FOR MULTIPLE MYELOMA PATIENTS, COMPREHENSIVE FISH TESTING CAN HELP REVEAL A CLEARER PICTURE[1]

Comprehensive FISH testing in patients with Multiple Myeloma may offer additional insight and knowledge about their disease.[1]

In Multiple Myeloma, accuracy in test results matters. Plasma cell enrichment may help enhance the sensitivity of the FISH panel, may help reduce false negatives, and may inform a more personalised care approach.[1-3]

FISH=fluorescence in situ hybridization.

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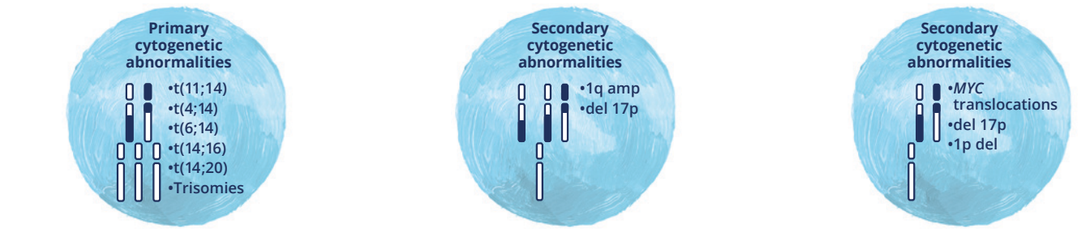
FISH HELPS IDENTIFY GENETIC ABNORMALITIES[4]

Multiple Myeloma is a treatable but incurable blood cancer that occurs when the bone marrow produces clonal plasma cells. It is the second most common haematologic malignancy worldwide.[2]

FISH can help identify IgH translocations, which emerge when normal plasma cells transition to a premalignant state. Knowledge of these IgH translocations is important for patient prognosis and risk stratification.[3-6]

EHA-ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up for Multiple Myeloma recommend karyotype and FISH for detection of del 17p, t(4;14), t(14;16), t(11;14), and ampl 1q/ gain 1q.[7]

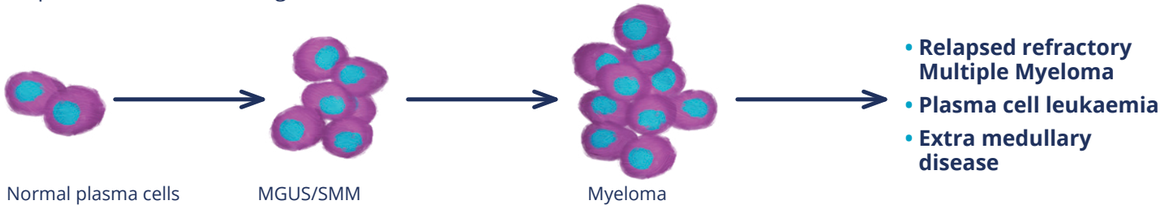


Primary cytogenetic abnormalities are associated with the establishment of the clone.

Secondary cytogenetic abnormalities are associated with a high risk of progression from SMM to Multiple Myeloma.

Secondary cytogenetic abnormalities are associated with adverse prognosis in Multiple Myeloma.

The frequency and extent of karyotypic abnormalities can help determine disease stage, prognosis, and response to disease management.[4]



IgH translocations provide insight into prevalence and risk[3,4]

Over 90% of the translocations observed in all Multiple Myeloma cases involve chromosome 14. Most recurrent translocations involving chromosome 14 are regarded as primary cytogenetic events that initiate tumour development.[8,9]

IgH translocations are observed in 50%-70% of all Multiple Myeloma cases[8]

Translocations of IgH locus that appear most often[8]

Translocation	Gene(s)	Prevalence
t(11;14)(q13;q32)	*CCND1*	15% to 20%
t(4;14)(p16;q32)	*FGFR3* and *MMSET*	10% to 15%
t(14;16)(q32;q23)	*MAF*	2% to 5%
t(6;14)(p21;q32)	*CCND3*	2%
t(14;20)(q32;q12)	*MAFB*	1%

t(11;14) is the most common translocation. This aberration can be identified early and is stable throughout disease progression.

IgH=immunoglobulin heavy-chain gene; MGUS=monoclonal gammopathy of undetermined significance; SMM=smoldering multiple myeloma.

PLASMA CELL ENRICHMENT INCREASES FISH SENSITIVITY AND ACCURACY[3,10,11]

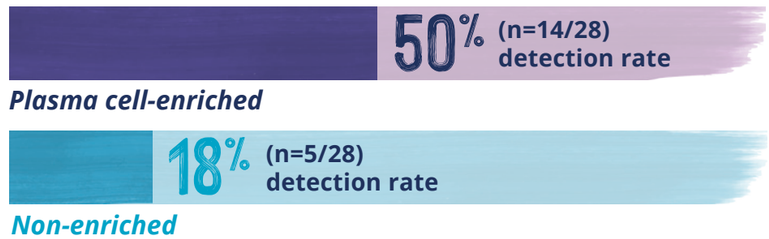
Plasma cell enrichment is a pre-analytical processing step that enhances FISH testing sensitivity by separating and isolating plasma cells.[3,11,12]

Plasma cell enrichment prior to FISH helps enhance the detection of cytogenetic abnormalities, which may help improve appropriate stratification of a patient's risk with a plasma cell neoplasm.[4,6,10]

For these reasons, it is important that plasma cell enrichment is performed prior to FISH testing

See the prognostic value of enhanced sensitivity and accuracy[1,10]

The percentage of cytogenetic abnormalities detected in enriched vs non-enriched samples[1]



Comprehensive cytogenetic testing with PCE can foster personalised patient care

Many existing FISH diagnostic panels may not include key translocations like t(11;14) nor be plasma cell enriched.[10]

Multiple Myeloma patients could benefit from comprehensive FISH testing with PCE at diagnosis and/or relapse to identify key translocations.[3-6]

FISH testing with plasma cell enrichment may help provide enhanced testing sensitivity, reduced false negatives, and a personalised care approach.[1,2]

Plasma cell enrichment prior to FISH can help foster personalised care[2,3]:
- Reveal presence of IgH translocations
- Contribute to patient risk assessment

Potential benefits of personalised care[2,13]:
- Improved cost effectiveness
- Increased patient confidence
- Opportunity to tailor management strategies

Plasma cell enrichment is recommended to enrich bone marrow samples prior to FISH testing.

EHA-ESMO Clinical Practice Guidelines recommend the use of plasma cell enrichment at diagnosis.[7]

The International Myeloma Working Group recommends FISH testing with plasma cell enrichment or cytoplasmic immunoglobulin-enhanced FISH to reduce the risk of low sensitivity for detection of chromosome abnormalities.[14]

FOR MULTIPLE MYELOMA PATIENTS, COMPREHENSIVE FISH TESTING CAN HELP REVEAL A CLEARER PICTURE

FISH testing with plasma cell enrichment may help provide[1,3]:

- Enhanced testing sensitivity
- Reduced false negatives
- Personalised care approach

Together with FISH testing, plasma cell enrichment can improve detection of cytogenetic abnormalities by almost 3x[1]

50% detection rate (n=14/28)
Plasma cell-enriched

18% detection rate (n=5/28)
Non-enriched

Plasma cell enrichment prior to FISH enhances sensitivity of the test to minimise false negatives and improve accuracy[1,11]

Numerous global institutions and clinical practice guidelines recommend the use of plasma cell enrichment in their diagnostic recommendations for Multiple Myeloma[7,14-18]

EHA-ESMO Clinical Practice Guidelines	*International Myeloma Working Group (IMWG)*	*Revised International Staging System (R-ISS) for Multiple Myeloma*
National Comprehensive Cancer Network® (NCCN®) Guidelines for Multiple Myeloma	*College of American Pathologists (CAP)*	*ACMG Technical Standards for Clinical Genetics Laboratories*

See NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for MM, Version 3.2023, for complete recommendations and principles.
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Comprehensive FISH testing=plasma cell enrichment prior to FISH.
FISH=fluorescence in situ hybridization.

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The EHA-ESMO Clinical Practice Guidelines, The National Comprehensive Cancer Network, The College of American Pathologists, The International Myeloma Working Group, The Revised International Staging System (R-ISS) for Multiple Myeloma, and The ACMG Technical Standards for Clinical Genetics Laboratories are not affiliated with this campaign.

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