



TaqProbe Mastermix

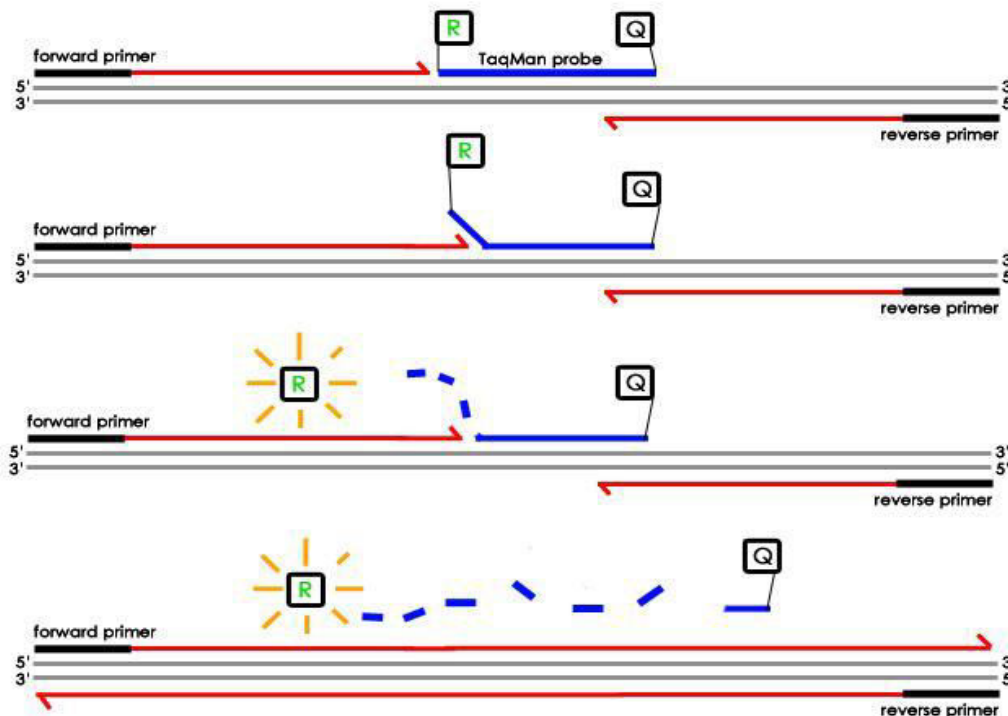
TaqMan Chemistry

Intercalator dyes such as SYBR Green® are originally used to detect real-time PCR products. Although this method works, it has the problem of measuring both specific and non-specific amplification. **TaqMan probes** are developed in a way such that non-specific amplification is eliminated from detection.

Each TaqMan probe is a sequence-specific probe with a reporter fluorescent dye at the 5' end and a quencher dye on the 3' end. The quencher dye reduces the fluorescence from the reporter dye due to fluorescence resonance energy transfer (FRET) until when the reporter is released during the amplification using the 5' nuclease activity of Taq polymerase. The released report fluoresces and its signal corresponds to the amount of specific amplification products, thus enabling real-time detection.

How TaqMan Works

1. A TaqMan probe is designed to be sequence-specific to downstream from one of primer binding sites.
2. If target sequence is present, Taq polymerase will start amplifying the target.
3. As the extension continues, the 5' nuclease activity of polymerase will cleave the TaqMan probe.
4. This cleavage results in:
 - Separation of the reporter dye and the quencher dye yielding higher fluorescence.
 - Removal of the probe allowing extension to continue, thus not inhibiting the amplification.
5. The cleaved reporter dyes accumulates as more amplification products are made with each cycle, therefore increasing the fluorescence signal.



Advantages of TaqMan

- Sequence-specific probes eliminate detection of non-specific amplicons.
- Probes can be labelled with different reporter dyes enabling detection of multiple targets in a single reaction.

Disadvantages of TaqMan

- Different probes must be synthesized for different target.

TaqProbe Mastermix Description

TaqProbe qPCR Mastermix is designed for **TaqMan probe-based** real-time PCR analysis of DNA samples. The components of TaqProbe qPCR Mastermix have been developed for superb performance in sensitivity, signal-to-noise ratio, and complete elimination of primer dimers. Multiplex formulation supports quantitative amplification and detection of up to four targets simultaneously and shows consistent high performance.

Guideline for your particular instrument model

Due to various qPCR machines available, each different Mastermix is formulated to be optimized for specific machines. Please match your machine with the listed TaqProbe qPCR Mastermix.

Cat. No.	Product Name	qPCR Instruments
Mastermix-P	TaqProbe qPCR	-ABI® 7000,7300,7700,7900, StepOnePlus™
	Mastermix-ROX	StepOne™ -Eppendorf® Realplex 4
Mastermix-PL	TaqProbe qPCR Mastermix- low ROX	-ABI® 7500 -Stratagene® Mx3000, Mx3005, Mx4000
Mastermix-PC	TaqProbe qPCR Mastermix- iCycler	-BioRad® iCycler®, iQ™5, MyiQ™
Mastermix-PS	TaqProbe qPCR Mastermix- no dye	-BioRad® CFX96, Opticon™, Opticon™ 2, and Chromo® 4 -Roche LightCycler® 480 -Corbett Rotor-gene® 6000,3000 -Eppendorf® Realplex 2
Mastermix-PM	TaqProbe qPCR Mastermix- Multiplex	Suited for Multiplex TaqMan assay in the following instrument. -ABI® 7000,7300,7500,7700,7900, StepOne™, StepOnePlus™ -BioRad® iCycler®, iQ™5, CFX96, Opticon™2, Chromo® 4 -Corbett Rotor-gene® 6000,3000 -Stratagene® Mx3000, Mx4000 -Roche LightCycler® 2.0, 480