B Cell (IgH) Gene Rearrangement

The B Cell (IgH) Gene Rearrangement test detects IGH clonality from genomic DNA. Diagnosis of B cell lymphomas can often be made based on clinical, histologic and immunophenotypic data. There are instances where gene rearrangement studies may be required for definitive diagnosis.

Testing Method and Background

This test utilizes polymerase chain reaction (PCR) to amplify genomic DNA in three master mixes that target conserved framework region in the IGH gene (FR1, FR2 and FR3). The PCR reaction fragments are then separated through capillary electrophoresis to identify the clonal B cell populations by fragment size. The limit of detection of this multiplex PCR assay has been determined to be approximately 5%.

Genes encoding immunoglobulin heavy chain (IGH) molecules are assembled from multiple polymorphic gene segments that undergo rearrangment and selection during B cell development. Clonal IGH rearrangments can be quickly identifyied through analyzing the size distribution of PCR product amplified from conserved sequences that flank the VDJ region. DNA isolated from a normal polyclonal population of B cell produce a bell-shaped curve while a clonal B cell popluation generate one or two unique size products of a single rearranged clone.

Highlights of B Cell (IgH) Gene Rearrangement

Targeted Region

IGH: FR1, FR2, FR3

- **B cell (IgH) clonality detection is useful for:**
  - Identifying clonal B cell populations highly suggestive of B cell malignancies.
  - Diagnostic evaluation of leukemias and lymphomas for prognosis and treatment selection.
  - Detection of minimal residual disease.
  - Monitoring disease recurrence.

Ordering Information

Get started (non-HFHS): Print a Molecular Hematologic Testing requisition form online at www.HenryFord.com/HFCPD

Get started (HFHS): Order through Epic using test "B Cell Gene Rearrangement" (MOL80411 Blood, MOL80412 Bone Marrow)

Specimen requirements:

- Peripheral Blood - 1-3ml in lavender top tube (EDTA) **Specimen stability: Ambient - 72 hours; Refrigerated - 1 week**
- Bone Marrow - 1-3ml, anticoagulated with either heparin or EDTA, **Specimen stability: Refrigerated - 1 week** (ship cold)
- Formalin-fixed, paraffin-embedded tissue, preferably no older than 2 years
- 5-6 tissue sections at 5-6 micron thickness (please include H&E slide and a copy of pathology report)
- Cytology slides (cell block with 500+ tumor cells, submit block or 5-6 tissue sections at 5-10 micron thickness depending on cellularity)
- Extracted DNA - from a CLIA-certified Laboratory

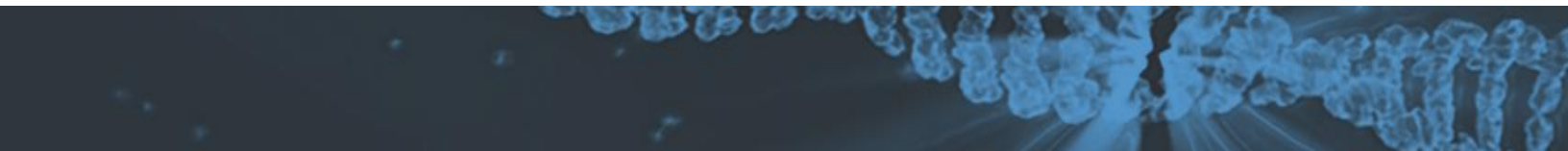
Cause for Rejection: Clotted, hemolyzed, or frozen specimens, improper anticoagulant, tubes not labeled with dual patient identification, non-dedicated tubes.

TAT: 5-7 business days (after Prior Authorization obtained)

Mail test material to:
Henry Ford Center for Precision Diagnostics
Pathology and Laboratory Medicine
Clinic Building, K6, Core Lab, E-655
2799 W. Grand Blvd., Detroit, MI 48202

CPT Codes: 81261, G0452

Contact us: Client Services, Account and Billing Set-up, and connect with a Molecular Pathologist at (313) 916-4DNA (4362)

For more information on Comprehensive Molecular Services, visit our website
www.HenryFord.com/HFCPD

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