

Patient: [REDACTED]
 DOB: [REDACTED] Age: [REDACTED] Gender: [REDACTED]
 Patient Identifiers: [REDACTED]
 Visit Number (FIN): [REDACTED]

Client: [REDACTED]
 Physician: [REDACTED]

ARUP Test Code: 0055670
 Collection Date: 11/21/2016
 Received in lab: 11/30/2016
 Completion Date: 12/02/2016

Drug Class	Drug	Evidence of Resistance
NRTI	VIDEX (didanosine, ddl)	Possible Resistance*
	VIREAD (tenofovir, TDF)	None
	ZERIT (stavudine, d4T)	Possible Resistance*
	ZIAGEN (abacavir, ABC)	None
	EMTRIVA (emtricitabine, FTC)	None
	RETROVIR (zidovudine, ZDV)	Possible Resistance*
	EPIVIR (lamivudine, 3TC)	None
NNRTI	SUSTIVA (efavirenz, EFV)	None
	VIRAMUNE (nevirapine, NVP)	None
	INTELENCE (etravirine, ETR)	None
	EDURANT (rilpivirine, RVP)	None
PI +	VIRACEPT (nelfinavir, NFV)	None
	APTIVUS (tipranavir, TPV)	None
	CRIXIVAN (indinavir, IDV)	None
	KALETRA (lopinavir + ritonavir, LPV)	None
	REYATAZ (atazanavir, ATV)	None
	PREZISTA (darunavir, DRV)	None
	FORTOVA/INVIRASE (saquinavir, SQV)	None

Drug Class	Drug Resistance Mutations Identified
NRTI	D67N, T69D, K219Q
NNRTI	None
PI	None

Notes on Evidence of Resistance:

- Resistance Mutations present constitute a high level of genetic evidence for viral resistance.
- Possible Resistance Mutations present suggest the possibility of viral resistance.
- None There is insufficient evidence for viral resistance.

The protease inhibitor (PI) evidence of resistance interpretations were developed to estimate the expected virological response to standard doses of protease inhibitors with pharmacokinetic boosting by ritonavir. This has become the most common method of administering each of the protease inhibitors, except nelfinavir (ref. 1), to ensure adequate drug levels in all patients. Boosted PIs are more active in the presence of resistance than non-boosted PIs. (ref. 2,3)



Patient: [REDACTED]
 ARUP Accession: 16-326-142006

Human Immunodeficiency Virus 1, Genotype by Sequencing

Patient: [REDACTED] | Date of Birth: [REDACTED] | Gender: [REDACTED] | Physician: [REDACTED]
Patient Identifiers: [REDACTED] | Visit Number (FIN): [REDACTED]

- + Evidence of Resistance for Protease Inhibitors estimates response to ritonavir boosted regimens. Refer to titled "Notes on Evidence of Resistance".
- * At least one mutation used to determine Evidence of Resistance for this drug has not been fully validated.
- ** At least one mutation used to determine Evidence of Resistance for this drug has not been clinically verified.
- *** For at least one mutation used to evaluate Evidence of Resistance for this drug, both notes above apply.

Additional Mutations: The following amino acids differing from the reference sequence (HXB-2, accession number K03455) at the indicated codon positions were identified and may be useful as a baseline determination of virus genotype.

Protease:

V3I, T12N, E35D, S37N, L63P

Reverse Transcriptase:

K32N, V35M, E36K, K49R, K104N, E122K, D123N, D177E, V179I, I202V, R211K, L214F, V245M, E248D, D250E, P272A, R277K, I293V, V317A, S322T

Software Version: ViroSeq HIV-1 System v2.0; ViroSeq Software v3.0
Profile Version: hiv3.4-xml1.1

Additional Information

INTERPRETIVE INFORMATION: HIV-1 Genotyping

This assay predicts HIV-1 resistance to protease and reverse transcriptase inhibitor anti-retroviral drugs. The protease gene and codons 1-335 of the reverse transcriptase gene of the viral genome are sequenced using the Viroseq HIV-1 Genotyping System kit. Drug resistance is assigned using ViroSeq software. The most current resistance algorithm and drug list is available by selecting the Drug Resistance Report found in the test directory. This test should be used in conjunction with clinical presentation and other laboratory markers. A patient's response to therapy depends on multiple factors, including patient compliance, percentage of resistant virus population, dosing, and drug pharmacology issues. Resistance interpretations may vary with methodology. Some insertions or deletions may be difficult to detect using this software. This test may not detect minor HIV-1 populations less than 20 percent of the total population.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement B: aruplab.com/CS



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