Reporting Title: Leukemia/Lymphoma, Phenotype
Performing Location: Rochester

Ordering Guidance:
For B-cell acute lymphoblastic leukemia minimal residual disease testing in either blood or bone marrow, order BALLM / B-Cell Lymphoblastic Leukemia Monitoring, Minimal Residual Disease Detection, Flow Cytometry, Varies.

This test is appropriate for hematopoietic specimens only. For solid tissue specimens, order LLPT / Leukemia/Lymphoma Immunophenotyping, Flow Cytometry, Tissue.

For bone marrow specimens being evaluated for possible involvement by a myelodysplastic syndrome (MDS) or a myelodysplastic/myeloproliferative neoplasm (MDS/MPN) including chronic myelomonocytic leukemia (CMML), order MYEFL / Myelodysplastic Syndrome by Flow Cytometry, Bone Marrow.

Bronchoalveolar lavage specimens submitted for evaluation for leukemia or lymphoma are appropriate to send for this test.

This test is not appropriate for and cannot support diagnosis of sarcoidosis, hypersensitivity pneumonitis, interstitial lung diseases, or differentiating between pulmonary tuberculosis and sarcoidosis (requests for CD4/CD8 ratios); specimens sent for these purposes will be rejected.

This test is not intended for product of conception (POC) specimens. For POC specimens see CMAPC / Chromosomal Microarray, Autopsy, Products of Conception, or Stillbirth.

Additional Testing Requirements:
For bone marrow testing, if cytogenetic tests are desired along with this test request, an additional specimen should be submitted. It is important that the specimen be obtained, processed, and transported according to instructions for the other test.

Shipping Instructions:
Specimen must arrive within 4 days of collection.

Necessary Information:
The following information is required:
1. Pertinent clinical history including reason for testing or clinical indication/morphologic suspicion.
2. Specimen source
3. For spinal fluid specimens: spinal fluid cell and differential counts are required

Specimen Requirements:
Submit only 1 of the following specimens:

Specimen Type: Whole blood

Container/Tube:
Preferred: Yellow top (ACD solution A or B)
Acceptable: Lavender top (EDTA) or green top (sodium heparin)
Specimen Volume: 6 mL
Slides: If possible, include 5 to 10 unstained blood smears labeled with two unique identifiers
Collection Instructions:
1. Send whole blood specimen in original tube. Do not aliquot.
2. Label specimen as blood.
Specimen Stability Information: Ambient < or =4 days/Refrigerated < or =4 days

Specimen Type: Bone marrow
Container/Tube:
Preferred: Yellow top (ACD solution A or B)
Acceptable: Lavender top (EDTA) or green top (sodium heparin)
Specimen Volume: 1 to 5 mL
Slides: If possible, include 5 to 10 unstained bone marrow aspirate smears, which must be labeled with two unique identifiers.
Collection Instructions:
1. Submission of bilateral specimens is not required.
2. Send bone marrow specimen in original tube. Do not aliquot.
3. Label specimen as bone marrow.
Specimen Stability Information: Ambient < or =4 days/Refrigerated < or =4 days

Specimen Type: Fluid
Sources: Serous effusions, pleural fluid, pericardial fluid, abdominal (peritoneal) fluid
Container/Tube: Body fluid container
Specimen Volume: 20 mL
Collection Instructions:
1. If possible, fluids other than spinal fluid should be anticoagulated with heparin (1 U/mL of fluid).
2. Label specimen with fluid type.
Specimen Stability Information: Refrigerated < or =4 days/Ambient < or =4 days
Additional Information: The volume of fluid necessary to phenotype the lymphocytes or blasts in serous effusions depends upon the cell count in the specimen. Usually, 20 mL of pleural or peritoneal fluid is sufficient. Smaller volumes can be used if there is a high cell count.

Specimen Type: Spinal fluid
Container/Tube: Sterile vial
Specimen Volume: 1 to 1.5 mL
Collection Instructions:
1. An original cytospin preparation (preferably unstained) should be included with the spinal fluid specimen so correlative morphologic evaluation can occur.
2.. Label specimen as spinal fluid.
Specimen Stability Information: Refrigerated < or =4 days/Ambient < or =4 days
Additional Information: The volume of fluid necessary to phenotype the lymphocytes or blasts in spinal fluid depends upon the cell count in the specimen. A cell count should be determined and submitted with the specimen. Usually 1 to 1.5 mL of spinal fluid is sufficient. Smaller volumes can be used if there is a high cell count. If cell count is <10 cells/mcL, a larger volume of spinal fluid may be required. When cell counts drop below 5 cells/mcL, the immunophenotypic analysis may not be successful.

Specimen Minimum Volume:
Blood: 3 mL
Bone marrow: 0.5mL
Spinal fluid: 1 mL
Fluid from serous effusions: 5 mL

Forms:
1. Hematopathology Patient Information (T676)
2. If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Hematopathology/Cytogenetics Test Request (T726)
-Benign Hematology Test Request (T755)

Specimen Type	Temperature	Time	Special Container
Varies	Varies		

Ask at Order Entry (AOE) Questions:

Test ID	Question ID	Description	Type	Reportable
LCMS	CKR1	Reason for Referral	Plain Text	Yes
LCMS	CKS1	Specimen Source: • Bone Marrow • Peripheral blood • Cerebral spinal fluid • Pleural • Peritoneal • Pericardial • Other body fluid	Answer List	Yes
AMLMF	GC097	Reason for Referral	Plain Text	No
AMLMF	GC098	Probes Requested	Plain Text	No
AMLMF	GC099	Specimen: • Whole blood ACD • Bone marrow ACD • Whole blood Na Hep • Bone marrow Na Hep • Whole blood EDTA • Bone marrow EDTA	Answer List	No
AMLAF	GC059	Reason for Referral	Plain Text	No

Test ID	Question ID	Description	Type	Reportable
AMLAF	GC060	Specimen: • Whole blood ACD • Bone marrow ACD • Whole blood Na Hep • Bone marrow Na Hep • Whole blood EDTA • Bone marrow EDTA	Answer List	No

Result Codes:

Result ID	Reporting Name	Type	Unit	LOINC®
CK155	LCMS Result	Alphanumeric		No LOINC Needed
18255	Final Diagnosis:	Alphanumeric		34574-4
18254	Special Studies:	Alphanumeric		30954-2
18253	Microscopic Description	Alphanumeric		22635-7
CKR1	Reason for Referral	Alphanumeric		42349-1
CKS1	Specimen Source	Alphanumeric		31208-2

LOINC and CPT codes are provided by the performing laboratory.

Supplemental Report:
No

CPT Code Information:

88184-Flow cytometry; first cell surface, cytoplasmic or nuclear marker x 1
88185-Flow cytometry; additional cell surface, cytoplasmic or nuclear marker (each)
88187-Flow Cytometry Interpretation, 2 to 8 Markers (if appropriate)
88188-Flow Cytometry Interpretation, 9 to 15 Markers (if appropriate)
88189-Flow Cytometry Interpretation, 16 or More Markers (if appropriate)

Reflex Tests:

Test ID	Reporting Name	CPT Units	CPT Code	Always Performed	Orderable Separately

Test ID	Reporting Name	CPT Units	CPT Code	Always Performed	Orderable Separately
FCINT	Flow Cytometry Interp, 2-8 Markers			No	No (Bill Only)
FCIMS	Flow Cytometry Interp, 9-15 Markers			No	No (Bill Only)
FCINS	Flow Cytometry Interp,16 or greater			No	No (Bill Only)
FIRST	Flow Cytometry, Cell Surface, First			Yes	No (Bill Only)
ADD1	Flow Cytometry, Cell Surface, Addl			Yes	No (Bill Only)
AMLMF	AML, Specified FISH			No	Yes
AMLMB	Probe, Each Additional (AMLMF)			No	No (Bill Only)
AMLAF	Adult AML, FISH			No	Yes
AMLAB	Probe, Each Additional (AMLAF)			No	No (Bill Only)

Result Codes for Reflex Tests:

Test ID	Result ID	Reporting Name	Type	Unit	LOINC®
AMLMF	614204	Result Summary	Alphanumeric		50397-9
AMLMF	614205	Interpretation	Alphanumeric		69965-2
AMLMF	614206	Result Table	Alphanumeric		93356-4
AMLMF	614207	Result	Alphanumeric		62356-1
AMLMF	GC097	Reason for Referral	Alphanumeric		42349-1
AMLMF	GC098	Probes Requested	Alphanumeric		78040-3
AMLMF	GC099	Specimen	Alphanumeric		31208-2
AMLMF	614208	Source	Alphanumeric		31208-2
AMLMF	614209	Method	Alphanumeric		85069-3
AMLMF	614210	Additional Information	Alphanumeric		48767-8
AMLMF	614211	Disclaimer	Alphanumeric		62364-5
AMLMF	614212	Released By	Alphanumeric		18771-6
AMLAF	609518	Result Summary	Alphanumeric		50397-9

Test ID	Result ID	Reporting Name	Type	Unit	LOINC®
AMLAF	609519	Interpretation	Alphanumeric		69965-2
AMLAF	609520	Result Table	Alphanumeric		93356-4
AMLAF	609521	Result	Alphanumeric		62356-1
AMLAF	GC059	Reason for Referral	Alphanumeric		42349-1
AMLAF	GC060	Specimen	Alphanumeric		31208-2
AMLAF	609522	Source	Alphanumeric		31208-2
AMLAF	609523	Method	Alphanumeric		85069-3
AMLAF	609524	Additional Information	Alphanumeric		48767-8
AMLAF	609525	Disclaimer	Alphanumeric		62364-5
AMLAF	609526	Released By	Alphanumeric		18771-6

Reference Values:

An interpretive report will be provided.