

## HIV-1 GenotypR™ PLUS

### Detection of Resistance to Antiretroviral Drugs

#### Overview

A sustained increase in HIV-1 viral load suggests treatment failure.<sup>1,2</sup> HIV-1 GenotypR™ PLUS can help identify drug resistance and provide the data to help guide therapeutic changes. Genotypic resistance patterns can help predict response to specific antiretroviral agents in those who have experienced virologic failure.<sup>3</sup> Mutations associated with resistance to HIV drugs are well characterized *in vitro*.<sup>4-12</sup>

#### Clinical Utility (Resistance Testing Guidelines<sup>13,14</sup>—Updated July 2003)

Experts recommend HIV Resistance testing for HIV-infected individuals with:

- ?? Treatment failure
- ?? Suboptimal response to treatment
- ?? Chronic infection (especially in individuals starting therapy who have been infected for up to two years)
- ?? Pregnancy

To download the latest treatment and testing guidelines, visit <http://aidsinfo.nih.gov/guidelines>

#### Cutting-Edge HIV-1 Drug Resistance Information

- ?? The **first FDA-approved** system and mutation analysis algorithm for HIV genotyping
- ?? **Unique report format - easy-to-read, color-coded report with detailed information on the rules and evidence** for determining the resistance/susceptibility **interpretation**
- ?? **Up-to-date mutation algorithm** — independent international experts meet twice a year to review clinical studies and update the GuideLines<sup>7</sup> Rules
- ?? **Standardized** system for increased accuracy, reproducibility and quality control

#### Ordering Information & Specimen Requirements

Test Code	Test Name	Specimen Requirements
7480	<b>HIV-1 GenotypR™ PLUS</b> <i>Please provide the Specialty accession number for recent viral load testing or indicate the viral load</i>	2 mL Plasma EDTA or ACD, separated and frozen within 4 hours of collection. Split into 2 plastic vials before freezing. Ship FROZEN on dry ice.
7482	<b>HIV-1 RNA UltraQuant® rflx to HIV-1 GenotypR™ PLUS</b> <i>With the reflex test, you will receive an ultrasensitive viral load quantitation and, if there are sufficient copies, Specialty will perform the genotypic analysis</i>	6 mL Plasma EDTA or ACD, separated and frozen within 4 hours of collection. Split into 2 plastic vials before freezing. Ship frozen on dry ice.

#### Methodology

Reverse Transcriptase Polymerase Chain Reaction\* (RT-PCR) and DNA Sequencing

\*PCR tests are performed pursuant to a license agreement with Roche Molecular Systems, Inc.



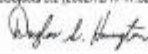
#### Related Tests

**9874 HIV-1 RNA UltraQuant®** - for sensitive quantitation of HIV-1 viral loads for all subtypes A-K from 75 copies/mL to 10,000,000 copies/mL. For serial reporting of results, order #9874SR.

**7420 HIV-1 Phenoscript™** - for a direct measurement of drug susceptibility of a patient's virus compared to a drug-susceptible control virus. The degree of susceptibility to each drug is presented in an easy-to-read and interpret color-coded report.

## References

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3. Zolopa AR, Shafer RW, Warford A, et al. HIV-1 genotypic resistance patterns predict response to saquinavir-ritonavir therapy in patients in whom previous protease inhibitor therapy had failed. Ann Intern Med 1999;131:813-21.
4. Condra JH, Emini EA. Preventing HIV-1 drug resistance. Sci Med 1997;4:14-23.
5. Balzarini J. Suppression of resistance to drugs targeted to human immunodeficiency virus reverse transcriptase by combination therapy. Biochem Pharmacol 1999;58:1-27.
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7. Winters MA, Coolley KL, Girard YA, et al. A 6-basepair insert in the reverse transcriptase gene of human immunodeficiency virus type 1 confers resistance to multiple nucleoside inhibitors. J Clin Invest 1998;102:1769-75.
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9. Hirsch MS, Conway B, D'Aquila RT, et al. Antiretroviral drug resistance testing in adults with HIV infection: implications for clinical management. JAMA 1998;279:1984-91.
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11. Tural C, Ruiz L, Holtzer C, et al. Utility of HIV genotyping and clinical expert advice – the Havana trial. AIDS 2002;16:209-18.
12. Resistance Mutations Project Panel. Update on drug resistance mutations in HIV-1. Top HIV Med 2001;9:31-3.
13. Hirsch MS, Brun-Vezinet, Clotet B, et al. Antiretroviral drug resistance testing in adults infected with human immunodeficiency virus type 1: 2003 recommendations of an International AIDS Society—USA Panel. Clin Infect Dis 2003;37:113-28.
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 <p>2211 Michigan Avenue Fax 310-628-6634 Santa Monica, CA 90404-3900 800-421-7110</p>		Patient: Example Patient Name Sex: Female Birth Date: Sep 12, 1964 Age: 39 Patient ID: Example Patient ID Physician: Example Physician Collection Date: Oct 01, 2003 Accession Number: Example Sample ID Account Number: Example Account # Date Received: Oct 03, 2003 Date Performed: Oct 07, 2003, 21:18:37 -0400 Date Printed: Oct 07, 2003
Example Labname Example Labaddress1 Example Labaddress2 Example Labaddress3 Tel: Example Labtel Fax: Example Labfax		
<b>HIV-1 GenotypR™ PLUS</b>		
Relevant RT Mutations: M184V*, L210W		
<b>Nucleoside and Nucleotide RT Inhibitors</b>		<b>Resistance Interpretation</b>
zidovudine didanosine zalcitabine lamivudine stavudine abacavir tenofovir foscarnet		No Evidence of Resistance No Evidence of Resistance Possible Resistance Resistance No Evidence of Resistance Possible Resistance No Evidence of Resistance No Evidence of Resistance
<b>NonNucleoside RT Inhibitors</b>		<b>Resistance Interpretation</b>
nevirapine delavirdine efavirenz		No Evidence of Resistance No Evidence of Resistance No Evidence of Resistance
Relevant Protease Mutations: No relevant mutations detected.		
<b>Protease Inhibitors</b>		<b>Resistance Interpretation</b>
saquinavir indinavir ritonavir nelfinavir amprenavir lopinavir + ritonavir atazanavir		No Evidence of Resistance No Evidence of Resistance No Evidence of Resistance No Evidence of Resistance No Evidence of Resistance No Evidence of Resistance Insufficient Evidence
Resistance interpretation is based upon an international expert panel interpretation of <i>in vitro</i> and <i>in vivo</i> data including phenotypic and virologic response data available as of October 2002 for correlation of Protease and RT sequences to antiretroviral drug resistance. These include primary and secondary mutations. * Codons marked with an asterisk pertain to Comment(s) in italics in the Mutation Details sections.		
HIV-1 GenotypR™ PLUS uses the TRUGENE® HIV-1 Genotyping Kit incorporating the GUIDELINES™ Rules developed by an international expert panel. Treatment decisions should be made in consideration of all relevant clinical and laboratory findings and the prescribing information of the drugs in question. For <i>In vitro</i> Diagnostic Uses: HIV-1 Genotype analysis by DNA sequencing.		
	CIP 3.4 (v2) (2003/06/16) GenS.Lines 7.0 (2002-10-29) SLx1.1 © 2003 Bayer HealthCare LLC. All Rights Reserved. GeneObjects 3.2 (2002/12/17 17:52:48 EST) /TRUGENE_HV1_G7.gml (2002/12/19)	Page 1 of 3
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For complete information, please call Client Services at 800-421-4449 or visit our Web site at [www.specialtylabs.com](http://www.specialtylabs.com)