

Neoplastic Mature T-Cell Evaluation by Flow Cytometry

TO MONITOR DISEASE LEVELS OR TREATMENT RESPONSES OF PATIENTS WITH SÉZARY SYNDROME AND OTHER MATURE T-CELL NEOPLASMS

Clinical Background

Most mature T-cell neoplasms (approximately 80 percent) can be identified by flow cytometry immunophenotyping studies because they show phenotypic abnormalities of pan-T-cell and other antigens, relative to normal T-cells. This test employs a T-cell restricted antibody panel and represents a more cost-effective way to monitor disease levels using flow cytometry in patients with previously immunophenotypically characterized T-cell neoplasms, compared to flow cytometry tests designed to also characterize B-cell and myeloid populations.

Indications for Use

This test can be used to monitor treatment responses and/or follow disease levels in peripheral blood specimens for most patients with Sézary syndrome and other mature T-cell neoplasms who have had prior flow cytometry immunophenotyping studies.

Additional Ordering Notes

- A mature T-cell malignancy diagnosis with peripheral blood involvement should be established prior to ordering this test. If flow cytometry studies have not been previously performed, it is recommended a comprehensive Leukemia/Lymphoma Phenotyping test (0095244, 0095243, or 0096299) be initially ordered instead of this test. If the prior flow cytometry studies were not done at ARUP, the report and associated histograms (if possible) should be submitted with the specimen.
- It is also recommended a T-cell clonality by flow cytometry analysis of TCR V-beta test (0093199) be ordered on the initial evaluation to help insure the phenotypically abnormal T-cell population is monoclonal unless the abnormal T-cell population is known to express a gamma-delta antigen receptor.

Limitations

Results of this test should always be correlated with clinicopathologic and other relevant data, and not be used alone for a diagnosis of T-cell malignancy. This test requires the neoplastic T-cells show definitive phenotypic aberrancies relative to normal T-cells, which may be more difficult to assess in non-peripheral blood specimens.

Methodology

Leukocytes are stained with antibodies specific for CD2, CD3, CD4, CD5, CD7, CD8, CD16, CD25, CD26, CD56, and alpha-beta TCR, and then analyzed using five-color flow cytometry. In some cases, additional antibodies may be used, if needed, or if prior flow cytometry studies indicate they are necessary to distinguish the neoplastic population of interest from normal T-cells that may be present.

References

1. Jamal S, et al. Immunophenotypic analysis of peripheral T-cell neoplasms. A multiparameter flow cytometric approach. *Am J Clin Pathol* 2001;116:512-26.
2. Jones D, et al. Absence of CD26 expression is a useful marker for diagnosis of T-cell lymphoma in peripheral blood. *Am J Clin Pathol* 2001;115:885-92.
3. Lundell R, et al. T-cell large granular lymphocyte leukemias have multiple phenotypic abnormalities involving pan-T-cell antigens and receptors for MHC molecules. *Am J Clin Pathol* 2005;124:937-46.
4. Morice WG, et al. A comparison of morphologic features, flow cytometry, TCR-Vbeta analysis, and TCR-PCR in qualitative and quantitative assessment of peripheral blood involvement by Sézary syndrome. *Am J Clin Pathol* 2006;125:364-74.

Test Information

0093000 Neoplastic Mature T-Cell Evaluation by Flow Cytometry

For specific collection, transport, and testing information, refer to the ARUP Web site at www.aruplab.com.