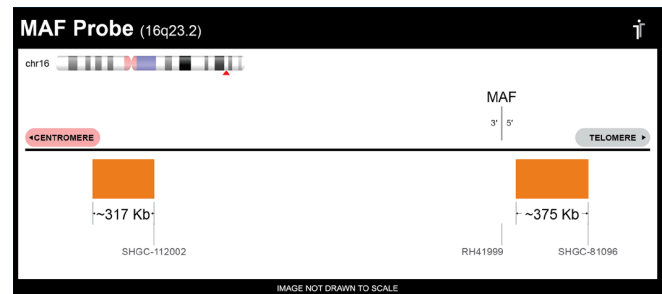
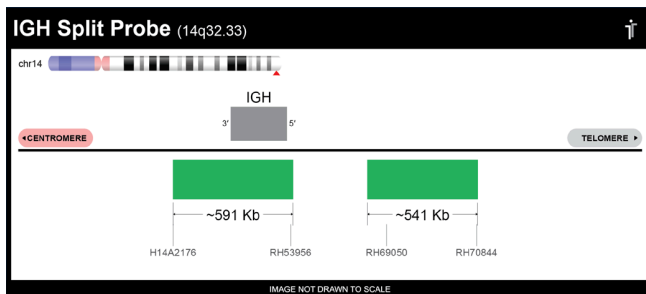


IGH Reflex Panel

FOR MULTIPLE MYELOMA

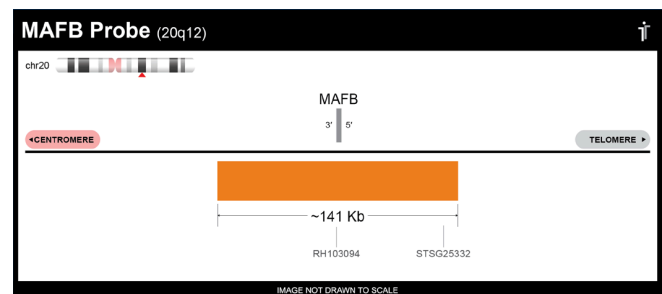
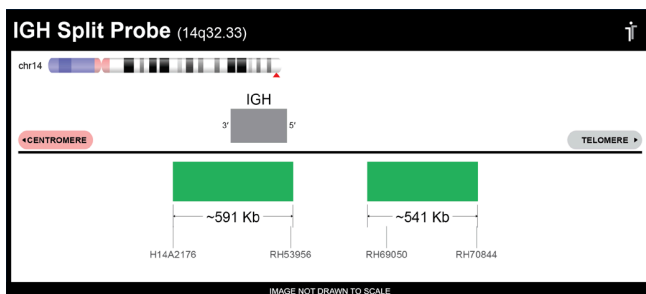
IGH rearrangements are disease-initiating events in up to 40% of multiple myeloma (MM) cases, as well as the MM precursor, monoclonal gammopathy of undetermined significance (MGUS).¹ These rearrangements result in fusions with several recurrent partner genes. Empire Genomics' IGH Reflex FISH Panel is designed to detect 4 major IGH fusions found in MM:

IGH/MAF (IGH-MAF-SPLIT-20-GROR)



The cryptic IGH/MAF fusion subjects MAF to IGH's powerful enhancer, resulting in MAF upregulation in plasma cells. The abnormality occurs in 5% of MM and 1-5% of MGUS patients. It's considered an early stage biomarker for the disease.²

IGH/MAFB (IGH-MAFB-SPLIT-20-GROR)



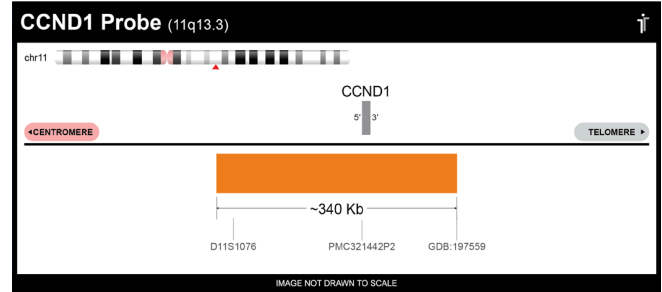
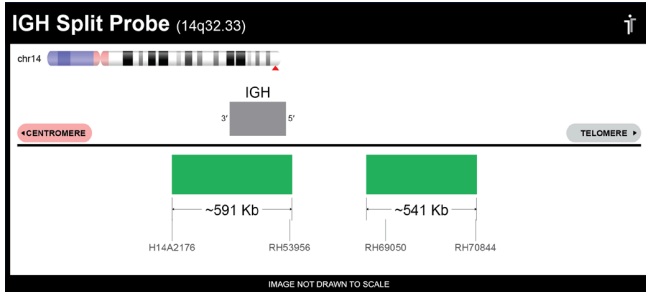
IGH/MAFB fusion is found in about 1% of MM.³ Consistent with other IGH/MAF family fusions, it's considered a high-risk MM marker.³ The fusion upregulates MAFB expression, which promotes transformation of fibroblasts and enhances tumor cell proliferation.⁴

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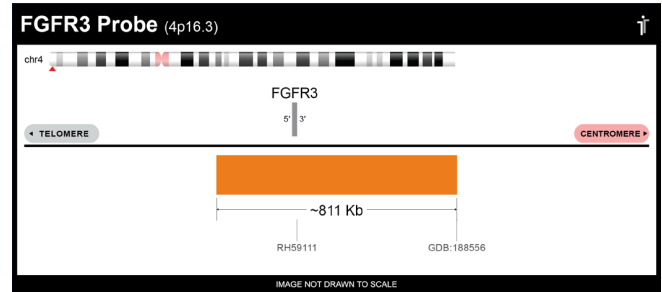
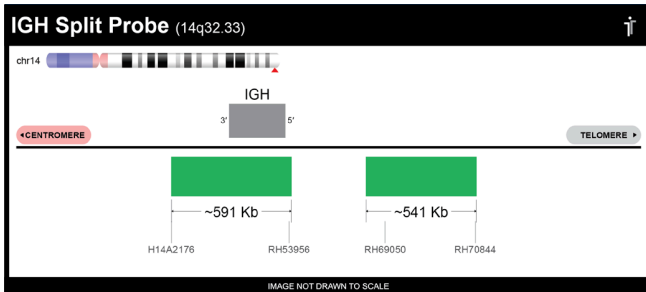
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IGH/CCND1 (CCND1-IGH-SPLIT-20-ORGR)



CCND1 is found fused to IGH in 15-20% of MM patients, representing the most frequent rearrangement in the disease. The fusion is usually balanced, and occurs alongside monosomy 13 in about 25% of cases. It's considered a standard risk alteration in MM.³

IGH/FGFR3 (FGFR3-IGH-SPLIT-20-ORGR)



IGH/FGFR3 fusion occurs in 15–20% of MM patients. It is frequently detected alongside chromosome 13q deletions. The percentage of plasma cells harboring IGH/FGFR3 increases significantly with disease progression, evidence that the alteration drives MM development.⁵

1. Kim G, et al. (2014) *Genes, Chromosomes and Cancer* 53.6: 467-474. 2. *Atlas of Genetics & Cytogenetics in Oncology & Hematology* (2018). DOI: 10.4267/2042/70210 3. Saxe D, et al. (2019) *International Journal of Laboratory Hematology* 41.1: 5-14. 4. Qiang YW, et al. (2018) *BMC Cancer* 18.1: 724. 5. Kalf A & Spencer A (2012) *Blood Cancer Journal* 2.9: e89-e89

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