Drug resistance interpretation: PR

HIVDB 9.5.1 (2023-11-05)

PI Major Mutations:	None
PI Accessory Mutations:	None
PR Other Mutations:	E35D • M36I • N37D • R41K • R57RK • H69K • K70R • L89M

Protease Inhibitors	
atazanavir/r (ATV/r)	Susceptible
darunavir/r (DRV/r)	Susceptible
lopinavir/r (LPV/r)	Susceptible

Mutation scoring: PR

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No drug resistance mutations were found for PI.

Drug resistance interpretation: RT

HIVDB 9.5.1 (2023-11-05)

NRTI Mutations:	Δ67 • T69G • K70KR • M184V • T215V • K219E
NNRTI Mutations:	A98G • V106I • Y188L
RT Other Mutations:	K20R • V21I • V35T • T39N • V60I • E79D • K102M • K122E • D123N • K173A • D177E • V179I • L187M • T200A • I202V • Q207A • R211K • L228LH • V245Q • E248D • T286A • E291ED • P294T • E312N • P345PQ • F346FY • R356RK

Nucleoside Reverse Transcriptase Inhibitors	
abacavir (ABC)	High-Level Resistance
zidovudine (AZT)	High-Level Resistance
emtricitabine (FTC)	High-Level Resistance
lamivudine (3TC)	High-Level Resistance
tenofovir (TDF)	Intermediate Resistance

Non-nucleoside Reverse Transcriptase Inhibitors	
doravirine (DOR)	High-Level Resistance
efavirenz (EFV)	High-Level Resistance
etravirine (ETR)	Intermediate Resistance
nevirapine (NVP)	High-Level Resistance
rilpivirine (RPV)	High-Level Resistance

RT comments

NRTI

- Amino acid deletions between codons 67 and 70 are rare and usually occur in combination with multiple TAMs, K65R, or the Q151M mutation complex. Deletions at position 67 are more often associated with multiple TAMs. Deletions at positions 69 and 70 are more often associated with K65R or the Q151M mutation complex. Deletions at codon 68 are extremely rare and less well characterized.
- **T69G** is a rare non-polymorphic mutation that usually occurs in viruses with a deletion at codon 67 and multiple other NRTI-resistance mutations.
- **K70R** is a TAM that confers intermediate resistance to AZT and contributes to reduced ABC and TDF susceptibility in combination with other TAMs.
- **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.
- T215Y/F are TAMs that causes intermediate/high-level resistance to AZT and potentially low-level resistance to ABC and TDF. **T215S/C/D/E/I/V/N/A/L** do not reduce NRTI susceptibility but arise from viruses that once contained T215Y/F. The presence of one of these revertant mutations suggests that the patient may have once been infected with a virus containing T215Y/F.
- **K219E/Q/N/R** are accessory TAMS that usually occur in combination with multiple other TAMs.

NNRTI

- **A98G** is a non-polymorphic accessory mutation associated with low-level reduced susceptibility to each of the NNRTIs.
- **V106I** occurs in 1% to 2% of viruses from untreated persons. It contributes to reduced NNRTI susceptibility only in combination with other NNRTI-resistance mutations. It is commonly selected in persons receiving DOR in combination with mutations at position 227.
- **Y188L** is a non-polymorphic mutation that confers high-level resistance to NVP, EFV, RPV, and DOR, and potentially low-level resistance to ETR.

Other

- **V179I** is a polymorphic mutation that is frequently selected in persons receiving ETR and RPV. However, it has little, if any, direct effect on NNRTI susceptibility.

Mutation scoring: RT

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Drug resistance mutation scores of NRTI: Download CSV

Rule	ABC	AZT	FTC	3TC	TDF
D67del	30	30	15	15	30
T69G	10	5	0	0	5
K70KR	5	30	0	0	5
M184V	15	-10	60	60	-10
T215V	5	20	0	0	5
K219E	5	10	0	0	5
Total	70	85	75	75	40

Drug resistance mutation scores of NNRTI: Download CSV

Rule	DOR	EFV	ETR	NVP	RPV
A98G	15	15	10	30	15
V106I	10	0	10	10	10
Y188L	60	60	10	60	60
Total	85	75	30	100	85