MAYO CLINIC LABORATORIES

Test Definition: CSMRT

mSMART Plasma Cell Proliferative Disorder, Pre-Analysis Cell Sorting, Bone Marrow

Overview

Useful For

Risk stratification of patients with multiple myeloma, which can assist in determining treatment and management decisions

Sorting plasma cells for FISH analysis

Risk stratification of patients with newly diagnosed multiple myeloma

Method Name

Only orderable as a reflex. See MSMRT / Mayo Algorithmic Approach for Stratification of Myeloma and Risk-Adapted Therapy Report, Bone Marrow

Flow Cytometric Cell Selection

NY State Available

Yes

Specimen

Specimen Type

Bone Marrow

Specimen Required

Only orderable as a reflex. See MSMRT / Mayo Algorithmic Approach for Stratification of Myeloma and Risk-Adapted Therapy Report, Bone Marrow

Specimen Type: Redirected bone marrow
Preferred: Yellow top (ACD)
Acceptable: Lavender top (EDTA) or green top (heparin)
Specimen Volume: 4 mL

Specimen Minimum Volume

1 mL

Reject Due To

Gross hemolysis	Reject
Other	Fully clotted

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Bone Marrow	Ambient (preferred)	4 days	
	Refrigerated	4 days	

Clinical & Interpretive

Clinical Information

Multiple myeloma is increasingly recognized as a disease characterized by marked cytogenetic, molecular, and proliferative heterogeneity. This heterogeneity is manifested clinically by varying degrees of disease aggressiveness. Multiple myeloma patients with more aggressive disease experience suboptimal responses to some therapeutic approaches; therefore, identifying these patients is critically important for selecting appropriate treatment options.

MSMRT / Mayo Algorithmic Approach for Stratification of Myeloma and Risk-Adapted Therapy Report, Bone Marrow classifies patients into either standard or high-risk categories based on the results of 2 assays: plasma cell proliferation and FISH for specific multiple myeloma-associated abnormalities.

Reference Values

Only orderable as a reflex. See MSMRT / Mayo Algorithmic Approach for Stratification of Myeloma and Risk-Adapted Therapy Report, Bone Marrow

An interpretive report will be provided.

Interpretation

Correlation with clinical, histopathologic and additional laboratory findings is required for final interpretation of these results. The final interpretation of results for clinical management of the patient is the responsibility of the managing physician.

Cautions

No significant cautionary statements

Clinical Reference

1. Rajkumar SV, Greipp PR: Prognostic factors in multiple myeloma. Hematol Oncol Clin North Am 1999 Dec;13(6):1295-1314
2. Garcia-Sanz R, Gonzalez-Fraile MI, Mateo G, et al: Proliferative activity of plasma cells is the most relevant prognostic factor in elderly multiple myeloma patients. Int J Cancer 2004 Dec 10;112(5):884-889
3. Orfao A, Garcia-Sanz R, Lopez-Berges MC, et al: A new method for the analysis of plasma cell DNA content in multiple myeloma samples using a CD38/propidium iodide double staining technique. Cytometry 1994 Dec 1;17(4):332-339
4. Morice WG, Hanson CA, Kumar S, et al: Novel multi-parameter flow cytometry sensitively detects phenotypically distinct plasma cell subsets in plasma cell proliferative disorders. Leukemia 2007 Sep;21(9):2043-2046
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multiple myeloma: a Mayo Stratification of Myeloma and Risk-Adapted Therapy (mSMART) consensus statement. Bone Marrow Transplant. 2019;54(3):353–367. doi:10.1038/s41409-018-0264-8
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7. Mikhael JR, Dingli D, Roy V, et al. Management of newly diagnosed symptomatic multiple myeloma: updated Mayo Stratification of Myeloma and Risk-Adapted Therapy (mSMART) consensus guidelines 2013 [published correction appears in Mayo Clin Proc. 2013 Jul;88(7):777. Stewart, Keith [corrected to Stewart, A Keith]]. Mayo Clin Proc. 2013;88(4):360–376. doi:10.1016/j.mayocp.2013.01.019
8. Swerdlow S, Campo E, Harris NL, et al: WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. IARC Press: Lyon. 2017
9. Kumar SK, Rajkumar SV: The multiple myelomas-current concepts in cytogenetic classification and therapy. Nat Rev Clin Oncol 2018;15(7):409-421 doi:10.1038/s41571-018-0018-y
10. Rajkumar SV, Landgren O, Mateos MV: Smoldering multiple myeloma. Blood 2015 May 14;125(20):3069-3075 doi:10.1182/blood-2014-09-568899

Performance

Method Description
Selection of plasma cells using fluorescence activated cell sorting is the most direct and robust method of obtaining relatively pure plasma cell populations for FISH assessment.(Operator's Guide: Cell Sorter, Sony Corporation. LE-SH800, 2015)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
1 to 11 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification

This test was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

88184-Flow Cytometry; first cell surface, cytoplasmic or nuclear marker
88185 x 5-Flow Cytometry, additional cell surface, cytoplasmic or nuclear marker (each)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CSMRT	MPCDS Pre-Analysis Cell Sorting, BM	No LOINC Needed

Result ID	Test Result Name	Result LOINC® Value
607682	MPCDS Pre-Analysis Cell Sort	No LOINC Needed
607688	Final Diagnosis	No LOINC Needed