Drug resistance interpretation: RT

HIVDB 9.5.1 (2023-11-05)

NRTI Mutations: None
NNRTI Mutations: None
RT Other Mutations: A554S

Nucleoside Reverse Transcriptase Inhibitors	
abacavir (ABC)	Susceptible
zidovudine (AZT)	Susceptible
stavudine (D4T)	Susceptible
didanosine (DDI)	Susceptible
emtricitabine (FTC)	Susceptible
lamivudine (3TC)	Susceptible
tenofovir (TDF)	Susceptible

Non-nucleoside Reverse Transcriptase Inhibitors	
doravirine (DOR)	Susceptible
efavirenz (EFV)	Susceptible
etravirine (ETR)	Susceptible
nevirapine (NVP)	Susceptible
rilpivirine (RPV)	Susceptible

Mutation scoring: RT

HIVDB 9.5.1 (2023-11-05)

No drug resistance mutations were found for NRTI.

No drug resistance mutations were found for NNRTI.

Drug resistance interpretation: IN

HIVDB 9.5.1 (2023-11-05)

INSTI Major Mutations: T66AI • G118R • E138K
INSTI Accessory Mutations: S153A
IN Other Mutations: E11D • K14R • V31I • L45Q • M50I • L63IV • I72V • L74I • Y83F • E96D • L101LI • T112I • I113V • T124A • T125A • V126F • G134N • I135V • V151I • D167E • V201I • I208L • T218S • N222K • L234I • S283G • R284G

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

IN comments

Major

- **T66A/I** are non-polymorphic mutations selected in persons receiving EVG, RAL, and DTG usually in combination with other INSTI-resistance mutations. They cause moderate reductions in EVG susceptibility but do not appear to reduce susceptibility to other INSTIs.
- **G118R** is a nonpolymorphic mutation reported in a significant proportion of persons with VF and emergent HIVDR in persons receiving a DTG-containing regimen. It has occasionally been reported in persons receiving other INSTIs. It is associated with 5-10-fold reduced susceptibility to RAL, EVG, DTG and CAB, and 2-3 fold reduced susceptibility to BIC.
- **E138K/A/T** are common nonpolymorphic accessory resistance mutations selected in patients receiving RAL, EVG, CAB, and DTG. Alone they do not reduce INSTI susceptibility. However, they contribute to reduced susceptibility in combination with other mutations particularly those at position 148.

Accessory

- S153Y/F are very rare mutations selected in vitro by EVG, DTG, BIC, and CAB. Alone they reduce EVG susceptibility about 5-fold and DTG, CAB, and BIC susceptibility about 2-fold. **S153A** is a rare mutation that alone does not appear to reduce INSTI susceptibility.

Other

- **M50I** is a highly polymorphic mutation, which has a prevalence of 3% to 34% in INSTI-naïve persons depending on subtype. It has been selected in vitro by DTG and BIC in combination with R263K. It may contribute to reduced DTG and CAB susceptibility in combination with R263K.
- **L74I** is a highly polymorphic mutation with a prevalence of 3% to 30% depending on subtype. It is the consensus amino acid in subtype A viruses belonging to the A6 clade. It does not appear to be selected by any of the INSTIs or to reduce their susceptibility.
- **V151I** is an accessory INSTI selected mutation that occurs in 1% to 3% of viruses from ART-naive persons depending on subtype. Alone, it appears to have little or no effect on INSTI susceptibility.

- There is evidence for high-level **DTG** resistance. If **DTG** is used, it should be administered twice daily.

Mutation scoring: IN

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Drug resistance mutation scores of INSTI: Download CSV

Rule	BIC	CAB	DTG	EVG	RAL
T66AI	5	10	5	60	15
L74I + G118R	10	10	10	10	10
G118R	30	60	50	60	60
G118R + E138K	10	10	10	10	10
E138K	10	10	10	15	15
Total	65	100	85	155	110