

LED (λ), Filter Cube (Ex/Em)	Fluorophores (Ex/Em)	Target	Live, Fixed, or Both	Applications	Info/Exceptions
UV (350 -370), DAPI (350-390 / 419-482)	1,8-ANS (372/480)	Lipids and Cell Membrane	Live	Fluorescent imaging of cell membranes and lipids	
	Acridine (362/462)	Nucleic acids	Both	DNA and RNA binding dyes usually used in cell cycle studies	
	Alexa Fluor™ 350 (346/442), Alexa Fluor™ 405 (401/421), DyLight™ 350 (353/432), Marina Blue™ (365/460), Pacific Blue™ (405/455)	Conjugates	Fixed	Staining cells, organelles, and labeling proteins with conjugated peptides, antibodies, or streptavidin.	
	BFP (382/488), sgBFP™ (387/450)	Conjugates and Transgenic Constructs	Both	Cell and protein labeling with antibody and protein conjugates. Designing vector constructs with fluorescently tagged transgenic proteins.	
	CellTrace™ Calcein Blue (373/440), CellTrace™ Calcein Violet (401/451)	Intracellular esterases/Cell Viability, Proliferation, and Migration	Live	Cell viability and live cell analysis with cell-permeant short-term, live cell dyes that interact with intracellular esterases	
	Cascade Blue™ (377/420)	Amines and Conjugates	Both	Fluorescent imaging of membrane permeability, cell-cell interactions, pinocytosis, live cell tracking, or cell division. Immunofluorescence imaging with protein and antibody conjugates.	
	Dansyl (335/525)	Amino Acids and Proteins	Live	Fluorescent labeling of amines, amino acids, proteins, and phenols.	
	DAPI (345/455), NucBlue™ Fixed Cell Stain (345/455)	DNA/Nuclei	Both	Staining of nuclei of dead or permeabilized cells with cell-impermeant DNA binding dyes	
	DiFMU (pH 9.0) (357/450)	Alkaline Phosphatase	Live	Monitoring alkaline phosphatase activity	
	Hoechst (33258), Hoechst (33342), NucBlue Live Cell Stain (347/483)	DNA/Nuclei	Both	Staining nuclei with cell-permeant DNA binding dyes	
	ER-Tracker™ Blue-White DPX (371/554; long emission bandwidth between 430 and 640 nm)	Endoplasmic Reticulum	Live	Endoplasmic reticulum imaging with the cell- permeable ER-Tracker dye.	
	Fast Blue (360/440)	Neurons	Both	A retrograde neuronal tracer used to map neuronal connections. Determination of acetylcholinesterase activity and α- and β-glucosidase activity in neurons.	
	LIVE/DEAD™ Fixable Blue Dead Cell Stain (344/442)	Amines/Cell Viability	Live	Cell viability dye binding to the amines in the cell membrane in viable cells and free amines in the cytoplasm of dying cells with compromised membranes.	
	LysoSensor™ Blue (374/424) LysoTracker™ Blue (373/422)	Lysosomes	Live	Fluorescent stains for imaging lysosomes and acid organelles	
	SITS (365/460)	Cell Membrane	Live	Cell membrane dye that also inhibits anion permeability and deactivates Na <sup>+</sup> /K <sup>+</sup> pumps	
	Thioflavin TCN (350/460)	Amyloid and Acetylcholinesterase	Both	Fluorescent imaging of acetylcholinesterase and amyloid deposits with a cell-permeant benzothiazole salt	
True Blue (365/425)	Cytoplasm/Neurons	Live	Cytoplasm stain used primarily in neuron assays		

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Blue Fluorescence (450-488), FITC/GFP (445-485 / 509-539)	Auramine (460/540)	Bacteria	Live	Acid-fast bacteria staining	
	Acridine orange + DNA (500/526)	Nucleic Acids and Lysosomes	Both	Differentiation of nucleic acids in cell-cycle studies with a cell-permeant nucleic acid binding dye that emits green fluorescence when bound to dsDNA and red fluorescence when bound to ssDNA or RNA. It has also been used as a lysosome dye.	
	ATTO 465 (453/507)	Conjugates	Fixed	Protein labeling and detection with peptide and antibody conjugates	
	Alexa Fluor™ 488 (496/519), Alexa Fluor™ 430 (432/540), FITC/fluorescein (494/518), Oregon Green 488 (496/524), Rhodamine green (110) (496/520)	Conjugates	Fixed	Staining cells, organelles, and labeling proteins with conjugated peptides, antibodies, or streptavidin	
	BCECF (499/540)	Cell Viability/Intracellular pH	Live	Imaging live cells and monitoring intracellular pH in cell viability studies with a mixture of cell-permeable ester derivatives that yield BCECF upon hydrolysis by cytosolic esterases.	
	BODIPY™ 492/515 (490/540), BODIPY FL (505/513), BODIPY 505/515 (502/540)	Lipids and Conjugates	Both	Fluorescent imaging of lipids, membrane, and other hydrophobic compounds. BIODIPY™ antibody and peptide conjugates for cellular and protein labeling.	
	Calcium Green™-1 (506/540)	Calcium	Live	Calcium indicator measuring Ca <sup>2+</sup> flux and intracellular calcium levels	
	Calcein AM (494/517), CellTracker Green CMFDA (492/517)	Intracellular Esterases/Cell Viability, Tracking, Proliferation	Live	Utilizing intracellular esterases to generate a fluorescent, cell-permeable live cell stain for monitoring cell viability	
	DiO (484/501)	Cell Membrane	Live	Staining membranes for cell tracking and colocalization studies	
	EarlyTox™ Dead Green Dye (503/526), SYTOX Green (504/523)	DNA/Nuclei	Live	Tracking cell viability by staining dead cells with cell-impermeant nuclei/DNA dyes	
	EarlyTox™ Live Green Dye (503/526)	DNA/Nuclei	Live	Imaging cell viability by staining live cells with cell-permeant nuclei/DNA dyes	
	GFP (395/509), EGFP (488/508)	Conjugates and Transgenic Constructs	Both	Monitoring live cell protein dynamics with conjugated antibodies and peptides. Designing vector constructs with fluorescently tagged transgenic proteins.	
	NBD C6 (465/535)	Lipids	Live	Lipid conjugate	
	Rhodamine 123 (511/534)	Mitochondria	Live	Imaging active mitochondria	
	Whole Cell Green (493/518)	Whole Cell	Both	Fixable, photostable whole cell stain	

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Green Fluorescence (508-542), TRITC/RFP (509-552 / 573-613)	Alexa Fluor™ 546 (556/573), Alexa Fluor™ 555 (555/580), Cy3 (552/570), Cy3.5 (579/597), DyLight 594 (562/576), Tetramethylrhodamine (TRITC) (555/580)	Conjugates	Fixed	Staining cells, organelles, and labeling proteins with conjugated peptides, antibodies, or streptavidin	Cy3.5 has an optimal emission wavelength, but the excitation wavelength is not optimal for the TRITC filter cube.
	Alizarin Red (530-560/580)	Bones and Cartilage	Fixed	Histology staining of calcium deposits in bones and cartilage	
	BODIPY™ Red (587/615)	Lipids and Conjugates	Both	Fluorescent imaging of lipids, membrane, and other hydrophobic compounds. BODIPY™ antibody and peptide conjugates for cellular and protein labeling.	BODIPY™ Red has an optimal emission wavelength, but the excitation wavelength is not optimal for the TRITC filter cube.
	Calcium Orange (548/575)	Calcium	Live	Calcium indicator for measuring Ca <sup>2+</sup> flux and intracellular calcium levels	
	CellMask™ Orange (556/571)	Cell Membrane	Live	Plasma membrane staining	
	CellROX™ Orange (545/565)	Reactive Oxygen Species	Live	Measuring oxidative stress with a cell-permeant dye that becomes fluorescent once oxidized by reactive oxygen species	
	CellTracker™ Orange (547/575), CellTracker™ Red (585/612), CellTracker™ Red CMTPX (577/602), CellTracker™ Dil (551/568)	Cell Tracking, Migration, and Proliferation	Live	Multigeneration studies of cell tracking, migration, and proliferation with cell-permeant dyes that become impermeant once inside the cell	CellTracker™ Red has an optimal emission wavelength, but the excitation wavelength is not optimal for the TRITC filter cube.
	DsRed/RFP (558/583), DsRed2 (563/582), DsRed-Express (555/584), DsRed-Monomer (556/586), dTomato (554/581), tdTomato (554/581), mBanana (540/553), mCherry (587/610), mOrange (548/562), mOrange 2 (549/565), mTangerine (568/585), RFP (552/585), TagRFP (555/584), TagRFP-T (555/584), TurboRFP (553/574)	Conjugates and Transgenic Constructs	Both	Cell and protein labeling with antibody and protein conjugates. Designing vector constructs with fluorescently tagged transgenic proteins.	
	Eosin (524/545)	Cytoplasm, Collagen, Muscle Fibers	Fixed	Histological staining of tissue sections by staining the cytoplasm of cells, collagen, and muscle fibers	
	Ethidium bromide (521/601)	DNA/Nuclei	Both	Nuclei staining with a DNA intercalating dye	
	Ethidium homodimer-1 (EthD-1) (530/618), Ethidium homodimer-III (EthD-III) (530/645), SYTOX Orange (547/570)	DNA/Nuclei	Live	Monitoring cell viability with cell-impermeant, dead cell nuclear dyes	
FluoroRuby (540/600)	Neurons	Live	Marking early stages of acute axonal injury and degeneration		

	HCS LipidTox™ Red (582/615)	Lipids and Cell Membrane	Live	Fluorescent imaging of the plasma membrane and lipids with a neutral lipid stain	HCS LipidTox™ Red has an optimal emission wavelength, but the excitation wavelength is not optimal for the TRITC filter cube.
	LIVE/DEAD Fixable Red (593/613)	Amines/Cell Viability	Live	Cell viability dye binding to the amines in the cell membrane in viable cells and free amines in the cytoplasm of dying cells with compromised membranes	LIVE/DEAD Fixable Red (593/613) has an optimal emission wavelength, but the excitation wavelength is not optimal for the TRITC filter cube. Users can use the LIVE/DEAD™ Fixable Blue Dead Cell Stain (344/442), LIVE/DEAD Fixable Far Red (650/665) stain, or other cell viability dyes or stains that work with our filter cubes.
	LysoTracker Yellow (HCK-123)	Lysosome	Live	Lysosome stain	
	MitoTracker Orange CMTMRos™ (551/576), MitoTracker Orange CM-H 2TMRos™ (551/576), MitoTracker Red CMXRos™ (578/599), MitoTracker Red CM-H 2XRos™ (578/599)	Mitochondria	Live	Monitoring mitochondrial health with dyes that enter mitochondria with intact mitochondrial membrane potential	Yes, but the excitation for the CMXRos™ dyes or not optimal when using the TRITC filter cube.
	MitoSOX™ Red (510/580)	Superoxide/Mitochondria	Live	Tracking mitochondria superoxide production with a cell-permeant mitochondria dye becomes oxidized by superoxide specifically	
	NeuroTrace (530/615)	Neurons	Both	Visualizing neurons in brain and spinal cord tissue sections with this Nissl stain	
	Premo FUCCI Cell Cycle Sensor (G 1 phase) (555/584)	Cell Cycle	Live	Cell Cycle marker that fluoresces red when the cells are in the G1 phase of cell division	
	Propidium iodide (PI) (530/618), POPO™-3 (532/573), PO-PRO™-3 (539/570)	DNA/Nuclei	Live	Staining dead or permeabilized cells with cell-impermeant nuclear dyes	We can image Propidium Iodide, but you would need a custom LED and filter cube to hit the optimal excitation.
	SYTO (82, 83, 84, and 85) (541/560 - 567/583)	DNA/Nuclei	Boh	Staining nuclei with cell-permeant DNA binding dyes	

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Red Fluorescence (604-623), Cy5 (610-650 / 675-720)	APC (allophycocyanin) (651/660), Alexa Fluor™ 633 (631/650), Alexa Fluor™ 647 (650/670), Alexa Fluor™ 635 (634/647), Alexa Fluor™ 660 (663/691), Alexa Fluor™ 680 (679/704), DyLight 633 (638/658), DyLight 649 (654/673), Cy5 (648/666), Cy5.5 (678/696)	Conjugates	Fixed	Staining cells, organelles, and labeling proteins with conjugated peptides, antibodies, or streptavidin.	
	BODIPY 630/650-X (626/641), BODIPY 650/665 (647/665)	Lipids and Conjugates	Both	Staining lipids, cell membranes, and other hydrophobic compounds. Cell and protein labeling with conjugated antibodies and peptides.	
	CellMask Deep Red (658/676)	Cell Membrane	Live	Plasma membrane stain	
	CellROX Deep Red (640/665)	Reactive Oxygen Species	Live	Measuring oxidative stress with a cell-permeant dye that becomes fluorescent once oxidized by reactive oxygen species.	
	DiD (indodicarbocyanine) (645/670)	Lipids and Cell Membrane	Live	Cell membrane and lipid stain	
	DiIC1(5) (638/658), DiSC3(5) (633-651/675)	Cell Membrane Potential	Live	Monitoring transmembrane potential with cationic dyes that accumulate in the lipid bilayer in hyperpolarized membranes	
	DRAQ5™ (650/680), NuclearMask Deep Red (635/687), NuclearMask Red (622/644), NucRed™ Live 647 (638/686), SYTO 17 (619/638), SYTO 59 (621/644), SYTO 60 (649/681), SYTO 62 (650/681), SYTO 63 (657/673)	DNA/Nuclei	Both	Staining nuclei with cell-permeant DNA binding dyes	
	FxCycle™ Far Red (641/657)	DNA/Nuclei	Fixed	Staining nuclei of fixed cells with a cell-impermeant dye	
	HCS CellMask Deep Red stain (649/670)	Whole Cell	Live	Whole cell stain	
	LipidTOX Deep Red (634/652)	Lipids and Cell Membrane	Both	Fluorescent imaging of the plasma membrane and lipids with a neutral lipid stain	
	LIVE/DEAD Fixable Far Red (650/665)	Amines/Cell Viability	Live	Cell viability dye binding to the amines in the cell membrane in viable cells and free amines in the cytoplasm of dying cells with compromised membranes	
	LysoTracker Deep Red (647/668)	Lysosome	Live	Lysosome stain	
	MitoTracker Deep Red (633/655), MitoTracker Deep Red FM (644/665)	Mitochondria	Live	Monitoring mitochondrial health with dyes that enter mitochondria with intact mitochondrial membrane potential	
	NeuroTrace (640/660)	Neurons	Both	Neuron studies with a stain that binds to rough endoplasmic reticulum in dendrites	
	NucRed™ Dead 647 (642/657), SYTOX Red (640/658), TO-PRO-3 (642/657), TOTO-3 (642/661)	DNA/Nuclei	Both	Staining dead cells with cell-impermeant nuclei/DNA stains	
Vybrant DyeCycle Ruby (638/686)	DNA/Nuclei	Live	Staining nuclei for cell cycle studies with a cell-permeant nucleic acid stain		