Simplify the switch: **Multiplex with TaqMan MGB probes**

Introduction

Transitioning from singleplex to multiplex assays can be challenging. Applied Biosystems™ TaqMan™ minor groove binder (MGB) probes, featuring an MGB moiety at the 3' end, increase the probe melting temperature, enabling shorter probe lengths and improved sequence discrimination. With a variety of reporter dye options (FAM™, VIC™, ABY™, JUN™, and Cy5™), you can multiplex up to five MGB probes in a single reaction.

Highly specific probes for multiplexing

Applied Biosystems MGB probes offer outstanding specificity and sensitivity for real-time PCR applications. With over 25 years of experience, we use proprietary raw materials and refined manufacturing processes to help ensure exceptional quality and performance. Our MGB-NFQ probes help deliver higher dRn fluorescence signals, earlier Ct values, and greater reproducibility at lower sample inputs compared to other probes. All our processes comply with ISO 13487 standards, providing consistency and reliability.

Maintaining singleplex assay performance in multiplex assays

Applied Biosystems MGB-NFQ probes retain robustness and reliability, even during higher levels of multiplexing. The average Ct shift between singleplex and multiplex is ≤ 1.5 Ct, indicating minimal performance loss. Refer to Figures 1a and 1b.

Singleplexes in separate reactions

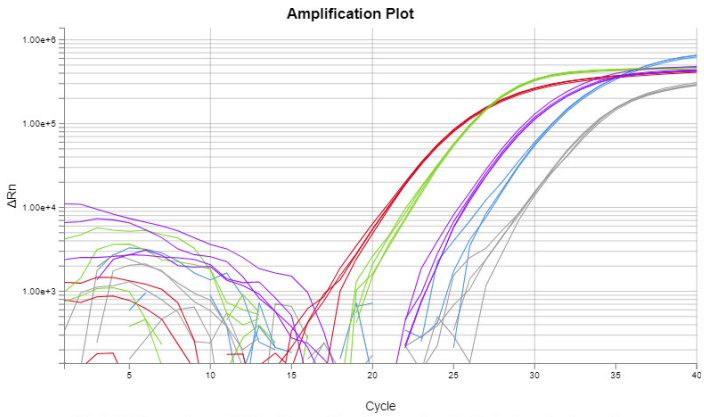

Figure 1a: Amplification plots of assays run in separate, singleplex reactions using FAM (blue), VIC (grey), ABY (red), JUN (green), and Cyanine 5 (purple) MGB-NFQ probes.

Multiplex in a single reaction

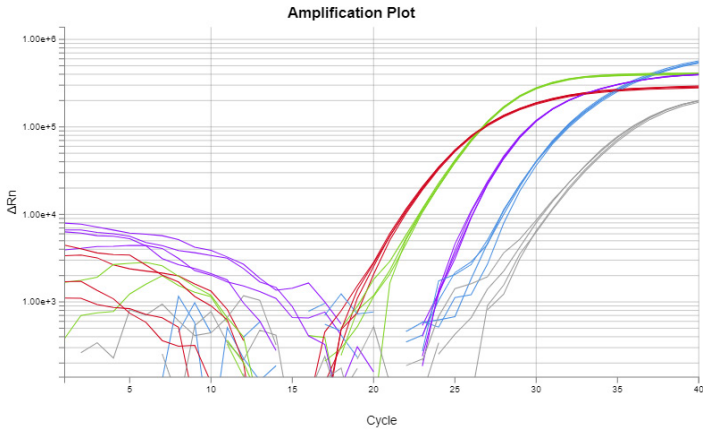

Figure 1b: Multiplex (5-plex) of the same MGB assays using FAM (blue), VIC (grey), ABY (red), JUN (green), and Cyanine 5 (purple) in a single reaction.

Dynamic range and linear performance

Applied Biosystems MGB-NFQ probes maintain a linear dynamic range at increasing multiplex levels (5-plex, 4-plex, 3-plex) with $R^2 \geq 0.990$, indicating that probe specificity is not compromised when transitioning from singleplexing to multiplexing with up to five MGB-NFQ probes.

Probe specifications	
Form	Liquid
5' reporter dye options	FAM, VIC, TET™, NED™, ABY, JUN, and Cyanine 5 (Cy5), dyes
Purification	HPLC
Shelf life	24 months from manufacturing date
Green features	Less waste, sustainable packaging
Shipping condition	Room temperature

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Tools and resources for multiplexing

Thermo Fisher offers several tools to address multiplexing challenges:

- **Multiplex interaction check service:** Check for oligo interactions between assays to minimize adverse primer-probe interactions using the assay design hub service.
- **Custom TaqMan probes and qPCR primers ordering tool:** One-stop shop for buying probes, primers, and master mixes through one integrated tool. See Figure 2.
- **Master mix formulations:** Experience higher-order multiplexing with and without passive reference dye.
- **qPCR instruments:** Equipped with multiple filter sets for broad detection chemistries and optimal multiplexing capabilities.
- **Data analysis software (DA v3.0):** Take advantage of updated algorithms to help you generate better multiplexing data.
- **TaqMan multiplex optimization guide:** Access our step-by-step guidance document for performing multiplex qPCR with TaqMan probes and assays.
- **Specialty TaqMan assays and oligos:** Order custom assays and oligos, including specific formulations, formats, and modifications.

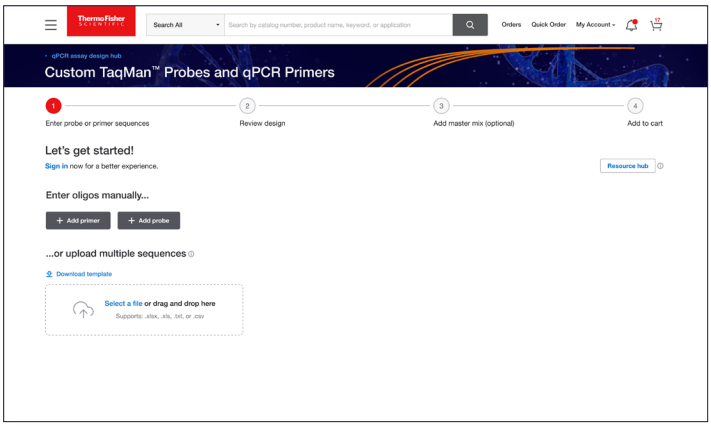

Figure 2: Integrated custom TaqMan probes and qPCR primers ordering tool.

Conclusion

Our broad offering of FAM, VIC, ABY, JUN, and Cyanine 5 MGB-NFQ probes supports your transition from singleplexing to multiplexing, enabling the use of up to five probes in a single reaction. This, combined with our comprehensive suite of multiplexing resources, allows you to confidently build and analyze your multiplex assays.

Ordering information

Product	Size	Cat. No.
FAM, VIC, TET, or NED, MGB probe, 1 tube	6,000 pmol	4316034
FAM, VIC, TET, or NED, MGB probe, 1 tube	20,000 pmol	4316033
FAM, VIC, TET, or NED, MGB probe, 1 tube	50,000 pmol	4316032
ABY, MGB probe, 1 tube	6,000 pmol	A40005000
ABY, MGB probe, 1 tube	20,000 pmol	A40005001
ABY, MGB probe, 1 tube	50,000 pmol	A40005002
JUN, MGB probe, 1 tube	6,000 pmol	A40005003
JUN, MGB probe, 1 tube	20,000 pmol	A40005004
JUN, MGB probe, 1 tube	50,000 pmol	A40005005
Cyanine 5 (Cy5), MGB probe, 1 tube	6,000 pmol	A40005006
Cyanine 5 (Cy5), MGB probe, 1 tube	20,000 pmol	A40005007
Cyanine 5 (Cy5), MGB probe, 1 tube	50,000 pmol	A40005008

Learn more about custom TaqMan MGB probes at **thermofisher.com/mgbprobe**

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