Drug resistance interpretation: PR

HIVDB 9.5.1 (2023-11-05)

PI Major Mutations: None
PI Accessory Mutations: None
PR Other Mutations: L10I 100% (conv=2,069) • T12V 100% (conv=2,069) • I13V 100% (conv=2,069) • E35D 100% (conv=3,041) • M36I 100% (conv=3,041) • R41K 99% (conv=3,041) • K45R 100% (conv=2,943) • R57K 99% (conv=2,717) • L63V 100% (conv=2,918) • H69K 99% (conv=2,687) • V77I 100% (conv=2,952) • L89I 100% (conv=2,296)

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

PR comments

Other

- **L10I/V** are polymorphic, PI-selected accessory mutations that increase the replication of viruses with other 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: M41L 100% (conv=2,096) • S68G 99% (conv=1,527) • M184V 99% (conv=2,182) • T215F 99% (conv=1,835)
NNRTI Mutations: A98G 99% (conv=2,162) • K103N 97% (conv=1,176) • V108I 99% (conv=1,132)
RT Other Mutations: E6A 100% (conv=2,567) • E28A 100% (conv=2,290) • V35T 100% (conv=2,131) • V60I 100% (conv=1,873) • K122E 100% (conv=2,094) • D123S 99% (conv=947) • R125RG R:43%, G:57% (conv=1,270) • I135T 100% (conv=2,018) • K173M 100% (conv=1,532) • Q174K 100% (conv=1,532) • D177E 100% (conv=1,549) • I202V 100% (conv=2,454) • Q207D 99% (conv=1,572) • R211S 100% (conv=1,571) • L228H 100% (conv=1,854) • V245E 99% (conv=320) • D250E 98% (conv=293)

Nucleoside Reverse Transcriptase Inhibitors	
abacavir (ABC)	Intermediate Resistance
zidovudine (AZT)	High-Level Resistance
stavudine (D4T)	Intermediate Resistance
didanosine (DDI)	Intermediate Resistance
emtricitabine (FTC)	High-Level Resistance
lamivudine (3TC)	High-Level Resistance
tenofovir (TDF)	Low-Level Resistance

Non-nucleoside Reverse Transcriptase Inhibitors	
doravirine (DOR)	Low-Level Resistance
efavirenz (EFV)	High-Level Resistance
etravirine (ETR)	Potential Low-Level Resistance
nevirapine (NVP)	High-Level Resistance
rilpivirine (RPV)	Low-Level 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 ddI, ABC and TDF susceptibility.
- **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.
- **T215Y/F** are TAMs that causes intermediate/high-level resistance to AZT and potentially low-level resistance to ABC and TDF.

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.

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

Mutation scoring: RT

HIVDB 9.5.1 (2023-11-05)

Drug resistance mutation scores of NRTI: Download CSV

Rule	ABC	AZT	D4T	DDI	FTC	3TC	TDF
M41L	5	15	15	10	0	0	5
M41L + M184V + T215F	10	0	0	0	0	0	0
M41L + T215F	10	10	10	10	5	5	10
M184V	15	-10	-10	10	60	60	-10
T215F	10	60	40	15	0	0	10
Total	50	75	55	45	65	65	15

Drug resistance mutation scores of NNRTI: Download CSV

Rule	DOR	EFV	ETR	NVP	RPV
A98G	15	15	10	30	15
V108I	10	10	0	15	0
K103N	0	60	0	60	0
Total	25	85	10	105	15

Drug resistance interpretation: IN — HIVDB 9.5.1 (2023-11-05)

INSTI Major Mutations: N155H

INSTI Accessory Mutations: None

IN Other Mutations: K14R • A21T • L28I • V31I • I60M • I72IV • K156N • D167E • V201I • K211R • L234I • I268L • S283G

Integrase Strand Transfer Inhibitors	
bictegravir (BIC)	Potential Low-Level Resistance
cabotegravir (CAB)	Low-Level Resistance
dolutegravir (DTG)	Potential Low-Level Resistance
elvitegravir (EVG)	High-Level Resistance
raltegravir (RAL)	High-Level Resistance

IN comments

Major

- **N155H** is a common nonpolymorphic INSTI-resistance mutations. It has been reported in a high proportion of persons developing VF and HIVDR while receiving RAL, EVG, DTG, and CAB. Alone, it reduces RAL and EVG susceptibility about 10 and 30-fold, respectively. It has minimal effect on susceptibility to DTG, BIC, and CAB.
- This virus is predicted to have low-level reduced susceptibility to **CAB**. The use of the combination of **CAB**/RPV should be considered to be relatively contraindicated.

Mutation scoring: IN — HIVDB 9.5.1 (2023-11-05)

Drug resistance mutation scores of INSTI: Download CSV

Rule	BIC	CAB	DTG	EVG	RAL
N155H	10	25	10	60	60