



**BIOSEARCH
TECHNOLOGIES**

Advancing Nucleic Acid TechnologySM

DYE SELECTION, HANDLING, AND STORAGE
of **BHQ[®] PROBES**

BHQ PROBES

STORAGE GUIDELINES

Dual-labeled probes are shipped dry and can be stored frozen in this state. In this flyer we present general guidelines for handling and storing probes along with other helpful information to ensure your successful amplification.

SHORT-TERM STORAGE & DAILY USE

Probes should be subjected to a minimum number of freeze-thaw cycles. Therefore, we recommend that you prepare and store microvials each having sufficient material for a day's set of experiments and freeze at $-20\text{ }^{\circ}\text{C}$ to $-80\text{ }^{\circ}\text{C}$.

When ready to use, bring a sufficient number of aliquots out of the freezer and hold in an ice bucket with a lid to minimize exposure to light until ready for use.

LONG-TERM STORAGE

We recommend freezing probes either at $-20\text{ }^{\circ}\text{C}$ or $-80\text{ }^{\circ}\text{C}$. Probes and primers can be stored in the lyophilized state for over one year.

PROTECTION FROM PHOTOBLEACHING

To ensure optimum activity, fluorescence-quenched probes should always be protected from light and air to avoid photobleaching.



PREPARATION FOR USE

Probes are best prepared for long-term storage and use by first preparing both a concentrated stock and dilute solutions of probe at a working concentration.

1. Prepare stock and working solutions using one of the following dilution buffers:
 - TE Buffer (10mM Tris·Cl/1 mM EDTA), pH 8.0 (Recommended)
 - DNase-free water
2. Resuspend the dry oligo in aqueous or buffered solution to a known stock concentration. Prepare a 100 μ M stock solution of oligo using the "Total nmol" value of the dry probe on the data file that is e-mailed with every probe order. Multiply by 10 to determine the volume of diluent to add in microliters.
3. Next, dilute a portion of the stock solution to an appropriate working concentration, aliquot into microvials and store all at -20 °C or -80 °C.

Probes should be subjected to a minimum number of freeze-thaw cycles.

IMPORTANT NOTE:

The pH of Tris buffers changes significantly with temperature, decreasing approximately 0.028 pH units per 1 °C rise in temperature. Tris-buffered solutions should be adjusted to the desired pH at the temperature at which they will be used. Because the pKa of Tris is 8.08, Tris should not be used as a buffer below pH ~7.2 or above pH ~9.0.



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BLACK HOLE QUENCHER® AND REPORTER DYE SELECTION CHART

FLUOROPHORE ¹	DYE-5'-T ₁₀	EX	EM	BHQ Dye
§ Biosearch Blue™		352	447	BHQ [®] -0 λ_{max} 493 nm QR=430-520 nm
Acridine		362	462	
Coumarin		432	472	
FAM		495	520	BHQ-1 λ_{max} 534 nm QR=480-580 nm
Rhodamine Green		503	528	
TET		521	536	
§ CAL Fluor® Gold 540 (VIC/TET/JOE REPLACEMENT)		522	544	
JOE		529	555	
VIC		538	554	
HEX		535	556	
§ CAL Fluor Orange 560 (VIC/HEX/JOE REPLACEMENT)		538	559	
§ Quasar® 570 (CY3 REPLACEMENT)		548	566	
TAMRA		557	583	
Rhodamine Red		560	580	BHQ-2 λ_{max} 579 nm QR=560-670 nm
§ CAL Fluor Red 590 (TAMRA REPLACEMENT)		569	591	
Cy3.5		581	596	
ROX		586	610	
§ CAL Fluor Red 610 (TEXAS RED® REPLACEMENT)		590	610	
§ CAL Fluor Red 635 (LC RED 640® REPLACEMENT)		618	637	BHQ-3 λ_{max} 672 nm QR=620-730 nm
§ Pulsar® 650		460	650	
§ Quasar 670 (CY5 REPLACEMENT)		647	667	
§ Quasar 705 (CY5.5 REPLACEMENT)		690	705	

§ Indicates Biosearch Technologies' proprietary dyes. Dyes in **BOLDFACE** are standard products available from Biosearch. These and the BHQ Dyes are available in one or more of the following forms: phosphoramidites, CPGs, pre-packaged DNA synthesis columns, carboxy acids, peptide synthesis resins, succinimidyl esters and amine labels.

¹QR (Quenching Range) stands for each BHQ dye's FRET quenching range. Fluorophore dyes are shown for informational purposes only. Non-Biosearch fluorophores listed may be trademarked by companies other than Biosearch Technologies and may not necessarily be available from Biosearch, please visit www.biosearchtech.com for full disclosure. Please contact our Customer Service Dept. at info@biosearchtech.com or by calling 1.800.436.6631 to determine current fluorophore availability.

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BHQ-2 dye is recommended for Pulsar 650, Quasar 670, and Quasar 705 dyes due to static quenching.

THANK YOU FOR YOUR ORDER!

Thank you for your recent order of custom-synthesized oligonucleotides. These compounds were carefully analyzed throughout synthesis, and were then packed and shipped to guarantee that they meet or exceed your expectations for performance upon arrival. If you prefer receiving additional product documentation, paper Certificates of Analysis are available upon request. To ensure that you achieve the maximum performance from these compounds, please take a moment to review the suggested handling and storage guidelines.



All of us at Biosearch thank you for your order.

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The Inescapable SolutionSM

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