **G73S/T/C/A** are common non-polymorphic accessory mutations selected primarily by most PIs. They are associated with minimally reduced susceptibility to each of the PIs.

**Other**

- **L10I/V** are polymorphic, PI-selected accessory mutations that increase the replication of viruses with other PI-resistance mutations.
- **K20I** is the consensus amino acid in subtype G and CRF02_AG. In subtypes B and C, **K20I** is a PI-selected mutation of uncertain effects on currently used PIs.
- **T74S** is a PI-selected accessory mutation that is polymorphic in most non-B subtypes.

- There is evidence for low-level **DRV** resistance. If **DRV** is administered it should be used twice daily.

Mutation scoring: PR — HIVDB 9.5.1 (2023-11-05)

*Drug resistance mutation scores of PI:* Download CSV

| Rule | ATV/r | DRV/r | FPV/r | IDV/r | LPV/r | NFV | SQV/r | TPV/r |
|---|---|---|---|---|---|---|---|---|
| I54V | 15 | 0 | 10 | 15 | 15 | 20 | 15 | 20 |
| I54V + V82F | 10 | 0 | 10 | 10 | 10 | 10 | 10 | 0 |
| I54V + L90M | 10 | 0 | 10 | 10 | 5 | 10 | 10 | 0 |
| G73C | 10 | 0 | 10 | 15 | 5 | 15 | 15 | 0 |
| G73C + L90M | 10 | 0 | 10 | 10 | 0 | 10 | 10 | 0 |
| V82F | 15 | 15 | 30 | 30 | 30 | 30 | 10 | 0 |
| V82F + L90M | 10 | 0 | 10 | 10 | 5 | 10 | 10 | 0 |
| L90M | 25 | 0 | 20 | 30 | 15 | 60 | 45 | 0 |
| Total | 105 | 15 | 110 | 130 | 85 | 165 | 125 | 20 |

Drug resistance interpretation: RT — HIVDB 9.5.1 (2023-11-05)

NRTI Mutations: M41L • M184V • L210LW • T215Y
NNRTI Mutations: None
RT Other Mutations: V21I • K122E • D177E • T200A • R211K

| Nucleoside Reverse Transcriptase Inhibitors | |
|---|---|
| **abacavir (ABC)** | High-Level Resistance |
| **zidovudine (AZT)** | High-Level Resistance |
| **stavudine (D4T)** | High-Level Resistance |
| **didanosine (DDI)** | High-Level Resistance |
| **emtricitabine (FTC)** | High-Level Resistance |
| **lamivudine (3TC)** | High-Level Resistance |
| **tenofovir (TDF)** | Intermediate Resistance |

| Non-nucleoside Reverse Transcriptase Inhibitors | |
|---|---|
| **doravirine (DOR)** | Susceptible |
| **efavirenz (EFV)** | Susceptible |
| **etravirine (ETR)** | Susceptible |
| **nevirapine (NVP)** | Susceptible |
| **rilpivirine (RPV)** | Susceptible |

**RT comments**

**NRTI**

- **M41L** is a TAM that usually occurs with T215Y. In combination, **M41L** plus T215Y confer intermediate / high-level resistance to AZT and d4T and contribute to reduced ddI, ABC and TDF susceptibility.
- **M184V/I** cause high-level in vitro resistance to 3TC and FTC and low/intermediate resistance to ABC (3-fold reduced susceptibility). **M184V/I** are not contraindications to continued treatment with 3TC or FTC because they increase susceptibility to AZT and TDF and are associated with clinically significant reductions in HIV-1 replication.
- **L210W** is a TAM that usually occurs in combination with M41L and T215Y. The combination of M41, **L210W** and T215Y causes high-level resistance to AZT and intermediate resistance to ABC and TDF.
- **T215Y/F** are TAMs that causes intermediate/high-level resistance to AZT and potentially low-level resistance to ABC and TDF.

Mutation scoring: RT

HIVDB 9.5.1 (2023-11-05)

*Drug resistance mutation scores of NRTI:*

Download CSV

| Rule | ABC | AZT | D4T | DDI | FTC | 3TC | TDF |
|---|---|---|---|---|---|---|---|
| M41L | 5 | 15 | 15 | 10 | 0 | 0 | 5 |
| M41L + M184V + T215Y | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| M41L + L210LW | 10 | 10 | 10 | 10 | 0 | 0 | 10 |
| M41L + L210LW + T215Y | 10 | 0 | 0 | 0 | 15 | 15 | 10 |
| M41L + T215Y | 10 | 10 | 10 | 10 | 5 | 5 | 10 |
| M184V | 15 | -10 | -10 | 10 | 60 | 60 | -10 |
| L210LW | 5 | 15 | 15 | 10 | 0 | 0 | 5 |
| L210LW + T215Y | 10 | 10 | 10 | 10 | 0 | 0 | 10 |
| T215Y | 10 | 60 | 40 | 15 | 0 | 0 | 10 |
| Total | 85 | 110 | 90 | 75 | 80 | 80 | 50 |

*No drug resistance mutations were found for NNRTI.*