

# PRIMETIME™ qPCR PROBES

Double- and single-quenched probes for use in 5' nuclease assays



**Choose from a wide range of dyes and quenchers,** including several license-free combinations



**Reduce costs and waste** with convenient sizes, starting from 0.5 nmol



**Successfully multiplex** with ZEN™ or TAO™ Double-Quenched Probes for lower background fluorescence, increased endpoint signal and reduced crosstalk



**Begin your project sooner** with rapid shipment for most probes

## DYES AND QUENCHERS FOR EVERY EXPERIMENT

PrimeTime qPCR Probes provide reliable sensitivity even in demanding applications such as multiplexing and digital PCR. PrimeTime qPCR Probes are available in a wide variety of dye-quencher combinations (Table 1) that are compatible with common qPCR instruments.

## ACHIEVE CONSISTENT RESULTS

All PrimeTime Probes are HPLC purified, and then verified by mass spectrometry, to deliver batch-to-batch consistency and minimize the need for troubleshooting.

**Table 1. Commonly used fluorophores and quenchers**

Fluorophore	Emission wavelength (nm)	Quencher
6-FAM*	520	ZEN/lowa Black™ FQ
SUN™*	554	
JOE™*	555	
HEX*	555	
MAX™*	557	
Cy® 3	564	lowa Black RQ†‡
ATTO™ 550§	575	
ROX	608	
Texas Red® -X	617	
ATTO 647N§	662	
Cy 5¥	668	
Cy 5.5	706	Black Hole Quencher®-3¶

\* Probes with 6-FAM, SUN, JOE, MAX, or HEX fluorophores are also available as traditional, single-quenched probes with either lowa Black FQ (license free) or Black Hole Quencher-1 (additional third-party licenses required for diagnostic use).

† Black Hole Quencher-2 (BHQ2) may also be used as a quencher (additional third-party licenses required for diagnostic use).

‡ Double-quenched probes available as a custom order.

§ ATTO-labeled probes available as a custom order.

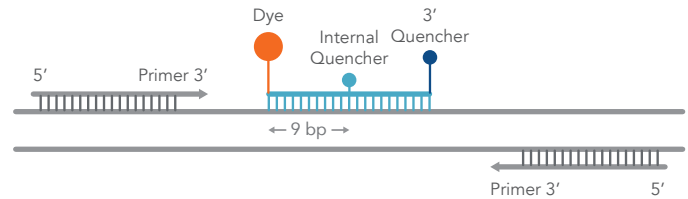
¥ Cy 5 is also available as a single-quenched probe with BHQ2 (additional third-party licenses required for diagnostic use).

¶ Available as research use only.

> [WWW.IDTDNA.COM](http://WWW.IDTDNA.COM)

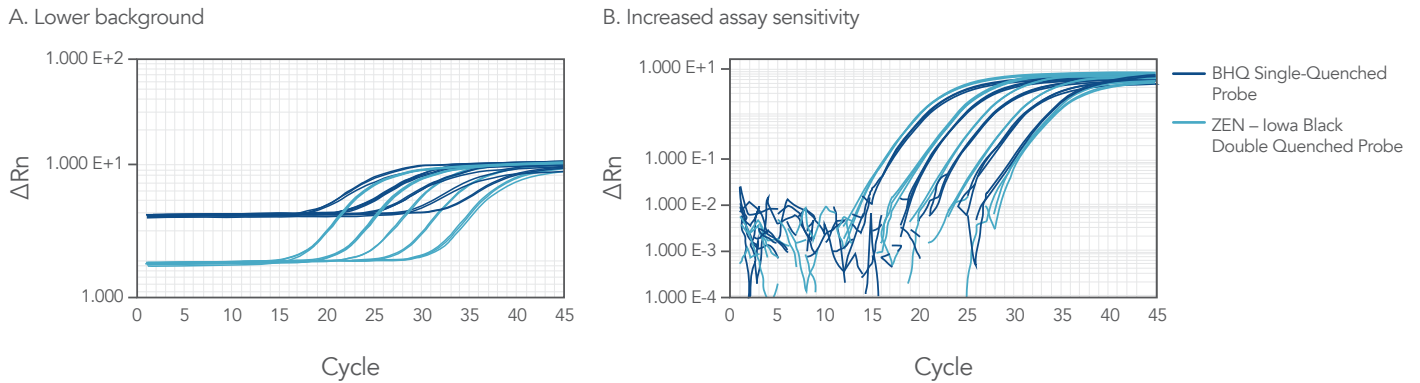
## IMPROVE ASSAY SENSITIVITY WITH DOUBLE-QUENCHED PROBES

Reduce background and increase assay sensitivity with ZEN or TAO Double-Quenched Probes. Our exclusive internal quenchers are 9 bases from the 5' fluorophore and work in combination with the 3' Iowa Black quencher for maximum probe performance (Figure 1).



**Figure 1.** Schematic of a PrimeTime qPCR 5' Nuclease Assay using a double-quenched probe that includes a dye, a ZEN or TAO internal quencher, and a 3' quencher.

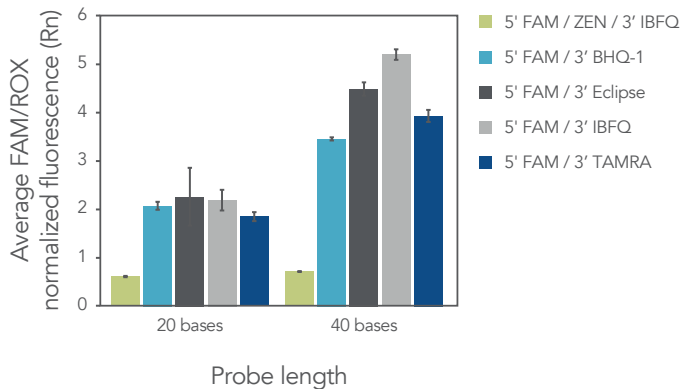
With nearly 4 times lower background fluorescence (Figure 2A) and approximately 30% increased signal (Figure 2B), ZEN Double-Quenched Probes simply perform better. See performance data for TAO Double-Quenched Probes at [www.idtdna.com/qPCRprobes](http://www.idtdna.com/qPCRprobes).



**Figure 2.** Increased signal detection and assay sensitivity from ZEN Double-Quenched Probes. (A) ZEN Probes (light blue) provide greater dye quenching, producing lower background and, therefore, higher signal intensities than standard single-quenched probes (BHQ Probes; dark blue). (B) ZEN Probes increase assay sensitivity, as demonstrated by the earlier Cq values observed compared to standard, BHQ single-quenched probes.

## ACHIEVE MAXIMUM QUENCHING FOR LONG PROBES

Effective quenching for ZEN Double-Quenched Probes as long as 40 bases means more effective designs, even for AT-rich targets.



**Figure 3.** Only ZEN Double-Quenched Probes maintain low background signal with increasing probe length. Probes of 2 lengths (20 or 40 bases) with 5 different quenchers were compared in 10 singleplex qPCRs. Six replicate reactions with each probe type were run with 50 ng of cDNA and the TaqMan® Gene Expression Master Mix (Thermo Fisher) under standard cycling conditions on the Applied Biosystems 7900HT system. Key: IBFQ = Iowa Black FQ Quencher (IDT); BHQ-1 = Black Hole Quencher-1 (Biosearch Technologies); MGB Eclipse® = Eclipse quencher (ELITech Group).

## ORDERING INFORMATION

Visit [www.idtdna.com/qPCRprobes](http://www.idtdna.com/qPCRprobes) to enter your sequence and choose modifications

> FOR MORE INFORMATION, VISIT [WWW.IDTDNA.COM/qPCRPROBES](http://WWW.IDTDNA.COM/qPCRPROBES)

For Research Use Only. Not for use in diagnostic procedures.