

Early Detection and Interception of Multiple Myeloma Shows Promise at ASH

New risk score can predict if a patient with a precursor condition is at a high risk for progressing to multiple myeloma.

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Dana-Farber Cancer Institute investigators are leading three separate studies with encouraging results related to the early detection and interception of multiple myeloma. The research teams will present their findings at the [66th American Society of Hematology \(ASH\) Annual Meeting & Exposition](#) in San Diego, Dec. 7 – 10, 2024. ASH is the world’s largest and most comprehensive hematology event of the year.

Multiple-Myeloma-like Score Could Guide Early Intervention for Myeloma Precursor Conditions

Dana-Farber investigators have developed a “Multiple Myeloma-like” (MM-like) score based on genomic markers to help clinicians accurately predict if a patient with a precursor condition is at a high risk of their disease progressing to multiple myeloma. The tool could help clinicians identify patients that might benefit from an early intervention to prevent or delay progression.

Genomic alterations are common in multiple myeloma precursor conditions, monoclonal gammopathy of undetermined significance (MGUS) and smoldering multiple myeloma (SMM). To develop this score, the investigators identified driver genomic alterations that are enriched in MGUS or multiple myeloma disease based on whole-genome sequencing data from over 1,000 patients with precursor conditions or multiple myeloma. The MM-like score takes a broader view of genomics than previously published progression risk models and adds to the prognostication toolbox in the field.

Study Title: A 1,000-Genome Map for Multiple Myeloma and Its Precursor Stages, and Its Impact on Clinical Outcome

Oral Abstract Number: 1019

Presenting and First Author: Jean-Baptiste Alberge, PhD

Senior Author: Irene Ghobrial, MD

Study Reveals Earliest Stages of Multiple Myeloma Disease Development

A study by investigators at Dana-Farber found that abnormal proteins called M-proteins in the blood, also called monoclonal gammopathies, may be present and detectable up to 22 years before a diagnosis of MGUS or multiple myeloma. The study reveals multiple myeloma's earliest stages of disease development, enabling investigators to develop novel strategies for prevention, early detection, and interception of multiple myeloma. The team had previously shown that monoclonal gammopathies can be detected using mass spectrometry.

In this study, they examined blood samples taken from patients prior to diagnosis of an early-stage precursor condition or multiple myeloma. Using mass spectrometry, the team was able to identify the earliest monoclonal gammopathies and trace them over time by tracking the specific B cell clones that produced them. They found that in 77% of cases, one dominant B cell clone emerged and persisted until disease progression. In the remaining 23% of cases, different clones dominated at various times before progression.

Study Title: Early Serum Protein Clonal Dynamics and Competition Precede Monoclonal Gammopathy of Undetermined Significance and Multiple Myeloma Years Before Diagnosis

Oral Abstract Number: 3279

Presenting and First Author: Sabine Allam, MD

Senior Author: Irene Ghobrial, MD

Novel Tool Improves Predictions for Smoldering Multiple Myeloma

Dana-Farber investigators developed a tool called PANGEA 2.0 that improves stratification of patients with smoldering multiple myeloma based on their risk of progression to overt multiple myeloma. The model was created and validated using clinical data from 1,431 participants diagnosed with smoldering multiple myeloma at four international sites including Dana-Farber, National and Kapodistrian University of Athens, Greece, University College London, UK, and University of Navarra, Spain.

The team compared the disease trajectory predicted by PANGEA 2.0 with that predicted by 20/2/20, the current gold standard for stratification of patients with smoldering multiple myeloma. PANGEA 2.0 improved risk predictions made by 20/2/20, particularly for patients with evolving biomarker values. The team advocates for adding the PANGEA 2.0 trajectories to collaborative international studies.

Study Title: Improved Risk Stratification of Smoldering Multiple Myeloma (SMM) Using Trajectory Data in the Pangea 2.0 Model: A Multicenter Study in 1,431 Participants

Oral Abstract Number: 1017

Presenting and First Author: Floris Chabrun, PhD, PharmD

Senior Author: Irene Ghobrial, MD

These findings are among more than 100 studies presented at ASH that are led by Dana-Farber-affiliated researchers.

This [news release](#) was published by the Dana-Farber Cancer Institute on December 4, 2024.

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