



Flow Cytometry Services for Hematolymphoid Neoplasia

Test Code

FLOW

Specimen Requirements

5mL heparin whole blood

1mL heparin bone marrow

bone marrow core biopsy, fresh tissue

FNA, CSF, pleural fluid

Storage and Handling

Whole blood or bone marrow ambient

Other specimens package with a cool pack

Specimen Stability

Whole blood or bone marrow 18° - 25°C for 48 hours

Other specimens 2° - 8°C for 48 hours

CPT Codes

88184, 88185 x n

88187 or 88188 or 88189

Turnaround Time

<24 hours, typically <12 hours

Related Test Options:

Cytogenetics

Fluorescence *in situ* hybridization

Quantitative PCR

Mutation analysis

Molecular clonality

Immunohistochemistry

Morphology

For more information, contact your local representative or call MPLN client services at **800.932.2943**.

Innovative...Comprehensive...Consultative

Designed to provide accurate, reliable and clinically relevant data in a timely fashion.

- Streamlined ordering / reporting to simplify reflex testing
- One source for ancillary testing
- Rapid turnaround time
- Post analytic review for quality assurance
- Individual case management solving clinical problems

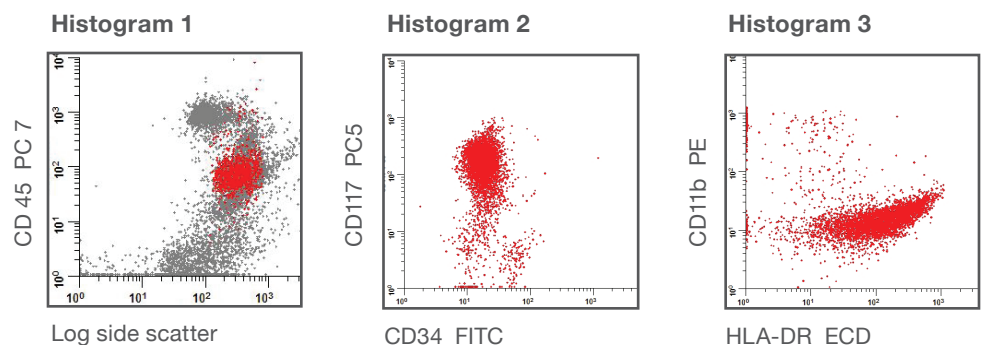
Multiparameter Immunophenotyping by Flow Cytometry

Management of patient testing requires a rational approach to identify the most effective therapy and control treatment cost. Our Flow Cytometry testing includes:

- Comprehensive Lymphoma and/or Leukemia immunophenotyping
- Lymphocyte screen (B, T, NK cells)
- Monoclonal gammopathy (B-cell, plasma cell)
- Residual disease (specified)
- ZAP 70
- Other special markers

Case Study

Unusual Acute Promyelocytic Leukemia, reflexed for FISH analysis; t(15;17) positive.



Histogram 1: Promyelocytes isolated by SSC v CD45

Histogram 2: CD34 negative / CD117 positive promyelocytes (expected)

Histogram 3: CD11b negative (expected), HLA DR positive (unusual). The specimen was reflexed for PML/RARA fusion by fluorescence *in situ* hybridization and was positive.



Clinical Utility

Immunophenotypic analysis by multiparameter flow cytometry is a powerful tool in the evaluation of hematolymphoid neoplasia. At Molecular Pathology Laboratory Network, Inc. (MPLN), interdisciplinary testing on a single sample is reviewed closely to enhance the flow cytometry data; this includes clinical, morphologic, molecular, and genetic findings.

By analyzing the expression of cell surface and cytoplasmic markers, abnormal cells can be identified, enumerated and characterized with respect to cell lineage and maturation. The sensitivity of the technology and the ability to process and analyze large amounts of data quickly allows flow cytometry to be used to:

1. Characterize/classify
 - Hematolymphoid neoplasia
 - Myelodysplastic/myeloproliferative processes
 - Acute leukemias
 - B-cell neoplasms
 - Plasma cell disorders
 - T-cell/NK cell neoplasms
 - Rare/unusual processes (mast cell disorders, etc.)
2. Determine proliferative rates of lymphomas
3. Determine treatment efficacy/monitor for residual disease

Comprehensive Panels

Samples are received and processed by experienced laboratory personnel per established, validated protocols and guidelines. Screening antibody panels for all sample types are designed to reliably detect abnormal populations. The comprehensive panel includes markers for adequate characterization of all cell lines. Additional testing, as indicated, may be used to further and fully characterize any abnormal cells detected.

Unique Approach to Data Analysis

Many laboratories use basic analysis techniques and provide pathologists with pre-printed histograms; this approach, although common, is less than optimal. At MPLN, the raw (list mode) data is independently analyzed by a hematopathologist with experience at a level not routinely offered by other laboratories. After sample processing and appropriate quality review with respect to sample, reagent and instrument parameters, the list mode data is analyzed by the hematopathologist. Previous patient results, history and clinical information are incorporated in the analysis, and possible ancillary testing (FISH, cytogenetics, molecular, etc.) is considered.

In-Depth Report

The report is designed to convey clinically relevant information in an easy to read format. The findings address sample quality, sample cellularity, and quantitation and characterization of all major cell lines. When present, abnormal populations are clearly described, including cell type, percentage of involvement, cell size, and immunophenotypic features. The interpretation is written to address clinically relevant issues based on the provided information, previous studies at MPLN, and dialogue with the submitting physician. Ancillary testing is discussed with the client, when indicated, to maximize clinical information from the submitted sample.

Communication with Hematopathologist

A hematopathologist is available to discuss any questions related to hematopathology samples. Additionally, we welcome suggestions to help us improve our service, and we actively seek suggestions to help achieve our goal of providing accurate, reliable and clinically relevant data in a timely fashion. If you want to discuss any of the above topics or specific results, feel free to call.