Drug resistance interpretation: PR

HIVDB 9.5.1 (2023-11-05)

PI Major Mutations: None

PI Accessory Mutations: None

PR Other Mutations: I13V 98% cov=27,034 • K20R 93% cov=30,254 • M36I 99% cov=37,885 • R41K 99% cov=38,487 • L63P 94% cov=33,671 • H69K 95% cov=31,719 • L89M 98% cov=25,549 • I93L 94% cov=23,192

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

PR comments

Other

- **K20R** is a highly polymorphic PI-selected accessory mutation that increases replication fitness in viruses with PI-resistance mutations.

Mutation scoring: PR

HIVDB 9.5.1 (2023-11-05)

No drug resistance mutations were found for PI.

Drug resistance interpretation: RT

HIVDB 9.5.1 (2023-11-05)

NRTI Mutations: D67N 94% cov=13,406 • K70E 93% cov=11,096 • M184IV V: 78%, I: 19% cov=23,894

NNRTI Mutations: V179D 82% cov=23,444 • Y188L 95% cov=24,572

RT Other Mutations: E6D 94% cov=23,799 • V35T 98% cov=22,005 • T39E 94% cov=20,765 • V90VI I: 82%, V: 16% cov=9,813 • K103KR R: 71%, K: 24% cov=10,167 • K122E 95% cov=14,159 • D123G 93% cov=14,238 • D177E 98% cov=23,652 • T200A 98% cov=25,275 • Q207E 97% cov=25,130 • R211K 97% cov=25,902 • V245Q 94% cov=32,715 • E248D 97% cov=33,855 • D250E 97% cov=33,882 • A272P 98% cov=38,093 • E291D 97% cov=37,010 • V292I 98% cov=37,014 • I293V 99% cov=37,020 • I309IV V: 79%, I: 20% cov=31,091 • Q334H 90% cov=114 • G335D 97% cov=113 • R356K 98% cov=82 • M357R 94% cov=82 • G359T 97% cov=72 • K366R 97% cov=59

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

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

RT comments

NRTI

- **D67N** is a non-polymorphic TAM associated with low-level resistance to AZT.
- **K70/E/Q/N/T/S/G** cause low-leve resistance to ABC and TDF.
- **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.

NNRTI

- **V179D/E** are somewhat polymorphic accessory NNRTI-selected mutation. In combination with other NNRTI DRMs, they appear to contribute low-levels of reduced susceptibility to each of the NNRTIs. In particular, the combinations of K103R/**V179D** and V106I/**V179D** act synergistically to reduce NVP and EFV susceptibility.
- **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

- **V90I** is a polymorphic accessory mutation weakly selected by each of the NNRTIs. It is associated with minimal, if any, detectable reduction in NNRTI susceptibility.
- **K103R** is a polymorphic mutation that alone has no effect on NNRTI susceptibility. However, in combination with V179D, it reduces NVP and EFV susceptibility about 15-fold.

Mutation scoring: RT HIVDB 9.5.1 (2023-11-05)

Drug resistance mutation scores of NRTI: Download CSV

Rule	ABC	AZT	FTC	3TC	TDF
D67N	5	15	0	0	5
K70E	15	0	10	10	15
M184IV	15	-10	60	60	-10
K70E + M184IV	0	0	0	0	10
Total	35	5	70	70	20

Drug resistance mutation scores of NNRTI: Download CSV

Rule	DOR	EFV	ETR	NVP	RPV
Y188L	60	60	10	60	60
K103KR + V179D	0	20	0	20	15
V179D	0	10	10	10	10
Total	60	90	20	90	85