

PI Major Mutations:	None
PI Accessory Mutations:	None
PR Other Mutations:	V11W • T12L • I13A • K14Q • I15S • G16R • Q18K • L19I • K20H • E35D • M36I • R41K • R57K • H69K • L89M
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:	M41L • E44D • S68G • L74I • M184V • L210W • T215Y • K219N
NNRTI Mutations:	A98G • K103N • V108I • H221Y
RT Other Mutations:	E6D • K20R • V35T • V60I • V118I • K122E • D123N • I142V • S162N • K166R • F171Y • K173A • Q174K • D177E • I178M • V179I • T200A • I202V • E203D • Q207A • R211N • K223X • P226H • L234X • P236S • K238X • T240D • V241S • P243S • V245Q • P247Q • K249Q • N255M • D256I • I257Y • Q258R • K259N • L260S • V261G • G262K • K263L • L264M • Δ265-266 • A267X • S268Q • Q269S • A272S • K277E • Q278A • L279T • C280G • K281V • L282N • L283F • R284F • G285K
Nucleoside Reverse Transcriptase Inhibitors	
abacavir (ABC)	High-Level Resistance
zidovudine (AZT)	High-Level Resistance
stavudine (D4T)	High-Level Resistance
didanosine (DDI)	High-Level Resistance
emtricitabine (FTC)	High-Level Resistance
lamivudine (3TC)	High-Level Resistance
tenofovir (TDF)	High-Level Resistance
Non-nucleoside Reverse Transcriptase Inhibitors	
doravirine (DOR)	Intermediate Resistance
efavirenz (EFV)	High-Level Resistance
etravirine (ETR)	Low-Level Resistance
nevirapine (NVP)	High-Level Resistance
rilpivirine (RPV)	Intermediate Resistance

RT comments

NRTI

- **M41L** is a TAM that usually occurs with T215Y. In combination, **M41L** plus T215Y confer intermediate / high-level resistance to AZT and d4T and contribute to reduced ddl, ABC and TDF susceptibility.
- **E44D** is a relatively non-polymorphic accessory mutation; E44A is a nonpolymorphic accessory mutation. Each usually occurs with multiple TAMs.
- **S68G** is a polymorphic mutation that is often selected in combination with K65R. It partially restores the replication defect associated with K65R.
- L74V causes intermediate ABC resistance. **L74I** causes low-level ABC resistance.
- **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.
- **L210W** is a TAM that usually occurs in combination with M41L and T215Y. The combination of M41, **L210W** and T215Y causes high-level resistance to AZT and intermediate resistance to ABC and TDF.
- **T215Y/F** are TAMs that causes intermediate/high-level resistance to AZT and potentially low-level resistance to ABC and TDF.
- **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.
- **K103N** is a non-polymorphic mutation that confers high-level reductions in NVP and EFV susceptibility. It is the most commonly transmitted DRM.
- **V108I** is a relatively non-polymorphic accessory mutation selected in vitro and/or in vivo with each of the NNRTIs. It appears to contribute to reduced susceptibility to most NNRTIs only in combination with other NNRTI-resistance mutations.
- **H221Y** is a non-polymorphic accessory mutation selected primarily by NVP, RPV, and DOR. It frequently occurs in combination with Y181C.

Other

- **V118I** is a polymorphic accessory NRTI-resistance mutation that often occurs in combination with multiple TAMs.
- **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.
- P236L is a rare mutation selected commonly by DLV, which appears to have little if any effect on current NNRTIs. **P236S** is a highly unusual mutation at this position.

- This virus is predicted to have intermediate-level reduced susceptibility to **RPV**. The use of the combination of CAB/**RPV** should be considered to be contraindicated.

Mutation scoring: RT

HIVDB 9.5.1 (2023-11-05)

Drug resistance mutation scores of NRTI:

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Rule	ABC ⚡	AZT ⚡	D4T ⚡	DDI ⚡	FTC ⚡	3TC ⚡	TDF ⚡
<u>M41L</u>	5	15	15	10	0	0	5
<u>M41L + E44D + L210W + T215Y</u>	5	5	5	5	0	0	5
<u>M41L + M184V + T215Y</u>	10	0	0	0	0	0	0
<u>M41L + L210W</u>	10	10	10	10	0	0	10
<u>M41L + L210W + T215Y</u>	10	0	0	0	15	15	10
<u>M41L + T215Y</u>	10	10	10	10	5	5	10
<u>L74I</u>	15	0	0	60	0	0	5
<u>M184V</u>	15	-10	-10	10	60	60	-10
<u>L210W</u>	5	15	15	10	0	0	5
<u>L210W + T215Y</u>	10	10	10	10	0	0	10
<u>T215Y</u>	10	60	40	15	0	0	10
<u>K219N</u>	5	10	10	5	0	0	5
Total	110	125	105	145	80	80	65

Drug resistance mutation scores of NNRTI:

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Rule	DOR ⚙	EFV ⚙	ETR ⚙	NVP ⚙	RPV ⚙
<u>A98G</u>	15	15	10	30	15
<u>V108I</u>	10	10	0	15	0
<u>H221Y</u>	10	10	10	15	15
<u>K103N</u>	0	60	0	60	0
Total	35	95	20	120	30