

## Flow Cytometry

### I. Hours of Operation

Flow Cytometry: 8:00 AM – 4:30 PM; Monday – Friday

### II. Contact Section

Phone 402-449-5531

### III. Scope of Testing

Cells and tissues are examined to determine the presence or absence of various cell surface, nuclear, and cytoplasmic markers. Assessment of cellular immune status, tumor DNA ploidy (Breast, colon, others), and immunophenotyping to identify and characterize lymphomas and leukemias using five-color flow cytometry.

### IV. Staffing

The Flow Cytometry Laboratory (phone 449-5531; fax 449-4931) is staffed from 0800-1630 Monday through Friday (M-F). In order for adequate time for testing all routine specimens must be in the laboratory by 1:00 PM Friday. For off-site draws call CML (402-280-4670) for immediate courier service. If Flow Cytometry testing is necessary during hours the laboratory is not ordinarily staffed please contact a Pathologist (449-4630).

### V. Testing Performed

A. **Lymphocyte Immune Markers:** This panel is recommended by the CDC for CD4 enumeration, as well as being an effective screen for immunodeficiency (CD45, CD3, CD4, CD8, CD19, CD56).

B. The following panels are available:

1. CLL/Lymphoma
2. Myeloma
3. Acute Leukemia
4. Clonality Assessment
5. Myelodysplastic Disorder

These may include any of the following antibodies: CD2, CD3, CD4, CD5, CD7, CD8, CD10, CD11c, CD13, CD14, CD16, CD19, CD20, CD23, CD25, CD33, CD34, CD38, CD41, CD45, CD56, CD71, CD117, CD128, HLA-DR, surface Kappa and Lambda, cytoplasmic CD3, cytoplasmic CD79a, cytoplasmic BC12, cytoplasmic Kappa and Lambda, cytoplasmic MPO, nTDT.

C. **DNA ploidy:** Breast cancer, colon cancer, products of conception, other tumors

D. **Research:** All research protocols and other testing must be discussed and approved before testing. Please call 449-5531 to discuss arrangements.

A pathologist is available (449-4630) to discuss any questions and concerns, and to assist with ordering and panel selection of antibodies. Panels will be tailored to specific needs of individual

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cases if lymphoma or leukemia work-up is ordered. Additional antibodies may be added to the standard panels at the discretion of the pathologist.

## VI. Specimen Collection and Requirements

To insure optimum handling, every effort should be made to deliver specimens for flow cytometry to the laboratory as soon after collection as possible. If the time between collection and test set-up is sufficiently delayed the testing may be adversely affected. All specimens must be available for set-up within 24 hours, or a new specimen will be requested.

1. Blood for routine testing (Lymphocyte Immune Markers) should be drawn in EDTA (purple top) tubes and held at room temperature. A CBC will be performed in order to determine absolute values for the specimen.
2. Specimen requirements for other testing are very specific and should be discussed with the laboratory in advance of obtaining the specimen. Please call 449-5531 for instructions.
3. Peripheral blood for leukemia and lymphoma panels should be drawn in EDTA (purple top) tubes and held at room temperature. A CBC with peripheral blood smear is helpful, if available.
4. Bone marrow should be drawn in EDTA (purple top) tubes and held at room temperature. Fresh smears should be made at the time of the procedure, or EDTA anticoagulated bone marrow is needed for morphology. A pathologist should be notified.
5. Lymph node or other tissue should be put in RPMI, refrigerated, and sent to the laboratory as soon as possible. RPMI media is available from the Flow Cytometry laboratory upon request (449-5531). If RPMI is unavailable, fresh tissue may be transported in normal saline to the laboratory; however, tissue viability is compromised by saline.
6. The DNA ploidy assessment of tumors and products of conception is usually performed on paraffin embedded tissues. Tissue blocks may be submitted to the laboratory for these tests.

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## VII. Reports and Interpretive Data

A pathologist reviews all reports and adds interpretive data which is printed on reports, as well as reference ranges (when appropriate).

### Reference Range for Lymph Immune Panel

	%	Cells/ $\mu$ L
Lymphocyte Purity	95-100%	
CD3+	60-80	655-2879
CD3+CD4+	40-60	436-1456
CD3+CD8+	15-43	164-1456
CD19+	5-22	56-745
CD56+CD3-	3-21	33-711
CD4/CD8 Ratio	0.9-3.4	