CYTOGENETICS

TESTING FOR HEMATOLOGIC DISORDERS AND SOLID TUMORS
CYTOGENETIC TESTING FOR HEMATOLOGIC DISORDERS AND SOLID TUMORS AVAILABLE THROUGH MAYO CLINIC

CHROMOSOME ANALYSIS

FLUORESCENCE \textit{IN SITU} HYBRIDIZATION (FISH)

45+
FISH tests available for hematologic disorders and solid-tumor testing

100+
Validated FISH probes

1st
Laboratory to offer mate-pair sequencing as a clinical service

Laboratory directors all boarded in a second specialty in addition to cytogenetics:
Pathology: 5
Molecular Genetics: 4
Medical Genetics: 1
Internal Medicine: 1

3
Chromosomal microarray assays (bone marrow/blood/lymph node, fresh or frozen tumor, and paraffin-embedded tumor blocks)

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Chromosomal microarray (CMA) Mate-Pair Sequencing

Mate-pair sequencing is appropriate when cytogenetic or FISH testing detects an acquired chromosome abnormality of unknown significance. This testing can determine the size, precise breakpoints, gene content, and any unappreciated complexity of abnormalities detected by other methods. It can also provide important diagnostic, prognostic, and therapeutic information critical to proper patient management.

Working collaboratively with our hematopathologists, hematologists, and oncologists, we have developed cost-effective, data-driven testing algorithms to optimize test utilization without compromise to patient care. We strive to provide the highest quality of cytogenetic services available to complement your clinical practice.

Chromeosome analysis plays a central role in determining the pathogenesis, diagnosis, and treatment monitoring of many malignancies and is available for peripheral blood, bone marrow, lymph nodes, and tumors.

Our comprehensive FISH test menu covers the clinically significant chromosome abnormalities associated with hematologic malignancies and solid tumors, as described by the World Health Organization. FISH tests are orderable as comprehensive panels or individual probes.

Chromosomal microarray (CMA) analysis improves the diagnostic yield to identify genetic changes that are not detected by conventional chromosome analysis or FISH. Testing is available for peripheral blood, bone marrow, fresh or frozen tumors, and paraffin-embedded tumor blocks.
CHILDREN’S ONCOLOGY GROUP
(COG)-APPROVED LABORATORY FOR CYTOGENETIC TESTING

Our laboratory offers conventional chromosome analysis, chromosomal microarray testing, and FISH testing, including a BCR-ABL1(Ph)-like B-ALL panel.

The laboratory is proud to be recognized by the COG for 20+ years.

FEATURED TESTS

Mate-Pair Sequencing (MPseq)
Using whole-genome next-generation sequencing technology, mate-pair testing can further characterize known chromosome rearrangements by bioinformatically mapping short-sequence reads to create a structural map of the genome. MPseq enables the detection of chromosome rearrangements to a level that allows for identification of genes at or near breakpoints, especially those involved in fusion events.

- MatePair, Targeted Rearrangements, Hematologic (Mayo ID: MTRBM)
- MatePair, Targeted Rearrangements, Oncology (Mayo ID: MTRTI)

Chromosomal Microarray (CMA)
CMA can define the size, precise breakpoints, and gene content within copy number changes to demonstrate complexity of abnormalities across the entire genome. This technique can identify regions of copy-neutral loss of heterozygosity (cnLOH), which are common in certain neoplasms and often mask homozygous mutations involving tumor suppressor genes. CMA is appropriate for many tumor types and is particularly beneficial to characterize gliomas and uncover masked hypodiploidy in B-ALL.

- Chromosomal Microarray, Hematologic Disorders (MAYO ID: CMAH)
- Chromosomal Microarray, Tumor, Formalin-Fixed Paraffin-Embedded (MAYO ID: CMAPT)
- Chromosomal Microarray, Tumor, Fresh or Frozen using Affymetrix Cytoscan HD (MAYO ID: CMAT)

COMPREHENSIVE TEST MENU

Areas of expertise:

HEMATOLOGY
- B-Cell Lymphoid Neoplasms
- T-Cell Lymphoid Neoplasms
- Myeloid Neoplasms
- Plasma Cell Proliferative Disorders

ONCOLOGY
- Bone and Soft Tissue/Sarcoma
- Breast
- Gastrointestinal
- Genitourinary
- Gynecology (Endometrial/Uterine Carcinoma)
- Head and Neck
- Melanoma
- Neuro-Oncology
- Pulmonary

SEND & HOLD OPTIONS

Sometimes, the appropriate choices for testing are not known at time of specimen collection. The following options allow for a freshly collected specimen to be sent directly to Mayo Medical Laboratories (MML) for processing and then held until informative testing can be interpreted at the client institution prior to proceeding with additional testing at MML.

Chromosome Analysis (Mayo ID: HOLDC)
The bone marrow or peripheral blood specimen is cultured in the laboratory while preliminary morphologic or flow cytometry assessments are in process. If the specimen does not show evidence of malignancy, chromosome analysis may be cancelled.

FISH (Mayo ID: HOLDF)
The bone marrow or peripheral blood specimen is held in the laboratory, and based on morphologic or flow cytometry assessments, appropriate FISH testing may be ordered.
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FOR MORE INFORMATION ABOUT CYTOGENETICS TESTING, VISIT:
MayoMedicalLaboratories.com