Patient ID	Patient Name		Birth Date	Gender	Age
SA00322419	TESTINGRNV, MSMRT		1985-11-25	M	31
Order Number	**Client Order Number**	**Ordering Physician**	**Report Notes**		
SA00322419	SA00322419	CLIENT,CLIENT			
Account Information		**Collected**			
C7028846 DLMP Rochester		26 Jan 2017 13:35			

mSMART Eval, PCPD, FISH

mSMART Result Summary

MCR

High-Risk

Interpretation

MCR

The result is abnormal and indicates a plasma cell clone with deletion of the TP53 gene region and CCND1-XT/IGH-XT fusion; t(11;14). At diagnosis, a TP53 deletion has been associated with an unfavorable prognosis in multiple myeloma, irrespective of any other abnormalities detected. The prognostic significance for this clone in MGUS, amyloidosis, or smoldering multiple myeloma is unknown (Gertz et al., Blood 106:2837–2840, 2005).

Result Table

MCR

Abnormality Name	Result	# Abn	Total Cells
14q32(IGH sep)	Abnormal	47	50
t(11;14) CCND1-XT/IGH-XT fusion	Abnormal	48	50
+11(CCND1-XTx3)	Normal	0	50
-17p13.1(TP53x1,D17Z1x2)	Abnormal	45	50
-17(TP53,D17Z1)x1	Normal	0	50
-13q14(RB1x1,LAMP1x2)	Normal	0	50
-13(RB1,LAMP1)x1	Normal	0	50
+9CEN(D9Z1x3)	Normal	0	50
+15CEN(D15Z4x3)	Normal	0	50
+7CEN(D7Z1x3)	Normal	0	50
+3CEN(D3Z1x3)	Normal	0	50
8q24.1(MYC sep)	Normal	0	50
+1q22(TP73x2,1q22x3)	Normal	0	50
+1(TP73,1q22)x3	Normal	0	50

Result

MCR

nuc ish(CCND1-XT,IGH-XT)x3(CCND1-XT con IGHx2),(TP53x1,D17Z1x2)

mSMART Evaluation

MCR

Based on the mSMART algorithm, this patient is in the HIGH RISK category. Plasma cell FISH studies identified a chromosome 17p deletion.

The Mayo Stratification for Myeloma and Risk Adapted Therapy (mSMART 2.0) algorithm classifies patients into standard, intermediate, 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) or 17p deletion (TP53 deletion). The intermediate risk group includes patients with a monotypic plasma cell S-phase of ≥ 2.0% or FISH results of t(4;14) or 1q duplication. The standard risk group includes patients with all remaining results, including: monotypic plasma cell S-phase <2.0% 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 (Mikhael J, et al., Mayo Clin Proc 88:360 376, 2013).

Reason for Referral

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Plasma cell proliferative disorder (PCPD)

Specimen

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Bone Marrow

Source

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Left posterior iliac crest

Performing Site Legend

Code	Laboratory	Address
MCR	Mayo Clinic Laboratories - Rochester Main Campus	200 First Street SW, Rochester, MN 55905

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Method

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Locus and probes	[Strategy;#Nuclei;Class]
1p36.3(TP73), 1q22	[COPY#;50;LDT]
3CEN(D3Z1), 7CEN(D7Z1)	[COPY#;50;ASR]
8q24(5'MYC,3'MYC)	[BAP;50;ASR]
9CEN(D9Z1), 15CEN(D15Z4)	[COPY#;50;ASR]
11q13(CCND1-XT), 14q32(IGH-XT)	[DFISH;50;ASR]
13q14(RB1), 13q34(LAMP1)	[COPY#;50;ASR]
14q32(3'IGH,5'IGH)	[BAP;50;LDT]
17p13.1(TP53), 17CEN(D17Z1)	[COPY#;50;ASR]

Probe strategies include: DFISH=dual color, double fusion; BAP=break-apart probe; COPY#=region gain and loss.

Additional Information

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Previous Studies

DATE	SPECIMEN	RESULT
05/09/2015	Marrow	No clonal abnormality was apparent

Disclaimer

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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

Patricia T. Greipp, D.O.

Received: 27 Jan 2017 14:54 **Reported:** 30 Jan 2017 15:06

Performing Site Legend

Code	Laboratory	Address
MCR	Mayo Clinic Laboratories - Rochester Main Campus	200 First Street SW, Rochester, MN 55905

Patient ID	Patient Name		Birth Date	Gender	Age
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SA00322419	SA00322419	CLIENT,CLIENT			
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C7028846 DLMP Rochester		26 Jan 2017 13:35			

mSMART Algorithmic Testing, BM

Final Diagnosis

1 MCR

Bone marrow, flow cytometric immunophenotyping:

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

Comment:
S-phase of ≥2% is associated with less favorable prognosis in patients with myeloma. It implies intermediate-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.

Based on flow cytometric analysis (>0.1% monotypic plasma cells), additional cytogenetic studies are being performed. See separate report for results.

Reviewed by: RYAN RITZER

Monotypic Plasma Cells:

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Monotypic kappa plasma cells present.

Reference Value
None detected.

Monotypic PC per Total Events

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17.7 %

Monotypic Plasma Cells S-phase

MCR

0.3 %

Monotypic Plasma Cells DNA Index

MCR

1.00

Reference Value
0.95–1.05

Monotypic Plasma Cells DNA Ploidy

MCR

Diploid

Reference Value
Diploid

Polytypic PC per Total Events

MCR

0.1 %

Polytypic PC per All Plasma Cells

MCR

< 5.0 %

Received: 27 Jan 2017 14:15 **Reported:** 27 Jan 2017 14:29

Performing Site Legend

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Account Information		**Collected**			
C7028846 DLMP Rochester		26 Jan 2017 13:35			

Laboratory Notes

[1] This test was developed using an analyte specific reagent. Its performance characteristics were 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.

Performing Site Legend

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