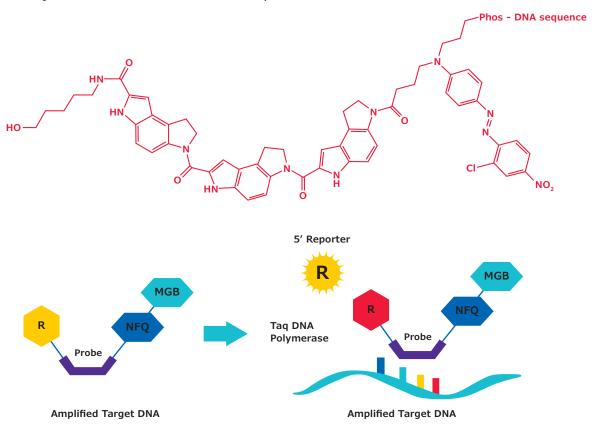


MGB:EDQ Probes for qPCR

Minor Groove Binder with Eclipse Dark Quencher for Dual-Labeled Probes

An MGB:EDQ Probe is a single-stranded oligonucleotide labeled with two different dyes. A reporter dye is located at the 5' end and Minor Groove Binder / Eclipse Dark Quencher located at the 3' end. The quencher

molecule inhibits the natural fluorescence emission of the reporter by fluorescence resonance energy transfer (FRET). The illustration below depicts the mechanism.



Probe in solution emits low fluorescence

2. Emission of the fluorescence

Above: Structure of MGB:EDQ. MGB, or CDPI3, is the tripeptide of dihydropyrroloindole-carboxylate, and its boomerang curvature allows it to align to the shape of and thereby bind strongly of the minor groove of B-form DNA. Below: Mechanism of action. MGB:EDQ Probes are hydrolysis probes. The primer is elongated by the polymerase and the probe binds to the specific DNA template. Hydrolysis releases the reporter from the probe/target hybrid, causing an increase in fluorescence. The measured fluorescence signal is directly proportional to the amount of target DNA.



Applications

MGB:EDQ can applied to the following:

• Dual-Labeled Probes

And, is useful for the following:

• SNP detection via mismatch discrimination

Features

3, 5, & 10 OD (inquire for 50 & 100 OD)
HPLC
15 to 40 bases
Minor Groove Binder / Eclipse Dark Quencher
6-FAM™, HEX™ & TET™ (inquire for others)
100% mass spectrometry
Supplied dry in amber tubes

Guaranteed Yields						
OD Yield	Approx. No. of nmol	Approx. No. of µg	Approx. No. of Reactions*			
3	12	96	2,400			
5	20	160	4,000			
10	40	320	8,000			

^{*}Estimate is based on 4 nmoles or 32 μg for 1 OD and 200 nM in 25 μL reaction (5.0 pmol/reaction). Estimate is based on an average sequence length of 25 bases.

Spectral Properties						
Dye	Max. EX (nm)	Max. EM (nm)	Compatible Quencher			
6-FAM	495	520				
HEX	535	556	MGB:EDQ			
TET	521	536				

Shipping Schedule			
Quantity (OD)	3	5	10
6-FAM, HEX & TET	10 - 12 days*	10 - 12 days	10 – 12 days

^{*}Products ship from the United Kingdom. Allow extra days transit time for deliveries beyond Europe.

Benefits

MGB enhances the performance of qPCR in several ways:

- **Increased specificity:** MGB increases the specificity of the probe-target hybridization, reducing the likelihood of non-specific amplification.
- **Higher sensitivity:** MGB enables the use of shorter probes, which increase the sensitivity of qPCR assays.
- Melting temperature adjustment: MGB allows for Tm adjustment of the probe, which can be beneficial for designing qPCR probes with optimal Tm values.
- Reduced background signal: MGB contributes to a reduction in background fluorescence, leading to an improved S:N or signal-to-noise ratio.
- Enhanced stability: MGB can improve the stability of the probe-target hybrid, reducing the likelihood of probe degradation.
- Design flexibility: The use of MGB expands the options for probe design, facilitating the creation of efficient qPCR assays.

MGB-enhanced qPCR probes are a valuable tool for achieving reliable and robust qPCR results.

To learn more or order, contact your local sales professional.

To place an order or receive technical assistance

In Europe, please call Customer Service:

 France: 0825 045 645
 Spain: 901 516 645 Option 1

 Germany: 069 86798021
 Switzerland: 0848 645 645

 Italy: 848 845 645
 United Kingdom: 0870 900 4645

For other countries across Europe, please call: +44 (0) 115 943 0840

Or visit: SigmaAldrich.com/offices

For Technical Service visit: SigmaAldrich.com/techservice

SigmaAldrich.com

We have built a unique collection of life science brands with unrivalled experience in supporting your scientific advancements.

Millipore. Sigma-Aldrich. Supelco. Milli-Q. SAFC. BioReliance.

Merck KGaA Frankfurter Strasse 250 64293 Darmstadt, Germany

