

PI Major Mutations:

[V82VA](#) 9.12% 9.42%  
from 20,626

PI Accessory Mutations:

None

PR Other Mutations:

[T12S](#) 19%  
from 1,340 • [I15V](#) 98%  
from 6,809 • [K20M](#) 100%  
from 21,984 • [M36I](#) 99%  
from 28,302 • [R41K](#) 99%  
from 17,242 • [K55KR](#) 9.12% 9.42%  
from 27,796 • [R57RK](#) 9.18% 9.42%  
from 23,000 • [D60DE](#) 9.12% 12.40%  
from 28,302 • [L63P](#) 100%  
from 17,886 • [I72V](#) 100%  
from 27,877 • [I93IL](#) 1.16% 1.40%  
from 27,520

Protease Inhibitors

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

- PR comments
- Major
- V82A** is a non-polymorphic mutation selected primarily by IDV and LPV. It is associated with reduced susceptibility to LPV and to a lesser extent ATV. It increases DRV susceptibility.
- Other
- K20M/V** are uncommonrelatively non-polymorphic PI-selected mutations that have not been well studied.

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 ÷
<a href="#">V82VA</a>	15	0	15	30	30	30	15	0

NRTI Mutations:

[K70KR](#) 9.12% 9.48%  
from 22,802 • [M184MV](#) 9.18% 10.42%  
from 28,208

NNRTI Mutations:

[A98AG](#) 9.12% 1.48%  
from 22,208 • [K103KH](#) 9.10% 9.10%  
from 11,914 • [Y181C](#) 90%  
from 28,006 • [G190GA](#) 90%  
from 22,397

RT Other Mutations:

[V35T](#) 98%  
from 12,281 • [V60I](#) 100%  
from 22,369 • [T69TM](#) 9.14% 9.40%  
from 22,576 • [K101KR](#) 9.12% 9.42%  
from 22,877 • [V118W](#) 9.12% 9.40%  
from 22,734 • [K122E](#) 99%  
from 11,098 • [I135IV](#) 9.14% 1.42%  
from 28,281 • [D177E](#) 99%  
from 28,285 • [T200A](#) 99%  
from 7,712 • [Q207E](#) 99%  
from 6,106 • [E248N](#) 95%  
from 1,012 • [D250E](#) 17%  
from 196 • [A272S](#) 99%  
from 1,205 • [T286A](#) 100%  
from 4,209 • [A288S](#) 92%  
from 1,402 • [I293V](#) 92%  
from 1,500 • [E297K](#) 92%  
from 1,403

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

- RT comments
- NRTI
- 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.
- NNRTI
- A98G** is a non-polymorphic accessory mutation associated with low-level reduced susceptibility to each of the NNRTIs.
  - K103H** is a rare non-polymorphic mutation that confers high-level resistance to NVP and EFV.
  - Y181C** is a non-polymorphic mutation selected in persons receiving NVP, ETR and RPV. It confers high-level resistance to NVP, intermediate resistance to ETR and RPV, and low-level resistance to EFV. It does not significantly reduce DOR susceptibility.
  - G190A** is a non-polymorphic mutation that causes high-level resistance to NVP and intermediate resistance to EFV. It does not significantly reduce susceptibility to RPV, ETR, or DOR.
- Other
- T69N/S/A/I/E** are relatively non-polymorphic mutations weakly selected in persons receiving NRTIs. They may minimally contribute reduced AZT susceptibility.
  - V118I** is a polymorphic accessory NRTI-resistance mutation that often occurs in combination with multiple TAMs.

Drug resistance mutation scores of NRTI:

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Rule	ABC ÷	AZT ÷	D4T ÷	DDI ÷	FTC ÷	3TC ÷	TDF ÷
<a href="#">K70KR</a>	5	30	15	10	0	0	5
<a href="#">M184MV</a>	15	-10	-10	10	60	60	-10
Total	20	20	5	20	60	60	-5

Rule	DOR ⚡	EFV ⚡	ETR ⚡	NVP ⚡	RPV ⚡
<u>A98AG</u>	15	15	10	30	15
<u>A98AG + Y181C</u>	5	5	5	5	5
<u>Y181C</u>	10	30	30	60	45
<u>Y181C + G190GA</u>	10	0	10	0	10
<u>K103KH</u>	0	60	0	60	0
<u>G190GA</u>	0	45	10	60	15
Total	40	155	65	215	90