



Advance your research using Invitrogen™ HCS tools





With Invitrogen™ HCS-compatible products, you can:

- Obtain quantitative results on multiple parameters, including cell health and toxicity
- Access industry-leading Molecular Probes® fluorescence-based assays and technologies
- Gather more data using high-content imaging workflows

High-content imaging and analysis offers the benefits of spatially resolved and multiparametric interrogation of cells in heterogeneous populations. These advantages are particularly evident in studies related to cellular stress and death. Fluorescent probes and assays that are robust and compatible with the workflow of high-content imaging are necessary to realize meaningful and quantitative data. Invitrogen offers a wide variety of solutions for determining cell health and toxicity in cell-based assays on automated imaging and high-throughput platforms. For additional information and pricing, please visit www.invitrogen.com/hcs.

Apoptosis

Many different approaches are utilized in the study of programmed cell death, or apoptosis. Cell death cascades are complex and dynamic, underscoring the importance of a multiparametric approach to the assessment of apoptosis. Understanding the mechanisms of cell death and survival can represent a critical aspect of toxicological profiling and drug discovery. Invitrogen offers a variety of products developed for multiplex imaging-based detection of key apoptotic markers.

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells
C10245	Click-iT® TUNEL Alexa Fluor® 488 Imaging Assay	Blue ^S	350	461			
		Green ^{1*}	495	519			•
C10246	Click-iT® TUNEL Alexa Fluor® 594 Imaging Assay	Blue ^S	350	461			
		Red ^V	590	615			•
C10247	Click-iT® TUNEL Alexa Fluor® 647 Imaging Assay	Blue ^S	350	461			
		Far red ^{1*}	650	670			•
I35106	Image-iT® LIVE Green Caspase-3 and -7 Detection Kit	Blue ^S	350	461			
		Green ^{1*}	488	530	•	•	
		Red ^V	535	617			
I35102	Image-iT® LIVE Red Caspase-3 and -7 Detection Kit	Blue ^S	350	461			
		Green ^{1*}	504	523	•	•	
		Red ^V	550	595			
I35105	Image-iT® LIVE Green Caspase-8 Detection Kit	Blue ^S	350	461			
		Green ^{1*}	488	530	•	•	
		Red ^V	535	617			
I35104	Image-iT® LIVE Green Poly Caspases Detection Kit	Blue ^S	350	461			
		Green ^{1*}	488	530	•	•	
		Red ^V	535	617			
I35101	Image-iT® LIVE Red Poly Caspases Detection Kit	Blue ^S	350	461			
		Green ^{1*}	504	523	•	•	
		Red ^V	550	595			

S = Segmentation tool V = Cell viability indicator 1* = Primary detection reagent for product

Cell cycle

Disruptions in the cell cycle have traditionally been detected using BrdU assays. While effective, these assays are time-consuming and costly in terms of antibodies and reagents required. Our Click-iT® EdU system for cell cycle detection is simpler, faster, and more sensitive—and it's compatible with standard immunolabeling protocols. Cytotoxicity and the induction or progression of mitotic arrest can be measured with the antibody-based HCS Mitotic Index Kit. The new Premo™ FUCCI Cell Cycle Sensor enables temporal mapping of cell cycle progression in live cells, utilizing a dynamic color change of red to yellow to green as cells transition through the different phases of the cell cycle.

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells
C10350	Click-iT® EdU Alexa Fluor® 488 High-Throughput Imaging (HCS) Assay, 2-plate size	Blue ^S	350	461			
		Green ^{1*}	495	519			•
C10351	Click-iT® EdU Alexa Fluor® 488 High-Throughput Imaging (HCS) Assay, 10-plate size	Blue ^S	350	461			
		Green ^{1*}	495	519			•
C10354	Click-iT® EdU Alexa Fluor® 594 High-Throughput Imaging (HCS) Assay, 2-plate size	Blue ^S	350	461			
		Red ^{1*}	590	615			•
C10355	Click-iT® EdU Alexa Fluor® 594 High-Throughput Imaging (HCS) Assay, 10-plate size	Blue ^S	350	461			
		Red ^{1*}	590	615			•
C10356	Click-iT® EdU Alexa Fluor® 647 High-Throughput Imaging (HCS) Assay, 2-plate size	Blue ^S	350	461			
		Far red ^{1*}	650	670			•
C10357	Click-iT® EdU Alexa Fluor® 647 High-Throughput Imaging (HCS) Assay, 10-plate size	Blue ^S	350	461			
		Far red ^{1*}	650	670			•
H10293	HCS Mitotic Index Kit, 2-plate size	Blue ^S	358	461			
		Green ^{1*}	495	519			
		Far red ^S	638	686			•
C10128	Cellular Lights™ Histone 2B-GFP	Green	488	510	•	•	
C10129	Cellular Lights™ Histone 2B-RFP	Red	555	584	•	•	
P36232	Premo™ FUCCI Cell Cycle Sensor	Green ^{1*}	488	510			
		Red ^{1*}	555	584	•	•	

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Cytotoxicity

The advantages of high-content imaging and analysis are particularly evident in studies related to cellular stress and death. The understanding of both pre-lethal and lethal aspects of mechanisms associated with cellular toxicity serves more comprehensive toxicological profiling and enables the generation of decision-making indices in the drug development process. Invitrogen offers a number of validated kits and reagents for robust multiplex interrogation of cell health and toxicity.

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells
H34157	HCS LipidTOX™ Phospholipidosis and Steatosis Detection Kit, for high-content screening, for cellular imaging, 2-plate size	Blue ^S	350	461			
		Green ^{1*}	495	505	•	•	•
		Red ^{1*}	595	615			
H34158	HCS LipidTOX™ Phospholipidosis and Steatosis Detection Kit, for high-content screening, for cellular imaging, 10-plate size	Blue ^S	350	461			
		Green ^{1*}	495	505	•	•	•
		Red ^{1*}	595	615			
H34350	HCS LipidTOX™ Green phospholipidosis detection reagent, 1,000X aqueous solution, for cellular imaging, 10-plate size	Green	495	525	•	•	
H34351	HCS LipidTOX™ Red phospholipidosis detection reagent, 1,000X aqueous solution, for cellular imaging, 10-plate size	Red	595	615	•	•	

S = Segmentation tool 1* = Primary detection reagent for product

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells
H34475	HCS LipidTOX™ Green neutral lipid stain, solution in DMSO, for cellular imaging	Green	495	505	●	●	●
H34476	HCS LipidTOX™ Red neutral lipid stain, solution in DMSO, for cellular imaging	Red	577	609	●	●	●
H34477	HCS LipidTOX™ Deep Red neutral lipid stain, solution in DMSO, for cellular imaging	Far red	637	655	●	●	●
T10096	ThiolTracker™ Violet (Glutathione Detection Reagent), for 5 microplates	Green	404	526	●	●	
I10291	Image-iT® DEAD Green™ viability stain	Green	488	515	●	●	
H10292	HCS DNA Damage Kit, 2-plate size	Blue ^S	350	461			
		Green ^V	488	515			●
		Orange ^{I*}	550	565			
H10290	HCS LIVE/DEAD® Green Kit, 2-plate size	Blue ^S	350	461			
		Green ^{I*}	488	515	●	●	
		Far red ^S	638	686			
H10295	HCS Mitochondrial Health Kit, 2-plate size	Blue ^S	350	461			
		Green ^V	488	515	●	●	
		Orange ^{I*}	550	565			
H10293	HCS Mitotic Index Kit, 2-plate size	Blue ^S	365	450			
		Green ^{I*}	495	519			●
		Far red ^S	638	686			
C10289	Click-iT® AHA Alexa Fluor® 488 Protein Synthesis HCS Assay, 2-plate size	Blue ^S	350	461			●
		Green ^{I*}	495	519			
C10327	Click-iT® RNA Alexa Fluor® 488 HCS Assay, 2-plate size	Blue ^S	350	461			●
		Green ^{I*}	495	519			
C10328	Click-iT® RNA Alexa Fluor® 594 HCS Assay, 2-plate size	Blue ^S	350	461			●
		Red ^{I*}	590	615			

S = Segmentation tool V = Cell viability indicator I* = Primary detection reagent for product

Segmentation tools

HCS CellMask™ and NuclearMask™ stains enable robust and reliable object identification for high-content imaging and analysis, and are available in a variety of fluorescent colors from blue to deep red. The versatile HCS NuclearMask™ stains are effective for nuclear segmentation but can also be used for measuring DNA content. For whole-cell segmentation strategies, the HCS CellMask™ stains provide an accurate backdrop against which features of interest can be assessed.

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells
H10325	HCS NuclearMask™ Blue stain	Blue	355	450	●	●	●
H10326	HCS NuclearMask™ Red stain	Red	622	645	●	●	●
H10294	HCS NuclearMask™ Deep Red stain	Far red	638	686	●	●	●
C10045	CellMask™ Orange plasma membrane stain, 5 mg/mL solution in DMSO	Orange	554	567	●	●	
C10046	CellMask™ Deep Red plasma membrane stain, 5 mg/mL solution in DMSO	Far red	649	666	●	●	
H32720	HCS CellMask™ Blue stain	Blue	346	442			●
H32714	HCS CellMask™ Green stain	Green	493	516			●
H32713	HCS CellMask™ Orange stain	Orange	556	572			●
H32712	HCS CellMask™ Red stain	Red	588	612			●
H32721	HCS CellMask™ Deep Red stain	Far red	650	665			●

Intracellular trafficking

Phagocytosis, protein synthesis, and protein expression are examples of fundamental cellular processes, which can serve as useful markers for cell function and are readily detected using our optimized reagents.

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells
A10010	pHrodo™ <i>S. aureus</i> BioParticles® conjugate for phagocytosis	Red	560	585	●	●	
P35361	pHrodo™ <i>E. coli</i> BioParticles® conjugate for phagocytosis	Red	560	585	●	●	
P36600	pHrodo™, succinimidyl ester (SE)	Red	560	585	●	●	
O36228	Organelle Lights™ Lysosomes-GFP	Green	488	510	●	●	
O10100	Organelle Lights™ Lysosomes-RFP	Red	555	584	●	●	
O10104	Organelle Lights™ Endosomes-GFP	Green	488	510	●	●	
O36231	Organelle Lights™ Endosomes-RFP	Red	555	584	●	●	
O36212	Organelle Lights™ ER-GFP	Green	488	510	●	●	
O36230	Organelle Lights™ ER-RFP	Red	555	584	●	●	
O36214	Organelle Lights™ Golgi-GFP	Green	488	510	●	●	
O10098	Organelle Lights™ Golgi-RFP	Red	555	584	●	●	
L23380	Alexa Fluor® 488 acetylated LDL	Green	495	519	●	●	
L35353	Alexa Fluor® 594 acetylated LDL	Red	590	617	●	●	
T13342	Alexa Fluor® 488 conjugate, transferrin from human serum	Green	495	519	●	●	
T13343	Alexa Fluor® 594 conjugate, transferrin from human serum	Red	590	617	●	●	
T23366	Alexa Fluor® 647 conjugate, transferrin from human serum	Far red	650	668	●	●	

Cytoskeleton

Invitrogen offers an extensive array of Molecular Probes® reagents for labeling cytoskeletal structures in either live or fixed cells. These probes can be used to study dynamic rearrangement or function of the cytoskeleton. Choices are available in a wide range of colors for live- or fixed-cell applications.

Cat. No.	Product	Emission color	Excitation (nm)	Emission (nm)	Stains live cells	Fixable	Stains fixed cells	
A22281	Alexa Fluor® 350 phalloidin	Blue	346	442			●	
A12379	Alexa Fluor® 488 phalloidin	Green	495	519			●	
A34055	Alexa Fluor® 555 phalloidin	Orange	555	565			●	
A12381	Alexa Fluor® 594 phalloidin	Red	590	617			●	
A22287	Alexa Fluor® 647 phalloidin	Far red	650	668			●	
B7474	Biotin-XX phalloidin	Nonfluorescent hapten						●
C10126	Cellular Lights™ Actin-GFP	Green	488	510	●	●		
C10127	Cellular Lights™ Actin-RFP	Red	555	584	●	●		
C10105	Cellular Lights™ MAP4-GFP	Green	488	510	●	●		
C10140	Cellular Lights™ MAP4-RFP	Red	555	584	●	●		
C10106	Cellular Lights™ Tubulin-GFP	Green	488	510	●	●		
C10112	Cellular Lights™ Tubulin-RFP	Red	555	584	●	●		
C10323	Cellular Lights™ Talin-GFP	Green	488	510	●	●		
C10324	Cellular Lights™ Talin-RFP	Red	555	584	●	●		
C10130	Cellular Lights™ Null (Control)	Nonfluorescent control					●	●



Understanding biology, enabling decisions.

Automated imaging and high-content analysis represent a new frontier in microscopy and cell biology. It is now possible to generate population-level data from the multiparametric analysis of each individual cell. The ability to derive statistically relevant data from many cells greatly increases our understanding and

interpretation of the underlying biology. Such information is invaluable for analyzing on-target and off-target effects of potential drugs in real biological systems. With this knowledge in hand, informed decisions about a drug's potential utility and dosage levels can be made with greater confidence and insight.

For more than 30 years, **MOLECULAR PROBES®** has developed fluorescence technology that enables uniquely powerful labeling and detection solutions for cellular analysis. Molecular Probes® innovations have led to proprietary technologies that significantly advance assay sensitivity and specificity, opening research avenues that were previously impractical or impossible.



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