

Thermo Scientific DyLight™ Fluorescent Labels for Nucleic Acid Analysis

Bright choices for oligonucleotide labeling

Thermo Scientific DyLight™ fluorescent labels are efficient options for oligonucleotide labeling without the constraints of licensing and royalty fees. Our expertise includes the development of custom dye chemistries, linkers and labeling strategies.

Fluorescent tags can be incorporated at the 5' end of an oligonucleotide using DyLight phosphoramidites and standard synthesis and deprotection procedures. Labeled rNTPs and dNTPs can be used to introduce tags via enzymatic synthesis.

- **A Broad Range of Labeling Options**

Phosphoramidites labeled with fluors (DY547, 647, and 677) with coupling efficiency, emission and absorption spectra comparable to Cy3, Cy5 and Cy5.5 dyes

NTPs labeled with fluors (DY549 and 649) with emission and absorption spectra comparable to Cy3 and Cy5 dyes

Fluorescein and FAM-6 labeled phosphoramidites and NTPs

NHS esters and NTPs with allylamine and propynylamine linkers for post labeling applications

R&D and manufacturing teams with extensive experience in custom dye development and optimization

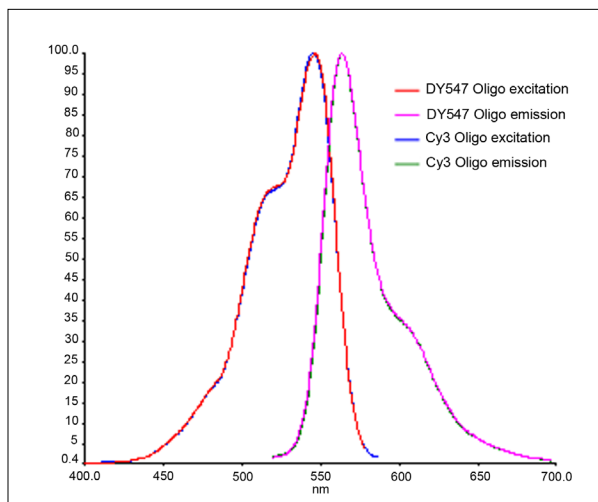
- **Over 20 Years of Manufacturing Excellence**

Documented quality and manufacturing systems ensure lot-to-lot quality and consistency

Proven world class delivery performance

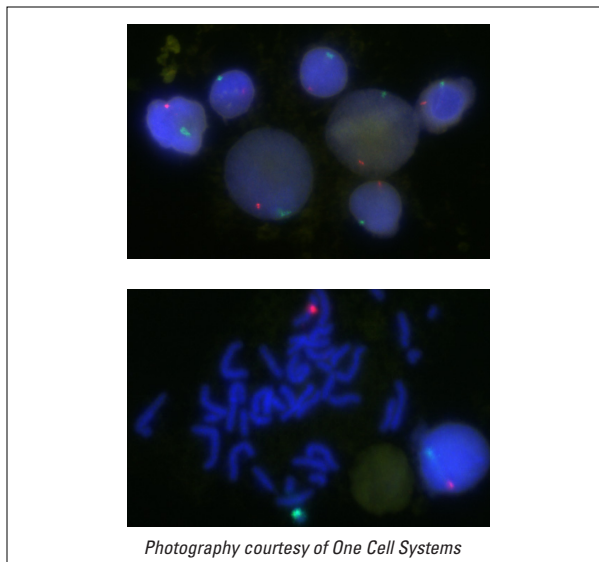
ISO9001 registration

Comparison of the Spectral Characteristics of DyLight 547 and Cy3 end-labeled Oligonucleotides



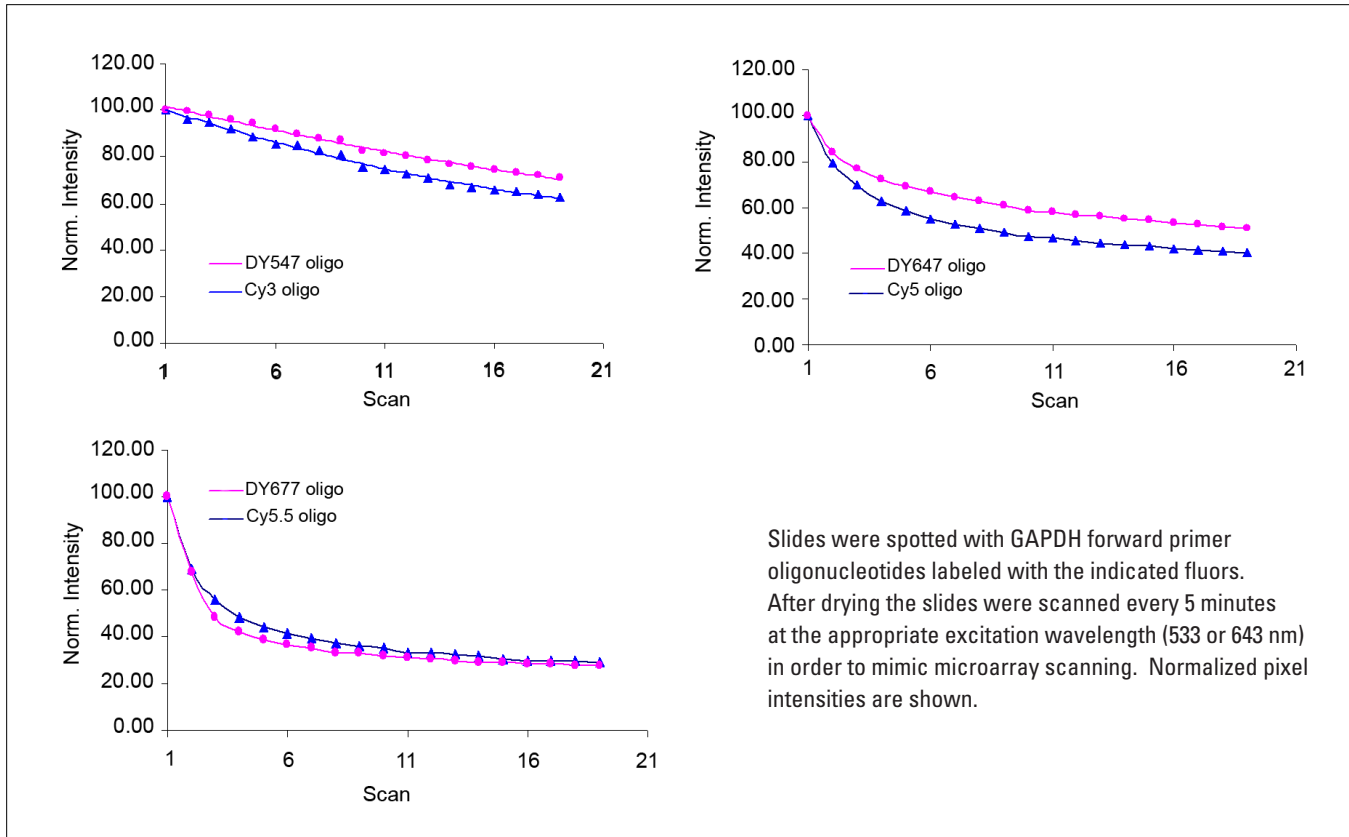
Oligonucleotides (GAPDH forward PCR primer) were labeled with the indicated fluors using standard synthesis procedures.

Sequence-specific Staining of Nuclei and Chromosomes with DyLight Labeled Oligonucleotides

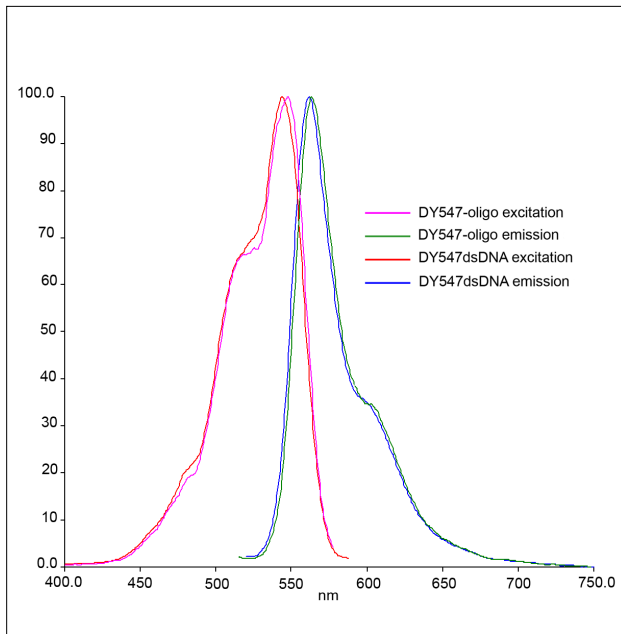


Performance of DyLight Labeled Oligonucleotides

Photostability of DyLight and CyDye labeled Oligonucleotides.

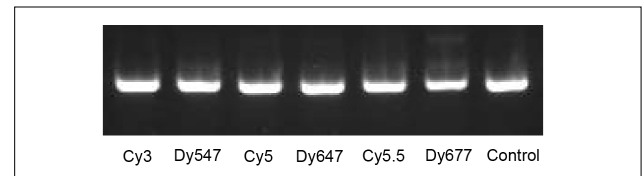


Fluorescence Spectra of Single Stranded and Hybridized Oligonucleotides



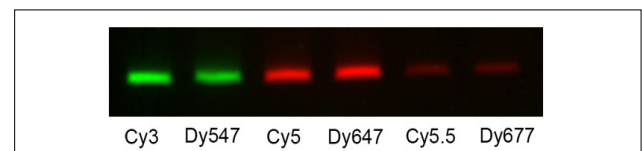
Hybridization does not significantly change the fluorescent properties of the oligonucleotides.

Incorporation of DyLight Labeled Primers in PCR Reactions



DY547, 647, Cy3 and Cy5 labeled oligonucleotides were used as primers in PCR reactions. PCR products were resolved on an agarose gel and stained with ethidium bromide. PCR reactions run with labeled primers had similar yields as those run with unlabeled (control) primers.

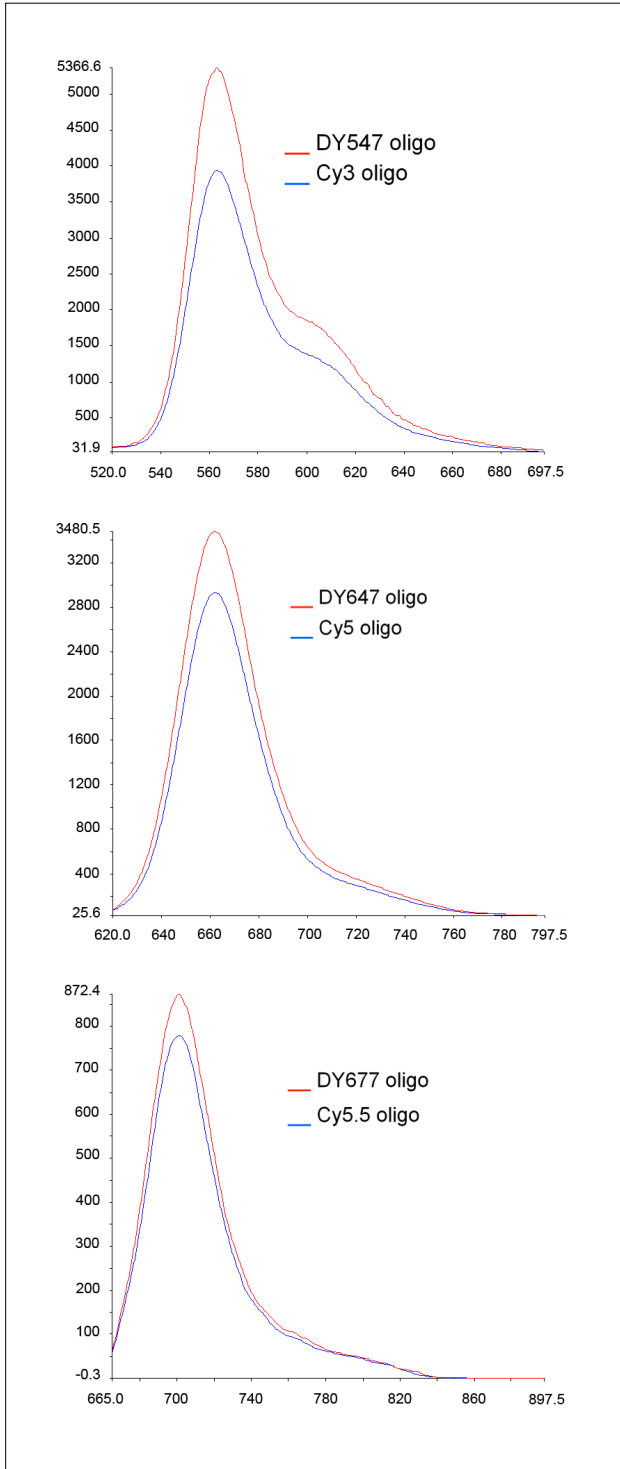
Fluorescence Intensity of DyLight and Cy Labeled PCR Products



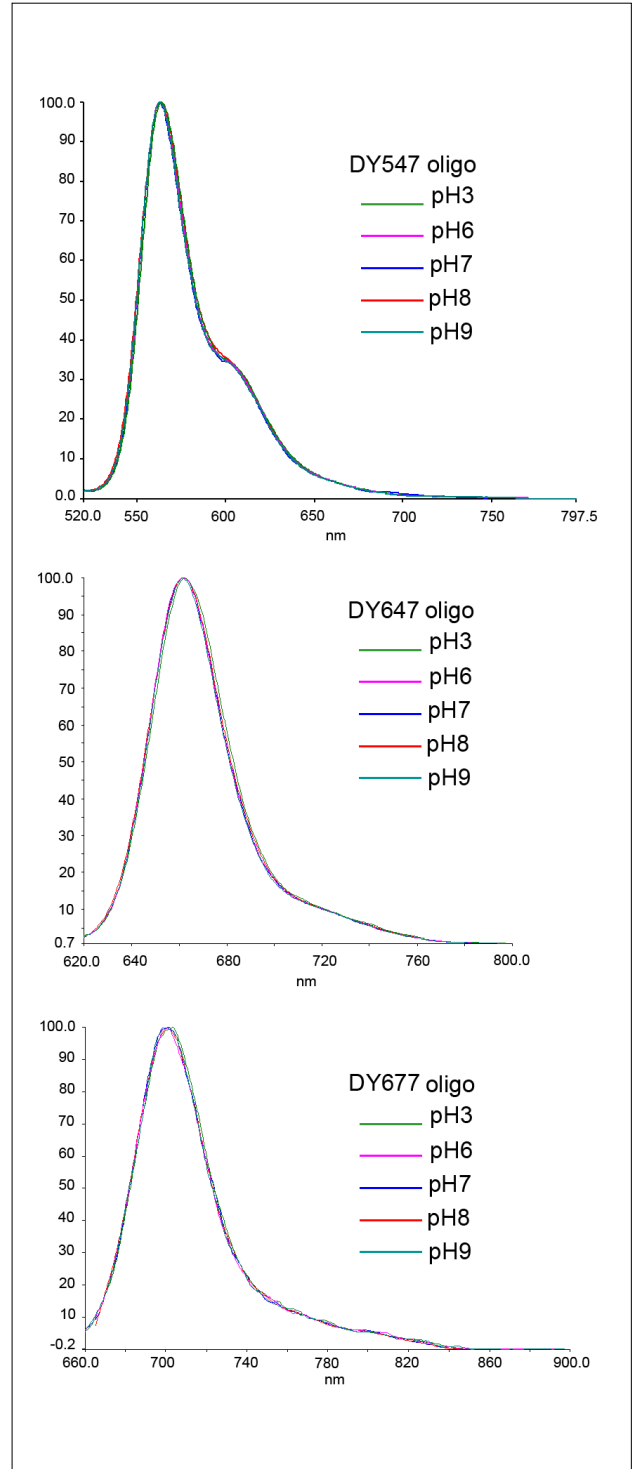
PCR products were resolved by gel electrophoresis and visualized using a FluorChem Q (Alpha Innotech) with Cy3 and Cy5 filters. DyLight labeled PCR products have similar fluorescence intensity as their CyDye labeled counterparts.

Characteristics of DyLight Labeled Oligonucleotides

Fluorescence Intensity* of DY547, 647, and 677 and Cy3, 5 and 5.5 Labeled Oligonucleotides



pH Stability of DY547, 647, and 677 Labeled Oligonucleotides



* Normalized for oligo concentration (A_{260})

Fluorophore	$\lambda_{\text{max abs}}$ (nm)	$\lambda_{\text{max em}}$ (nm)	Molar Absorbance	Comparable to
Fluorescein	494	520	78,000	-
FAM-6	494	520	81,000	-
DY490	493	518	70,000	Cy2, Fluorescein, Alexa 488
DY547	548	562	150,000	Cy3
DY549	557	568	150,000	Cy3, Alexa 546, Alexa 555, TAMRA
DY647	645	662	250,000	Cy5, WellRED D4
DY649	654	668	250,000	Cy5, Alexa 647
DY677	684	698	250,000	Cy5.5, WellRED D3

Ordering Information

Product Name	Product #
DyLight FAM-6 Phosphoramidite	27-1608
DyLight Fluorescein Phosphoramidite	27-1606
DyLight DY547 Phosphoramidite	SY6332
DyLight DY549 dUTP	NU4315
DyLight DY549 UTP	NU4325
DyLight DY647 Phosphoramidite	SY6334
DyLight DY649 dUTP	NU4615
DyLight DY649 UTP	NU4625
DyLight DY677 Phosphoramidite	SY6336

In addition to these items we also offer,
 - NHS esters and NTPs with allylamine and propynylamine linkers
 - A full range of fluorophore labeled bases and phosphoramidites
 - Custom development and synthesis services

Please contact our customer service center at 877-886-7629 for more information about these items and services.

Related Products

Thermo Scientific TheraPure® DNA Phosphoramidites
 Thermo Scientific DNA Phosphoramidites
 Thermo Scientific TheraPure® RNA Phosphoramidites
 Thermo Scientific RNA Phosphoramidites
 Thermo Scientific PurePeak® Nucleotides
 Thermo Scientific RNA CPG Synthesis Supports

For more information visit our web site at
www.thermo.com/milwaukee

We develop integrative partnerships with customers across the globe to provide premium molecular biology reagents and innovative services. These products are used in a variety of applications to advance the development of biotechnology research, diagnostics, and therapeutics applications.

2202 N Bartlett Ave, Milwaukee, WI 53202
 Tel: 877-886-7629 (toll-free) • Tel: 414-227-3600 • Fax: 414-227-3757
 Technical Assistance E-mail: mke.csm@thermofisher.com • Internet: www.thermo.com/milwaukee

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