

PI Major Mutations:None

PI Accessory Mutations:None

PR Other Mutations:T12V 100%
seen:1,264 • I13V 99%
seen:1,168 • E35D 100%
seen:3,728 • M36I 100%
seen:3,728 • R41K 99%
seen:3,862 • R57K 99%
seen:3,828 • L63P 99%
seen:1,218 • H69K 99%
seen:1,128 • L89M 100%
seen:2,386

Protease Inhibitors	
atazanavir/r (ATV/r)	Susceptible
darunavir/r (DRV/r)	Susceptible
fosamprenavir/r (FPV/r)	Susceptible
indinavir/r (IDV/r)	Susceptible
lopinavir/r (LPV/r)	Susceptible
nelfinavir (NFV)	Susceptible
saquinavir/r (SQV/r)	Susceptible
tipranavir/r (TPV/r)	Susceptible

No drug resistance mutations were found for PI.

NRTI Mutations:[K65KR](#) K: 73%
seen:2,347 N: 21% • [S68SG](#) S: 73%
seen:2,657 G: 10% • [M184V](#) 100%
seen:2,118

NNRTI Mutations:[K101PQ](#) K: 77%
seen:2,302 Q: 17% N: 23% • [K103NS](#) K: 73%
seen:2,383 N: 21% S: 21%

RT Other Mutations:E6D 100%
seen:2,362 • K20KR K: 99%
seen:2,385 R: 12% • V35IT I: 73%
seen:2,239 T: 20% • T39TR T: 70%
seen:2,178 R: 27% • K49R 99%
seen:3,398 • V60I 100%
seen:2,114 • T69TI T: 92%
seen:2,352 R: 10% S: 10% • D121DY D: 79%
seen:2,268 T: 20% C: 24% • K122E 99%
seen:3,386 • D123DN D: 79%
seen:3,385 N: 10% • I142V 100%
seen:1,821 • D177E 100%
seen:2,112 • I178M 99%
seen:2,112 • V189I 100%
seen:2,119 • T200R 99%
seen:2,114 • Q207E 99%
seen:1,844 • R211RK R: 97%
seen:2,108 K: 10% S: 10% • [L228C](#) 100%
seen:2,747 • V245Q 100%
seen:722 • E248N 99%
seen:717 • D250E 99%
seen:717

Nucleoside Reverse Transcriptase Inhibitors		Non-nucleoside Reverse Transcriptase Inhibitors	
abacavir (ABC)	High-Level Resistance	doravirine (DOR)	Potential Low-Level Resistance
zidovudine (AZT)	Susceptible	efavirenz (EFV)	High-Level Resistance
stavudine (D4T)	Intermediate Resistance	etravirine (ETR)	High-Level Resistance
didanosine (DDI)	High-Level Resistance	nevirapine (NVP)	High-Level Resistance
emtricitabine (FTC)	High-Level Resistance	rilpivirine (RPV)	High-Level Resistance
lamivudine (3TC)	High-Level Resistance		
tenofovir (TDF)	Intermediate Resistance		

RT comments

NRTI

- K65R** confers intermediate reductions in susceptibility to TDF, ABC, and 3TC/FTC. It increases AZT susceptibility. In NRTI-experienced, INSTI-naïve patients with **K65R**, TDF+3TC+DTG is usually highly effective and more effective than AZT/3TC/DTG. However, in patients receiving TDF+3TC+DTG, there is a risk of emergent DTG resistance that does not arise in NRTI-naïve patients receiving TDF+3TC+DTG.
- S68G** is a polymorphic mutation that is often selected in combination with **K65R**. It partially restores the replication defect associated with **K65R**.
- 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

- K101P** is a non-polymorphic mutation that confers high-level resistance to NVP, EFV, RPV, and ETR. Its does not appear to reduce DOR susceptibility.
- K103N** is a non-polymorphic mutation that confers high-level reductions in NVP and EFV susceptibility. It is the most commonly transmitted DRM.
- K103S** is a non-polymorphic mutation that causes high-level reductions in NVP susceptibility but intermediate reductions in EFV susceptibility. Because **K103S** is a 2-bp change from the wildtype K and a 1-bp change from K103N, persons with **K103S** may be likely to have once had K103N.

Other

- T69N/S/A/I/E** are relatively non-polymorphic mutations weakly selected in persons receiving NRTIs. They may minimally contribute reduced AZT susceptibility.
- K101Q** is a relatively non-polymorphic mutation that is weakly selected in persons receiving NVP and EFV. It is of uncertain phenotypic and clinical significance.

Drug resistance mutation scores of NRTI:

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Rule	ABC	AZT	D4T	DDI	FTC	3TC	TDF
K65KR	45	-10	60	60	30	30	50
M184V	15	-10	-10	10	60	60	-10
K65KR + S68SG	0	0	0	0	0	0	5
Total	60	-20	50	70	90	90	45

Drug resistance mutation scores of NNRTI:

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Rule	DOR	EFV	ETR	NVP	RPV
K101PQ	10	60	60	60	60
K103NS	0	60	0	60	0
Total	10	120	60	120	60