

Q: What is the HCV NS5B Drug Resistance Assay?

A: The HCV NS5B assay is a genotypic (sequencing) resistance assay that analyzes the non-structural (NS) 5B region of hepatitis C Virus (HCV) genotypes 1a or 1b, using next-generation sequencing (NGS) techniques. Amino acid substitutions in the NS5B region are identified, and a viral susceptibility call for the direct acting agents (DAAs) that inhibit the HCV RNA polymerase is reported: sensitive, resistant, or resistance possible.

Q: Is the HCV NS5B Drug Resistance Assay indicated for use as a baseline assessment tool (prior to initiation of therapy)?

A: The role of HCV NS5B resistance testing to evaluate patient treatment suitability at baseline and at treatment failure is less well defined relative to resistance testing for the NS3/4A protease inhibitors. Providers should use their judgment to determine the clinical applicability of this assay. At this time, baseline resistance testing for NS5B inhibitors has not been formally recommended as the body of evidence continues to evolve.^{1,2}

Q: Are there other situations in which the HCV NS5B Drug Resistance Assay might be indicated?

A: Resistance testing with HCV NS5B may be considered for virologic breakthrough on treatment to establish the presence or absence of resistant variants that may impact future treatment options. Data from clinical trials suggest the possibility that treatment emergent amino acid substitutions in the HCV NS5B region may limit the effectiveness of NS5B DAAs.^{1,2,3}

Q: What are the features of the HCV NS5B Drug Resistance Assay?

- Assessment of HCV susceptibility for currently available NS5B DAAs, including dasabuvir and sofosbuvir
- Identification of amino acid variants within the NS5B protein of HCV genotypes 1a or 1b
- Detection of mixtures of wild-type and drug-resistant variants when present at levels as low as 10% of the total population⁴
- Use of Monogram's HCV genotypic interpretation database to derive a susceptibility assessment of sensitive, resistant, or resistance possible for each DAA

Q: How is the HCV NS5B Drug Resistance Assay performed?

A: The NS5B region of HCV from patient plasma samples is amplified by RT-PCR using either genotype 1a or 1b specific primers. Nucleic acid sequences are determined using NGS methods. Patient viral sequences are compared to subtype-specific reference sequences and any amino acid differences between the patient and reference sequences are reported. An assessment of sensitive, resistant or resistance possible is determined based on Monogram's HCV genotypic interpretation database for each NS5B inhibitor.

Q: Where is the HCV NS5B Drug Resistance Assay performed?

A: The assay is performed at Monogram Biosciences, a member of the LabCorp Specialty Testing Group.

Q: How often are the NS5B resistance mutations and the NS5B inhibitor susceptibility interpretation database updated?

A: The interpretation database and relevant resistance-associated substitutions are updated as new data emerges.

Q: Can the HCV NS5B Drug Resistance Assay be used to assess NS5B inhibitor susceptibility for other HCV genotypes such as 2 or 3?

A: The HCV NS5B assay is only indicated for HCV genotypes 1a and 1b. The HCV strain genotype and subtype (1a or 1b) should be indicated on the test requisition form (TRF) at sample submission.

Q: How long has the HCV NS5B Drug Resistance Assay been available?

A: The HCV NS5B assay was technically validated for use in March of 2013 and has been used in clinical trials for NS5B inhibitors. The assay was made commercially available in March of 2015 subsequent to the approval of NS5B polymerase inhibitors for HCV treatment.

Q: Has the HCV NS5B Drug Resistance Assay been validated?

A: HCV NS5B has been technically validated according to CAP/CLIA specifications in Monogram's CAP/CLIA accredited clinical reference laboratory in South San Francisco, California.

Q: What is the turnaround time?

A: The turnaround time is approximately 7-10 days from sample receipt at Monogram Biosciences.

Q: What is the viral load requirement for the HCV NS5B Drug Resistance Assay?

A: The viral load requirement is 1000 IU/mL.

Q: How do I order the HCV NS5B Drug Resistance Assay?

A: HCV NS5B is available as a standalone assay.
The LabCorp test number is 550505
The Monogram test number is C6300

Q: What are the CPT Codes for the HCV NS5B Drug Resistance Assay?

A: The CPT codes for the HCV NS5B Drug Resistance Assay are 87902 and 87900. CPT coding may vary based on individual patient insurance plans. Please contact the specific insurance carrier for their requirements.

Q: Is the HCV NS5B Drug Resistance Assay covered by insurance?

A: Monogram offers Gateway, an insurance benefits investigation program, which seeks verification of assay coverage. Gateway also provides a patient assistance program for uninsured, low-income patients. For more information, contact Monogram's Gateway at 1-877-436-6243.

Q: Where can I learn more about the HCV NS5B Drug Resistance Assay?

A: Monogram's Client Services group is available to answer questions. Call 1-800-777-0177 or visit the Monogram website at www.monogrambio.com.

References:

1. Harvonii [Highlights of Prescribing Information], Foster City, CA: Gilead Sciences; 2014
2. Viekira PAK [Highlights of Prescribing Information], North Chicago, IL: AbbVie Inc; 2014
3. Svarovskaia ES, Dvory-Sobol H, Doehle B, et al. L159F and V321A Sofosbuvir Treatment-Emergent HCV NS5B Substitutions. American Association for the Study of Liver Diseases, The Liver Meeting, 2014.
4. Choe S, Han D, Cheng M, et al. Validation of the GeneSeq™ HCV NS5B sequencing assay for patient-derived HCV subtypes 1a and 1b. Poster presented at: 45th Annual Meeting of the European Association for the Study of the Liver; April 14-18, 2010; Vienna, Austria. Poster 766.



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