

IN comments

Accessory

- T97A is a polymorphic INSTI-selected mutation that, depending on subtype, occurs in 1% to 5% of viruses from untreated persons. Alone, it has minimal effects on INSTI susceptibility but in combination with other major resistance mutations, it synergistically reduces susceptibility to each of the INSTIs.

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.

Drug resistance mutation scores of INSTI:

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Rule	BIC	CAB	DTG	EVG	RAL
T97A	0	0	0	10	10

PI Major Mutations:

I54I

0.75%

0.20%

from 11,305

PI Accessory Mutations:

K20K

0.75%

1.20%

from 20,509

PR Other Mutations:

I13V

1.00%

from 11,961

•

I15V

0.9%

from 17,507

•

E34E

0.75%

0.27%

from 15,147

•

E35E

0.72%

0.29%

from 16,622

•

M36

0%

from 18,911

•

R41K

0%

from 16,430

•

R37K

0%

from 11,961

•

D60E

0%

from 11,961

•

I62V

0%

from 12,302

•

L63P

0%

from 11,260

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

PR comments

Major

- I54M/L are non-polymorphic mutations selected primarily by FPV and DRV. I54M/L reduce susceptibility to LPV, ATV, and DRV.

Accessory

- K20T is a non-polymorphic accessory PI-selected mutation associated with reduced susceptibility to ATV and LPV.

- There is evidence for low-level DRV resistance. If DRV is administered it should be used twice daily.

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
K20KT	5	0	5	5	0	15	5	0
I54I	15	20	60	10	20	20	15	-10
Total	20	20	65	15	20	35	20	-10

NRTI Mutations:None

NNRTI Mutations:None

RT Other Mutations:

G18G

0.75%

0.20%

from 1,162

•

V35I

0.9%

from 1,302

•

K122E

1.00%

from 192

•

D123S

0.7%

from 192

•

I135T

0%

from 1,021

•

D177E

0%

from 1,206

•

Q207EG

0.10%

0.19%

from 582

•

R211K

0%

from 1,207

•

V245K

0%

from 1,162

•

D250E

0%

from 1,171

•

S268SC

0.75%

0.20%

from 582

•

A272P

0%

from 911

•

V276T

0%

from 911

•

K277KR

0.10%

0.20%

from 917

•

L282C

0%

from 136

•

L283I

0%

from 781

•

T286A

0%

from 796

•

V292V

1.75%

0.27%

from 721

•

I293V

0%

from 192

•

E297K

0%

from 192

•

S519N

0%

from 6,635

•

Q524K

0%

from 6,101

•

K527E

0.7%

from 6,102

•

E529D

1.00%

from 6,114

•

A534S

0%

from 6,125

•

A554S

0.7%

from 9,561

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

No drug resistance mutations were found for NRTI.

No drug resistance mutations were found for NNRTI.

INSTI Major Mutations:None

INSTI Accessory Mutations:

T97A

1.00%

from 1,399

IN Other Mutations:

K14R

0%

from 6,107

•

S175N

0.10%

0.10%

from 6,106

•

L43I

0%

from 6,879

•

M50I

1.00%

from 6,114

•

L63I

0%

from 6,218

•

L74I

0%

from 1,238

•

L101V

1.00%

from 1,117

•

I113V

1.00%

from 1,005

•

T124A

0%

from 2,776

•

T125A

1.00%

from 2,776

•

V126F

1.00%

from 2,776

•

G134D

0%

from 2,782

•

K136Q

0%

from 2,783

•

V201I

0%

from 6,196

•

K211R

1.00%

from 15,111

•

S283G

1.00%

from 6,168

•

D288N

1.00%

from 11,096

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