

PI Major Mutations:None

PI Accessory Mutations:[L24I](#)

PR Other Mutations:[V11L](#) • T12G • [I13R](#) • [K14D](#) • [I15G](#) • G16A • [Q18A](#) • [L19A](#) • [E21T](#) • [A22M](#) • [L23H](#) • [D25R](#) • [T26I](#) • T31P • E35D • M36I • N37D • R41K • [I54F](#) • [R57Q](#) • [Y79F](#) • D60E • H69K • K70R • A71V • L89M

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

PR comments

Accessory

- [L24I](#) is a non-polymorphic mutation selected by IDV and LPV. It contributes reduced susceptibility to ATV and LPV.

Other

- [V11I/L](#) are relatively non-polymorphic accessory mutation selected in persons receiving DRV. [V11L](#) is a nonpolymorphic PI-selected mutation associated with reduced in vitro DRV susceptibility when it occurs in combination with other PI-resistance mutations.
- I54V is a non-polymorphic PI-selected mutation that contributes reduced susceptibility to each of the PIs except DRV. I54A/T/S are non-polymorphic PI-selected mutations that occur almost exclusively in viruses with multiple PI-resistance mutations. I54A/T/S are associated with reduced susceptibility to each of the PIs except DRV. I54M/L are non-polymorphic mutations selected primarily by FPV and DRV. I54M/L reduce susceptibility to LPV, ATV, and DRV. [I54F](#) is a highly unusual mutation at this position.
- [A71V/T](#) are polymorphic, PI-selected accessory mutations that increase the replication of viruses with other PI-resistance mutations.

Drug resistance mutation scores of PI

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Rule	ATV/r ÷	DRV/r ÷	FPV/r ÷	IDV/r ÷	LPV/r ÷	NFV ÷	SQV/r ÷	TPV/r ÷
L24I	10	0	10	15	10	10	10	-5

NRTI Mutations:None

NNRTI Mutations:[K103N](#) • [P225H](#) • [P236L](#) • [K238T](#)

RT Other Mutations:E6D • K20R • V35I • V60I • K122E • I142V • K173L • Q174K • D177E • V179I • T200A • Q207A • R211S • F214L • [K220S](#) • [H221I](#) • Q222R • K223R • [H235I](#) • [Δ237](#) • [W239V](#) • [T240D](#) • [V241S](#) • P243T • V245E • P247L • K249R • [Δ250-251](#) • T253S • V254G • [N255L](#) • [D256S](#) • [I257F](#) • [Q258Y](#) • [K259T](#) • [L260E](#) • [V261F](#) • [G262W](#) • [K263V](#) • [L264N](#) • [N265F](#) • [W266M](#) • [A267V](#) • A272P • [I274M](#) • [V276F](#) • K277S

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

RT comments

NNRTI

- [K103N](#) is a non-polymorphic mutation that confers high-level reductions in NVP and EFV susceptibility. It is the most commonly transmitted DRM.
- [P225H](#) is a non-polymorphic EFV-selected mutation that usually occurs in combination with K103N. The combination of [P225H](#) and K103N synergistically reduces NVP, EFV and DOR susceptibility.
- [P236L](#) is a rare mutation selected commonly by DLV, which appears to have little if any effect on current NNRTIs.
- [K238T/N](#) are uncommon non-polymorphic mutations selected in persons receiving NVP and EFV usually in combination with K103N. Alone, [K238T/N](#) appear to have minimal effects on NNRTI susceptibility.

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.

No drug resistance mutations were found for NRTI.

Drug resistance mutation scores of NNRTI:		Download CSV			
Rule	DOR	EFV	ETR	NVP	RPV
K103N + P225H	10	0	0	0	0
P225H	20	45	0	45	0
P236L	10	0	0	0	0
K103N	0	60	0	60	0
K238T	0	30	0	30	0
Total	40	135	0	135	0