

DYES AND STAINS

FLUORESCENT DNA-BINDING DYES

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)*	Emission λ_{\max} (nm)*	Unit Sizes
Acridine Orange [3,6-bis(Dimethylamino) acridine, HCl]	113000	301.8	Membrane-permeant DNA and RNA intercalator. A cationic dye used for analysis of free or cellular nucleic acids by fluorescence microscopy and flow cytometry, including detection of apoptotic cells. Also stains acidic organelles such as lysosomes.	502 (DNA) 460 (RNA)	526 (DNA) (Green) 650 (RNA) (Red)	500 mg
Actinomycin D, 7-Amino-	129935	1270.4	Membrane-impermeant DNA-intercalator. Useful in fluorescence microscopy and flow cytometry. Used for staining nonviable cells and for identifying apoptotic cells. Compatible with FITC and PE cell surface staining. An antibiotic that inhibits transcription.	555	655 (Red)	1 mg
Bisbenzimidazole H 33258 Fluorochrome, TriHCl	382061	533.9	Membrane-permeant A/T-specific dye used to stain DNA, chromosomes, or nuclei for fluorescence microscopy, flow cytometry, and mycoplasma detection in cell culture. Used for flow cytometric and microscopic analysis of apoptotic cells.	346	460 (Blue)	100 mg 250 mg 1 g
Bisbenzimidazole H 33342 Fluorochrome, TriHCl	382065	561.9	Membrane-permeant A/T-specific dye similar to H 33258 but penetrates cells more rapidly.	346	460 (Blue)	10 mg
Chromomycin A ₃	230752	1183.3	Membrane-impermeant G/C-specific DNA-binding dye used to stain DNA, chromosomes, and nuclei for fluorescence microscopy and flow cytometry.	445	575 (Yellow)	10 mg
DAPI, Dihydrochloride (4',6'-Diamidino-2-phenylindole, HCl)	268298	350.3	Membrane-permeant A/T-specific dye used to stain DNA, chromosomes, or nuclei for fluorescence microscopy, flow cytometry and mycoplasma detection in cell culture. Used for microscopic analysis of nuclei and nuclear DNA from apoptotic cells.	359	461 (Blue)	10 mg
Methylene Blue [3,7-bis(Dimethylamino) phenothiazin-5-ium chloride]	457250	319.8	Membrane-permeant DNA and RNA intercalator. Used to stain nucleic acids on gels or blots. Also useful in staining tissues and cultured cells. An inhibitor of soluble guanylate cyclase and a photosensitizer used to generate singlet oxygen.	—	non- fluorescent (dye is blue)	1 g
Ethidium Bromide, 100 mg Tablets	331567	394.3	Fluorescent dye. Produces fluorescent intercalation complexes with DNA. Suitable for use in gel electrophoresis and DNA isolation procedures. Supplied as 25 tablets of ~100 mg each.	480	620 (Red)	1 each
Ethidium Bromide, 10 mg Tablets	331566	394.3	Fluorescent dye. Produces fluorescent intercalation complexes with DNA. Suitable for use in gel electrophoresis and DNA isolation procedures. Supplied as 25 tablets of ~10 mg each.	480	620 (Red)	1 each
Ethidium Bromide Adsorber	331569	—	Developed specifically for the safe and simple removal of ethidium bromide (EtBr) from aqueous staining solutions and running buffers used in nucleic acid separation gels. Typical concentrations in these solutions are 0.5 - 1.0 mg/l. EtBr is bound and concentrated by the adsorber column. Each column normally binds at least 300 mg of EtBr from TAE or TBE buffers. Residual capacity is easily visualized, because EtBr appears as a dark red to black band on the column.	—	—	1 each
Propidium Iodide	537059	668.4	Membrane-impermeant DNA-intercalator. Used in flow cytometry for staining dead cells, apoptotic cells, and nuclei.	536	617 (Red)	50 mg 100 mg 250 mg

* λ_{\max} values for excitation and emission are approximate and represent DNA-bound dye.

FLUOROCHROMES FOR PROTEIN LABELING

Amine-group Modifiers—For labeling proteins, including antibodies, for analysis by flow cytometry and fluorescence microscopy.

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
Dansyl Chloride [5-(Dimethylamino)-naphthalene-1-sulfonyl chloride]	311155	269.8	Reagent used for fluorescent labeling of proteins, N-terminal amino acids, and amines.	355	500 (Green)	1 g 10 g
DTAF, Hydrochloride (Dichlorotriazinylamino-fluorescein, HCl)	287900	531.7	Fluorescein derivative suitable for double-labeling with rhodamine (TRITC or XRITC). Conjugation to proteins is completed quickly (~2 hr) relative to conventional FITC labeling procedures (12 - 24 hr). Hydroxyl groups of polysaccharides can be labeled at pH >9.	492	513 (Green)	100 mg
FITC, Isomer I (Fluorescein isothiocyanate)	34321	389.4	Fluorescein derivative that is the most widely-used protein fluorochrome.	490	520 (Green)	250 mg 1 g
FITC, Isomer I, on Celite 10%	34323	—	FITC adsorbed to diatomaceous earth. Allows rapid (~30 min.) conjugation of FITC to proteins.	490	520 (Green)	1 g
FITC Labeling Kit	343210	—	Contains instructions and reagents sufficient to perform five protein conjugations (0.1 - 2.5 mg each).	490	520 (Green)	1 kit
SITS, Disodium Salt (4-Acetamido-4'-isothiocyanato-2,2'-disulfonic acid stilbene)	105001	498.5	Membrane-impermeant fluorescent marker which reacts with cell-surface proteins. Used most commonly as an anion (Cl ⁻) transport inhibitor; inhibition appears independent of covalent binding of SITS.	336	438 (Blue)	1 g
TEXAS RED® (Sulforhodamine 101 sulfonyl chloride)	573888	625.2	Derivative of rhodamine often used with FITC for double-labeling.	596	620 (Red)	10 mg
TRITC (Tetramethyl-rhodamine isothiocyanate)	588406	443.5	Derivative of rhodamine suitable for double-labeling with FITC or DTAF.	554	573 (Yellow)	10 mg

Thiol-group Modifiers I: Thiolates—Heterocyclic nonfluorescent alkyl halides that react rapidly and preferentially with free sulfhydryl (SH) groups at physiological pH. Reactions yield photochemically stable fluorescent products which can be analyzed by HPLC, gel electrophoresis, fluorescence microscopy, flow cytometry or fluorimetry.

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
ThioGlo™ 1, Fluorescent Thiol Reagent	595501	379.3	Maleimide derivative of naphthopyranone fluorophores used to prepare highly fluorescent adducts of protein, peptide or other active SH substituents.	384	513 (Green)	5 mg
ThioGlo™ 3, Fluorescent Thiol Reagent	595503	425.4	Maleimide derivative of naphthopyranone fluorophores used to prepare highly fluorescent adducts of protein, peptide or other active SH substituents.	363	446 (Blue)	5 mg
ThioGlo™ 5, Fluorescent Thiol Reagent	595505	379.3	Maleimide derivative of naphthopyranone fluorophores used to prepare highly fluorescent adducts of protein, peptide or other active SH substituents.	365	536 (Green-Yellow)	5 mg
Thiolyte® MB Reagent (Monobromobimane)	596105	271.1	Membrane-permeant, monofunctional reagent, most frequently used product of the series. Labels proteins and low-molecular weight, non-protein thiols in intact cells, in cell lysates, or in purified preparations.	385	484 (Blue)	25 mg 100 mg 250 mg
Thiolyte® DB Reagent (Dibromobimane)	596102	350.0	Membrane-permeant, bifunctional reagent for intra- or intermolecular cross-linking of proteins. Labels proteins in intact cells, in cell lysates, or in purified preparations.	385	477 (Blue)	25 mg 100 mg
Thiolyte® MQ Reagent (Monobromotrimethyl-ammonio-bimane)	596106	409.1	Membrane-impermeant, water-soluble, monofunctional quaternary salt. Labels protein thiols extracellularly, in cell lysates, or in purified preparations.	370	480 (Blue)	25 mg 100 mg
Thiolyte® MC Reagent (Monochlorobimane)	475906	226.7	Membrane-permeant, monofunctional probe of choice for flow-cytometric measurement of glutathione (GSH) in cells. Derivatization with GSH is catalyzed by glutathione-S-transferase (GST).	380	461 (Blue)	25 mg
Thiolyte® SB Reagent (<i>p</i> -Sulfobenzoyloxy-bromobimane)	596110	544.4	Membrane-impermeant, water-soluble, monofunctional anionic reagent. Yields more stable derivatives than MQ. Has reactivity and sensitivity similar to MB, but its derivatives of polycationic thiols produce sharper peaks by HPLC.	385	484 (Blue)	25 mg

Thiol-group Modifiers II: Miscellaneous Reagents

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
DTNB [5,5'-Dithio-bis-(2-nitrobenzoic Acid)]	322123	396.4	Ellman's Reagent. Membrane-impermeant aromatic disulfide whose exchange reaction with protein and non-protein thiols results in cleavage of DTNB to a nitromercaptobenzoate chromophore. Often used to quantitate or block free protein thiols.	Chromophore absorbs at 412 nm	Non-fluorescent (chromophore is yellow)	5 g

Modifiers requiring chemical cross-linking reagents: Phycobiliproteins— Highly efficient, light-gathering protein fluorochromes used most commonly for labeling antibodies for analysis by flow cytometry and fluorescence microscopy.

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
Allophycocyanin, <i>Anabaena variabilis</i>	526240	104,000	Intensely fluorescent cyanobacterial protein. Subunit structure: $(\alpha\beta)_3$.	650	660 (Red)	1 mg
R-Phycocerythrin, <i>Gastroclonium coulteri</i>	526258	240,000	Intensely fluorescent protein of red algae. Subunit structure: $(\alpha\beta)_6\gamma$.	565 (480,545)	575 (Orange)	1 mg

FLUORESCENT INTRACELLULAR pH INDICATORS

pH measurements using these indicators are derived from a ratio of two fluorescence measurements, eliminating variations due to cell thickness, photobleaching, dye loading or leakage, etc. The pH indicators 5-CF and 5-CFDA are listed under "Fluorescent Viability Stains and Intracellular Probes".

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
BCECF [2',7'-bis-(Carboxyethyl)-5(6)-carboxyfluorescein]	216252	520.5	Most widely used intracellular pH indicator ($pK_a = 6.98$). Exhibits good intracellular retention. pH is determined from the fluorescence ratio generated from two excitation wavelengths: the absorption maximum (508 nm) and the isosbestic point (439 nm). Membrane-impermeant form.	508	530 (Green-Yellow)	1 mg
BCECF/AM (acetoxymethyl ester)	216254	—	Membrane-permeant BCECF derivative hydrolyzed by intracellular esterases to the membrane-impermeant BCECF.	508	530 (Green-Yellow)	1 mg
Carboxy-SNAFL™-2 Indicator	217418	460.8	Membrane-impermeant, fluorescent indicator for the pH range 6.3 - 8.6 ($pK_a \sim 7.6$). SNAFL™ indicators fluoresce more strongly in their acidic form than in their basic form. Suitable for dual excitation and/or dual emission measurements.	525 (acid) 547 (base)	546 (acid) (Yellow-Orange) 630 (base) (Red)	1 mg

FLUORESCENT PROTEIN-BINDING DYE

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
ANS, Ammonium Salt (8-Anilino-naphthalene-1-sulfonic Acid, Ammonium Salt)	176888	316.4	Hydrophobic fluorescent probe useful for protein conformation studies. Also used to detect lipids in TLC.	380	480 (Blue)	25 g

FLUORESCENT VIABILITY STAINS AND INTRACELLULAR PROBES

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
Calcein-AM (Calcein-acetoxymethyl ester, diacetate; CAL-AM)	206700	994.9	A cell-permeable, non-fluorescent, and hydrophobic compound, which is rapidly hydrolyzed by cytoplasmic esterases inside the cell, releasing the membrane-impermeable, hydrophilic, and intensely fluorescent calcein. Can also be used for imaging mitochondrial permeability pore transition. Calcein is better retained by viable cells than fluorescein, carboxyfluorescein, or BCECF, and its fluorescence is brighter in a variety of mammalian cell types. Useful for assessing adhesion, cell viability, chemotaxis, and multidrug resistance (MDR).	494	517 (Green)	1 mg

Abbreviations Used: A/T = Adenine/Thymine; G/C = Guanine/Cytosine; XRITC = Rhodamine X Isothiocyanate; EtBr = Ethidium Bromide

FLUORESCENT VIABILITY STAINS AND INTRACELLULAR PROBES (continued)

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
5-Carboxyfluorescein (5-CF)	216265	376.3	Membrane-impermeant dye used to probe gap-junctional intercellular communication, liposome and lipid bilayer function, and intracellular pH ($pK_a \sim 6.4$). Incorporation into liposomes or cells requires special loading techniques.	495	520 (Green)	100 mg
5-Carboxyfluorescein Diacetate (5-CFDA)	216275	460.4	Membrane-permeant, nonfluorescent vital stain cleaved by cytosolic esterases to the fluorescent, membrane-impermeant 5-CF. Useful for fluorometric quantitation of viable cells, evaluation of gap-junctional intercellular communication and adhesion, cytotoxicity assays, and intracellular pH measurements.	495	520 (Green)	50 mg
Coelenterazine {2-(<i>p</i> -Hydroxybenzyl)-6-(<i>p</i> -hydroxyphenyl)-8-benzyl-imidazo[1,2-a]pyrazin-3-(7H)-one}	233900	423.5	A cell-permeable aequorin that acts as a very sensitive and specific chemiluminescence probe of the super-oxide anion. Emits chemiluminescence upon oxidation by superoxide. Powerful antioxidant. Can also be used for detecting changes in intracellular Ca^{2+} in cells that have been transfected with apoaequorin cDNA.	429	466 (Blue)	250 mg
Dithizone (DTZ; diphenylthiocarbazone)	322360	256.3	Useful as a heavy metal indicator. A specific, cell-permeable zinc chelator that has been shown to prevent Zn^{2+} -induced neurodegeneration in rat brain. A supravital stain for pancreatic islets that exhibits diabetogenic properties.	—	~600 (Red)	1 g
3,3'-Dihexyloxacarbocyanine Iodide [DiOC ₆ (3)]	305110	572.5	A cationic, cell-permeable, voltage-sensitive, lipophilic, and fluorescent carbocyanine dye that is used as a membrane potential probe. Selectively stains mitochondria and the endoplasmic reticulum. Shown to be a photosensitizer that specifically photodamages microtubules. Also useful as an electron transport inhibitor and as a probe for studying drug accumulation in multidrug-resistant cells.	484	501 (Blue-Green)	50 mg
DODC Iodide [DiOC ₂ (5); 3,3'-diethyloxadicarbocyanine iodide]	295600	486.4	A cationic, cell-permeable, voltage-sensitive, lipophilic, and fluorescent carbocyanine dye that recognizes hairpin quadruplex structures <i>in vivo</i> and <i>in vitro</i> . Also useful as a telomerase inhibitor and an antitumor agent. Specifically stains mitochondria in living cells. Useful for the determination of mitochondrial content, localization, and oxidative capacity.	579	601 (Red)	50 mg
FFP-18/AM	341511	1296.3	A cell-permeable, acetoxymethyl ester (AM) derivative of FFP-18 with spectral properties similar to those of the parent compound. Useful as a selective near membrane calcium indicator.	364 (low Ca^{2+}) 335 (high Ca^{2+})	502 (low Ca^{2+}) 490 (high Ca^{2+})	1 set (10 x 50 mg)
FLUO-3FF, Pentapotassium Salt	343245	982.0	A non-ratiometric dye with the same fluorescent properties and similar applications as FLUO 3 (Cat. No. 343244), but has lower affinity for calcium and is insensitive to magnesium.	490 - 510	526 (Green-Yellow)	500 mg
FLUO-3FF/AM	343246	1139.8	Cell-permeable acetoxymethyl ester derivative of FLUO-3FF (Cat. No. 343245) with spectral properties similar to those of the parent compound.	490 - 510	526 (Green-Yellow)	1 set (10 x 50 mg)
FURA-2FF, Pentapotassium Salt	344902	854.0	A ratiometric dye that exhibits similar fluorescent properties and has similar applications as FURA 2 (Cat. No. 344900); however, it has lower affinity for calcium and is insensitive to magnesium.	380 (low Ca^{2+}) 340 (high Ca^{2+})	505 (Blue-Green)	500 mg
FURA-2FF/AM	344904	1025.8	Cell-permeable acetoxymethyl ester derivative of FURA-2FF (Cat. No. 344902) with spectral properties similar to those of the parent compound.	380 (low Ca^{2+}) 340 (high Ca^{2+})	505 (Blue-Green)	1 set (10 x 50 mg)
INDO 1FF, Pentapotassium Salt	402097	862.0	A ratiometric dye that exhibits similar fluorescent properties and has similar applications as INDO 1 (Cat. No. 402095). Has lower affinity for calcium and is insensitive to magnesium.	345 - 360	485 (Ca^{2+} - free); 400 (Ca^{2+} - bound)	500 mg
INDO 1FF/AM	402098	1031.9	Cell-permeable acetoxymethyl ester derivative of INDO 1FF (Cat. No. 402097) with spectral properties similar to those of the parent compound.	345 - 360	485 (Ca^{2+} - free); 400 (Ca^{2+} - bound)	1 set (10 x 50 mg)
Lucifer Yellow CH, Dilithium Salt	440440	457.2	Membrane-impermeant fluorescent dye used most commonly for evaluation of gap-junctional intercellular communication.	430	535 (Green-Yellow)	10 mg

FLUORESCENT VIABILITY STAINS AND INTRACELLULAR PROBES (continued)

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
Merocyanine 540 {1,3-Dibutyl-5-[4-[3-(3-sulfopropyl)-2-benzoxazolinyliidene]-2,4-butylidene]-2-thiobarbituric acid, sodium; MC540}	445850	569.7	A cell-permeable, voltage-sensitive, lipophilic, and fluorescent anionic dye. Useful as a marker of plasma membrane integrity and for measurement of membrane potential in mitochondria and skeletal muscle. Exhibits antileukemic and antiviral properties. Inhibits cell growth by inducing apoptosis.	555	578 (Yellow)	100 mg
NBD-C ₆ -Sphingomyelin {6-[N-(7-Nitrobenz-2-oxa-1,3-diazol-4-yl) amino]hexanoyl-sphingosyl phosphocholine}	479824	740.9	A metabolic product of NBD-C ₆ -Ceramide. Useful as a probe for endocytosis, translocation, and intracellular distribution of sphingolipids.	466	536 (Green-Yellow)	1 mg
NBD-Ceramide, D-erythro-C ₆ - {6-[N-(7-Nitrobenz-2-oxa-1,3-diazol-4-yl)amino]caproylsphingosine; NBD hexanoic ceramide}	219545	575.7	A vital stain for the Golgi apparatus. Has been used to selectively stain the trans-Golgi in living and fixed cells. Useful for studying the polarization of terminally-differentiated epithelial cells.	466	536 (Green-Yellow)	1 mg
Rhodamine 123	555505	380.8	Membrane-permeant mitochondria-specific vital fluorescent dye. A useful tracer for activity of drug efflux proteins mediating multidrug resistance. Also used as a viability stain.	510	534 (Green-Yellow)	50 mg
SPQ {6-Methoxy-N-(3-sulfopropyl) quinolinium}	560288	281.3	A Cl ⁻ sensitive fluorescent dye that provides a new non-invasive method for measuring membrane chloride transport. The water-soluble fluorescent dye can be loaded into cells and membrane vesicles by simple incubation. Changes in cytoplasmic chloride then can be measured by monitoring the changes in fluorescence that occur because of relatively specific quenching of fluorescence by Cl ⁻ . Interference by other physiological anions is minimal.	344	443 (Blue)	500 mg

NITRIC OXIDE PROBES

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
4-AF DA	121745	431.4	A useful negative control for the nitric oxide (NO) fluorescent indicator DAF-2 DA (Cat. No. 251505). Does not react with NO to form a fluorescent product.	—	—	1 mg
DAA (1,2-Diaminoanthraquinone)	281820	238.2	A useful reagent for the direct detection of nitric oxide (NO) <i>in vivo</i> . DAA is non-fluorescent, but it reacts with NO in the presence of oxygen to form DAA triazole, yielding red fluorescence, which is visible with a rhodamine filter ($\lambda > 580$ nm).	—	~600 (Red)	100 mg
DAF-2	251500	362.3	A highly sensitive and specific fluorescent indicator for the direct detection of nitric oxide (NO) <i>in vitro</i> . The relatively non-fluorescent DAF-2 reacts rapidly with NO in the presence of oxygen to yield the highly fluorescent compound triazolofluorescein (DAF-2T). Can detect NO under neutral conditions (detection limit = 5 nM).	495	515 (Green)	1 mg
DAF-2 DA	251505	446.4	A cell-permeable derivative of DAF-2 (Cat. No. 251500) that is hydrolyzed to DAF-2 by intracellular esterases. Can be used in fluorescence microscopy to measure real-time changes in NO levels <i>in vivo</i> .	495	515 (Green)	1 mg
2,3-Diaminonaphthalene (DAN; 2,3-naphthalenediamine)	281825	158.2	A useful reagent for the rapid and sensitive fluorometric assay of nitrite ions (NO ₂ ⁻) and selenium. Reaction of nitrite with DAN forms a fluorescent product, 1-(H)-naphthotriazole (Ex = 365 nm; Em = 415 nm). Also suitable for the assay of 3-deoxyglucosone (3-DG), wherein 3-DG reacts with DAN to produce a stable compound that can be measured by UV absorption.	340	377 (Blue-Violet)	100 mg
Dihydrorhodamine 123	309825	346.4	Cell-permeable fluorogenic probe that is useful for the detection of reactive oxygen species (ROS) such as peroxide and peroxyxynitrite. Nonfluorescent until oxidized to rhodamine 123.	510	534 (Green-Yellow)	5 mg

NITRIC OXIDE PROBES (continued)

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
DTCS [(Dithiocarboxy)sarcosine, 2Na]	322350	209.2	A derivative of N-methylglycine that forms a soluble iron complex with FeSO ₄ . The Fe-DTCS complex has a high affinity for endogenous nitric oxide (NO) and can trap, stabilize, and accumulate NO. The stable [Fe(DTCS) ₂ NO] adduct is detectable from -163°C to 37°C with electron paramagnetic resonance (EPR) spectroscopy and is scarcely able to pass through the blood-brain barrier. The spin probe, Fe-DTCS, is useful for the non-invasive investigation of the spatial distribution of NO in pathological organs or tissue samples by EPR detection and imaging.	—	—	100 mg
H ₂ DCFDA (2',7'-Dichlorofluorescein diacetate; 2',7'-dichlorodihydrofluorescein diacetate)	287810	487.3	Cell-permeable fluorogenic probe that is useful for the detection of reactive oxygen species (ROS) and nitric oxide (NO) and for the determination of the overall oxidative stress in toxicological phenomena. Nonfluorescent until hydrolyzed and oxidized to 2',7'-dichlorofluorescein.	504	529 (Green-Yellow)	100 mg

MISCELLANEOUS

Product	Cat. No.	M. W.	Comments/Applications	Excitation λ_{\max} (nm)	Emission λ_{\max} (nm)	Unit Sizes
6-Aminocoumarin (6-Amino-1,2-benzopyrone, hydrochloride)	130070	197.6	A cell-permeable, fluorescent coumarin analog that inhibits PARP [poly(ADP-ribose)polymerase] activity. Competitively inhibits the coenzymatic functions of synthetic octadeoxy-ribonucleotides. Also shown to be a potent, selective, and non-toxic inhibitor of HIV-1 IIIb replication <i>in vitro</i> .	—	—	100 mg
AMC (Coumarin 120; 7-amino-4-methyl coumarin)	164545	175.2	Reagent used to prepare fluorogenic AMC-based substrates for the detection of proteolytic enzymes. Also useful as a reference standard in enzyme assays.	365 - 380	430 - 460 (Blue)	10 mg
AFC [Coumarin 151; 7-amino-4- (trifluoromethyl)coumarin]	164580	229.2	Reagent used to prepare fluorogenic AFC-based substrates for the detection of proteolytic enzymes. Also useful as a reference standard in enzyme assays.	~400	~505 (Blue-Green)	50 mg
S-Butyrylthiocholine Iodide	203989	317.2	Chromogenic substrate for cholinesterases. Cleavage is measured colorimetrically at 405 nm.	—	—	5 g 25 g
4-Chloro-1-naphthol	220480	178.6	Useful stain in immunoperoxidase procedures. Produces blue insoluble end product that can be read visually. Exhibits lower toxicity, greater sensitivity, and less background than diaminobenzidine.	—	—	5 g
Hydrindantin, Dihydrate [2,2'-Dihydroxy-(2,2'-biindan)- 1,1',3,3'-tetrone]	389774	358.3	Reduced form of ninhydrin that is used to obtain exact and reproducible results in amino acid analyses.	—	—	10 g 100 g
INT [3-(4-Iodophenyl)-2-(4-nitro phenyl)-5-phenyl-2H-tetrazolium chloride]	407772	505.7	Useful for the detection, localization, and quantitative evaluation of reduction processes <i>in vitro</i> and <i>in situ</i> .	—	—	1 g 5 g
Ninhydrin	487683	178.1	Reagent used for the detection of free amino and carboxyl groups in proteins and peptides.	—	—	10 g 100 g 1 kg
Phenolphthalein diphosphate, Tetracolamine Salt	516742	722.6	Substrate /indicator for acid and alkaline phosphatases. Demonstrates weak inhibitory effects towards recognition sites for InsP ₃ . Absorbance can be measured at 546 nm.	—	546 (Yellow- Orange)	5 g
o-Phthalaldehyde Phthalic dicarboxaldehyde; OPA)	526101	134.1	Reagent used for the fluorogenic determination of amino acids. Reacts with primary amines in aqueous solution. Spectral data are for the reaction product of OPA with alanine and 2-mercaptoethanol. The spectra may vary depending on the amine and thiol reactants.	334	455 (Blue)	5 g 50 g
Ruthenium Red (Ammoniated ruthenium oxychloride; RR)	557450	786.4	A general stain in microscopy. Blocks of transmembrane Ca ²⁺ fluxes (IC ₅₀ = 7 μM) and attenuates capsaicin-induced cation channel opening. Inhibits Ca ²⁺ -induced Ca ²⁺ release from ryanodine-sensitive intracellular stores.	—	—	—

Please call our Technical Service Department or your local sales office for more information on these products.

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