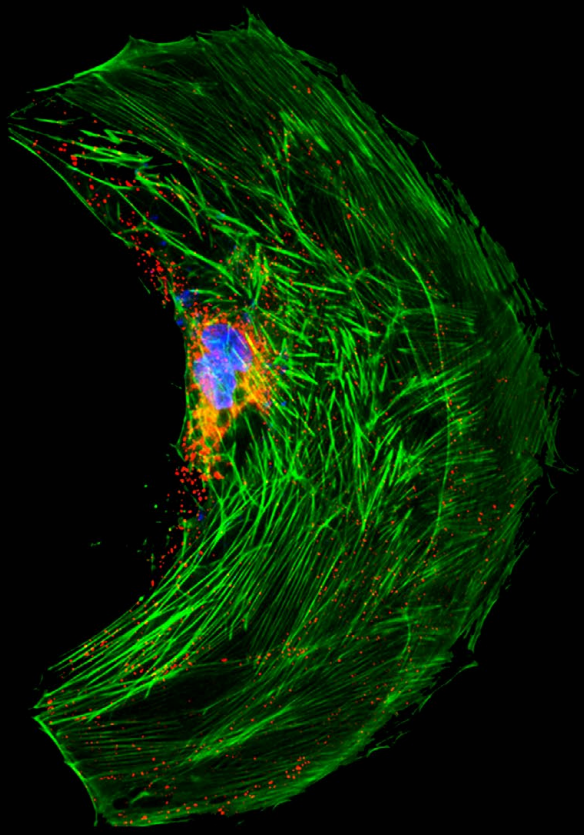


Fluorescence Microscopy

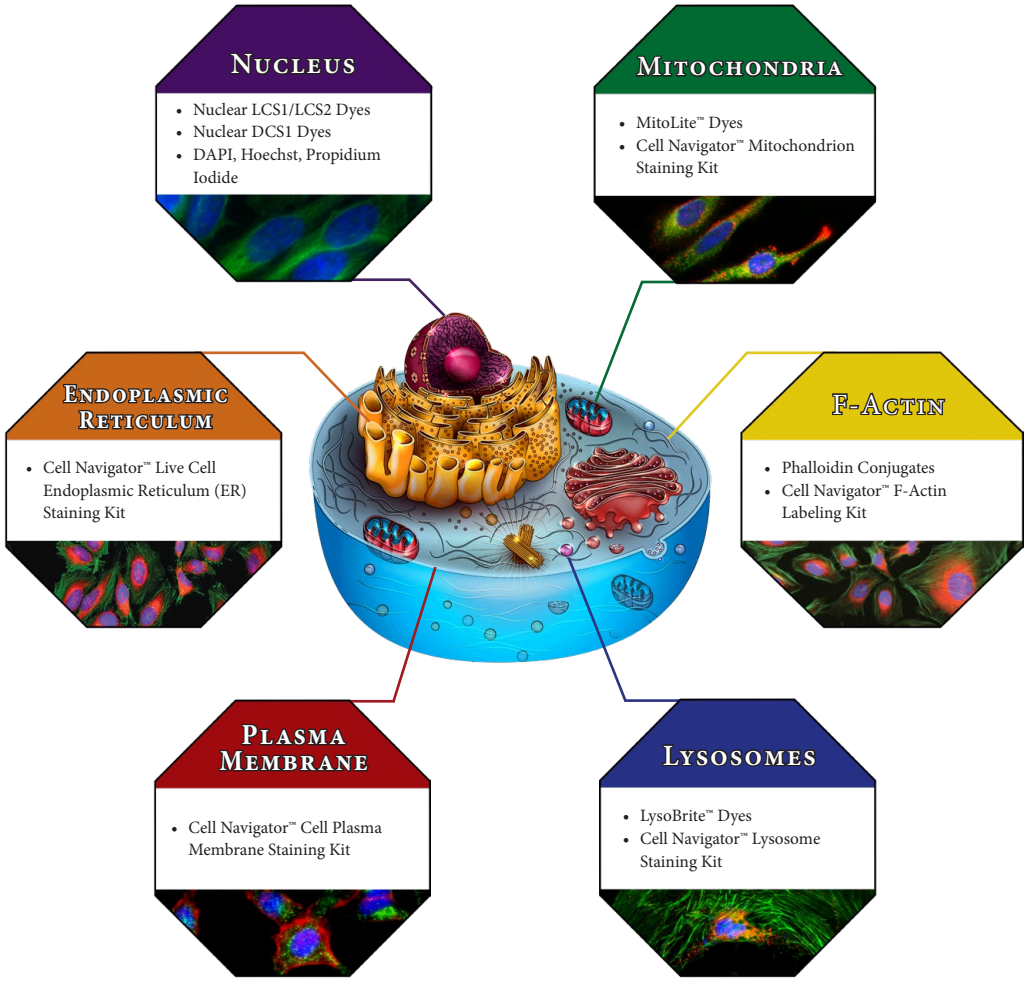
Imaging Organelles

Mitochondria • Lysosomes • Nuclei • Endoplasmic Reticulum
Plasma Membrane • F-Actin

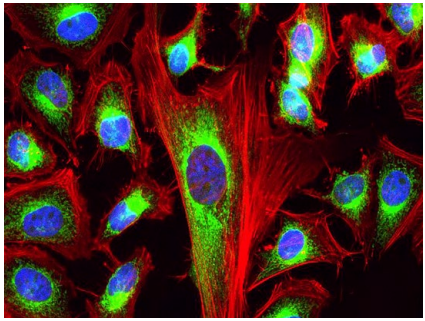
AAT Bioquest®

Introduction: Organelle-Selective Stains

Organelles are tiny, specialized subunits that perform specific cellular functions. Typically membrane-bound and sequestered within the cytoplasm of eukaryotic cells, these organelles are key components essential for gene expression, cell signaling, energy production and protein synthesis. Detection, visualization and cellular tracking of such organelles in fluorescence imaging applications are made possible with the aid of organelle-selective dyes. These dyes are ideal for co-localization studies serving as excellent counter-stains for identifying location-specific proteins and targets of interest within the cell. AAT Bioquest's extensive collection of organelle-selective dyes has been optimized for live and fixed-cell imaging applications. Available in a broad spectrum of colors, our organelle-selective dyes are compatible with a majority of laser and filter settings commonly equipped on most fluorescent microscopes and flow cytometers.

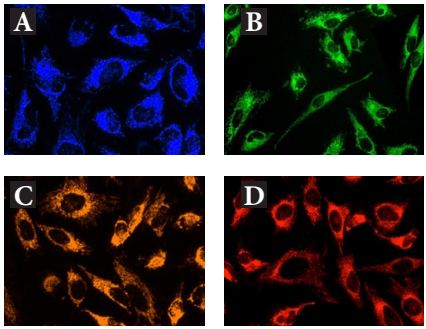


MitoLite™ Dyes: Mitochondrion-Selective Staining Probes



HeLa cells were stained with mitochondrial dye MitoLite™ Green (Cat#22666, Green). After fixation in 4% formaldehyde, F-actin was co-stained with Phalloidin-iFluor™ 633 (Cat#23125, Red) and co-stained with nuclei dye Nuclear Blue™ DCS1 (Cat#17548, Blue).

- Set of cell-permeable fluorogenic probes
- Selectively targets and accumulates within mitochondria via the mitochondrial membrane potential ($\Delta\psi M$)
- Dyes are optimized with cell-retaining groups for improved dye retention and staining efficiency
- Well-retained within mitochondria after FIXATION
- Available in multicolor wavelengths for multiplexing or multi-staining applications
- Suitable for fluorescence microscopy and flow cytometry applications



Four-panel image of HeLa cells stained with MitoLite™ mitochondrial dyes. **A:** Mitochondria labeled with MitoLite™ Blue FX490 (Cat#22674). **B:** Mitochondria labeled with MitoLite™ Green EX488 (Cat#22675). **C:** Mitochondria labeled with MitoLite™ Orange FX570 (Cat#22676). **D:** Mitochondria labeled with MitoLite™ Deep Red FX660 (Cat#22678).

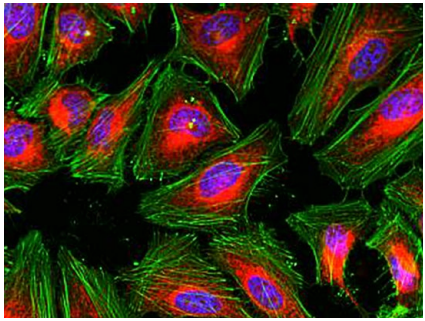
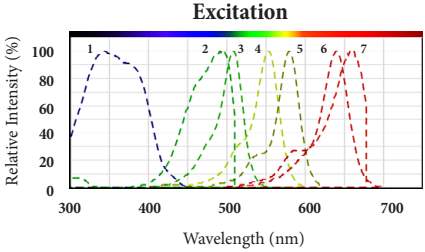
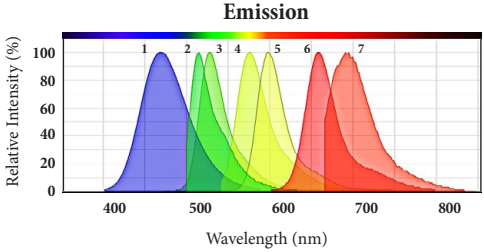


Image of HeLa cells labeled with mitochondrial dye MitoLite™ NIR FX690 (Cat#22690, Red) and co-stained with nuclei dye Nuclear Blue™ DCS1 (Cat#17548, Blue). After fixation in 4% formaldehyde, F-actin was co-stained with Phalloidin-iFluor™ 488 conjugate (Cat#23115, Green).





1) MitoLite™ Blue FX490 2) MitoLite™ Green FM 3) MitoLite™ Green EX488 4) MitoLite™ Orange FX570 5) MitoLite™ Red FX600
6) MitoLite™ Deep Red FX660 7) MitoLite™ NIR FX690

LysoBrite™ Dyes: Lysosomal Staining Probes

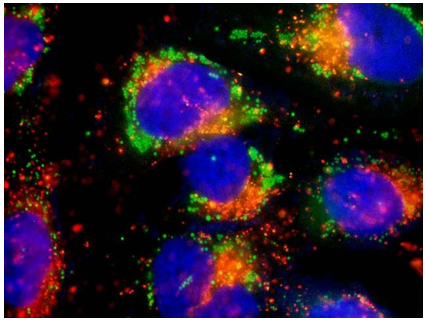


Image of HeLa cells labeled with lysosomal dye LysoBrite™ Orange (Cat#22657, Orange). Autophagosomes co-stained with PhagyGreen™ (Cat#23002, Green). Nuclei co-stained with Hoechst 33342 (Cat#17530, Blue).

- A set of cell-permeable, fluorogenic probes which demonstrate high photostability and enhanced signal intensity
- Selectively targets and accumulates in lysosomes via the lysosomal pH gradient (pH 4.5 - 4.8)
- Optimized cellular retention with minimal cytotoxicity
- Well-retained in lysosomes after FIXATION
- Available in multicolor wavelengths for multiplexing or multi-staining applications
- Suitable for fluorescence microscopy and flow cytometry applications
- Effective in a variety of studies including cell adhesion, chemotaxis, multi-drug resistance, cell viability, apoptosis and cytotoxicity

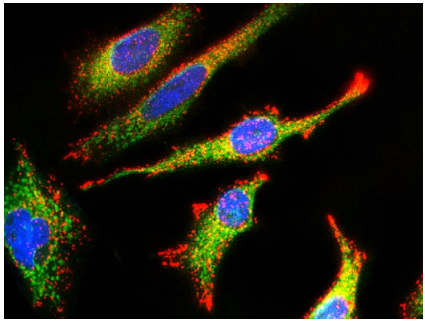


Image of HeLa cells labeled with lysosomal dye LysoBrite™ Red (Cat#22645, Red). Mitochondria co-stained with MitoLite™ Green FM (Cat#22695, Green). Nuclei co-stained with Nuclear Violet™ LCS1 (Cat#17543, Blue).

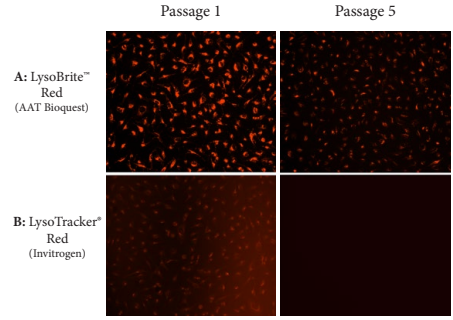
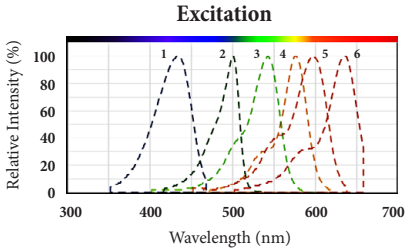
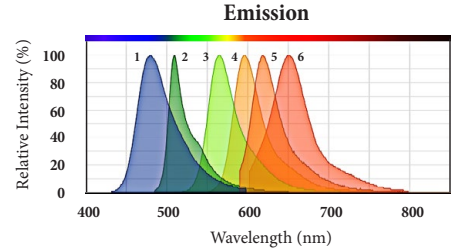


Image of HeLa cells stained with **A:** Cell Navigator™ Lysosome Staining Kit (Cat#22658, AAT Bioquest®) and **B:** LysoTracker® Red DND-99 (Invitrogen) in a Costar black wall/clear bottom 96-well plate. The signals were compared after 5 passages (P1 and P5 shown above) using an Olympus fluorescence microscope.





1) LysoBrite™ Blue 2) LysoBrite™ Green 3) LysoBrite™ Orange 4) LysoBrite™ Red 5) LysoBrite™ Deep Red 6) LysoBrite™ NIR

Nuclear Dyes: Nuclei Staining of Live/Dead Cells

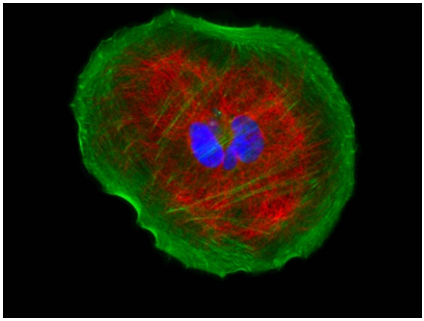


Image of HeLa cells labeled with nuclei stain Nuclear Blue™ DCS1 (Cat#17548, Blue). Tubulin co-stained with rabbit anti-tubulin followed with iFluor™ 555 goat anti-rabbit IgG (Cat#16620, Red). F-actin co-stained with Phalloidin-iFluor™ 488 Conjugate (Cat#23115, Green).

- Fluorogenic, DNA-selective probes
- Available in cell-permeable and impermeable forms for labeling nuclei of live or dead cells
- Fluorescence signal intensity is significantly enhanced upon binding DNA
- Available in multicolor wavelengths for multicolor analysis of live or dead cells
- Suitable for fluorescence microscopy, microplate and flow cytometry applications

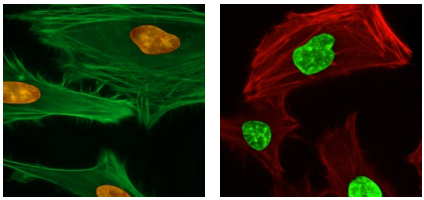
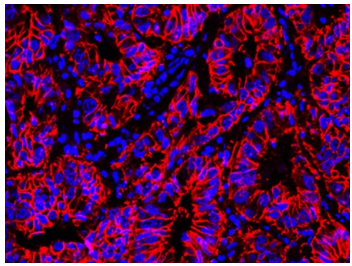


Image of HeLa cells. **Left:** HeLa cells stained with Phalloidin-iFluor™ 488 Conjugate (Cat#23115, Green). Nuclei co-stained with Nuclear Orange™ DSC1 (Cat#17551, Orange). **Right**: HeLa cells stained with Phalloidin-iFluor™ 647 Conjugate (Cat#23127, Red). Nuclei co-stained with Nuclear Green™ DCS1 (Cat#17550, Green).



Immunohistochemical analysis of paraffin-embedded human lung adenocarcinoma using EpCAM Rabbit mAb followed by iFluor™ 555 goat anti-rabbit IgG (H+L) (Cat#16620, Red). Nuclei co-stained with Nuclear Blue™ DCS1 (Cat#17548, Blue).

Cell Navigator™ Live Cell Endoplasmic Reticulum Staining Kit

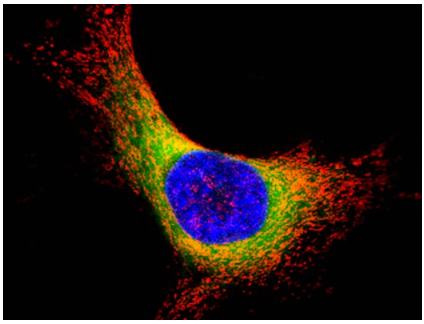
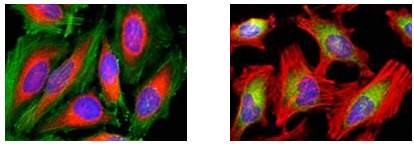


Image of live HeLa cell labeled with endoplasmic reticulum stain ER Green™ (Cat#22635, Green). Mitochondria were co-stained with MitoLite™ Red FX600 (Cat#22677, Red) and nuclei were co-stained with DAPI (Cat#17507, Blue).

- Cell-permeable, fluorogenic probes selective for staining ER over other cellular compartments
- Stain well-retained in ER after fixation, enabling further multi-color staining
- Suitable for fluorescence microscopy, microplate and flow cytometer applications



Left: Live HeLa cells were stained with ER Red™ (Cat#22636, Red) and then fixed with 4% formaldehyde, and co-stained with F-actin dye iFluor™ 488-Phalloidin (Cat#22661, Green) and nuclei dye DAPI (Cat#17507, blue). **Right:** Live HeLa cells were stained with ER Green™ (Cat#22635, Green) and then fixed with 4% formaldehyde, and co-stained with F-actin dye iFluor™ 594-Phalloidin (Cat#23122, Red) and nuclei dye DAPI (Cat#17507, Blue).

Cell Navigator™ Cell Plasma Membrane Staining Kit

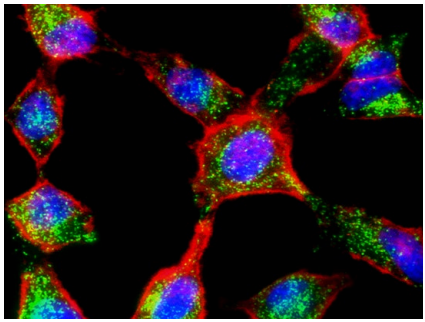


Image of HeLa cells labeled with plasma membrane stain Cellpaint™ Deep Red (Cat#22681, Red). Mitochondria co-stained with MitoLite™ Green FM (Cat#22695, Green). Nuclei co-stained with Nuclear Blue™ DCS1 (Cat#17548, Blue). Cells were fixed in 4% formaldehyde.

- Suitable for staining plasma membranes in suspended or attached cell samples
- Stains are compatible with a broad range of mammalian cell lines
- Stain well-retained in plasma membrane after fixation enabling for further co-staining applications
- Cellpaint™ TSP plasma membrane probes can be used for two photon bio-imaging

Phalloidin-Conjugates: F-Actin Staining Probes

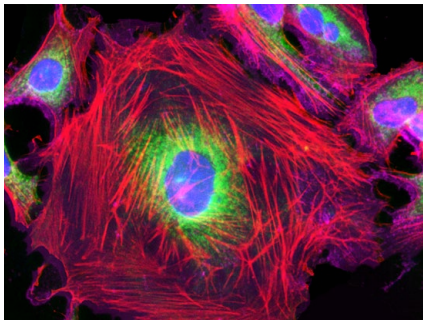
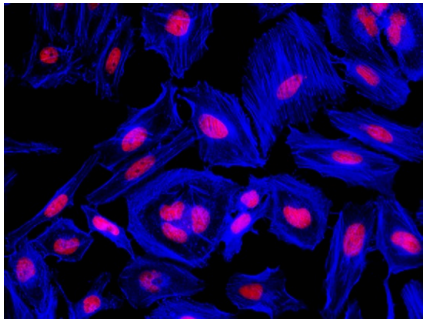
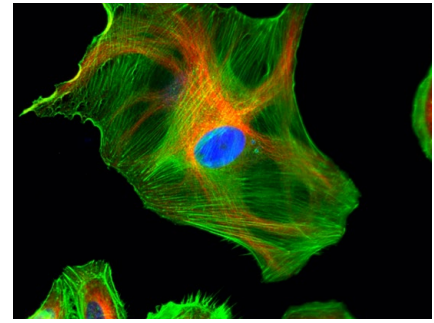


Image of HeLa cells stained with F-actin stain Phalloidin-iFluor™ 555 Conjugate (Cat#23119, Red). Mitochondria co-stained with MitoLite™ Green FM (Cat#22695, Green). Nuclei co-stained with Nuclear Blue™ DCS1 (Cat#17548, Blue). Plasma membrane co-stained with Cellpaint™ Deep Red (Cat#22681, Magenta). Cells were fixed in 4% formaldehyde.

- Selectively targets and binds to F-actin filaments
- Optimized for visualizing actin filaments *in vitro*
- Compatible with formaldehyde-fixed samples, permeabilized tissue sections, cell cultures or cell-free experiments
- Available in multicolor wavelengths for multi-staining applications
- Suitable for fluorescence microscopy, microplate and flow cytometry applications



Fluorescence image of HeLa cells fixed with 4% formaldehyde then stained with Phalloidin-iFluor™ 350 Conjugate (Cat#23110, Blue) and nuclei stain Nuclear Red™ DCS1 (Cat#17552, Red), respectively.



HeLa cells were stained with mouse anti-tubulin followed with iFluor™ 594 goat anti-mouse IgG (H+L) (Cat#16468, Red); actin filaments were co-stained with Phalloidin-iFluor™ 488 conjugate (Cat# 23115, Green); and nuclei were co-stained with DAPI (Cat#17511, Blue).

Product Ordering Information

Cat #	Product Name	Unit Size
22680	Cell Navigator™ Cell Plasma Membrane Staining Kit *Orange Fluorescence*	500 Tests
22681	Cell Navigator™ Cell Plasma Membrane Staining Kit *Red Fluorescence*	500 Tests
22660	Cell Navigator™ F-Actin Labeling Kit *Blue Fluorescence*	500 Tests
22661	Cell Navigator™ F-Actin Labeling Kit *Green Fluorescence*	500 Tests
22663	Cell Navigator™ F-Actin Labeling Kit *Orange Fluorescence*	500 Tests
22664	Cell Navigator™ F-Actin Labeling Kit *Red Fluorescence*	500 Tests
22635	Cell Navigator™ Live Cell Endoplasmic Reticulum (ER) Staining Kit *Green Fluorescence*	100 Tests
22636	Cell Navigator™ Live Cell Endoplasmic Reticulum (ER) Staining Kit *Red Fluorescence*	100 Tests
22655	Cell Navigator™ Lysosome Staining Kit *Blue Fluorescence*	500 Tests
22659	Cell Navigator™ Lysosome Staining Kit *Deep Red Fluorescence*	500 Tests
22651	Cell Navigator™ Lysosome Staining Kit *Green Fluorescence with 405 nm Excitation*	500 Tests
22656	Cell Navigator™ Lysosome Staining Kit *Green Fluorescence*	500 Tests
22652	Cell Navigator™ Lysosome Staining Kit *NIR Fluorescence*	500 Tests
22657	Cell Navigator™ Lysosome Staining Kit *Orange Fluorescence*	500 Tests
22658	Cell Navigator™ Lysosome Staining Kit *Red Fluorescence*	500 Tests
22665	Cell Navigator™ Mitochondrion Staining Kit *Blue Fluorescence*	500 Tests
22669	Cell Navigator™ Mitochondrion Staining Kit *Deep Red Fluorescence*	500 Tests
22666	Cell Navigator™ Mitochondrion Staining Kit *Green Fluorescence*	500 Tests
22670	Cell Navigator™ Mitochondrion Staining Kit *NIR Fluorescence*	500 Tests
22673	Cell Navigator™ Mitochondrion Staining Kit *Orange Fluorescence with 405 nm Excitation*	500 Tests
22667	Cell Navigator™ Mitochondrion Staining Kit *Orange Fluorescence*	500 Tests
22668	Cell Navigator™ Mitochondrion Staining Kit *Red Fluorescence*	500 Tests
17510	DAPI *CAS 28718-90-3*	10 mg
17511	DAPI *CAS 28718-90-3*	100 mg
17520	Hoechst 33258 *CAS 23491-45-4*	100 mg
17530	Hoechst 33342 *CAS 23491-52-3*	100 mg
17533	Hoechst 33342 *UltraPure grade*	1 g
17537	Hoechst 34580 *CAS 911004-45-0*	5 mg
22642	LysoBrite™ Blue	500 Tests
22646	LysoBrite™ Deep Red	500 Tests
22643	LysoBrite™ Green	500 Tests
22641	LysoBrite™ NIR	500 Tests
22644	LysoBrite™ Orange	500 Tests
22645	LysoBrite™ Red	500 Tests
22674	MitoLite™ Blue FX490	500 Tests
22678	MitoLite™ Deep Red FX600	500 Tests
22675	MitoLite™ Green EX488	500 Tests
22695	MitoLite™ Green FM	10 x 50 µg
22690	MitoLite™ NIR FX690	500 Tests
22679	MitoLite™ Orange EX405	500 Tests
22676	MitoLite™ Orange FX570	500 Tests
22677	MitoLite™ Red FX600	500 Tests
17548	Nuclear Blue™ DCS1	0.5 mL
17550	Nuclear Green™ DCS1	0.5 mL
17540	Nuclear Green™ LCS1	0.5 mL
17551	Nuclear Orange™ DCS1	0.5 mL
17541	Nuclear Orange™ LCS1	0.5 mL
17552	Nuclear Red™ DCS1	0.5 mL
17542	Nuclear Red™ LCS1	0.5 mL
17545	Nuclear Red™ LCS2	0.5 mL
17543	Nuclear Violet™ LCS1	0.5 mL
17539	Nuclear Yellow [Hoechst S769121]	25 mg
23101	Phalloidin-Fluorescein Conjugate	300 Tests
23110	Phalloidin-iFluor™ 350 Conjugate	300 Tests
23111	Phalloidin-iFluor™ 405 Conjugate	300 Tests
23115	Phalloidin-iFluor™ 488 Conjugate	300 Tests
23116	Phalloidin-iFluor™ 514 Conjugate	300 Tests
23117	Phalloidin-iFluor™ 532 Conjugate	300 Tests
23119	Phalloidin-iFluor™ 555 Conjugate	300 Tests
23122	Phalloidin-iFluor™ 594 Conjugate	300 Tests
23125	Phalloidin-iFluor™ 633 Conjugate	300 Tests
23127	Phalloidin-iFluor™ 647 Conjugate	300 Tests
23128	Phalloidin-iFluor™ 680 Conjugate	300 Tests
23129	Phalloidin-iFluor™ 700 Conjugate	300 Tests
23130	Phalloidin-iFluor™ 750 Conjugate	300 Tests
23131	Phalloidin-iFluor™ 790 Conjugate	300 Tests
17515	Propidium Iodide	25 mg

Unless otherwise specified, all products are for Research Use Only.
Not for use in diagnostic or therapeutic procedures.

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Sales

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1-408-733-1055 (International)

Fax: 1-800-609-2943 (US and Canada)
1-408-733-1304 (International)

Email: sales@aatbio.com

On the cover:

Image of CPA cell stained with lysosome dye LysoBrite™ Red (Cat#22658, Red), Phalloidin-iFluor™ 488 Conjugate (Cat#23115, Green) to label actin filaments, and nuclei stain Nuclear Blue™ DCS1 (Cat#17548, Blue). The cells were fixed in 4% formaldehyde.