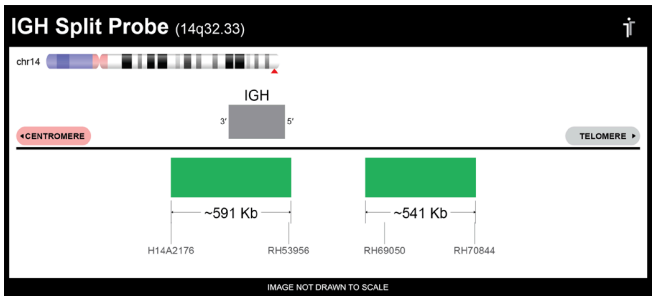
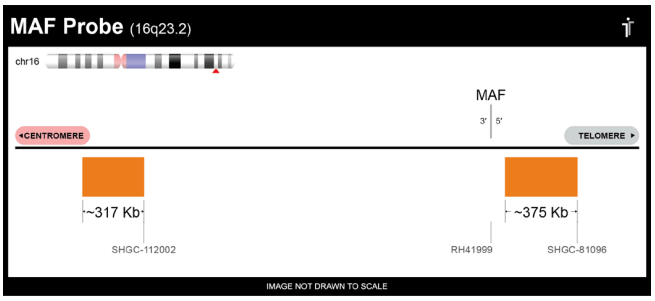
IGH Reflex Panel

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:

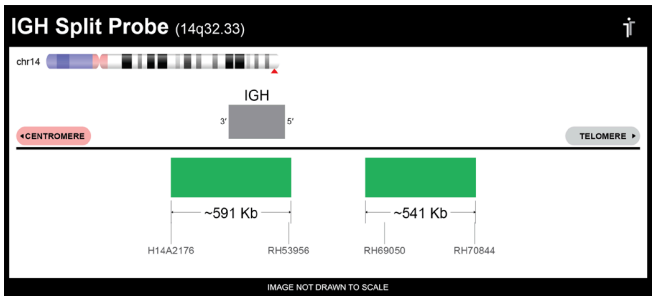
IGH/MAF (IGH-MAF-SPLIT-20-GO-R)

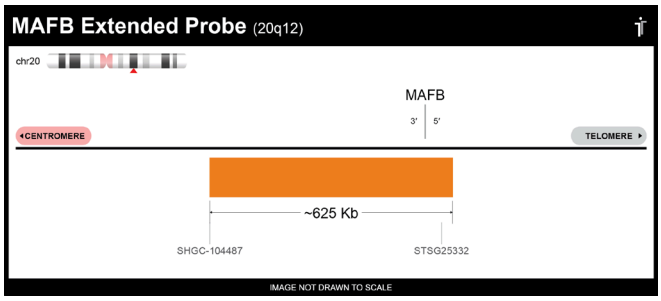




The cryptic IGH/MAF fusion subjects MAF to IGH's powerful enhancer, resulting in MAF upregulation in plasma cells. The abnormality occurs in 5% of MM and 1-5% of MGUS patients. It's considered an early stage biomarker for the disease.[2]

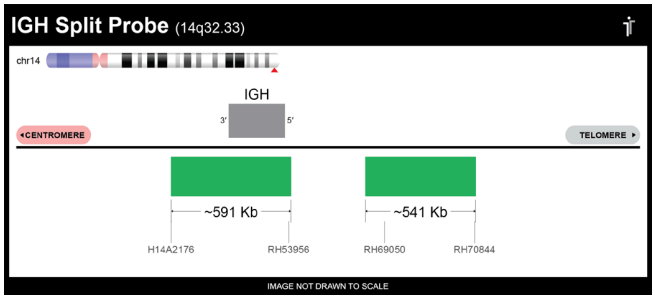
IGH/MAFB (IGH-MAFB-SPLIT-EXT-20-GO-R)

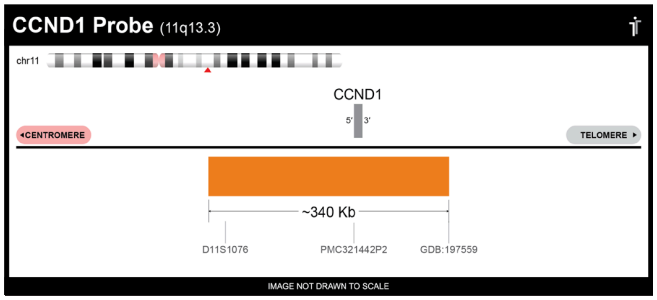




IGH/MAFB fusion is found in about 1% of MM.[3] Consistent with other IGH/MAF family fusions, it's considered a high-risk MM marker.[3] The fusion upregulates MAFB expression, which promotes transformation of fibroblasts and enhances tumor cell proliferation.[4]

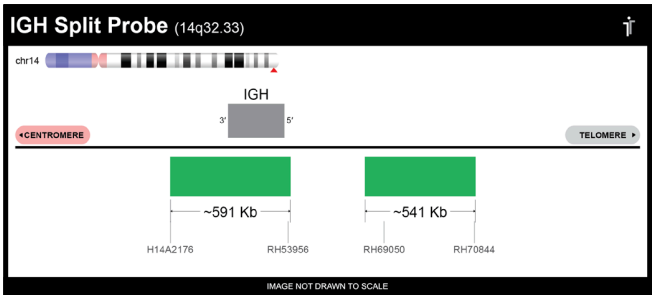
IGH/CCND1 (CCND1-IGH-SPLIT-20-OG-R)

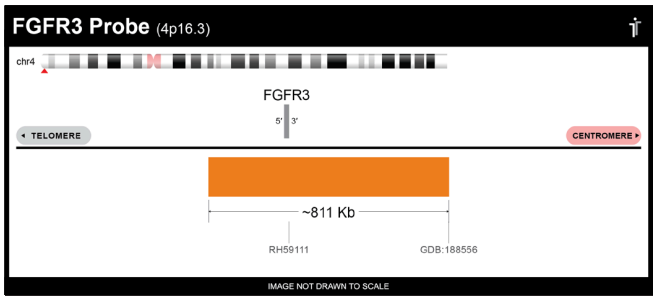




CCND1 is found fused to IGH in 15-20% of MM patients, representing the most frequent rearrangement in the disease. The fusion is usually balanced, and occurrs alongside monosomy 13 in about 25% of cases. It's considered a standard risk alteration in MM.[3]

IGH/FGFR3 (FGFR3-IGH-SPLIT-20-OG-R)





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 Cancer18.1: 724. 5. Kalff A & Spencer A (2012) Blood Cancer Journal 2.9: e89-e89

EMPIRE GENOMICS
a Biocare Medical Company

800.715.5880
3370 Walden Avenue Suite 114
Depew, NY 14043

www.empiregenomics.com