












FLUOROPHORE & BHQ® DYE SELECTION CHART

FLUOROPHORE	ALTERNATE DYES	DYE-5'-T ₁₀		RECOMMENDED QUENCHER	BHQ Dye QUENCHING RANGE
		EX	EM		
 Biosearch Blue™		352	447	BHQ-1	BHQ-0 430-520 nm
FAM		495	520	BHQ-1	
TET		521	536	BHQ-1	
 CAL Fluor® Gold 540	VIC/TET/JOE	522	544	BHQ-1	BHQ-1 480-580 nm
JOE		529	555	BHQ-1	
VIC		538	554		
HEX		535	556	BHQ-1	
 CAL Fluor Orange 560	VIC/HEX/JOE	538	559	BHQ-1	
 Quasar® 570	CY3	548	566	BHQ-2	
Cy™ 3		549	566		
NED		546	575		
TAMRA		557	583	BHQ-2	BHQ-2* 559-670 nm
 CAL Fluor Red 590	TAMRA	569	591	BHQ-2	
Cy 3.5		581	596		
ROX		586	610	BHQ-2	
 CAL Fluor Red 610	TEXAS RED/ROX/ ALEXA FLUOR® 594	590	610	BHQ-2	
Texas Red®		597	616		
 CAL Fluor Red 635	LC RED® 640	618	637	BHQ-2	
 Pulsar® 650		460	650	BHQ-2	
Cy 5		646	669		
 Quasar 670	CY5	647	670	BHQ-2*, BHQ-3	BHQ-3 620-730 nm
Cy 5.5		675	694		
 Quasar 705	CY5.5	690	705	BHQ-2*, BHQ-3	



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This chart is intended to guide you through the dye selection process for your oligonucleotide. A fluorophore and quencher combination may be selected for applications such as probe-based qPCR. Stellaris® RNA FISH probes are labeled with a single fluorophore; therefore, quencher selection is not required.

 Indicates LGC Biosearch Technologies' proprietary dyes. Dyes in **BOLDFACE** are available modifications for labeled oligos. Fluorophores in **BLUE** are also available for Stellaris RNA FISH.

*BHQ-2 dye is recommended for Quasar 670 and Quasar 705 fluorophores due to static quenching.

Many dyes are also available in the form of synthesis reagents. Please visit our website for current product offerings.

Products and technologies appearing in this chart may have trademark or patent restrictions associated with them. Please see www.biosearchtech.com/legal for full legal disclosure.

www.biosearchtech.com
1.800.436.6631 | 1.415.883.8400

MULTIPLEXING RECOMMENDATIONS FOR DUAL-LABELED BHQ PROBES AND PRIMERS

INSTRUMENT	COMPANY	CALIBRATION REQUIRED?	DYE 1	DYE 2	DYE 3	DYE 4	DYE 5
MX3000P™	Agilent	No	FAM	CAL Fluor® Orange 560	CAL Fluor Red 610	Quasar® 670	
MX4000®	Agilent	No	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	
ABI® 7000	Life Technologies	Yes	FAM	CAL Fluor Gold 540	SuperROX		
ABI 7300	Life Technologies	Yes	FAM	CAL Fluor Gold 540	SuperROX		
ABI 7500	Life Technologies	Yes	FAM	CAL Fluor Orange 560	TAMRA	SuperROX	Quasar 670
ABI 7700	Life Technologies	Yes	FAM	CAL Fluor Gold 540	SuperROX®*		
ABI 7900	Life Technologies	Yes	FAM	CAL Fluor Gold 540	SuperROX		
StepOne™	Life Technologies	Yes	FAM	CAL Fluor Gold 540			
StepOnePlus™	Life Technologies	Yes	FAM	CAL Fluor Gold 540	TAMRA		
QuantStudio™	Life Technologies	Yes	FAM	CAL Fluor Orange 560	SuperROX	Quasar 670	Quasar 705
ViiA™ 7	Life Technologies	Yes	FAM	CAL Fluor Orange 560	SuperROX	Quasar 670	Quasar 705
CFX96™	Bio-Rad	Yes	FAM	CAL Fluor Gold 540	CAL Fluor Red 610	Quasar 670	Quasar 705
iCycler iQ®	Bio-Rad	Yes	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	
iQ™5	Bio-Rad	Yes	FAM	CAL Fluor Gold 540	CAL Fluor Red 590	CAL Fluor Red 610	Quasar 670
SmartCycler®	Cepheid	Yes	FAM	CAL Fluor Orange 560	CAL Fluor Red 635		
SmartCycler II	Cepheid	Yes	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	
IntelliQube®	Douglas Scientific	Yes	FAM	CAL Fluor Orange 560	TAMRA	SuperROX	Quasar 670
Mastercycler® ep Realplex	Eppendorf	Yes	FAM	CAL Fluor Gold 540			
Eco™	Illumina	Yes	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	
Rotor-Gene™ Q 2-plex	Qiagen	No	FAM	CAL Fluor Orange 560			
Rotor-Gene Q 5-plex	Qiagen	No	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	Quasar 705
LightCycler® 1.2	Roche	Yes	FAM	Pulsar® 650			
LightCycler 2.0	Roche	Yes	FAM	CAL Fluor Red 610	Pulsar 650		
LightCycler 480	Roche	Yes	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	
cobas® z 480	Roche	Yes	FAM	CAL Fluor Orange 560	CAL Fluor Red 610	Quasar 670	



These dye recommendations apply to LGC Biosearch Technologies' dual-labeled BHQ probes and may not apply to other probe formats.

Some instruments may require fluorescence calibration. Please visit our website for more information.

*SuperROX dye is LGC Biosearch's proprietary passive reference dye.

For more tools and resources related to qPCR, visit: www.qpcrdesign.com.

■ Determined through research at LGC Biosearch Technologies or a collaborator.

■ Predicted based on instrument specifications. Recommendations have not been proven and should be used cautiously on an experimental basis.



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