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QPCR PROBE TECHNOLOGIES

WHICH PROBE IS BEST FOR YOUR ASSAY?

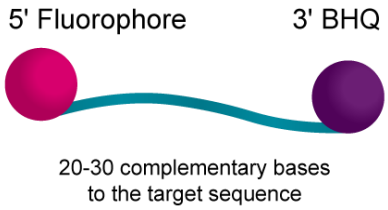
BIOSEARCH™ TECHNOLOGIES
GENOMIC ANALYSIS BY LGC

CONTENIDO

1.

BHQ Probes

BHQ™ Probes are traditional, linear, dual-labelled FRET probes, typically 20 to 30 bases in length, with a fluorophore and quencher covalently attached to the 5' and 3' ends, respectively. Fluorescence is released through the 5' exonuclease activity of Taq polymerase, which cleaves off the fluorescent dye upon the probe's hybridisation to its complementary sequence.



BHQ Probes are ideal for detecting the presence and quantifying the amount of specific target sequences.

Key benefits:

- Unmatched quality and technical support from the original makers of the BHQ quenchers
- Complete suite of fluorescent dyes spanning the entire visible spectrum
- Simple probe design and implementation with consistent and reliable performance

Design versatility without performance variability.

Our wide selection of dyes empowers you to design the best PCR or qPCR probe for your application without sacrificing performance. We have paired each dye with the BHQ quencher that offers optimal quenching efficiency.

Product listing

Catalog #	Item name	Note
DLO-C3B2-1	Dual-labeled Probe, 5' Cy3/3' BHQ-2	Provides 50 nmol delivered.
DLO-C3B2-2	Dual-labeled Probe, 5' Cy3/3' BHQ-2	Provides 25 nmol delivered.
DLO-C3B2-5	Dual-labeled Probe, 5' Cy3/3' BHQ-2	Provides 10 nmol delivered.
DLO-FB1-1	Dual-labeled Probe, 5' FAM/3' BHQ-1	Provides 80 nmol delivered.
DLO-FB1-2	Dual-labeled Probe, 5' FAM/3' BHQ-1	Provides 35 nmol delivered.
DLO-FB1-5	Dual-labeled Probe, 5' FAM/3' BHQ-1	Provides 15 nmol delivered.

DLO-FT-25	Dual-labeled Probe, 5' FAM/3' TAMRA	Provides 5 nmol delivered.
DLO-FT-1	Dual-labeled Probe, 5' FAM/3' TAMRA	Provides 80 nmol delivered.
DLO-FT-2	Dual-labeled Probe, 5' FAM/3' TAMRA	Provides 35 nmol delivered.
DLO-FT-5	Dual-labeled Probe, 5' FAM/3' TAMRA	Provides 15 nmol delivered.
DLO-HB1-1	Dual-labeled Probe, 5' HEX/3' BHQ-1	Provides 80 nmol delivered.
DLO-HB1-2	Dual-labeled Probe, 5' HEX/3' BHQ-1	Provides 35 nmol delivered.
DLO-HB1-5	Dual-labeled Probe, 5' HEX/3' BHQ-1	Provides 15 nmol delivered.
DLO-HB1-25	Dual-labeled Probe, 5' HEX/3' BHQ-1	Provides 5 nmol delivered.
DLO-JB1-1	Dual-labeled Probe, 5' JOE/3' BHQ-1	Provides 45 nmol delivered.
DLO-JB1-2	Dual-labeled Probe, 5' JOE/3' BHQ-1	Provides 15 nmol delivered.
DLO-RB2-1	Dual-labeled Probe, 5' ROX/3' BHQ-2	Provides 45 nmol delivered.
DLO-RB2-2	Dual-labeled Probe, 5' ROX/3' BHQ-2	Provides 15 nmol delivered.
DLO-TEB1-1	Dual-labeled Probe, 5' TET/3' BHQ-1	Provides 80 nmol delivered.
DLO-TEB1-2	Dual-labeled Probe, 5' TET/3' BHQ-1	Provides 35 nmol delivered.
DLO-TEB1-5	Dual-labeled Probe, 5' TET/3' BHQ-1	Provides 15 nmol delivered.
DLO-TEB1-25	Dual-labeled Probe, 5' TET/3' BHQ-1	Provides 5 nmol delivered.
DLO-TB2-1	Dual-labeled Probe, 5' TAMRA/3' BHQ-2	Provides 80 nmol delivered.
DLO-TB2-2	Dual-labeled Probe, 5' TAMRA/3' BHQ-2	Provides 35 nmol delivered.
DLO-TB2-5	Dual-labeled Probe, 5' TAMRA/3' BHQ-2	Provides 15 nmol delivered.
DLO-TB2-25	Dual-labeled Probe, 5' TAMRA/3' BHQ-2	Provides 5 nmol delivered.
DLO-TET-1	Dual-labeled Probe, 5' TET/3' TAMRA	Provides 80 nmol delivered.
DLO-TET-2	Dual-labeled Probe, 5' TET/3' TAMRA	Provides 35 nmol delivered.
DLO-TET-5	Dual-labeled Probe, 5' TET/3' TAMRA	Provides 15 nmol delivered.
DLO-TET-25	Dual-labeled Probe, 5' TET/3' TAMRA	Provides 5 nmol delivered.
DLO-CAB2-2	Dual-labeled Probe, 5' CAL Fluor Red 610/3' BHQ-2	Provides 35 nmol delivered.
DLO-CAB2-25	Dual-labeled Probe, 5' CAL Fluor Red 610/3' BHQ-2	Provides 5 nmol delivered.
DLO-CAB2-5	Dual-labeled Probe, 5' CAL Fluor Red 610/3' BHQ-2	Provides 15 nmol delivered.
DLO-CAB2-1	Dual-labeled Probe, 5' CAL Fluor Red 610/3' BHQ-2	Provides 80 nmol delivered.
DLO-C5B2-5	Dual-labeled Probe, 5' Cy5/3' BHQ-2	Provides 3 nmol delivered.
DLO-C5B2-2	Dual-labeled Probe, 5' Cy5/3' BHQ-2	Provides 10 nmol delivered.

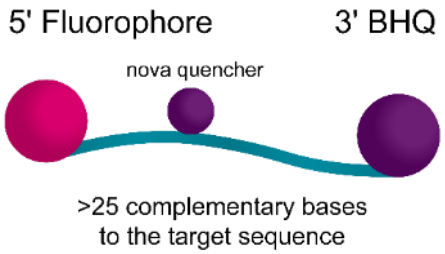
DLO-C5B2-1	Dual-labeled Probe, 5' Cy5/3' BHQ-2	Provides 40 nmol delivered.
DLO-Q6B2-5	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-2	Provides 10 nmol delivered.
DLO-Q6B2-2	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-2	Provides 25 nmol delivered.
DLO-Q6B2-1	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-2	Provides 50 nmol delivered.
DLO-Q6B2-25	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-2	Provides 5 nmol delivered.
DLO-Q5B2-5	Dual-labeled Probe, 5' Quasar 570/3’ BHQ-2	Provides 15 nmol delivered.
DLO-Q5B2-2	Dual-labeled Probe, 5' Quasar 570/3’ BHQ-2	Provides 35 nmol delivered.
DLO-Q5B2-1	Dual-labeled Probe, 5' Quasar 570/3’ BHQ-2	Provides 80 nmol delivered.
DLO-Q5B2-25	Dual-labeled Probe, 5' Quasar 570/3’ BHQ-2	Provides 5 nmol delivered.
DLO-Q6B3-2	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-3	Provides 25 nmol delivered.
DLO-Q6B3-1	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-3	Provides 50 nmol delivered.
DLO-Q6B3-5	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-3	Provides 10 nmol delivered.
DLO-Q6B3-25	Dual-labeled Probe, 5' Quasar 670/3’ BHQ-3	Provides 5 nmol delivered.
DLO-COB1-1	Dual-labeled Probe, 5' CAL Fluor® Orange 560/3' BHQ-1	Provides 80 nmol delivered.
DLO-COB1-25	Dual-labeled Probe, 5' CAL Fluor® Orange 560/3' BHQ-1	Provides 5 nmol delivered.
DLO-COB1-2	Dual-labeled Probe, 5' CAL Fluor® Orange 560/3' BHQ-1	Provides 35 nmol delivered.
DLO-COB1-5	Dual-labeled Probe, 5' CAL Fluor® Orange 560/3' BHQ-1	Provides 15 nmol delivered.
DLO-CGB1-25	Dual-labeled Probe, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 5 nmol delivered.
DLO-CGB1-5	Dual-labeled Probe, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 15 nmol delivered.
DLO-CGB1-2	Dual-labeled Probe, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 35 nmol delivered.
DLO-CGB1-1	Dual-labeled Probe, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 80 nmol delivered.
DLO-C635B2-5	Dual-labeled Probe, 5' CAL Fluor® Red 635/3' BHQ-2	Provides 5 nmol delivered.
DLO-C635B2-2	Dual-labeled Probe, 5' CAL Fluor® Red 635/3' BHQ-2	Provides 15 nmol delivered.
DLO-C635B2-1	Dual-labeled Probe, 5' CAL Fluor® Red 635/3' BHQ-2	Provides 50 nmol delivered.

DLO-C590B2-25	Dual-labeled Probe, 5' CAL Fluor Red 590/3' BHQ-2	Provides 5 nmol delivered.
DLO-C590B2-5	Dual-labeled Probe, 5' CAL Fluor Red 590/3' BHQ-2	Provides 15 nmol delivered.
DLO-C590B2-2	Dual-labeled Probe, 5' CAL Fluor Red 590/3' BHQ-2	Provides 35 nmol delivered.
DLO-C590B2-1	Dual-labeled Probe, 5' CAL Fluor Red 590/3' BHQ-2	Provides 80 nmol delivered.
DLO-F(T-B1)-2	Dual-labeled Probe, 5' FAM/Internal T-BHQ-1/3’ C3	Provides 20 nmol delivered.
DLO-F(T-B1)-1	Dual-labeled Probe, 5' FAM/Internal T-BHQ-1/3’ C3	Provides 50 nmol delivered.
DLO-RFB-5	ValuProbe™, 5' FAM/3' BHQ-1	Provides 10 nmol delivered.
DLO-Q7B2-5	Dual-labeled Probe, 5' Quasar 705/3’ BHQ-2	Provides 5 nmol delivered.
DLO-Q7B2-2	Dual-labeled Probe, 5' Quasar 705/3’ BHQ-2	Provides 15 nmol delivered.
DLO-Q7B2-1	Dual-labeled Probe, 5' Quasar 705/3’ BHQ-2	Provides 50 nmol delivered.
DLO-Q7B3-1	Dual-labeled Probe, 5' Quasar 705/3’ BHQ-3	Provides 50 nmol delivered.
DLO-Q7B3-5	Dual-labeled Probe, 5' Quasar 705/3’ BHQ-3	Provides 5 nmol delivered.
DLO-Q7B3-2	Dual-labeled Probe, 5' Quasar 705/3’ BHQ-3	Provides 15 nmol delivered.
DLO-CITA-1	Dual-Labeled Probe, 5’ CIV/3’ Tamra	Provides 50 nmol delivered.
DLO-CITA-2	Dual-Labeled Probe, 5’ CIV/3’ Tamra	Provides 15 nmol delivered.
DLO-CITA-5	Dual-Labeled Probe, 5’ CIV/3’ Tamra	Provides 5 nmol delivered.
DLO-CIB1-1	Dual-Labeled Probe, 5’ CIV/3’ BHQ-1	Provides 50 nmol delivered.
DLO-CIB1-2	Dual-Labeled Probe, 5’ CIV/3’ BHQ-1	Provides 15 nmol delivered.
DLO-CIB1-5	Dual-Labeled Probe, 5’ CIV/3’ BHQ-1	Provides 5 nmol delivered.
DLO-CIB2-1	Dual-Labaled Probe, 5’ CIV/3’ BHQ2	Provides 50 nmol delivered.
DLO-CIB2-2	Dual-Labaled Probe, 5’ CIV/3’ BHQ2	Provides 15 nmol delivered.
DLO-CIB2-5	Dual-Labaled Probe, 5’ CIV/3’ BHQ2	Provides 5 nmol delivered.

2.

BHQnova Probes

BHQnova™ Probes are double-quenched hydrolysis probes that exhibit improved quenching and greater signal-to-noise ratio for long probes (>25 bases). These probes have a 5' fluorophore dye, a 3' Black Hole Quencher (BHQ) and an internal nova quencher incorporated between base residues 9 and 10.



When a long probe (>25 bases) design is necessary, such as to achieve a suitable melting temperature (Tm) in an AT-rich target region, the increased distance between the fluorophore and quencher can reduce the quenching efficiency in regular end-labelled probes. In double-quenched BHQnova Probes, the nova quencher is closer to the fluorophore, which increases quenching efficiency. Increased quenching efficiency reduces background fluorescence and improves assay sensitivity.

Key benefits:

- **More efficient quenching**: Improved quenching of long probes, such as those designed in AT-rich regions.
- **Higher signal-to-noise ratio:** Double-quenched BHQnova probes have lower background fluorescence, resulting in greater signal-to-noise ratios.
- **Increased sensitivity**: Improved assay sensitivity in multiplex reactions.

Design versatility without performance variability.

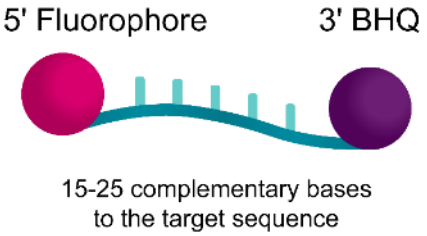
Product listing

Catalog #	Item name	Note
DLO-FBN-25	5’ FAM BHQnova Probe	Provides 2 nmol delivered.
DLO-FBN-5	5’ FAM BHQnova Probe	Provides 10 nmol delivered.
DLO-FBN-2	5’ FAM BHQnova Probe	Provides 25 nmol delivered.
DLO-FBN-1	5’ FAM BHQnova Probe	Provides 60 nmol delivered.

DLO-COBN-25	5’ CAL Fluor Orange 560 BHQnova probe	Provides 5 nmol delivered.
DLO-COBN-5	5’ CAL Fluor Orange 560 BHQnova probe	Provides 10 nmol delivered.
DLO-COBN-2	5’ CAL Fluor Orange 560 BHQnova probe	Provides 25 nmol delivered.
DLO-COBN-1	5’ CAL Fluor Orange 560 BHQnova probe	Provides 60 nmol delivered.
DLO-CGBN-25	5’ CAL Fluor Gold 540 BHQnova probe	Provides 5 nmol delivered.
DLO-CGBN-5	5’ CAL Fluor Gold 540 BHQnova probe	Provides 10 nmol delivered.
DLO-CGBN-2	5’ CAL Fluor Gold 540 BHQnova probe	Provides 25 nmol delivered.
DLO-CGBN-1	5’ CAL Fluor Gold 540 BHQnova probe	Provides 60 nmol delivered.
DLO-HBN-25	5’ HEX BHQnova Probe	Provides 5 nmol delivered.
DLO-HBN-5	5’ HEX BHQnova Probe	Provides 10 nmol delivered.
DLO-HBN-2	5’ HEX BHQnova Probe	Provides 25 nmol delivered.
DLO-HBN-1	5’ HEX BHQnova Probe	Provides 60 nmol delivered.
DLO-TBN-25	5’ TET BHQnova Probe	Provides 5 nmol delivered.
DLO-TBN-5	5’ TET BHQnova Probe	Provides 10 nmol delivered.
DLO-TBN-2	5’ TET BHQnova Probe	Provides 25 nmol delivered.
DLO-TBN-1	5’ TET BHQnova Probe	Provides 60 nmol delivered

3.
BHQplus Probes

BHQplus™ Probes are compact, dual-labelled, hydrolysis probes for qPCR. This probe type features a 5' fluorescent dye and a 3' Black Hole Quencher™ (BHQ) with the unique BHQplus duplex stabilising chemistry to enhance specificity and mismatch discrimination.



BHQplus Probes use modified C and T nucleotides to stabilise the probe-target duplex, which enables design of shorter oligonucleotides, typically 15 to 25 bases.

Key benefits:

- **Short probes with high specificity:** Duplex stabilisers permit the design of shorter dual-labelled probes with increased stability and specificity during hybridization.
- **Ideal for difficult targets:** High duplex stability improves SNP/mismatch discrimination and binding to difficult regions including AT-rich targets.
- **Improved assay sensitivity:** Our best-in-class BHQ is positioned closer to the dye, resulting in greater quenching efficiency.
- **Versatile:** These probes can be paired with a wide range of dyes to fit your exact instrument and application.

Achieve optimal quenching efficiency

When it comes to assay design, we don't believe in a one-dye-fits-all strategy. Our wide selection of dyes empowers you to design the best PCR or qPCR probe for your application without sacrificing performance. We have paired each dye with the BHQ quencher that offers optimal quenching efficiency.

Product listing

Catalog #	Item name	Note
DLO-FBP-2	5’ FAM BHQplus Probe	Provides 20 nmol delivered.
DLO-FBP-1	5’ FAM BHQplus Probe	Provides 60 nmol delivered.
DLO-FBP-5	5’ FAM BHQplus Probe	Provides 10 nmol delivered.
DLO-TBP-5	5’ TET BHQplus Probe	Provides 10 nmol delivered.
DLO-TBP-2	5’ TET BHQplus Probe	Provides 20 nmol delivered.
DLO-TBP-1	5’ TET BHQplus Probe	Provides 60 nmol delivered.
DLO-CBP-5	5’ CAL Fluor Orange 560 BHQplus Probe	Provides 10 nmol delivered.
DLO-CBP-2	5’ CAL Fluor Orange 560 BHQplus Probe	Provides 20 nmol delivered.
DLO-CBP-1	5’ CAL Fluor Orange 560 BHQplus Probe	Provides 60 nmol delivered.
DLO-RBP-1	5’ CAL Fluor Red 610 BHQplus Probe	Provides 60 nmol delivered.
DLO-RBP-2	5’ CAL Fluor Red 610 BHQplus Probe	Provides 20 nmol delivered.
DLO-RBP-5	5’ CAL Fluor Red 610 BHQplus Probe	Provides 10 nmol delivered.
DLO-QBP-1	5’ Quasar 670 BHQplus Probe	Provides 60 nmol delivered.
DLO-QBP-2	5’ Quasar 670 BHQplus Probe	Provides 20 nmol delivered.
DLO-QBP-5	5’ Quasar 670 BHQplus Probe	Provides 10 nmol delivered.
DLO-GBP-2	5’ CAL Fluor Gold 540 BHQplus Probe	Provides 20 nmol delivered.
DLO-GBP-1	5’ CAL Fluor Gold 540 BHQplus Probe	Provides 60 nmol delivered.
DLO-GBP-5	5’ CAL Fluor Gold 540 BHQplus Probe	Provides 10 nmol delivered.
DLO-HBP-5	5' HEX BHQplus Probe	Provides 10 nmol delivered.
DLO-HBP-2	5' HEX BHQplus Probe	Provides 20 nmol delivered.
DLO-HBP-1	5' HEX BHQplus Probe	Provides 60 nmol delivered.
DLO-CIBP-1	5’ CIV BHQplus Probe	Provides 60 nmol delivered.
DLO-CIBP-2	5’ CIV BHQplus Probe	Provides 20 nmol delivered.

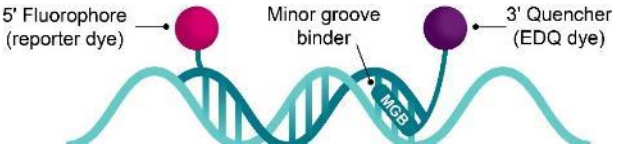
DLO-CIBP-5	5’ CIV BHQplus Probe	Provides 10 nmol delivered.
DLO-CIB1P-1	5' CIV/3' BHQ-1 BHQplus Probe	Provides 60 nmol delivered.
DLO-CIB1P-2	5' CIV/3' BHQ-1 BHQplus Probe	Provides 20 nmol delivered.
DLO-CIB1P-5	5' CIV/3' BHQ-1 BHQplus Probe	Provides 10 nmol delivered.

4.

Minor Groove Binder (MGB) Probes

Licence-free MGB Probes for any application

Minor Groove Binder (MGB) Probes are dual-labeled 5' hydrolysis probes consisting of a 5' fluorescent reporter dye and a 3' Eclipse Dark Quencher (EDQ) conjugated to a MGB moiety.



Short probe design delivers high specificity and signal-to-noise

The 3' MGB moiety binds non-covalently to the minor groove and stabilises the target-probe duplex, effectively increasing the T_m of the duplex. The improved stability increases the specificity to the target and allows for a shorter probe design.

A shorter probe has greater quenching efficiency because the dye is closer to the quencher. Combined with a non-fluorescent quencher, such as EDQ, the short MGB Probe leads to low background and high signal-to-noise.

Key Benefits

- **Short probes with high specificity:** The MGB moiety at the 3' end increases the melting temperature (Tm) and stabilises binding, allowing a shorter probe with improved sequence specificity.
- **High signal-to-noise for increased sensitivity:** The increased quenching efficiency of MGB Probes improves sensitivity with lower background noise and a higher signal-to-noise ratio.
- **Improved SNP detection:** High duplex stability leads to enhanced ΔT_m and improved SNP/mismatch discrimination.
- **Trusted oligo supplier:** Biosearch Technologies is one of the most tenured oligo houses. We are known for quality, consistent delivery and flexibility in format.
- **ISO 9001 and ISO 13485 manufacturing options:** Experience freedom from the constraints and restrictions of your current oligo supplier by partnering with us from assay design to scale up and commercialisation.

Product listing

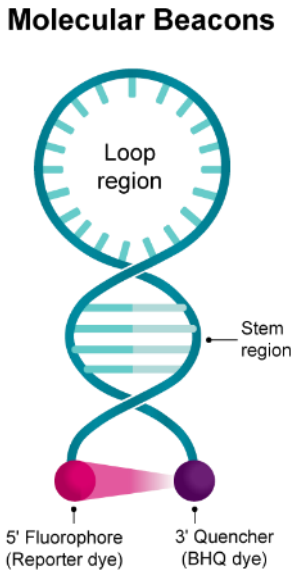
Catalog #	Item name	Note
MGB-FEDQ-60	Dual-labeled MGB Probe, 5' FAM/3' MGB-EDQ	60 nmol delivered
MGB-FEDQ-20	Dual-labeled MGB Probe, 5' FAM/3' MGB-EDQ	20 nmol delivered
MGB-FEDQ-10	Dual-labeled MGB Probe, 5' FAM/3' MGB-EDQ	10 nmol delivered
MGB-TEDQ-60	Dual-labeled MGB Probe, 5' TET/3' MGB-EDQ	60 nmol delivered
MGB-TEDQ-20	Dual-labeled MGB Probe, 5' TET/3' MGB-EDQ	20 nmol delivered
MGB-TEDQ-10	Dual-labeled MGB Probe, 5' TET/3' MGB-EDQ	10 nmol delivered
MGB-CIEDQ-60	Dual-labeled MGB Probe, 5' CIV/3' MGB-EDQ	60 nmol delivered
MGB-CIEDQ-20	Dual-labeled MGB Probe, 5' CIV/3' MGB-EDQ	20 nmol delivered
MGB-CIEDQ-10	Dual-labeled MGB Probe, 5' CIV/3' MGB-EDQ	10 nmol delivered
MGB-HEDQ-60	Dual-labeled MGB Probe, 5' HEX/3' MGB-EDQ	60 nmol delivered
MGB-HEDQ-20	Dual-labeled MGB Probe, 5' HEX/3' MGB-EDQ	20 nmol delivered
MGB-HEDQ-10	Dual-labeled MGB Probe, 5' HEX/3' MGB-EDQ	10 nmol delivered
MGB-GEDQ-60	Dual-labeled MGB Probe, 5' CAL Fluor Gold 540/3' MGB-EDQ	60 nmol delivered
MGB-GEDQ-20	Dual-labeled MGB Probe, 5' CAL Fluor Gold 540/3' MGB-EDQ	20 nmol delivered
MGB-GEDQ-10	Dual-labeled MGB Probe, 5' CAL Fluor Gold 540/3' MGB-EDQ	10 nmol delivered
MGB-CEDQ-60	Dual-labeled MGB Probe, 5' CAL Fluor Orange 560/3' MGB-EDQ	60 nmol delivered
MGB-CEDQ-20	Dual-labeled MGB Probe, 5' CAL Fluor Orange 560/3' MGB-EDQ	20 nmol delivered

MGB-CEDQ-10	Dual-labeled MGB Probe, 5' CAL Fluor Orange 560/3' MGB-EDQ	10 nmol delivered

5.

Molecular Beacon Probes

Molecular Beacon probes are dual-labelled probes that form a stem-loop (hairpin) structure, bringing the reporter and quencher into proximity. The loop region contains the sequence that hybridises to the target sequence, while the complementary sequences at both ends of the probe form the stem. These probes generate fluorescence under non-hydrolytic conditions via hybridisation to the target.



Molecular Beacon structure:

- **5' fluorophore:** The reporter dye emits fluorescence when the probe is linearised and hybridised to the target, separating the dye and quencher.
- **3' quencher:** When the probe is in its hairpin structure, the proximity of the quencher to the reporter prevents fluorescence emission.
- **Stem:** The stem is a double-stranded region formed by binding the complementary sequences (5-7 nt) at both ends of the probe.
- **Loop:** The loop is a 18-30 nt sequence that is complementary to the target sequence.

Key benefits:

- **Enhanced specificity:** The stem-loop conformation confers high specificity, making molecular beacons ideal for SNP/mismatch discrimination.
- **High signal-to-noise:** Superior fluorophore quenching due to the proximity and the direct energy transfer between reporter and quencher while in the closed hairpin conformation.
- **Melt curve analysis suitability:** Because molecular beacons generate fluorescence under non-hydrolytic conditions by target hybridisation, post-PCR melt curve analysis can be performed.

Select the best dye for your application

Molecular beacon probes labelled with a wide selection of dyes, enabling you to select options based on instrumentation and assay design. Quencher options for this probe type include Black Hole Quenchers (BHQ-1 and BHQ-2) and DABCYL dye.

Product listing

Catalog #	Item name	Note
MBO-C3B2-1	Molecular Beacon, 5' Cy3/3' BHQ-2	Provides 40 nmol delivered.
MBO-C3B2-2	Molecular Beacon, 5' Cy3/3' BHQ-2	Provides 10 nmol delivered.
MBO-C3B2-5	Molecular Beacon, 5' Cy3/3' BHQ-2	Provides 3 nmol delivered.
MBO-FB1-1	Molecular Beacon, 5' FAM/3' BHQ-1	Provides 50 nmol delivered.
MBO-FB1-2	Molecular Beacon, 5' FAM/3' BHQ-1	Provides 25 nmol delivered.
MBO-FB1-5	Molecular Beacon, 5' FAM/3' BHQ-1	Provides 5 nmol delivered.
MBO-FD-1	Molecular Beacon, 5' FAM/3' DABCYL	Provides 50 nmol delivered.
MBO-FD-2	Molecular Beacon, 5' FAM/3' DABCYL	Provides 25 nmol delivered.
MBO-FD-5	Molecular Beacon, 5' FAM/3' DABCYL	Provides 5 nmol delivered.
MBO-HB1-1	Molecular Beacon, 5' HEX/3' BHQ-1	Provides 40 nmol delivered.
MBO-HB1-2	Molecular Beacon, 5' HEX/3' BHQ-1	Provides 20 nmol delivered.
MBO-HB1-5	Molecular Beacon, 5' HEX/3' BHQ-1	Provides 5 nmol delivered.
MBO-HD-1	Molecular Beacon, 5' HEX/3' DABCYL	Provides 40 nmol delivered.
MBO-HD-2	Molecular Beacon, 5' HEX/3' DABCYL	Provides 20 nmol delivered.
MBO-HD-5	Molecular Beacon, 5' HEX/3' DABCYL	Provides 5 nmol delivered.
MBO-JB1-1	Molecular Beacon, 5' JOE/3' BHQ-1	Provides 40 nmol delivered.
MBO-JB1-2	Molecular Beacon, 5' JOE/3' BHQ-1	Provides 15 nmol delivered.
MBO-JD-1	Molecular Beacon, 5' JOE/3' DABCYL	Provides 40 nmol delivered.
MBO-JD-2	Molecular Beacon, 5' JOE/3' DABCYL	Provides 15 nmol delivered.
MBO-RB2-1	Molecular Beacon, 5' ROX/3' BHQ-2	Provides 40 nmol delivered.
MBO-RB2-2	Molecular Beacon, 5' ROX/3' BHQ-2	Provides 15 nmol delivered.
MBO-RD-1	Molecular Beacon, 5' ROX/3' DABCYL	Provides 40 nmol delivered.
MBO-RD-2	Molecular Beacon, 5' ROX/3' DABCYL	Provides 15 nmol delivered.

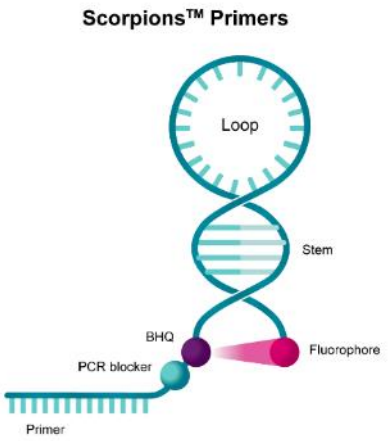
MBO-TB2-1	Molecular Beacon, 5' TAMRA/3' BHQ-2	Provides 40 nmol delivered.
MBO-TB2-2	Molecular Beacon, 5' TAMRA/3' BHQ-2	Provides 20 nmol delivered.
MBO-TB2-5	Molecular Beacon, 5' TAMRA/3' BHQ-2	Provides 5 nmol delivered.
MBO-TD-1	Molecular Beacon, 5' TAMRA/3' DABCYL	Provides 40 nmol delivered.
MBO-TD-2	Molecular Beacon, 5' TAMRA/3' DABCYL	Provides 20 nmol delivered.
MBO-TD-5	Molecular Beacon, 5' TAMRA/3' DABCYL	Provides 5 nmol delivered.
MBO-TEB1-1	Molecular Beacon, 5' TET/3' BHQ-1	Provides 50 nmol delivered.
MBO-TEB1-2	Molecular Beacon, 5' TET/3' BHQ-1	Provides 25 nmol delivered.
MBO-TEB1-5	Molecular Beacon, 5' TET/3' BHQ-1	Provides 5 nmol delivered.
MBO-TED-1	Molecular Beacon, 5' TET/3' DABCYL	Provides 50 nmol delivered.
MBO-TED-2	Molecular Beacon, 5' TET/3' DABCYL	Provides 25 nmol delivered.
MBO-TED-5	Molecular Beacon, 5' TET/3' DABCYL	Provides 5 nmol delivered.
MBO-CAB2-2	Molecular Beacon, 5' CAL Fluor Red 610/3' BHQ-2	Provides 20 nmol delivered.
MBO-CAB2-5	Molecular Beacon, 5' CAL Fluor Red 610/3' BHQ-2	Provides 5 nmol delivered.
MBO-CAB2-1	Molecular Beacon, 5' CAL Fluor Red 610/3' BHQ-2	Provides 40 nmol delivered.
MBO-CAD-5	Molecular Beacon, 5' CAL Fluor Red 610/3' DABCYL	Provides 5 nmol delivered.
MBO-CAD-2	Molecular Beacon, 5' CAL Fluor Red 610/3' DABCYL	Provides 20 nmol delivered.
MBO-CAD-1	Molecular Beacon, 5' CAL Fluor Red 610/3' DABCYL	Provides 40 nmol delivered.
MBO-C5B2-5	Molecular Beacon, 5' Cy5/3' BHQ-2	Provides 3 nmol delivered.
MBO-C5B2-2	Molecular Beacon, 5' Cy5/3' BHQ-2	Provides 10 nmol delivered.
MBO-C5B2-1	Molecular Beacon, 5' Cy5/3' BHQ-2	Provides 30 nmol delivered.
MBO-Q5B2-5	Molecular Beacon, 5' Quasar 570/3' BHQ-2	Provides 5 nmol delivered.
MBO-Q5B2-2	Molecular Beacon, 5' Quasar 570/3' BHQ-2	Provides 25 nmol delivered.
MBO-Q5B2-1	Molecular Beacon, 5' Quasar 570/3' BHQ-2	Provides 50 nmol delivered.
MBO-Q6B2-5	Molecular Beacon, 5' Quasar 670/3' BHQ-2	Provides 5 nmol delivered.

MBO-Q6B2-2	Molecular Beacon, 5' Quasar 670/3' BHQ-2	Provides 20 nmol delivered.
MBO-Q6B2-1	Molecular Beacon, 5' Quasar 670/3' BHQ-2	Provides 40 nmol delivered.
MBO-COB1-1	Molecular Beacon, 5' CAL Fluor Orange 560/3' BHQ-1	Provides 40 nmol delivered.
MBO-COB1-2	Molecular Beacon, 5' CAL Fluor Orange 560/3' BHQ-1	Provides 20 nmol delivered.
MBO-COB1-5	Molecular Beacon, 5' CAL Fluor Orange 560/3' BHQ-1	Provides 5 nmol delivered.
MBO-COD-1	Molecular Beacon, 5' CAL Fluor Orange 560/3' DABCYL	Provides 40 nmol delivered.
MBO-COD-2	Molecular Beacon, 5' CAL Fluor Orange 560/3' DABCYL	Provides 20 nmol delivered.
MBO-COD-5	Molecular Beacon, 5' CAL Fluor Orange 560/3' DABCYL	Provides 5 nmol delivered.
MBO-C590B2-5	Molecular Beacon, 5' CAL Fluor Red 590/3' BHQ-2	Provides 5 nmol delivered.
MBO-C590B2-2	Molecular Beacon, 5' CAL Fluor Red 590/3' BHQ-2	Provides 20 nmol delivered.
MBO-C590B2-1	Molecular Beacon, 5' CAL Fluor Red 590/3' BHQ-2	Provides 40 nmol delivered.
MBO-C635B2-2	Molecular Beacon, 5' CAL Fluor Red 635/3' BHQ-2	Provides 20 nmol delivered.
MBO-C635B2-1	Molecular Beacon, 5' CAL Fluor Red 635/3' BHQ-2	Provides 40 nmol delivered.
MBO-C635B2-5	Molecular Beacon, 5' CAL Fluor Red 635/3' BHQ-2	Provides 5 nmol delivered.
MBO-CGD-5	Molecular Beacon, 5' CAL Fluor Gold 540/3' DABCYL	Provides 5 nmol delivered.
MBO-CGD-2	Molecular Beacon, 5' CAL Fluor Gold 540/3' DABCYL	Provides 20 nmol delivered.
MBO-CGD-1	Molecular Beacon, 5' CAL Fluor Gold 540/3' DABCYL	Provides 40 nmol delivered.
MBO-CGB1-5	Molecular Beacon, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 5 nmol delivered.
MBO-CGB1-2	Molecular Beacon, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 20 nmol delivered.

MBO-CGB1-1	Molecular Beacon, 5' CAL Fluor Gold 540/3' BHQ-1	Provides 40 nmol delivered.
MBO-Q5D-1	Molecular Beacon, 5' Quasar 570/3' DABCYL	Provides 50 nmol delivered.
MBO-Q5D-5	Molecular Beacon, 5' Quasar 570/3' DABCYL	Provides 5 nmol delivered.
MBO-Q5D-2	Molecular Beacon, 5' Quasar 570/3' DABCYL	Provides 25 nmol delivered.
MBO-Q7B2-5	Molecular Beacon, 5' Quasar 705/3' BHQ-2	Provides 5 nmol delivered.
MBO-Q7B2-2	Molecular Beacon, 5' Quasar 705/3' BHQ-2	Provides 20 nmol delivered.
MBO-Q7B2-1	Molecular Beacon, 5' Quasar 705/3' BHQ-2	Provides 40 nmol delivered.
MBO-CIB1-1	Molecular Beacon, 5' CIV/3' BHQ-1	Provides 40 nmol delivered.
MBO-CIB1-2	Molecular Beacon, 5' CIV/3' BHQ-1	Provides 20 nmols delivered.
MBO-CIB1-5	Molecular Beacon, 5' CIV/3' BHQ-1	Provides 5 nmol delivered.
MBO-CID-1	Molecular Beacon, 5' CIV/3' DABCYL	Provides 40 nmols delivered.
MBO-CID-2	Molecular Beacon, 5' CIV/3' DABCYL	Provides 20 nmols delivered.
MBO-CID-5	Molecular Beacon, 5' CIV/3' DABCYL	Provides 5 nmols delivered.

6.
Scorpions Primers

Scorpions™ primers combine primer and probe into a single bifunctional molecule. They contain a primer sequence at the 3' end and a hairpin loop structure at the 5' end. Like molecular beacons, the hairpin brings the reporter and quencher into proximity and the loop contains a sequence complementary to the target.



These primers utilise a unimolecular mechanism that acts faster in solution for instantaneous fluorescence in real-time PCR. Similar to molecular beacons, Scorpions primers do not require enzymatic cleavage of the probe during PCR cycling. These qualities make Scorpions primers valuable tools for rapid, real-time PCR, endpoint PCR, SNP detection and gene quantification.

Key Benefits

- **Enhanced specificity:** The stem-loop conformation confers high specificity, making Scorpions primers ideal for SNP/mismatch discrimination.
- **High signal-to-noise:** Scorpions primers offer superior fluorophore quenching due to the proximity and the direct energy transfer between reporter and quencher while in the closed hairpin conformation.
- **Melt curve analysis suitability**: Because Scorpions primers generate fluorescence under non-hydrolytic conditions by target hybridisation, post-PCR melt curve analysis can be performed.
- **Rapid hybridisation**: The proximity of the probe region and the target sequence kinetically favours formation of the probe-template hybrid over template duplex re-annealing. The unimolecular event enables rapid signal generation during hybridization.

Select the best dye for your application

We offer Scorpions primers labelled with a wide selection of dyes, enabling you to select options based on instrumentation and assay design. Quencher options for this probe type include Black Hole Quenchers, BHQ-1 and BHQ-2.

Product listing

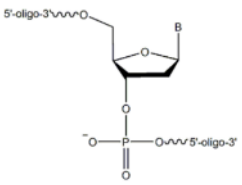
Catalog #	Item name	Note
SCP-FB1-2	Scorpions® Probe, Uni-molecular, 5' FAM/Internal BHQ-1/HEG	Provides 10 nmol delivered.
SCP-FB1-1	Scorpions® Probe, Uni-molecular, 5' FAM/Internal BHQ-1/HEG	Provides 50 nmol delivered.
SCP-COB1-1	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Orange 560/Internal BHQ-1/HEG	Provides 50 nmol delivered.
SCP-COB1-2	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Orange 560/Internal BHQ-1/HEG	Provides 10 nmol delivered.
SCP-CAB2-1	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Red 610/Internal BHQ-2/HEG	Provides 50 nmol delivered.
SCP-CAB2-2	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Red 610/Internal BHQ-2/HEG	Provides 10 nmol delivered.
SCP-TB2-2	Scorpions® Probe, Uni-molecular, 5' TAMRA/Internal BHQ-2/HEG	Provides 10 nmol delivered.
SCP-TB2-1	Scorpions® Probe, Uni-molecular, 5' TAMRA/Internal BHQ-2/HEG	Provides 50 nmol delivered.
SCP-Q5B2-1	Scorpions® Probe, Uni-molecular, 5' Quasar 570/Internal BHQ-2/HEG	Provides 50 nmol delivered.
SCP-Q5B2-2	Scorpions® Probe, Uni-molecular, 5' Quasar 570/Internal BHQ-2/HEG	Provides 10 nmol delivered.
SCP-Q6B2-2	Scorpions® Probe, Uni-molecular, 5' Quasar 670/Internal BHQ-2/HEG	Provides 5 nmol delivered.
SCP-Q6B2-1	Scorpions® Probe, Uni-molecular, 5' Quasar 670/Internal BHQ-2/HEG	Provides 25 nmol delivered.
SCP-P1-2	Scorpions® Reverse Primer, Cartridge Purified (up to 30 bases)	Provides 75 nmol delivered.
SCP-P1-1	Scorpions® Reverse Primer, Cartridge Purified (up to 30 bases)	Provides 300 nmol delivered.
SCP-C590B2-2	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Red 590/Internal BHQ-2/HEG	Provides 10 nmol delivered.
SCP-C590B2-1	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Red 590/Internal BHQ-2/HEG	Provides 50 nmol delivered.
SCP-C635B2-2	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Red 635/Internal BHQ-2/HEG	Provides 5 nmol delivered.

SCP-C635B2-1	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Red 635/Internal BHQ-2/HEG	Provides 25 nmol delivered.
SCP-CGB1-2	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Gold 540/Internal BHQ-1/HEG	Provides 10 nmol delivered.
SCP-CGB1-1	Scorpions® Probe, Uni-molecular, 5' CAL Fluor Gold 540/Internal BHQ-1/HEG	Provides 50 nmol delivered.
SCP-Q7B2-2	Scorpions® Probe, Uni-molecular, 5' Quasar 705/Internal BHQ-2/HEG	Provides 5 nmol delivered.
SCP-Q7B2-1	Scorpions® Probe, Uni-molecular, 5' Quasar 705/Internal BHQ-2/HEG	Provides 25 nmol delivered.

7.

Locked Nucleic Acid Probe or locked nucleic acid primer

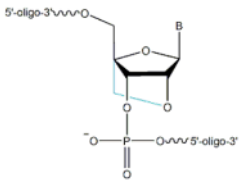
Improve assay sensitivity and specificity with locked nucleic acid (LNA) oligonucleotides. LNAs are modified RNA bases in which the ribose is “locked” with a methylene bridge, connecting the 2' oxygen atom to the 4' carbon atom, fixing it in the C3'-endo conformation.



Unmodified DNA

LNAs enable a shorter probe, which supports assay design for:

- Improved assay sensitivity
  - Higher quenching efficiency (lower background)
  - Greater signal-to-noise ratio
- Increased hybridization specificity
- Targeting A-T rich sequences
- Better mismatch discrimination in SNP genotyping assays



Modified DNA