



CELLestial™ Fluorescent Probes and Labeling Products

Ion Detection

Targeted Cellular Staining

Cell Viability & Cell Death

Reactive Oxygen Detection

Reactive Dyes & Stains

incorporating

ALEXIS[®]
BIOCHEMICALS

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INTERNATIONAL

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Enabling Discovery in Life Science™

ENZO LIFE SCIENCES, INC.

Enzo Life Sciences, Inc. is a subsidiary of Enzo Biochem, Inc. organized to lead in the development, production, marketing, and sales of innovative life science research reagents worldwide based on over 30 years of successful experience in building strong international market recognition, implementing outstanding operational capabilities, and establishing a state-of-the-art electronic information and ordering marketplace.

Enzo Life Sciences, Inc. is a recognized leader in labeling and detection technologies across research and diagnostic markets. A strong portfolio of labeling probes and dyes provides life science environments tools for target identification/validation and high content analysis via gene expression analysis, nucleic acid detection, protein biochemistry and detection, molecular biology, and cellular analysis.

Now incorporating the skills, experience and products of ALEXIS® Biochemicals, acquired in 2007, and BIOMOL® International, acquired in 2008, the Enzo® Life Sciences brand now provides 25 years of business experience in the supply of research biochemicals and biologicals “Enabling Discovery in Life Science™”.

- ***Genomic Analysis***
- ***Post-translational Modification***
- ***Cancer & Immunology***
- ***Cellular Analysis***
- ***Signal Transduction***
- ***Drug Discovery***

In addition to our wide range of catalog products, a full range of highly specialized custom services are also offered to provide tailor-made solutions for researchers, including peptide synthesis, antibody production, protein expression, organic synthesis and custom-labeled FISH probes. Industry-wide there is an unmet demand for such expertise on a custom/contract basis.

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CELLestial

The CELLestial™ product line is a portfolio of fluorescent molecular probes extensively benchmarked for live cell analysis applications, and facilitates analysis of subcellular organization and dynamics with high spatial and temporal resolution.

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Calcium Indicators

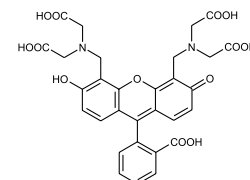
Calcein, Ultra Pure

MW:	622.53
CAS:	1461-15-0
WAVELENGTH MAXIMA:	Excitation 495nm, Emission 515nm
QUANTITY:	100mg
PURITY:	>90 % by HPLC
REFERENCES:	1. A.G. Lista, et al.; <i>Talanta</i> 50 , 881 (1999) 2. S. Saito, et al.; <i>J. Chromatogr. A</i> 1140 , 230 (2007).

Calcein is a fluorescent calcium indicator that emits a yellowish-green fluorescence under acidic conditions and is minimally fluorescent under basic conditions. Calcein also fluoresces in the presence of certain metal cations such as Al(III), Ba(II), Cu(II), Mg(II), Hg(II) and Zn(II) under basic conditions. Therefore, calcein can be used for direct fluorimetric titration of these heavy metal ions as well as Ca(II). Calcein self-quenches at concentrations above 100mM and is slightly water soluble. The membrane impermeable probe can be loaded in cells by microinjection, electroporation or scrape loading. The acetomethoxy (AM) version is necessary for passive cell loading.

ENZ-52001

100 mg



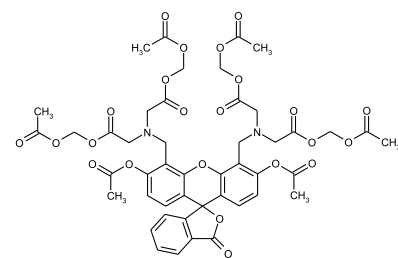
Calcein AM, Ultra Pure

MW:	994.86
CAS:	148504-34-1
WAVELENGTH MAXIMA:	Excitation 495nm, Emission 515nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. P. Decherchi, et al.; <i>J. Neurosci. Methods</i> 71 , 205 (1997).

Calcein acetomethoxy (AM), a derivative of calcein, is useful for differentiating between live and dead cells. Calcein AM readily passes through the cellular plasma membrane. Once inside, esterases cleave the AM groups, yielding the more hydrophilic calcein, which is trapped inside the cell. The loss of the acetomethoxy group also enables calcein to readily bind intracellular calcium; resulting in a strong yellowish-green fluorescence. As dead cells lack cytoplasmic esterases, fluorescence is demonstrated exclusively in live cells, making the probe useful for determining cell viability. Calcein-AM exhibits low cytotoxicity and does not significantly affect cellular functions such as proliferation or chemotaxis. Viability assays using calcein correlate well with other assays, such as ⁵¹Cr-release.

ENZ-52002

1mg



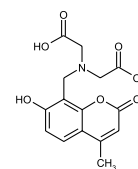
Calcein Blue, Ultra Pure

MW:	321.28
CAS:	54375-47-2
WAVELENGTH MAXIMA:	Excitation 360nm, Emission 445nm
QUANTITY:	250mg
PURITY:	>95 % by HPLC
REFERENCES:	1. K.A. Matsoukas & M.A. Demertzis; <i>Analyst</i> 113 , 251 (1988). 2. T. Goto, et al.; <i>Biomaterials</i> 24 , 3885 (2003)

Calcein Blue has similar calcium-binding properties as calcein. Like calcein, it is typically used for metallochromic titration of metal ions with EDTA and demonstrates enhanced fluorescence upon binding Ca(II), Zn(II) or La(II). Binding of Mn(II), Fe(II), Co(II), Ni(II) and Cu(II) results in a reduction in fluorescence. In addition, the probe is also used as a reference standard for calcein AM. The probe also finds application in cell-based assays for measuring mineralized-tissue formation by cultured osteoblastic cells.

ENZ-52003

250 mg

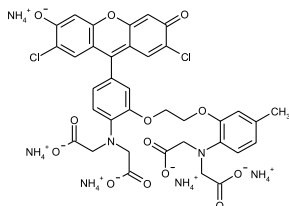


incorporating

Fluo-3, pentaammonium salt, Ultra Pure

ENZ-52005

1 mg



MW:	854.69
CAS:	339221-91-9
WAVELENGTH MAXIMA:	Excitation 506nm, Emission 526nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. T. Zhang, et al.; Anal. Quant. Cytol. Histol. 22 , 93 (2000) 2. S. Bailey & P.J. Macardle; J. Immunol. Methods 311 , 220 (2006).

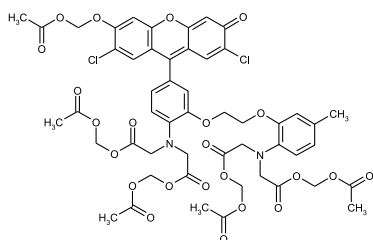
Fluo-3 is widely used in flow cytometry, confocal laser-scanning microscopy and fluorescence spectroscopy. The probe is particularly valuable for determining GPCR (G protein-coupled receptor) function via cell-based high-throughput screening. Fluo-3 is a membrane impermeable probe and can be loaded in cells by microinjection, electroporation or scrape loading. The acetomethoxy (AM) version is necessary for passive cell loading.

Once inside the cell, Fluo-3 becomes fluorescent, in the presence of free Ca(II). Fluo 3 is a long wavelength calcium probe (488nm excitable), convenient for minimizing photodamage in cells.

Fluo-3 AM, Ultra Pure

ENZ-52004

1 mg



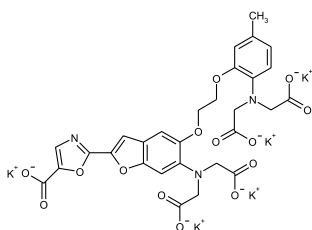
MW:	1129.85
CAS:	121714-22-5
WAVELENGTH MAXIMA:	Excitation 506nm, Emission 526nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. T. Zhang, et al.; Anal. Quant. Cytol. Histol. 22 , 93 (2000) 2. S. Bailey & P.J. Macardle; J. Immunol. Methods 311 , 220 (2006).

Fluo-3 AM is widely used in flow cytometry, confocal laser-scanning microscopy and fluorescence spectroscopy. The probe has proved particularly valuable for determining GPCR (G protein-coupled receptor) function via cell-based high-throughput screening. Fluo-3 AM is a membrane permeable probe and can be passively loaded in cells by simple incubation. Once inside the cell, Fluo-3 becomes fluorescent in the presence of free Ca(II). Fluo 3 is a long wavelength calcium indicator probe (488nm excitable). The longer wavelength of absorption is convenient for minimizing photodamage in cells.

Fura-2, pentapotassium salt, Ultra Pure

ENZ-52007

1 mg



MW:	832.00
CAS:	113694-64-7
WAVELENGTH MAXIMA:	Excitation 363nm, Emission 512nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. R.A. Hirst, et al.; Methods Mol. Biol. 312 , 37 (2006).

Fura-2 is one of the most widely used calcium indicators for homogenous quantitative dual wavelength ratiometric cell measurements. Fura-2 is particularly useful for digital imaging microscopy. It is less susceptible to photobleaching than Indo-1. The probe is excited only by UV light, which results in significantly less interference by visible wavelength excitable fluorescent compounds. One application of the probe is as a useful counter screen tool for GPCR (G protein-coupled receptor) and calcium channels identified using calcium indicators excited at 488nm in primary screens. Fura-2 is a membrane impermeable probe and can be loaded in cells by microinjection, electroporation or scrape loading. The acetomethoxy (AM) version is necessary for passive cell loading.

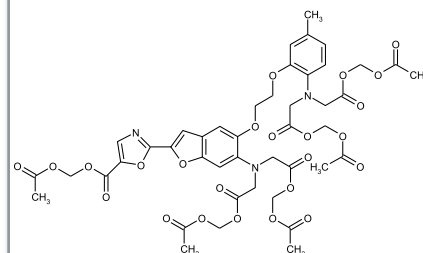
Fura-2 AM, Ultra Pure

MW:	1001.86
CAS:	108964-32-5
WAVELENGTH MAXIMA:	Excitation 370nm, Emission 476nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. G. McConnell, et al.; <i>Opt. Lett.</i> 28 , 1742 (2003) 2. R.A. Hirst, et al.; <i>Methods Mol. Biol.</i> 312 , 37 (2006).

Fura-2 acetomethoxy (AM) is one of the most widely used calcium indicators for homogenous quantitative dual wavelength ratiometric cell measurements. Fura-2 AM is particularly useful for digital imaging microscopy. It is less susceptible to photobleaching than Indo-1. The probe is excited only by UV light, which results in significantly less interference by visible wavelength excitable fluorescent compounds. One application of the probe is as a useful counter screen tool for GPCR and calcium channel hits identified using calcium indicators excited at 488nm in primary screens. Fura-2 AM can be easily loaded into cells by passive incubation.

ENZ-52006

1 mg



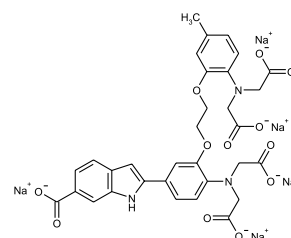
Indo-1, pentasodium salt, Ultra Pure

MW:	759.52
WAVELENGTH MAXIMA:	Excitation 346nm, Emission 475nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. A. Nelemans; <i>Methods Mol. Biol.</i> 312 , 47 (2006) 2. S. Bailey & P.J. Macardle; <i>J. Immunol. Methods</i> 311 , 220 (2006).

Indo-1 is a popular UV-excitable calcium indicator, similar to Fura-2. In contrast to Fura-2, Indo-1 has a dual emission peak. The main emission peak in calcium-free solution is 475nm while in the presence of calcium the emission is shifted to 400nm. Indo-1 is a membrane impermeable probe and can be loaded in cells by microinjection, electroporation or scrape loading. The acetomethoxy (AM) version is necessary for passive cell loading. The probe is widely used in flow cytometry. For this application, it is critical to have an instrument with an argon laser tuned to UV or a helium-cadmium laser available.

ENZ-52009

1mg



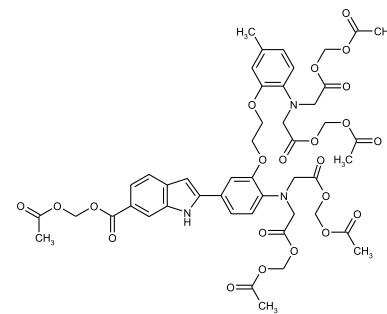
Indo-1 AM, Ultra Pure

MW:	1009.9
CAS:	112926-02-0
WAVELENGTH MAXIMA:	Excitation 346nm, Emission 475nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. A. Nelemans; <i>Methods Mol. Biol.</i> 312 , 47 (2006) 2. S. Bailey & P.J. Macardle; <i>J. Immunol. Methods</i> 311 , 220 (2006).

Indo-1 acetomethoxy (AM) is a popular UV-excitable calcium indicator, similar to Fura-2. In contrast to Fura-2, Indo-1 has a dual emission peak. The main emission peak in calcium-free solution is 475nm while in the presence of calcium the emission is shifted to 400nm. Indo-1 AM is a membrane permeable probe and can be easily loaded into cells by passive incubation. The probe is widely used in flow cytometry. For this application, it is critical to have an instrument with an argon laser tuned to UV or a helium-cadmium laser available.

ENZ-52008

1 mg

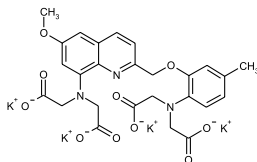


incorporating

Quin-2, tetrapotassium salt, Ultra Pure

ENZ-52013

5 mg



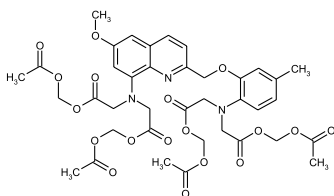
MW:	693.87
WAVELENGTH MAXIMA:	Excitation 353nm, Emission 495nm
QUANTITY:	5mg
PURITY:	>95 % by HPLC
REFERENCES:	1. J.R. Lakowicz, et al.; Cell Calcium 13 , 131 (1992) 2. J.R. Lakowicz, et al.; Cell Calcium 15 , 7 (1994).

Quin-2 demonstrates a strong affinity for calcium, resulting in a marked shift in ultraviolet absorption and fluorescence spectra versus the unbound state. Quin-2 resembles calcium chelator EGTA in its ability to bind calcium more tightly than magnesium. Quin-2 is a membrane impermeable probe and can be loaded in cells by microinjection, electroporation or scrape loading. The acetomethoxy (AM) version is necessary for passive cell loading. Quin-2 has lower absorptivity and quantum yield values than Fura-2, Indo-1, Fluo-3 and Fluo-4, thus requiring higher loading concentrations.

Quin-2 AM, Ultra Pure

ENZ-52012

1 mg



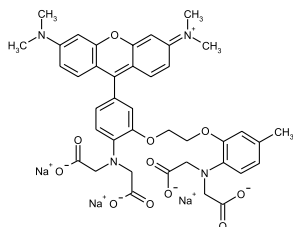
MW:	829.76
CAS:	83104-85-2
WAVELENGTH MAXIMA:	Excitation 346nm, Emission 475nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. J.R. Lakowicz, et al.; Cell Calcium 13 , 131 (1992) 2. J.R. Lakowicz, et al.; Cell Calcium 15 , 7 (1994).

Quin-2 AM demonstrates a strong affinity for calcium, resulting in a marked shift in ultraviolet absorption and fluorescence spectra versus the unbound state. Quin-2 resembles calcium chelator EGTA in its ability to bind calcium more tightly than magnesium. Quin-2 AM is an acetoxymethyl ester derivative of Quin-2 that can be easily loaded into cells by passive incubation. Quin-2 has lower absorptivity and quantum yield values than Fura-2, Indo-1, Fluo-3 and Fluo-4, thus requiring higher loading concentrations.

Rhod-2, trisodium salt, Ultra Pure

ENZ-52011

1 mg



MW:	820.73
WAVELENGTH MAXIMA:	Excitation 549nm, Emission 578nm
QUANTITY:	1mg
PURITY:	>90 % by HPLC
REFERENCES:	1. M.P. Muriel, et al.; J. Comp. Neurol. 426 , 297 (2000) 2. C. Du, et al.; Cell Calcium 29 , 217 (2001).

Rhod-2 has the longest fluorescent emission signal of the commonly used calcium indicators and is suitable for use with argon and krypton laser excitation sources. Rhod-2 signal intensity is one of the strongest as well. Rhod-2 is especially suitable probe for intracellular calcium monitoring by confocal laser-scanning microscopy and flow cytometry. The dissociation constant of Rhod-2 with calcium is among the highest of all the fluorescent calcium probes, providing a wider range for monitoring calcium concentration. Rhod-2 is a membrane impermeable probe and can be loaded in cells by microinjection, electroporation or scrape loading. The acetomethoxy (AM) version is necessary for passive cell loading.

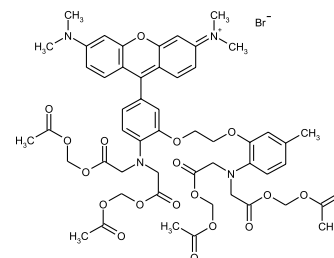
Rhod-2 AM, Ultra Pure

MW:	1123.96
WAVELENGTH MAXIMA:	Excitation 549nm, Emission 578nm
QUANTITY:	1mg
PURITY:	>90 % by HPLC
REFERENCES:	1. M.P. Muriel, et al.; J. Comp. Neurol. 426 , 297 (2000) 2. C. Du, et al.; Cell Calcium 29 , 217 (2001).

Rhod-2 AM has the longest fluorescent emission signal of the commonly used calcium indicators. It contains a rhodamine-like fluorophore, making it suitable for use with argon and krypton laser excitation sources. Rhod-2 signal intensity is one of the strongest of all the calcium probes. Rhod 2 is especially suitable for intracellular calcium monitoring by confocal laser-scanning microscopy and flow cytometry. The dissociation constant of Rhod 2 with calcium is among the highest of all the fluorescent calcium probes, providing a wider range for monitoring calcium concentration. Rhod-2 AM is an acetoxymethyl ester derivative of Rhod-2 that can be easily loaded into cells by passive incubation.

ENZ-52010

1 mg



Chloride Indicators

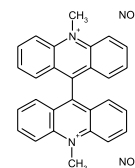
Lucigenin, Ultra Pure

MW:	510.5
CAS:	22103-92-0
WAVELENGTH MAXIMA:	Excitation 455nm, Emission 505nm
QUANTITY:	10mg
PURITY:	>98 % by HPLC
REFERENCES:	1. F. Wissing & J.A. Smith; J. Membr. Biol. 177 , 199 (2000) 2. M. Kervinen, et al.; Anal. Biochem. 324 , 45 (2004).

Lucigenin is a blue-green fluorescent chloride ion indicator that is more sensitive and selective than ^{36}Cl and microelectrode-based methods for chloride measurement in cells. Lucigenin is a fluorescent indicator that is quenched via collision with chloride. The probe is suitable for detection of chloride concentrations in liposomes, reconstituted membranes or in extracellular medium. Lucigenin may also be used as a chemiluminescent probe for the detection of superoxide in biological systems.

ENZ-52154

10 mg



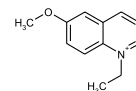
MEQ, Ultra Pure

MW:	315.15
WAVELENGTH MAXIMA:	Excitation 344nm, Emission 442nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	1. J.R. Inglefield & R.D. Schwartz-Bloom; Methods Enzymol. 307 , 469 (1999) 2. D.A. Mahlangu & J.A. Dix; Anal. Biochem. 325 , 28 (2004).

MEQ is a fluorescent chloride ion indicator that is more sensitive and selective than ^{36}Cl and microelectrode-based methods for chloride measurement in cells. MEQ is a fluorescent indicator that is quenched via collision with chloride. The probe is suitable for detection of chloride concentrations in liposomes, reconstituted membranes or in extracellular medium. As a UV-excitable indicator, MEQ can be detected using an argon-ion laser for confocal microscopy and flow cytometry applications.

ENZ-52155

100 mg

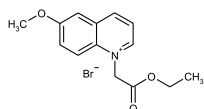


incorporating

MQAE, Ultra Pure

ENZ-52156

100 mg



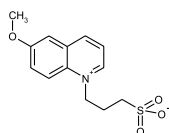
MW:	326.19
WAVELENGTH MAXIMA:	Excitation 350nm, Emission 460nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	1. Z.F. Lai, et al.; Eur. J. Pharmacol. 482 , 1 (2003) 2. F. Munkonge, et al.; J. Cyst. Fibros. 3 Suppl. 2 , 171 (2004).

MQAE is a fluorescent chloride ion indicator that is more sensitive and selective than ^{36}Cl and micro-electrode-based methods for chloride measurement in cells. MQAE is a fluorescent indicator that is quenched via collision with chloride. The probe is suitable for detection of chloride concentrations in liposomes, reconstituted membranes or in extracellular medium. As a UV-excitabile indicator, MEQ can be detected using an argon-ion laser for confocal microscopy and flow cytometry applications. MQAE has greater sensitivity than SPQ and higher fluorescence quantum yield. The ester group of MQAE may slowly hydrolyze inside cells, resulting in a change in its fluorescence response.

SPQ, Ultra Pure

ENZ-52157

25 mg



MW:	281.33
CAS:	83907-40-8
WAVELENGTH MAXIMA:	Excitation 344nm, Emission 433nm
QUANTITY:	25mg
PURITY:	>98 % by HPLC
REFERENCES:	1. B. Pilas & G. Durack; Cytometry 28 , 316 (1997) 2. R.J. Lee, et al.; J. Physiol. 582 , 1099 (2007).

SPQ is a fluorescent chloride ion indicator that is more sensitive and selective than ^{36}Cl and micro-electrode-based methods for chloride measurement in cells. SPQ is a fluorescent indicator that is quenched via collision with chloride. The probe is suitable for detection of chloride concentrations in liposomes, reconstituted membranes or in extracellular medium. SPQ has been loaded in vitro, using a hypotonic method and fluorescence detected using UV laser by flow cytometry.

Zinc Indicators

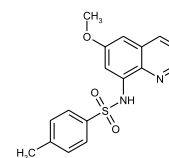
TSQ, Ultra Pure

MW:	328.38
CAS:	109628-27-5
WAVELENGTH MAXIMA:	Excitation 344nm, Emission 385nm
QUANTITY:	25mg
PURITY:	>98 % by HPLC
REFERENCES:	1. Y.B. Nitzan, et al.; J. Histochem. Cytochem. 52 , 529 (2004) 2. G.R. Sauer, et al.; J. Cell Biochem. 88 , 954 (2003).

TSQ is one of the most efficient membrane-permeable fluorescent probes for Zn(II). It is selective for Zn(II) in the presence of physiological concentrations of Ca(II) and Mg(II) ions. Fluorescence of Zinquin ethyl ester is enhanced upon binding Zn(II), but the probe does not demonstrate a shift or change in emission wavelength. TSQ forms a largely insoluble 2:1 (Ligand-Metal) complex with zinc and emits blue light upon excitation at 365nm. TSQ has been extensively applied to study Zn(II) in mossy fibers of the hippocampus. TSQ has been used to monitor intracellular zinc fluxes associated with apoptosis as well.

ENZ-52153

25 mg



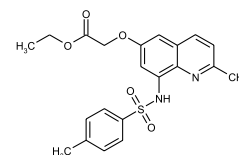
Zinquin ethyl ester, Ultra Pure

MW:	414.5
CAS:	151606-29-0
WAVELENGTH MAXIMA:	Excitation 368nm, Emission 490nm
QUANTITY:	5mg
PURITY:	>98 % by HPLC
REFERENCES:	1. A. Helmersson, et al.; Plant Physiol. 147 , 1158 (2008) 2. K.W. Leung, et al.; Invest. Ophthalmol. Vis. Sci. 49 , 1221 (2008).

Zinquin ethyl ester is a lipophilic, zinc-sensitive, fluorescent derivative of Zinquin that is able to penetrate cell membranes. Cleavage of the ethyl ester group via cytosolic esterases in living cells impedes its efflux across the plasma membrane. It is selective for Zn(II) in the presence of physiological concentrations of Ca(II) and Mg(II) ions. Fluorescence of Zinquin ethyl ester is enhanced upon binding Zn(II), but the probe does not demonstrate a shift or change in emission wavelength. The probe is UV-excitable and emits in the blue region of the spectrum. Zinquin ethyl ester has been used to monitor intracellular zinc fluxes associated with apoptosis.

ENZ-52151

5 mg



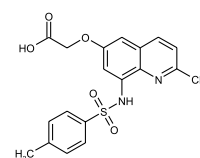
Zinquin free acid, Ultra Pure

MW:	386.42
WAVELENGTH MAXIMA:	Excitation 368nm, Emission 490nm
QUANTITY:	5mg
PURITY:	>98 % by HPLC
REFERENCES:	1. P.D. Zalewski, et al.; Biochem. J. 296 (Pt 2) , 403 (1993) 2. P.D. Zalewski, et al.; Chem. Biol. 1 , 153 (1994).

Zinquin free acid is a membrane impermeable, zinc-sensitive, fluorescent dye. The ethyl ester version is necessary for passive cell loading. It is selective for Zn(II) in the presence of physiological concentrations of Ca(II) and Mg(II) ions. The probe can also detect Cd(II). Fluorescence of Zinquin is enhanced upon binding Zn(II), but the probe does not demonstrate a shift or change in emission wavelength. The probe is UV-excitable and emits in the blue region of the spectrum. Zinquin has been used to monitor intracellular zinc fluxes associated with apoptosis.

ENZ-52152

5 mg



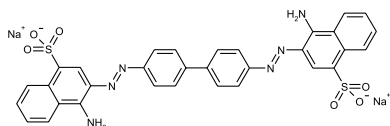
incorporating

Amyloid Detection

Congo Red, Ultra Pure

ENZ-52552

100 mg



MW:	696.66
WAVELENGTH MAXIMA:	Excitation 497nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. D.M. Wilcock, et al.; Nat. Protoc. 1 , 1591 (2006) 2. A.J. Howie, et al.; Lab. Invest. 88 , 232 (2008).

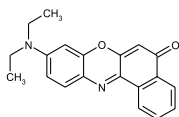
Congo Red, has been used in microscopy for staining elastic fibers and bacteria. Amyloid protein, an abnormal protein aggregate associated with various pathologies, is commonly detected in tissue with Congo Red. Detection of amyloid is relevant for a whole host of diseases, including Alzheimer's disease, Creutzfeld-Jakob's disease and Bovine Spongiform Encephalopathy. The birefringence of Congo Red-stained amyloid, appearing green under polarized light, improves detection relative to simple visible examination of the colored deposits. Additionally, upon binding to amyloid, Congo Red displays bright fluorescence emission at 614nm.

Lipid Detection

Nile Red, Ultra Pure

ENZ-52551

25 mg



MW:	318.37
WAVELENGTH MAXIMA:	Excitation 552nm, Emission 636nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. F.J. Alba, et al.; Biotechniques 21 , 625 (1996) 2. B.W. Halstead, et al.; J. Appl. Toxicol. 26 , 169 (2006).

Nile red is a lipophilic probe that becomes intensely fluorescent in a hydrophobic environment, while it has minimal fluorescence in aqueous media. It is an excellent vital stain for the detection of intracellular lipid droplets by fluorescence microscopy, in cells such as adipocytes. Flow cytometry methods using a single staining with Nile red and double staining with Nile red and anti-CD3 monoclonal antibody have been employed to monitor peripheral leukocyte and lymphocyte phospholipidosis. Nile Red has also been used for rapid staining of proteins in SDS-polyacrylamide gel electrophoresis.

Membrane Potential Detection

Di-2-ANEPEQ [JPW1114]

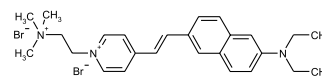
MW:	549.38
WAVELENGTH MAXIMA:	Excitation 517nm, Emission 721 nm
QUANTITY:	5mg
PURITY:	>90 % by HPLC
REFERENCES:	1. D. Vucinic & T.J. Sejnowski; PLoS ONE 2 , e699 (2007)

Di-2-ANEPEQ, also referred to as JPW1114, is a member of the ANEP class of membrane potential dyes. These dyes are weakly fluorescent in aqueous media, and become strongly fluorescent upon binding to lipophilic environments such as membranes. A change in the surrounding electronic field demonstrates a membrane potential-dependent shift in excitation spectra.

The response is sufficiently fast to detect transient (millisecond) potential changes in excitable cells, including single neurons, cardiac cells and intact brains. The dye can be applied directly to brain tissues and is usually introduced into cells via microinjection.

ENZ-52201

5 mg



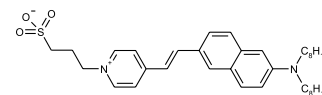
Di-8-ANEPPS

MW:	592.88
CAS:	157134-53-7
WAVELENGTH MAXIMA:	Excitation 498nm, Emission 713nm
QUANTITY:	5mg
PURITY:	>90 % by HPLC
REFERENCES:	1. S.N. Wu, et al.; Pflugers Arch. 455 , 687 (2008)

Di-8-ANEPPS is a member of the ANEP class of membrane potential dyes. These dyes are weakly fluorescent in aqueous media, and become strongly fluorescent upon binding to lipophilic environments such as membranes. A change in the surrounding electronic field demonstrates a membrane potential-dependent shift in excitation spectra. Di-8-ANEPPS is less susceptible for cellular internalization than other ANEP dyes probably due to a sulfonate group. The response is sufficiently fast to detect transient (millisecond) potential changes in excitable cells, including single neurons, cardiac cells and intact brains.

ENZ-52204

5 mg



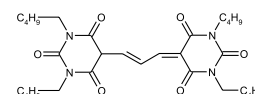
DiBAC4(3), Ultra Pure

MW:	516.64
CAS:	70363-83-6
WAVELENGTH MAXIMA:	Excitation 493nm, Emission 516nm
QUANTITY:	25mg
PURITY:	>98 % by HPLC
REFERENCES:	1. S. Nuding, et al.; J. Microbiol. Methods 65 , 335 (2006) 2. T. Li, et al.; J. Mol. Neurosci. 35 , 289 (2008)

DiBAC4(3) is a sensitive slow-response probe for measuring cellular membrane potential. In general, slow-response probes exhibit potential-dependent changes in their transmembrane distribution that are accompanied by a fluorescence change. The magnitude of response is much larger than fast-response probes. Slow-response probes, which include cationic carbocyanines, rhodamines and anionic oxonols, are suitable for detecting changes in average membrane potentials of nonexcitable cells caused by respiratory activity, ion-channel permeability, drug binding and other factors. DiBAC4(3) has been employed in flow cytometry to monitor antibacterial activity of defensins.

ENZ-52205

25 mg



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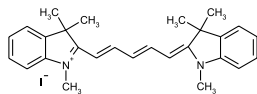
www.alexis-biochemicals.com

www.biomol.com

DiIC1(5) iodide, Ultra Pure

ENZ-52207

100 mg



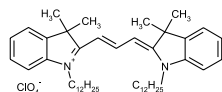
MW:	510.45
CAS:	36536-22-8
WAVELENGTH MAXIMA:	Excitation 638nm, Emission 658nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	1. G. Mattiasson, et al.; J. Neurochem. 87 , 532 (2003) 2. G. Mattiasson; Cytometry A 60 , 145 (2004).

DiI, DiO, DiD and DiR dyes are a family of lipophilic fluorescent stains for labeling membranes and other hydrophobic structures. The fluorescence of these environment-sensitive dyes is greatly enhanced when incorporated into membranes or bound to lipophilic biomolecules such as proteins although they are weakly fluorescent in water. Once applied to cells, these dyes diffuse laterally within the cellular plasma membranes, resulting in even staining of the entire cell at their optimal concentrations. The carbocyanine dye DiIC1(5) has been used to measure mitochondrial membrane potential in apoptotic cells with a loss in membrane potential reflected in a loss in fluorescence signal in the infrared channel.

DiIC12(3) perchlorate, Ultra Pure

ENZ-52206

100 mg



MW:	765.55
CAS:	75664-01-6
WAVELENGTH MAXIMA:	Excitation 549nm, Emission 565nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	1. D.L. Becker, et al.; J. Physiol. 585 , 711 (2007) 2. Y. Li, et al.; Nat. Protoc. 3 , 1703 (2008).

DiI, DiO, DiD and DiR dyes are a family of lipophilic fluorescent stains for labeling membranes and other hydrophobic structures. The fluorescence of these environment-sensitive dyes is greatly enhanced when incorporated into membranes or bound to lipophilic biomolecules such as proteins although they are weakly fluorescent in water. Once applied to cells, these dyes diffuse laterally within the cellular plasma membranes, resulting in even staining of the entire cell at their optimal concentrations. DiIC12(3) is a lipophilic neuronal tracer that is commonly used for labeling neuronal projections as well as lipid bilayers in other cell types, particularly endothelial cells. DiIC12(3) exhibits low toxicity and minimally effects cell viability and is tolerable in culture for several days, making it suitable across a variety of applications.

Mitochondrial Detection

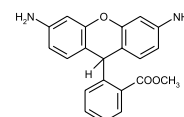
Dihydrorhodamine 123, Ultra Pure

MW:	346.38
CAS:	109244-58-8
WAVELENGTH MAXIMA:	Excitation 507nm, Emission 529nm
QUANTITY:	10mg
PURITY:	>95 % by HPLC
REFERENCES:	1. L. Mauch, et al.; Clin. Chem. 53 , 890 (2007) 2. A. Avendano, et al.; J. Immunol. Methods 339 , 124 (2008).

Dihydrorhodamine 123 is a widely utilized probe for detection of intracellular reactive oxygen species (ROS) such as peroxide, hypochlorous acid and peroxynitrite. It is readily oxidized into rhodamine 123, which exhibits a spectral profile similar to that of FITC. In combination with other fluorescent probes (such as surface receptor-targeted fluorescent antibodies, the cell viability probe propidium iodide, or fluorescent calcium indicators) this Dihydrorhodamine 123 can be used for multiparametric cell measurements.

ENZ-52302

10 mg



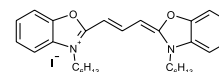
DiOC6(3) iodide [3',3'-Dihexyloxacarboyanine iodide], Ultra Pure

MW:	572.52
WAVELENGTH MAXIMA:	Excitation 482nm, Emission 504nm
CAS:	53213-82-4
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M. Kataoka, et al.; Electrophoresis 26 , 3025 (2005) 2. H. Lecoer, et al.; Methods Enzymol. 442 , 51 (2008).

Dil, DiO, DiD and DiR dyes are a family of lipophilic fluorescent stains for labeling membranes and other hydrophobic structures. The fluorescence of these environment-sensitive dyes is greatly enhanced when incorporated into membranes or bound to lipophilic biomolecules such as proteins although they are weakly fluorescent in water. Once applied to cells, these dyes diffuse laterally within the cellular plasma membranes, resulting in even staining of the entire cell at their optimal concentrations. DiOC6(3) is a green fluorescent membrane dye that has been used to detect mitochondrial membrane potential in live cells. The probe has also been employed in the analysis of apoptotic pathways by multiparametric flow cytometry. The dye has also been employed with the microfluidic Agilent 2100 bioanalyzer for assessing mitochondrial membrane potential.

ENZ-52303

100 mg



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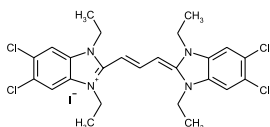
www.alexis-biochemicals.com

www.biomol.com

JC-1, Ultra Pure

ENZ-52304

5 mg



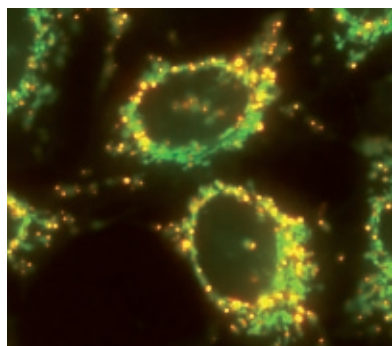
MW:	652.23
CAS:	47729-63-5
WAVELENGTH MAXIMA:	Excitation 515nm, Emission 529nm
QUANTITY:	5mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M. Reers, et al.; Methods Enzymol. 260 , 406 (1995)

JC-1 is widely used for determining mitochondrial membrane potential by flow cytometry, fluorescence microscopy and in microplate-based fluorescent assays. JC-1 accumulates in mitochondria, selectively generating an orange J-aggregate emission profile (590nm) in healthy cells. However, upon cell injury, as membrane potential decreases, JC-1 monomers are generated, resulting in a shift to green emission (529nm). The principal advantage of JC-1 relative to other commonly employed fluorescent probes of mitochondrial membrane potential is that it allows for both qualitative visualization, considering the shift from orange to green fluorescence emission, and quantitative detection, considering the fluorescence intensity ratio.

JC-10 [Enhanced JC-1], Ultra Pure

ENZ-52305

5 mg



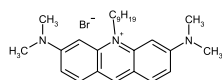
MW:	~ 600.00
WAVELENGTH MAXIMA:	Excitation 510nm, Emission 525nm
QUANTITY:	5mg
PURITY:	>95 % by HPLC

JC-10 is a derivative of JC-1 useful for determining mitochondrial membrane potential by flow cytometry, fluorescence microscopy and in microplate-based fluorescent assays. JC-10 accumulates in mitochondria, selectively generating an orange J-aggregate emission profile (590nm) in healthy cells. However, upon cell injury, as membrane potential decreases, JC-10 monomers are generated, resulting in a shift to green emission (525nm). The principal advantages of JC-10 relative to JC-1 include improved solubility in aqueous media and an ability to detect subtler changes in mitochondrial membrane potential loss. JC-10 allows for both qualitative visualization, considering the shift from orange to green fluorescence emission, and quantitative detection, considering the fluorescence intensity ratio, of mitochondrial membrane potential changes.

NAO [Nonyl Acridine Orange], Ultra Pure

ENZ-52306

25 mg



MW:	472.5
CAS:	75168-11-5
WAVELENGTH MAXIMA:	Excitation 495nm, Emission 519nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. C. Ferlini & G. Scambia; Nat. Protoc. 2 , 3111 (2007) 2. X. Fu, et al.; PLoS ONE 3 , e2009 (2008).

10-N-Nonyl acridine orange (NAO) is an acridine orange derivative and is generally used as a fluorescent marker of the inner mitochondrial membrane in whole cells. It is believed to bind to negatively charged phospholipids. NAO accumulation in the cell seems to be related to specific interactions with mitochondrial membrane proteins and/or lipids, such as cardiolipin, and is largely independent of mitochondrial membrane potential. With respect to apoptosis, the presence of mitochondrial membrane potential can be probed with Rhodamine123 while the structure and integrity of mitochondria can be assessed using 10-N-nonyl-acridine orange.

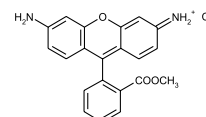
Rhodamine 123, Ultra Pure

MW:	380.82
CAS	62669-70-9
WAVELENGTH MAXIMA:	Excitation 507nm, Emission 529nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. C. Ferlini & G. Scambia; Nat. Protoc. 2 , 3111 (2007) 2. S. Kahlert, et al.; J. Neurosci. Methods 171 , 87 (2008).

Rhodamine 123 is a cell-permeant, cationic, green-fluorescent dye that is readily sequestered by active mitochondria without cytotoxic effects. Rhodamine 123 can be used in multi-parametric analysis, without fluorescence interference, in combination with common protein labeling dyes such as Cy-nine-5 and AMCA. With respect to apoptosis, the presence of mitochondrial membrane potential can be probed with Rhodamine 123 while the structure and integrity of mitochondria can be assessed using 10-N-nonyl-acridine orange.

ENZ-52307

25 mg



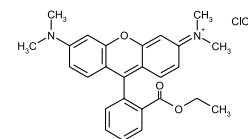
TMRE [Tetramethylrhodamine ethyl ester, perchlorate], Ultra Pure

MW:	514.95
CAS:	115532-52-0
WAVELENGTH MAXIMA:	Excitation 549nm, Emission 574nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M. Matsumoto-Ida, et al.; Circulation 114 , 1497 (2006) 2. S. Chalmers & J.G. McCarron; J. Cell Sci. 121 , 75 (2008).

Positively charged rhodamine dyes (such as rhodamine esters and rosamines) are selectively localized in mitochondria, thus they are widely used for labeling mitochondria of live cells. Like JC-1, TMRE is widely used for measuring mitochondrial membrane potential, in addition to selectively staining mitochondria. Real-time imaging of mitochondrial membrane potential in individual cardiomyocytes within perfused rat hearts has been demonstrated with this dye, using 2-photon laser-scanning microscopy.

ENZ-52309

25 mg



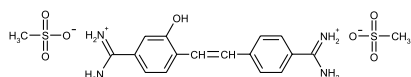
incorporating

Neuronal Detection

Hydroxystilbamidine, Ultra Pure, (Fluoro-Gold™ alternative)

ENZ-52253

10 mg



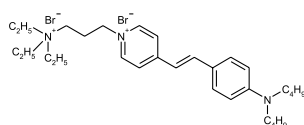
MW:	472.53
WAVELENGTH MAXIMA:	Excitation 385nm, Emission 536nm
QUANTITY:	10mg
PURITY:	>95 % by HPLC
REFERENCES:	1. L.A. Catapano, et al.; <i>Methods Mol. Biol.</i> 438 , 353 (2008) 2. J.B. Kelly, et al.; <i>J. Comp. Neurol.</i> 512 , 573 (2009).

Hydroxystilbamidine is a cationic dye, equivalent to Fluoro-Gold™, which is frequently used as a retrograde neuronal tracer. The fluorescent tracer provides intense retrograde labeling that is extremely sensitive and reliable, does not diffuse out of retrograde-labeled neurons, and can be pressure-injected or introduced by iontophoresis into cells. Hydroxystilbamidine is compatible with most frequently used neuroanatomical techniques such as immunofluorescence, immunocytochemistry, autoradiography, and horseradish peroxidase-based histochemistry, paraffin embedding.

MM 1-43 (FM® 1-43 alternative)

ENZ-52251

1 mg



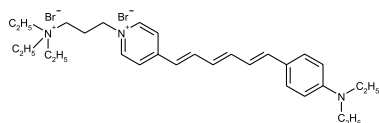
MW:	611.54
WAVELENGTH MAXIMA:	Excitation 510nm, Emission 626nm
QUANTITY:	1mg
PURITY:	>90 % by HPLC
REFERENCES:	1. D.R. Williams, et al.; <i>Nat. Protoc.</i> 3 , 835 (2008) 2. P. Verstreken, et al.; <i>Methods Mol. Biol.</i> 440 , 349 (2008).

MM 1-43 is a cationic dye, equivalent to membrane probe FM® 1-43. MM 1-43 is believed to insert into the outer leaflet of the cell membrane where it becomes intensely fluorescent. In a neuron that is actively releasing neurotransmitters, the dye becomes internalized within the recycled synaptic vesicles and the nerve terminals become brightly stained. The staining of cell-surface specific membranes is useful for identifying actively firing neurons and for investigating the mechanisms of activity-dependent vesicle cycling.

MM 4-64 (FM® 4-64 alternative)

ENZ-52252

1 mg



MW:	607.51
WAVELENGTH MAXIMA:	Excitation 558nm, Emission 734nm
QUANTITY:	1mg
PURITY:	>90 % by HPLC
REFERENCES:	1. T. Brigadski, et al.; <i>J. Neurosci.</i> 25 , 7601 (2005) 2. D. Gitler, et al.; <i>J. Neurosci.</i> 28 , 10835 (2008).

MM 4-64 is a cationic dye, equivalent to membrane probe FM® 4-64. MM 4-64 is a lipophilic styryl dye that is used as a vital stain to follow bulk membrane-internalization and transport to the vacuole in yeast. MM 4-64 is also a sensitive reporter of vacuolar dynamics, detecting such events as segregation structure formation during mitosis, vacuole fission/fusion events, and vacuolar morphology in different classes of vacuolar protein sorting mutants.

Nuclear Detection

Acridine Orange, Ultra Pure

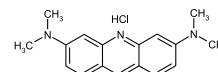
MW:	301.82
CAS:	65-61-2
WAVELENGTH MAXIMA:	Excitation 500nm, Emission 525nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. F. Traganos & Z. Darzynkiewicz; <i>Methods Cell Biol.</i> 41 , 185 (1994) 2. K. Gonzalez, et al.; <i>Curr. Eye Res.</i> 14 , 269 (1995).

Acridine orange is a nucleic acid selective fluorescent cationic dye useful for cell cycle determination. It is cell-permeable, and interacts with DNA and RNA by intercalation or electrostatic attractions. When bound to DNA, it is very similar spectrally to fluorescein, with an excitation maximum at 502nm and an emission maximum at 525nm (green). When it associates with RNA, the excitation maximum shifts to 460nm (blue) and the emission maximum shifts to 650nm (red).

Acridine Orange is also commonly used to non-specifically stain acidic organelles, such as lysosomes. The dye is often used in epifluorescence microscopy.

ENZ-52405

100 mg



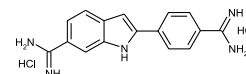
DAPI, Ultra Pure

MW:	350.25
CAS:	28718-90-3
WAVELENGTH MAXIMA:	Excitation 358nm, Emission 461nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. A. Krishan & P.D. Dandekar; <i>J. Histochem. Cytochem.</i> 53 , 1033 (2005) 2. J. Suda & P. Travnicek; <i>Cytometry A</i> 69 , 273 (2006)

DAPI is a fluorescent dye that binds nucleic acids and demonstrates a high affinity for DNA. It is used extensively in fluorescence microscopy, flow cytometry and microplate assays. DAPI is cell permeable and is readily used for detecting both live, dead and fixed cells. DAPI emits in the blue spectral range and is ideal for multiplexed assays inclusive of green-fluorescent molecules like fluorescein and green fluorescent protein (GFP), or red-fluorescent stains like Texas Red. Aside from labeling cell nuclei, DAPI is also used for the detection of mycoplasma or viral DNA in cell cultures.

ENZ-52404

100 mg



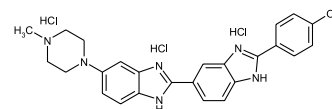
Hoechst 33258, Ultra Pure

MW:	533.88
CAS:	23491-45-4
WAVELENGTH MAXIMA:	Excitation 352nm, Emission 461nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M. Poot, et al.; <i>Methods Cell Biol.</i> 33 , 185 (1990) 2. M. Saito, et al.; <i>J. Biochem.</i> 136 , 813 (2004).

Hoechst 33258 is fluorescent probe useful for detecting DNA by fluorescence microscopy and flow cytometry. Hoechst 33258 may be used on live or fixed cells and is also applicable for cell cycle analysis and monitoring DNA condensation by flow cytometry. Hoechst 33358 is less cell permeable than other derivatives, however this dye also allows for quantitative measurements when plotted in a standard emission-to-content curve.

ENZ-52402

100 mg

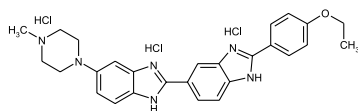


incorporating

Hoechst 33342, Ultra Pure

ENZ-52401

100 mg



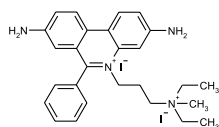
MW:	561.93
CAS:	23491-52-3
WAVELENGTH MAXIMA:	Excitation 350nm, Emission 461nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. G.M. Seigel & L.M. Campbell; Cytotechnology 45 , 155 (2004) 2. I. Schmid, et al.; Nat. Protoc. 2 , 187 (2007).

Hoechst 33342 is fluorescent probe useful for detecting DNA by fluorescence microscopy and flow cytometry. Hoechst 33342 may be used on live or fixed cells and is also applicable for cell cycle analysis and monitoring DNA condensation by flow cytometry. An additional ethyl group renders Hoechst 33342 more lipophilic, and thus more readily cell permeable than Hoechst 33258. Exclusion of Hoechst 33342 dye is a characteristic common to stem cells, as well as chemotherapy-resistant cancer cells.

Propidium Iodide, Ultra Pure

ENZ-52403

100 mg



MW:	668.39
CAS:	25535-16-4
WAVELENGTH MAXIMA:	Excitation 535nm, Emission 617nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. B.S. Edwards, et al.; Curr. Protoc. Cytom. Chapter 9 , Unit 9.24 (2007)

Propidium iodide (PI) belongs to the same chemical class as ethidium bromide. As with ethidium bromide, its fluorescence is enhanced 20-30-fold upon binding to nucleic acids. The fluorescence excitation maximum is red-shifted 30–40nm and the fluorescence emission maximum blue-shifted ~15nm. PI also binds to RNA as does DAPI and acridine orange. PI is membrane impermeant and is commonly used for identifying dead cells in a mixed population of cells and as a counter-stain in multicolor fluorescent techniques. It can also be used to differentiate necrotic, apoptotic and viable cells. The dye is suitable for fluorescence microscopy, flow cytometry and fluorometry applications.

pH Indicators

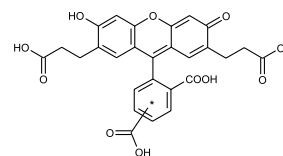
BCECF, Ultra Pure

MW:	520.45
CAS:	85138-49-4
WAVELENGTH MAXIMA:	Excitation 503nm, Emission 520nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. N. Boens, et al.; J. Phys. Chem. A 110 , 9334 (2006) 2. F.J. Alvarez-Leefmans, et al.; Biophys. J. 90 , 608 (2006).

BCECF (2',7'-bis-(2-carboxyethyl)-5-(and-6)-carboxyfluorescein) is a well established cell impermeable, fluorescent probe that enables ratiometric monitoring of cellular pH (pKa 7.0) and can be loaded in cells by microinjection, electroporation or scrape loading. The AM ester form of the dye should be used for passive loading. Intracellular pH plays an important role in modulating cellular events, including growth, calcium regulation, enzymatic activity, receptor-mediated signal transduction, ion transport, endocytosis, chemotaxis, adhesion and other cellular processes.

ENZ-52101

1 mg



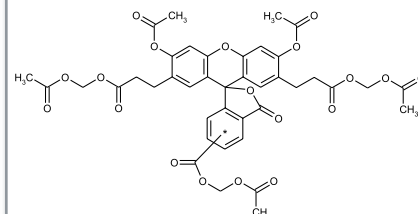
BCECF AM, Ultra Pure

MW:	820.72
CAS:	117464-70-7
WAVELENGTH MAXIMA:	Excitation 505nm, Emission 520nm
QUANTITY:	1mg
PURITY:	>95 % by HPLC
REFERENCES:	1. N. Boens, et al.; J. Phys. Chem. A 110 , 9334 (2006) 2. F.J. Alvarez-Leefmans, et al.; Biophys. J. 90 , 608 (2006).

BCECF AM [2',7'-bis-(2-carboxyethyl)-5-(and-6)-carboxyfluorescein acetoxymethyl ester] is a well established fluorescent probe that enables ratiometric monitoring of cellular pH. Intracellular pH plays an important role in modulating cellular events, including growth, calcium regulation, enzymatic activity, receptor-mediated signal transduction, ion transport, endocytosis, chemotaxis, adhesion and other cellular processes. Once inside, cellular esterases cleave the AM groups yielding a more hydrophilic BCECF trapped inside the cell.

ENZ-52102

1 mg



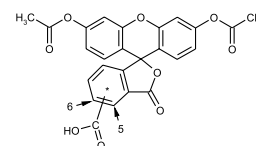
5(6)-CFDA, Ultra Pure

MW:	460.39
CAS:	124387-19-5
WAVELENGTH MAXIMA:	Excitation 494nm, Emission 521nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	1. H. Fujioka, et al.; Cell Transplant. 3 , 397 (1994) 2. B.J. Quah, et al.; Nat. Protoc. 2 , 2049 (2007).

5(6)-CFDA is an amine-reactive fluorescein diacetate (FDA) derivative used to prepare a variety of FDA conjugates. FDA and its derivatives are non-fluorescent molecules that diffuse into cells and are hydrolyzed by intracellular non-specific esterases, yielding fluorescent probes. These probes accumulate exclusively in cells with intact cell membranes. 5(6)-CFDA does not stain dead cells. FDA labeling can be used for monitoring cells by flow cytometry or fluorescence microscopy. The probe is also frequently used to monitor reactive oxygen species (ROS) generation in live cells.

ENZ-52104

100 mg

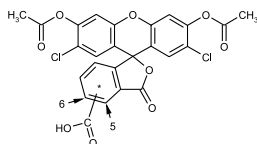


incorporating

5(6)-CDCFDA, Ultra Pure

ENZ-52103

100 mg



MW:	529.28
CAS:	127770-45-0
WAVELENGTH MAXIMA:	Excitation 504nm, Emission 529nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	<ol style="list-style-type: none"> 1. L. Li, et al.; Free Radic Res. 42, 354 (2008) 2. M. Medhora, et al.; Am. J. Physiol. Lung Cell Mol. Physiol. 294, L902 (2008).

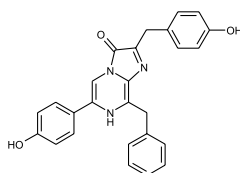
5(6)-CDCFDA is an amine-reactive fluorescein diacetate (FDA) derivative used to prepare a variety of FDA conjugates. CDCFDA is a non-fluorescent molecule that diffuses into cells and is hydrolyzed by intracellular non-specific esterases, yielding a fluorescent probe. The probe accumulates exclusively in cells with intact cell membranes. CFCFDA does not stain dead cells. CDCFDA labeling can be used for monitoring cells by flow cytometry or fluorescence microscopy. The probe is also frequently used to monitor reactive oxygen species (ROS) generation in live cells.

Live/Dead Cellular Staining

Coelenterazine, Ultra Pure

ENZ-52054

250 µg



MW:	423.46
CAS:	55779-48-1
WAVELENGTH MAXIMA:	Excitation 429nm, Emission 466nm
QUANTITY:	250µg
PURITY:	>90 % by HPLC
REFERENCES:	<ol style="list-style-type: none"> 1. A. Pichler, et al.; PNAS 101, 1702 (2004) 2. H. Zhao, et al.; Mol. Imaging 3, 43 (2004).

Coelenterazine is useful for monitoring calcium in live cells and tissues, in reporter gene assays, for superoxide anion detection and in drug high-throughput screening applications. Coelenterazine is useful for reconstituting aequorin in cells that have been transfected with apo-aequorin cDNA. The aequorin complex comprises a 22kD apo-aequorin protein, molecular oxygen and coelenterazine. In the presence of Ca(II), coelenterazine is oxidized to coelenteramide, yielding the release of carbon dioxide and blue light. Unlike fluorescent Ca(II) indicators, Ca(II)-bound aequorin can be detected without illuminating the sample, thereby eliminating interference from autofluorescence.

Reactive Oxygen Detection

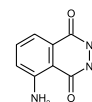
Luminol, Ultra Pure

MW:	177.16
CAS:	2951-17-5
WAVELENGTH MAXIMA:	Excitation 355nm, Emission 411nm
QUANTITY:	1g
PURITY:	>95 % by HPLC
REFERENCES:	1. C.A. Marquette & L.J. Blum; Anal. Bioanal. Chem. 385 , 546 (2006).

Luminol is a luminescent peroxidase substrate that can be used as a chemiluminescent reagent for the determination of viable mammalian cells and bacteria. Luminol also has forensic application as a presumptive test for latent blood detection and is commonly employed in detection strategies by flow injection analysis, for pharmaceutical and environmental characterization. Chemiluminescent and electrochemiluminescent probes based upon luminol are beginning to merge with biochip and microarray development as a possible substitutes for the more well-established fluorescent probes.

ENZ-52354

1 g



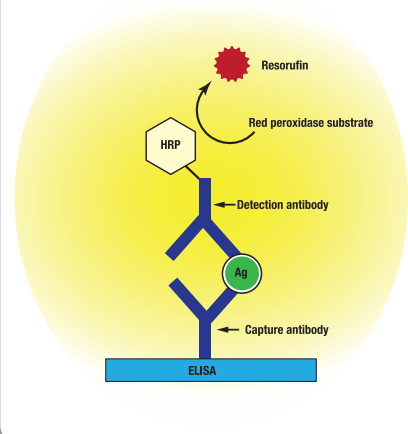
Red Hydrogen Peroxide Assay Kit

	Minimum of 10 picomoles of H ₂ O ₂ detected
	Fluorescence-based H ₂ O ₂ specific signals (Excitation 570nm, Emission 585nm)
	Absorbance-based H ₂ O ₂ specific signal (OD ₅₇₆)
STORAGE:	-20°C in a non-frost free freezer
SHIPPING CONDITION:	Dry ice (-70°C)
COMPONENTS:	1 vial, CELLestial™ Red Peroxidase Substrate
	20 units, Horseradish Peroxidase
	200 µL, H ₂ O ₂ (Stock Solution)
	1 mL, DMSO
	100 mL, Assay Buffer

The Red Hydrogen Peroxide Assay Kit provides a simple absorbance-based or fluorometric assay to detect and quantify hydrogen peroxide or peroxidase activity in biochemical assays, cell extracts and in live cells. It can also be used to detect a variety of oxidase activities through enzyme-coupled reactions. The kit is an optimized 'mix and read' assay that is suitable for both 96 and 384-well formats and is compatible with HTS liquid handling.

ENZ-51004

1 Kit



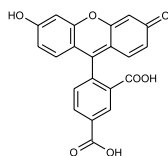
incorporating

Amine-Reactive

5-Carboxyfluorescein, Ultra Pure

ENZ-52051

100 mg



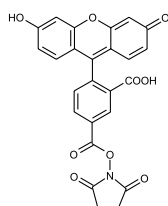
MW:	376.32
CAS:	76823-03-5
WAVELENGTH MAXIMA:	Excitation 492nm, Emission 518nm
QUANTITY:	100mg
PURITY:	>98 % by HPLC
REFERENCES:	1. R. David, et al.; <i>Biol. Chem.</i> 384 , 1619 (2003) 2. R. Fischer, et al.; <i>Bioconj. Chem.</i> 14 , 653 (2003).

5-FAM is the purified single isomer of 5,6-carboxyfluorescein and is used for labeling peptides, proteins and nucleotides through the interaction of carboxylic acid with primary amines. It has been principally used to develop a variety of green fluorescent reagents and small fluorescent molecules due to its relatively high absorbance characteristics, excellent fluorescence quantum yield, and good water solubility. The probe has also found application in studies of liposome-cell, cell-cell, and liposome-liposome interactions and in related studies on lipid bilayer structures.

5-Carboxyfluorescein succinimidyl ester, Ultra Pure

ENZ-52053

10 mg



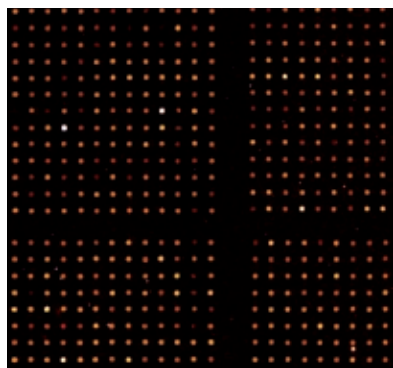
MW:	473.39
CAS:	92557-80-7
WAVELENGTH MAXIMA:	Excitation 492nm, Emission 518nm
QUANTITY:	10mg
PURITY:	>95 % by HPLC
REFERENCES:	1. D. Fulcher & S. Wong; <i>Immunol. Cell Biol.</i> 77 , 559 (1999) 2. Y.J. Lin, et al.; <i>Transplantation</i> 86 , 1452 (2008) 3. S.O. Alpdogan, et al.; <i>Blood</i> 112 , 4755 (2008).

5-Carboxyfluorescein succinimidyl ester is an amine-reactive ester of single isomer 5-Carboxyfluorescein. It has principally been used to develop a variety of green fluorescent reagents and small fluorescent molecules due to its relatively high absorbance characteristics, excellent fluorescence quantum yield, and good water solubility. Carboxyfluorescein succinimidyl ester has recently become a popular probe for labeling cells intracellularly and tracking their mitotic activity by flow cytometry and other fluorescence-based assays thru monitoring progressive two-fold reductions in fluorescence intensity.

Cyanine 3-NHS Ester Pack

ENZ-42541

1 Pack



WAVELENGTH MAXIMA:	Excitation 553nm, Emission 570nm
EXTINCTION COEFFICIENT:	145,000 M ⁻¹ cm ⁻¹ (553nm)
QUANTITY:	12 x 50nmoles

Enzo Life Sciences' cyanine 3 NHS-ester is a reactive, water-soluble fluorescent dye that provides bright orange signal. The dye can be chemically linked to either nucleic acids or proteins and is suitable for a wide variety of applications including microarray analysis and protein tagging. In microarray experiments, DNA or RNA samples are labeled with the cyanine 3 and cyanine 5 dyes for differential display analysis. Since NHS esters react only with aliphatic amine groups, which nucleic acids lack, nucleotides must be modified first with aminoallyl groups thru incorporating aminoallyl-modified nucleotides during synthesis. Alternatively, labeling can be performed directly by nick translation using cyanine dUTPs (Gold 550 dUTP, Cat. No. 42521, and Red 648 dUTP, Cat. No. 42844). For protein labeling, it is critical to control the number of dye molecules affixed per protein to maintain maximal activity. For example, no more than 8 dye molecules should be bound per antibody molecule, while annexin V will only tolerate 1-2 dye molecules per protein without loss of activity.

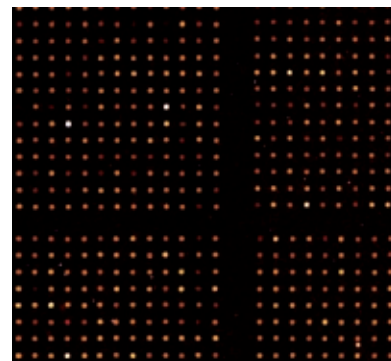
Cyanine 5-NHS Ester Pack

WAVELENGTH MAXIMA:	Excitation 650nm, Emission 664nm
EXTINCTION COEFFICIENT:	250,000 M ⁻¹ cm ⁻¹ (650nm)
QUANTITY:	12 x 50nmoles

Enzo Life Sciences' cyanine 5 NHS-ester is a reactive, water-soluble fluorescent dye that provides bright red signal. The dye can be chemically linked to either nucleic acids or proteins and is suitable for a wide variety of applications including microarray analysis and protein tagging. In microarray experiments, DNA or RNA samples are labeled with the cyanine 3 and cyanine 5 dyes for differential display analysis. Since NHS esters react only with aliphatic amine groups, which nucleic acids lack, nucleotides must be modified first with aminoallyl groups thru incorporating aminoallyl-modified nucleotides during synthesis. Alternatively, labeling can be performed directly by nick translation using cyanine dUTPs (Gold 550 dUTP, Cat. No. 42521, and Red 648 dUTP, Cat. No. 42844). For protein labeling, it is critical to control the number of dye molecules affixed per protein to maintain maximal activity. For example, no more than 8 dye molecules should be bound per antibody molecule, while annexin V will only tolerate 1-2 dye molecules per protein without loss of activity.

ENZ-42542

1 Pack



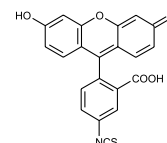
5-FITC, Ultra Pure

MW:	389.38
CAS:	3326-32-7
WAVELENGTH MAXIMA:	Excitation 494nm, Emission 520nm
QUANTITY:	1g
PURITY:	>95 % by HPLC
REFERENCES:	1. M. Heidecker, et al.; <i>Biochemistry</i> 34 , 11017 (1995) 2. J.H. Kim, et al.; <i>Chem. Commun. (Camb.)</i> , 1346 (2007).

Fluorescein isothiocyanate (FITC) is an amine-reactive fluorescein derivative that yields conjugates with superior stability. Dye synthesis generally results in two isomers that differ slightly in protein binding and may elute differently under chromatographic conditions, complicating analysis in certain situations. The 5-isomer of FITC is the most widely used isoform and has a multitude of applications beyond protein peptide and nucleotide labeling. For example, it is commonly employed as a donor for FRET (Fluorescence Resonance Energy Transfer) based assay systems. An acceptor molecule, such as TRITC, is recommended in such FRET applications.

ENZ-52451

1 g



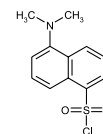
Dansyl chloride, Ultra Pure

MW:	269.75
CAS:	605-65-2
WAVELENGTH MAXIMA:	Excitation 372nm
QUANTITY:	100mg
PURITY:	>95 % by HPLC
REFERENCES:	1. X. Li, et al.; <i>Langmuir</i> 22 , 8615 (2006) 2. B.R. White, et al.; <i>Analyst</i> 133 , 65 (2008).

Dansyl chloride demonstrates amine-specific fluorescence (557nm emission), enabling environmentally sensitive detection in biophysical studies. Dansyl chloride reacts with both aliphatic and aromatic primary amines to produce a stable blue-green fluorescent sulfonamide adduct. In general, the probe serves as a good acceptor for fluorescence resonance energy transfer (FRET) when tryptophan is used as the donor. Alternatively, the dansyl moiety can serve as the donor and polydiacetylene as the acceptor in liposome studies. The probe is particularly useful for preparing fluorescent drug or ligand analogs that bind to hydrophobic sites in proteins, membranes or other biological receptors.

ENZ-52455

100 mg

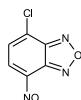


incorporating

NBD-Cl, Ultra Pure

ENZ-52456

25 mg



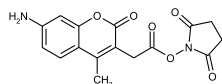
MW:	199.55
WAVELENGTH MAXIMA:	Excitation 337nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. N. El-Enany, et al.; Chem. Pharm. Bull. (Tokyo) 55 , 1662 (2007) 2. S.T. Ulu; Spectrochim. Acta A Mol. Biomol. Spectrosc. 72 , 138 (2009).

NBD-Cl is widely used to label peptides, proteins, drugs and other biomolecules. NBD-Cl is non-fluorescent, and generates green fluorescent adducts (emission maximum of 512nm) upon reacting with aliphatic amines or thiol compounds. It reacts with amino groups such as aliphatic amines, amino acids, peptides, and proteins to form highly fluorescent compounds. The reagent has been used in a variety of spectrophotometric, spectrofluorometric and HPLC assays of pharmaceutically important analytes.

AMCA-NHS, Ultra Pure

ENZ-52454

10 mg



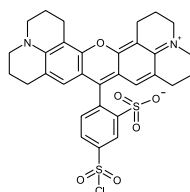
MW:	330.29
WAVELENGTH MAXIMA:	Excitation 353nm, Emission 442nm
QUANTITY:	10mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M.W. Wessendorf, et al.; J. Histochem. Cytochem. 38 , 87 (1990) 2. B. Ulfhake, et al.; J. Neurosci. Methods 40 , 39 (1991).

AMCA is a blue fluorescent dye whose reactive derivatives are commonly used as contrasting probes for double and triple labeling in immunofluorescence microscopy, microarrays and in situ hybridization. Desirable properties of AMCA include a relatively large Stoke's shift and resistance to photobleaching. NHS-AMCA is reactive towards primary amine groups on proteins, peptides and other biomolecules.

Sulforhodamine 101 sulfonyl chloride (Texas Red™), Ultra Pure

ENZ-52453

10 mg



MW:	625.16
WAVELENGTH MAXIMA:	Excitation 589nm, Emission 615nm
QUANTITY:	10mg
PURITY:	>90 % by HPLC
REFERENCES:	1. P.J. Smith, et al.; Curr. Protoc. Cytom. Chapter 7 , Unit 7.25 (2004) 2. A.I. Ahmad & J.B. Ghasemi; Anal. Bioanal. Chem. 387 , 2737 (2007).

Sulforhodamine 101 acid chloride, or Fluoro-Gold, is a fluorescent probe commonly used in histology for staining cell specimens, for sorting cells with fluorescent-activated cell sorting machines, in fluorescence microscopy applications, and in immunohistochemistry applications. This reagent reacts with amine compounds on amino acids, peptides and proteins to give bright red fluorescent conjugates that are extremely stable, and resistant to protease-catalyzed hydrolysis.

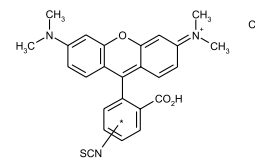
5(6)-TRITC, Ultra Pure

MW:	479.98
WAVELENGTH MAXIMA:	Excitation 543m, Emission 571nm
QUANTITY:	10mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M. Heidecker, et al.; <i>Biochemistry</i> 34 , 11017 (1995) 2. J.H. Kim, et al.; <i>Chem. Commun. (Camb.)</i> , 1346 (2007).

5(6)-TRITC is an amino-reactive labeling reagent that is widely used in preparing bioconjugates of proteins and nucleic acids. The resultant conjugates have similar spectral properties to those prepared from 5(6)-TAMRA, SE with improved stability. TRITC is widely used and has a multitude of applications beyond protein, peptide and nucleotide labeling. For example, it can serve as an acceptor for FRET (Fluorescence Resonance Energy Transfer) based detection systems. FITC is recommended as a donor molecule in these FRET-based applications.

ENZ-52452

10 mg



Thiol-Reactive

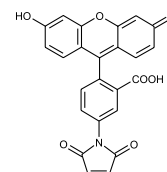
Fluorescein-5-maleimide, Ultra Pure

MW:	427.36
CAS:	75350-46-8
WAVELENGTH MAXIMA:	Excitation 493nm, Emission 515nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. N. Giangregorio, et al.; <i>Biochim. Biophys. Acta</i> 1767 , 1331 (2007) 2. V. Dastidar, et al.; <i>J. Bacteriol.</i> 189 , 5550 (2007).

Fluorescein-5-maleimide enables protein labeling via thiol modifications in most proteins at cysteine residues that either are intrinsically present or resulted from reduction of cystine residues. Unlike iodoacetamides, maleimides do not react with histidine and methionine under physiological conditions. The probe is suitable for assessing conformation-dependent accessibility of cysteine residues in proteins.

ENZ-52502

25 mg



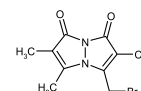
Monobromobimane [mBBR], Ultra Pure

MW:	271.11
CAS:	71418-44-5
WAVELENGTH MAXIMA:	Excitation 395nm, Emission 490nm
QUANTITY:	25mg
PURITY:	>95 % by HPLC
REFERENCES:	1. M.T. Anderson, et al.; <i>Anal. Biochem.</i> 272 , 107 (1999) 2. A.K. Sakhi, et al.; <i>J. Chromatogr. A</i> 1142 , 178 (2007).

Monobromobimane is a thiol-reactive fluorescent probe used for the determination of the redox status of low molecular weight and protein thiols in biological systems. Monobromobimane-based in situ derivatization results in maximal recovery of both free, reduced low molecular weight and monobromobimane-accessible protein thiols. The quantitation of the corresponding adducts of protein thiols is achieved by fluorescence spectroscopy, following protein precipitation. The reagent is particularly useful for quantifying glutathione.

ENZ-52501

25 mg



incorporating

A

Acridine Orange, Ultra Pure	18
AMCA-NHS	25

B

BCECF	20
BCECF AM	20

C

Calcein	4
Calcein AM	4
Calcein blue	4
5-Carboxyfluorescein	23
5-Carboxyfluorescein succinimidyl ester	23
5(6)-CDCFDA	21
5(6)-CFDA	20
Coelenterazine	21
Congo Red	11
Cyanine 3-NHS Ester Pack	23
Cyanine 5-NHS Ester Pack	24

D

Dansyl chloride	24
DAPI	18
Di-2-ANEPEQ	12
Di-8-ANEPPS	12
DiBAC4(3)	12
Dihydrorhodamine 123	14
DiIC1(5) iodide	13
DiIC12(3) perchlorate	13
DiOC6(3) iodide	14

F

5-FITC	24
Fluo-3	5
Fluo-3 AM	5
Fluorescein-5-maleimide	26
Fura-2	5
Fura-2 AM	6

H

Hoechst 33258	18
Hoechst 33342	19
Hydrogen Peroxide Assay Kit	23
Hydroxystilbamidine	17

I

Indo-1	6
Indo-1 AM	6

J

JC-1	15
JC-10 [Enhanced JC-1]	15

L

Lucigenin	8
Luminol	22

M

MEQ	8
MM 1-43	17
MM 4-64	17
Monobromobimane	26
MQAE	9

N

NAO	15
NBD-Cl	24
Nile Red	11

P

Propidium Iodide	19
------------------	----

Q

Quin-2	7
Quin-2 AM	7

R

Rhod-2	7
Rhod-2 AM	8
Rhodamine 123	16
Red Hydrogen Peroxide Assay Kit	22

S

SPQ	9
Sulforhodamine 101 sulfonyl chloride (Texas Red [™])	25

T

TMRE	16
5(6)-TRITC	26
TSQ	10

Z

Zinquin ethyl ester	10
Zinquin free acid	10

Argentina

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