

Chronic Lymphocytic Leukemia Minimal Residual Disease Detection by Flow Cytometry

Chronic lymphocytic leukemia (CLL) is the most common cancer of the blood and can involve lymph nodes, bone marrow, and peripheral blood. Patients undergoing treatment for CLL can be tested for evidence of remaining malignant cells in the bone marrow and peripheral blood to determine the effectiveness of therapy and aid in prognosis.

Test Interpretation

Clinical Sensitivity

Limit of detection: 0.0039%

Limit of quantification: 0.01%

- Sensitivity is dependent on the quality of the sample (sensitivity is lower in some samples, particularly hypocellular or hemodilute samples) and the immunophenotype of the malignant cells.

Results

- Results may be reported as:
 - **Positive** for residual CLL/small lymphocytic lymphoma (SLL)
 - **Positive** but below the limit of quantitation for residual CLL/SLL
 - **Negative** for residual CLL/SLL
 - **Suspicious** for residual CLL/SLL
 - **Suboptimal** specimen without evidence of residual CLL/SLL
- Aberrant cells will be reported as percentage of total viable leukocytes
- Marker expression on aberrant cells will be reported with respect to the normal B-cell population (per the Bethesda recommendations for flow cytometry reporting)

Limitations

- Poor cell viability may adversely affect antigens and impede the ability to properly identify neoplastic cells
- Number of events collected may affect sensitivity
- Test does not assess for aberrant myeloid cells/blasts or T-cell or other B-cell lymphoproliferative neoplasms

Featured ARUP Testing

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Method: Flow Cytometry

- Aids in monitoring therapy in individuals with an established diagnosis of CLL
- Use for detection of minimal residual disease (MRD) in patients after treatment for CLL/small lymphocytic lymphoma (SLL)
- Not appropriate for initial diagnosis of CLL

For additional information on CLL testing, refer to the ARUP Consult [Chronic Lymphocytic Leukemia - CLL](#) topic.

- Flow results should not be used alone to diagnose malignancy
- Should be interpreted in conjunction with morphology, clinical information, and other necessary ancillary tests for a definitive diagnosis

Related Information

Chronic Lymphocytic Leukemia - CLL

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