Patient ID	Patient Name		Birth Date	Sex	Age
SA00155801	TESTINGRNV, MSMRD		1995-06-15	F	27
Order Number	**Client Order Number**	**Ordering Physician**	**Report Notes**		
SA00155801	SA00155801	CLIENT,CLIENT			
Account Information		**Collected**			
C7028846 DLMP Rochester		12 Dec 2022 09:00			

MPCDS Pre-Analysis Cell Sorting, BM

MPCDS Pre-Analysis Cell Sort

1 MCR

Performed

ADDITIONAL INFORMATION

Flow cytometric cell selection was performed with antibodies to the following antigens: CD19, CD38, CD45, CD56, CD138, and CD319.

Specimen enrichment for certain cell types is necessary, in order to enhance the sensitivity of genetic/molecular abnormalities detection in the cell population of interest, and to avoid unwanted contamination from other cell types. Flow cytometric cell sorting is the most direct and robust method of obtaining a pure population for subsequent genetic/molecular analysis, through assessment of a characteristic combination of cell surface antigens.

Received: 13 Dec 2022 14:38 **Reported:** 13 Dec 2022 14:57

Performing Site Legend

Code	Laboratory	Address	Lab Director	CLIA Certificate
MCR	Mayo Clinic Laboratories - Rochester Main Campus	200 First Street SW, Rochester, MN 55905	William G. Morice M.D. Ph.D	24D0404292

Patient ID	Patient Name		Birth Date	Sex	Age
SA00155801	TESTINGRNV, MSMRD		1995-06-15	F	27
Order Number	**Client Order Number**	**Ordering Physician**	**Report Notes**		
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C7028846 DLMP Rochester		12 Dec 2022 09:00			

mSMART Eval, PCPDs, FISH

mSMART Result Summary

MCR

High-Risk

mSMART Evaluation

MCR

Based on the mSMART algorithm, this patient is in the HIGH RISK category. The Monotypic Plasma Cells S-phase (MSMRT) result was >2.0% (reported separately).

Note: The Monotypic Plasma Cells DNA Ploidy (MSMRT) result was Hyperdiploid (reported separately).

The Mayo Stratification for Myeloma and Risk Adapted Therapy (mSMART 3.0) algorithm classifies patients into standard or high risk categories based on the results of 2 assays. The high risk group includes patients with any of the following defined by FISH: t(14;20), t(14;16), t(4;14),1q duplication or 17p deletion (TP53 deletion) or patients with a Monotypic Plasma Cells S-phase (MSMRT) result of ≥ 2.0%. The standard risk group includes patients with all remaining results, including: Monotypic Plasma Cells S-phase (MSMRT) <2.0%, Monotypic Plasma Cells DNA Ploidy (MSMRT) result was Hyperdiploid and FISH abnormalities including hyperdiploidy (multiple trisomies), t(11;14), or t(6;14). This classification is best used for newly diagnosed multiple myeloma. The interpretation may not be appropriate in monoclonal gammopathy of undetermined significance (MGUS), amyloidosis, or smoldering myeloma (mSMART 3.0, https://www.msmart.org/mm-treatment-guidelines.html).

Note: Due to the application of a new classification criteria (mSMART 3.0, www.msmart.org/mm-treatment-guidelines.html), any follow up testing on samples previously positive for either a t(4;14), 1q duplication or monotypic plasma cell S-phase ≥ 2% evaluated using the mSMART 2.0 algorithm will now be classified as HIGH RISK using the updated mSMART 3.0 algorithm. This adjustment in risk is due to a new classification criteria and does not imply disease progression.

Interpretation

MCR

The result is within normal limits for the plasma cell FISH panel.

Since sufficient plasma cells were observed and no clonal abnormalities were identified by the FISH panel in this sample, this result may represent a plasma cell clone with genetic abnormalities not evaluated by this panel, polyclonal plasma cells, or a different plasmacytoid malignancy. Evaluation for mutations in MYD88 may be considered. For more information, please call 800–533–1710.

Result Table

MCR

Abnormality Name	Result	#Abn	TotalCells
-17p13.1(TP53x1,D17Z1x2)	Normal	0	50
-17(TP53,D17Z1)x1	Normal	0	50
+1q22(TP73x2,1q22x3)	Normal	0	50
14q32(IGH sep)	Normal	0	50
t(11;14) CCND1-XT/IGH-XT fusion	Normal	0	50
8q24.1(MYC sep)	Normal	0	50
-13q14(RB1x1,LAMP1x2)	Normal	0	50
-13(RB1,LAMP1)x1	Normal	0	50

Result

MCR

Interphase FISH is normal for all loci studied.

Reason for Referral

MCR

Plasma cell proliferative disorder (PCPD)

Specimen

MCR

Bone Marrow

Source

MCR

Left posterior iliac crest

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C7028846 DLMP Rochester		12 Dec 2022 09:00			

Method

MCR

Locus and probes	[Strategy;#Nuclei;Class]
1p36.3(TP73), 1q22(1q22)	[COPY#;50;LDT]
8q24(5'MYC,3'MYC)	[BAP;50;AM]
13q14(RB1), 13q34(LAMP1)	[COPY#;50;AM]
14q32(3'IGH,5'IGH)	[BAP;50;LDT]
17p13(TP53), 17CEN(D17Z1)	[COPY#;50;AM]

Probe strategies include:
BAP=break-apart probe;
COPY#=region gain and loss.
Scoring Method: Manual

Probe vendors include:
LDT = Mayo Clinic Developed
AM = Abbott Molecular, Inc (Des Plaines, IL)

Disclaimer

MCR

Applicable to Analyte Specific Reagent (ASR) and Laboratory Developed Tests (LDT). This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the U.S. Food and Drug Administration. This FISH test does not rule out other chromosome abnormalities.

Released By

MCR

RICHARD WANG

Received: 13 Dec 2022 14:38 **Reported:** 13 Dec 2022 15:38

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C7028846 DLMP Rochester		12 Dec 2022 09:00			

mSMART with Reflex to MRD, BM

Final Diagnosis

[1] MCR

Bone marrow, flow cytometric immunophenotyping:

1. Plasma cells express: monotypic kappa cytoplasmic immunoglobulin light chains, CD19, CD38 and CD138. They do not express: CD45.

Comment:
S-phase of ≥2% is associated with less favorable prognosis in patients with myeloma. It implies high-risk by mSMART stratification, in the absence of cytogenetic abnormalities. Correlation with plasma cell FISH results is recommended. For further details please see msmart.org.

Plasma cells, (monoclonal/monotypic and polyclonal/polytypic) are detected by immunoglobulin light chain restriction, surface immunophenotype, and DNA content. If present, the light chain expressed by the monotypic plasma cells is indicated. The percentage of clonal plasma cells estimated by flow cytometry is affected by specimen processing and antigen loss with specimen aging. Manual differential counting remains the accepted standard for determining the bone marrow plasma cell percentage.

The percentage of monotypic plasma cells in S-phase of the cell cycle is determined by quantitative DNA analysis. The DNA index is a calculated value. The presence of more than one value indicates the presence of cell populations with differing DNA contents within the monotypic plasma cells.

Method:
Plasma cell analysis was performed with antibodies to the following antigens: CD19, CD38, CD45, CD138, kappa and lambda cytoplasmic immunoglobulin light chains and DAPI.

Reviewed by: SHANDA VOELTZ

Monotypic Plasma Cells:

MCR

Monotypic kappa plasma cells present.

Reference Value
None detected.

Monotypic PC per Total Events

MCR

12.21 %

Monotypic Plasma Cells S-phase

MCR

2.2 %

Monotypic Plasma Cells DNA Index

MCR

1.24

Reference Value
0.95–1.05

Monotypic Plasma Cells DNA Ploidy

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Hyperdiploid

Reference Value
Diploid

Polytypic PC per Total Events

MCR

0.1 %

Polytypic PC per All Plasma Cells

MCR

< 5.0 %

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Laboratory Notes

[1] 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 U.S. Food and Drug Administration.

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