Fluorescent dyes and labelling reagents

Fluorescent dyes (often called 'fluorophores' or simply 'fluors') are molecules whose chemical bonds excite when absorbing a photon of light at one wavelength, causing them to emit a photon of light at a longer wavelength (lower energy) as the molecule relaxes to the ground state. Small, chemically stable fluorophores that have convenient ranges of efficient (intense) excitation and emission wavelengths are useful as detectable chemical tags or labels for antibodies and other biomolecular probes. Fluorophore molecules can be modified to contain groups so that they can be covalently conjugated to proteins, nucleic acids and other biomolecules. Fluor-labeled (fluorescent) probes are widely used for detection of proteins or other molecules via a fluorescence microscope, flow cytometer or some other fluorescence reading instrument.
Fluorescent labelling is the process of covalently attaching a fluorophore to another molecule, such as a protein or nucleic acid. This is generally accomplished using a reactive derivative of the fluorophore that selectively binds to a functional group present in the target molecule. The most commonly labelled molecules are antibodies, which are then used as specific probes for detection of a particular target. Fluorescent labelling can be applied to a wide variety of detection systems and allows sensitive and quantitative measurement.

DyLight reactive dyes, Thermo Scientific Pierce

Thermo SCIENTIFIC

NEW

PN

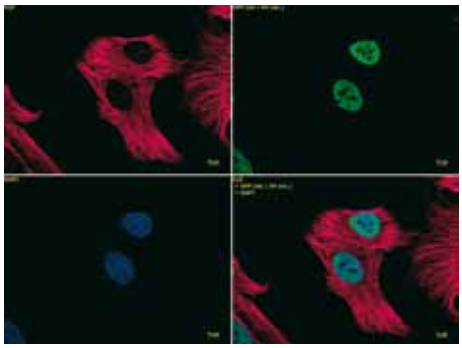
Superior fluorescent dyes for labelling amine and sulfhydryl groups.

Thermo Scientific Pierce DyLight dyes have absorption spectra ranging from 353nm to 770nm and match the principal output wavelengths of common fluorescence instrumentation.
The DyLight dyes exhibit higher fluorescence intensity and photostability than Alexa™, CyDye™ and LI-COR dyes in many applications and remain highly fluorescent over a broad pH range of 4 to 9. Additionally, the water solubility of the DyLight dyes allows a high dye-to-protein ratio without precipitation during conjugation.

Spectral properties of Thermo Scientific Pierce DyLight fluorescent dyes

DyLight dye	Emission	Ex/Em†	‡ ε	Spectrally similar dyes
350	Blue	353/432	15,000	AMCA, Alexa 350
405	Blue	400/420	30,000	Alexa 405 and Cascade Blue
488	Green	493/518	70,000	Alexa 488, fluorescein and FITC
549	Yellow	562/576	150,000	Alexa 546, Alexa 555, Cy3 and TRITC
594	Red	593/618	80,000	Alexa 594, Texas Red
633	Red	638/658	170,000	Alexa 633
649	Red	654/673	250,000	Alexa 647 and Cy5
680	Near IR	692/712	140,000	Alexa 680 and Cy5.5
750	Near IR	752/778	210,000	Alexa 750
800	Infrared	777/790	270,000	IRDye 800

† Excitation and emission maxima in nanometers
‡ Molar extinction coefficient (M^{-1} cm^{-1})



Thermo Scientific DyLight 488 and DyLight 633 dyes exhibit outstanding fluorescence in structured illumination. The uniform fluorescence intensity throughout the images demonstrates the outstanding brightness and photostability of DyLight 488 and 633 dyes. Red: Alpha tubulin detected in HeLa cells with anti-tubulin monoclonal antibody and DyLight 633 Dye-conjugated secondary antibody (highly cross-adsorbed). Green: Histone H4 detected with anti-histone monoclonal antibody and DyLight 488 Dye-conjugated secondary antibody (highly cross-adsorbed). Blue: Nucleus counter-stained with fluorescent mounting media containing DAPI. Images were acquired with the Axio Imager.Z1 and ApoTome™ slider (Zeiss MicroImaging, Inc). The ApoTome module provides confocal-like resolution allowing optical sectioning without using a pinhole (e.g., confocal). No image enhancement was performed.

Amine-reactive dyes

Catalogue No	Description	Quantity
PN46426	DyLight 350 NHS Ester	1mg
PN46427	DyLight 350 NHS Ester	5 x 65µg
PN46400	DyLight 405 NHS Ester	1mg
PN46401	DyLight 405 NHS Ester	5 x 50µg
PN46402	DyLight 488 NHS Ester	1mg
PN46403	DyLight 488 NHS Ester	5 x 50µg
PN46407	DyLight 549 NHS Ester	1mg
PN46408	DyLight 549 NHS Ester	5 x 50µg
PN46412	DyLight 594 NHS Ester	1mg
PN46413	DyLight 594 NHS Ester	5 x 50µg
PN46414	DyLight 633 NHS Ester	1mg
PN46417	DyLight 633 NHS Ester	5 x 50µg
PN46415	DyLight 649 NHS Ester	1mg
PN46416	DyLight 649 NHS Ester	5 x 50µg
PN46418	DyLight 680 NHS Ester	1mg
PN46419	DyLight 680 NHS Ester	5 x 50µg
PN46420	DyLight 750 NHS Ester	1mg
PN46423	DyLight 750 NHS Ester	5 x 50µg
PN46421	DyLight 800 NHS Ester	1mg
PN46422	DyLight 800 NHS Ester	5 x 50µg

Sulfhydryl-reactive dyes

Catalogue No	Description	Quantity
PN46622	DyLight 350 Maleimide	1mg
PN46600	DyLight 405 Maleimide	1mg
PN46602	DyLight 488 Maleimide	1mg
PN46607	DyLight 549 Maleimide	1mg
PN46608	DyLight 594 Maleimide	1mg
PN46613	DyLight 633 Maleimide	1mg
PN46615	DyLight 649 Maleimide	1mg
PN46618	DyLight 680 Maleimide	1mg
PN46619	DyLight 750 Maleimide	1mg
PN46621	DyLight 800 Maleimide	1mg

Accessories

Catalogue No	Description
PN22858	Dye removal columns