



**immunochemistry**  
TECHNOLOGIES

# CELL VIABILITY PRODUCT ADVANTAGES

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## 2 | CELL VIABILITY PRODUCT ADVANTAGES

| CATEGORY  | SUBCATEGORY | PRODUCT  | CATALOG # | DESCRIPTION  | ADVANTAGES  |
|-----------|-------------|--|-----------|--|---|
| APOPTOSIS | Annexin V   | <b>Annexin V-FITC Apoptosis Assay</b>                | •9124     | Detect apoptosis and membrane permeability with the Annexin V-FITC Apoptosis Assay Kit. This <i>in vitro</i> apoptosis assay employs the green fluorescent Annexin V-FITC reagent to label exposed, cell membrane-associated phosphatidylserine (PS) in cultured cell samples. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis induction. Detect membrane compromised cells, a trademark of late apoptosis or cell necrosis, with the live/dead stain, propidium iodide (PI). Analyze the fluorescent signals by flow cytometry.                             | High affinity for PS; Virtually all Annexin V molecules are bound in apoptotic cells; PI allows dead and apoptotic cells to be discriminated; Made from recombinant Human Annexin V. Annexin V binding to exposed PS on cell membrane is an early indication of apoptosis                                       |
|           |             | <b>Bovine Annexin V-Fluorescein Apoptosis Assay</b>  | •9138     | Detect apoptosis and membrane permeability with the Bovine Annexin V-Fluorescein Apoptosis Assay Kit. This <i>in vitro</i> apoptosis detection assay employs the green fluorescent Bovine Annexin V-Fluorescein reagent to label exposed, cell membrane-associated phosphatidylserine (PS) in cultured cell samples. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis. Detect membrane compromised cells, a trademark of late apoptosis or cell necrosis, with the live/dead stain, propidium iodide (PI). Analyze the fluorescent signals by flow cytometry. | High affinity for PS; Virtually all Annexin V molecules are bound in apoptotic cells; PI allows dead and apoptotic cells to be discriminated; Made from recombinant Bovine Annexin V. Annexin V binding to exposed PS on cell membrane is an early indication of apoptosis.                                     |
|           |             | <b>Canine Annexin V-Fluorescein Apoptosis Assay</b>  | •9139     | Detect apoptosis and membrane permeability with the Canine Annexin V-Fluorescein Apoptosis Assay Kit. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis. This <i>in vitro</i> apoptosis assay employs the green fluorescent Canine Annexin V-Fluorescein reagent to label exposed, cell membrane-associated phosphatidylserine (PS) in cultured cell samples. Detect membrane compromised cells, a trademark of late apoptosis or cell necrosis, with the live/dead stain, propidium iodide (PI). Analyze the fluorescent signals by flow cytometry.           | High affinity for PS; Virtually all Annexin V molecules are bound in apoptotic cells; PI allows dead and apoptotic cells to be discriminated; Made from recombinant Canine Annexin V. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis.  |
|           |             | <b>Chicken Annexin V-Fluorescein Apoptosis Assay</b> | •9140     | Detect apoptosis and membrane permeability with the Chicken Annexin V-Fluorescein Apoptosis Assay Kit. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis. This <i>in vitro</i> apoptosis assay employs the green fluorescent Chicken Annexin V-Fluorescein reagent to label exposed, cell membrane associated phosphatidylserine (PS) in cultured cell samples. Detect membrane compromised cells, a trademark of late apoptosis or cell necrosis, with the live/dead stain, propidium iodide (PI). Analyze the fluorescent signals by flow cytometry.         | High affinity for PS; Virtually all Annexin V molecules are bound in apoptotic cells; PI allows dead and apoptotic cells to be discriminated; Made from recombinant Chicken Annexin V. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis. |
|           |             | <b>Equine Annexin V-Fluorescein Apoptosis Assay</b>  | •9141     | Detect apoptosis and membrane permeability with the Equine Annexin V-Fluorescein Apoptosis Assay Kit. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis. This <i>in vitro</i> apoptosis assay employs the green fluorescent Equine Annexin V-Fluorescein reagent to label exposed, cell membrane associated phosphatidylserine (PS) in cultured cell samples. Detect membrane compromised cells, a trademark of late apoptosis or cell necrosis, with the live/dead stain, propidium iodide (PI). Analyze the fluorescent signals by flow cytometry.           | High affinity for PS; Virtually all Annexin V molecules are bound in apoptotic cells; PI allows dead and apoptotic cells to be discriminated; Made from recombinant Equine Annexin V. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis.  |
|           |             | <b>Swine Annexin V-Fluorescein Apoptosis Assay</b>   | •9142     | Detect apoptosis and membrane permeability with the Swine Annexin V-Fluorescein Apoptosis Assay Kit. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis. This <i>in vitro</i> apoptosis assay employs the green fluorescent Swine Annexin V-Fluorescein reagent to label exposed, cell membrane-associated phosphatidylserine (PS) in cultured cell samples. Detect membrane compromised cells, a trademark of late apoptosis or cell necrosis, with the live/dead stain, propidium iodide (PI). Analyze the fluorescent signals by flow cytometry.             | High affinity for PS; Virtually all Annexin V molecules are bound in apoptotic cells; PI allows dead and apoptotic cells to be discriminated; Made from recombinant Swine Annexin V. Translocation of PS from the inner leaflet to the outer leaflet of the cell membrane is an early indicator of apoptosis.   |

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|--------------------------|--------------------------|---|----------------------------|--|---|
| APOPTOSIS<br>(continued) | Apoptosis Inducing Agent | Camptothecin  | • 6208<br>• 6209<br>• 6210 | Camptothecin, a cytotoxic plant alkaloid with antitumor properties, is a prototypic DNA topoisomerase I inhibitor. Use camptothecin to create positive controls in apoptosis detection experiments.  | High purity; ≥98% (HPLC); Lyophilized for long-term stability   |
|                          |                          | Staurosporine   | • 6212                     | Staurosporine, isolated from <i>Streptomyces staurospores</i> , is a protein kinase C inhibitor. Staurosporine induces DNA fragmentation and apoptosis at 1 μM in >4 hours.  | High purity; ≥99% (HPLC); Lyophilized for long-term stability   |
|                          | Poly Caspase             | Green Fluorescent Poly (active) Caspase FAM FLICA® Assay Kit (FAM-VAD-FMK)                | • 91<br>• 92               | This <i>in vitro</i> assay employs the fluorescent, cell-membrane permeant, poly caspase-inhibitor probe, FAM-VAD-FMK. This probe contains the generic tripeptide caspase targeting sequence (VAD) that enables the detection of most intracellular caspases in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; FLICA apoptosis detection probes are not subject to false results arising from transient post trypsinization PS exposure or with particular cancer cells where it is constitutively expressed on cell membrane. |
|                          |                          | Green Fluorescent FAM-VAD-OPH I <i>in vitro</i> poly Caspase Apoptosis Detection Reagent  | • 6354                     | A novel set of inhibitor reagents that employ an O-phenoxy (OPH) reactive group instead of an FMK group. In a manner analogous to the FMK class of cysteine reactive compounds, the OPH inhibitors form a stable covalent thioether adduct with the reactive SH-site of caspase enzymes present in apoptotic cells. These reagents are used as simple and reliable methods for screening apoptosis in live cells. FAM-VAD-OPH I [5-FAM-Val-Ala-Asp(OMe)-2,6-difluorophenoxy-methylketone poly caspase inhibitor] can be used with a fluorescence microscope, fluorescence plate reader, or flow cytometry. | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          |                          | Green Fluorescent FAM-VAD-OPH II <i>in vitro</i> poly Caspase Apoptosis Detection Reagent | • 6355                     | A novel set of inhibitor reagents that employ an O-phenoxy (OPH) reactive group instead of an FMK group. In a manner analogous to the FMK class of cysteine reactive compounds, the OPH inhibitors form a stable covalent thioether adduct with the reactive SH-site of caspase enzymes present in apoptotic cells. These reagents are used as simple and reliable methods for screening apoptosis in live cells. FAM-VAD-OPH II [5-FAM-Val-Ala-Asp(OMe)-Oph (2,6-diF) poly caspase inhibitor] can be used with a fluorescence microscope, fluorescence plate reader, or flow cytometry.                   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          |                          | Far-Red Fluorescent FLICA® 660 Poly (active) Caspase (VAD) Assay Kit                      | • 9120                     | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, poly caspase-inhibitor probe, 660-VAD-FMK. This probe contains the generic tripeptide caspase targeting sequence (VAD) that enables the detection of most intracellular caspases in living cells. Analyze the fluorescent signal using fluorescence microscopy or flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Far-red emission can be easily combined with green emission reagents  |
|                          |                          | Red Fluorescent SR-FLICA® Poly (active) Caspase (VAD) Assay Kit                           | • 916<br>• 917             | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, poly caspase-inhibitor probe, SR-VAD-FMK. This probe contains the generic tripeptide caspase targeting sequence (VAD) that enables the detection of most intracellular caspases in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Red emission can be easily combined with green emission reagents  |
|                          |                          | Red Fluorescent SR-VAD-OPH <i>in vitro</i> Poly Caspase Apoptosis Detection Reagent       | • 6357                     | A novel set of inhibitor reagents that employ an O-phenoxy (OPH) reactive group instead of an FMK group. In a manner analogous to the FMK class of cysteine reactive compounds, the OPH inhibitors form a stable covalent thioether adduct with the reactive SH-site of caspase enzymes present in apoptotic cells. These reagents are used as simple and reliable methods for screening apoptosis in live cells. SR-VAD-OPH [SR-Val-Ala-Asp(OMe)-Oph (2,6-diF) poly caspase inhibitor] can be used with a fluorescence microscope, fluorescence plate reader, or flow cytometry.                          | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Red emission can be combined with green emission reagents   |

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| APOPTOSIS<br>(continued) | Poly<br>Caspase<br>( <i>In vivo</i> ) | <b>Green<br/>Fluorescent<br/>FAM <i>In vivo</i><br/>Poly (active)<br/>Caspase (VAD)<br/>Assay</b>  | • 980<br>• 981 | Our <i>in vivo</i> inhibitor probes are a powerful method for assessing caspase activity <i>in vivo</i> . FAM <i>in vivo</i> poly caspase probes are non-cytotoxic, cell-permeant fluorescent inhibitors of caspases optimized for use in whole live animals. ICT's FAM <i>in vivo</i> poly caspase inhibitor probe contains the preferred binding sequence for most caspases (Val-Ala-Asp or VAD). This preferred poly caspase tripeptide binding sequence is labeled with a carboxyfluorescein (FAM) dye and a fluoromethyl ketone (FMK) reactive entity.  | Optimized for whole live animal labeling; Ex vivo analysis; Caspase detection allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Green emission; Compatible with conventional fluorescence detection instrumentation                 |
|                          |                                       | <b>Red<br/>Fluorescent<br/>SR <i>In vivo</i><br/>Poly (active)<br/>Caspase (VAD)<br/>Assay</b>     | • 982<br>• 983 | Our <i>in vivo</i> inhibitor probes are a powerful method for assessing caspase activity <i>in vivo</i> . SR <i>in vivo</i> poly caspase probes are non-cytotoxic, cell-permeant fluorescent inhibitors of caspases optimized for use in whole live animals. ICT's SR <i>in vivo</i> poly caspase inhibitor probe contains the preferred binding sequence for most caspases (Val-Ala-Asp or VAD). This preferred poly caspase tripeptide binding sequence is labeled with a sulforhodamine B (SR) dye and a fluoromethyl ketone (FMK) reactive entity.   | Optimized for whole live animal labeling; Ex vivo analysis; Caspase detection allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Red emission; Compatible with conventional fluorescence detection instrumentation                   |
|                          |                                       | <b>Near-Infrared<br/>DyLight® 690<br/>Tracer <i>in vivo</i><br/>Active Caspase<br/>(VAD) Assay</b> | • 9112         | Our <i>in vivo</i> Tracers are a powerful method for non-invasive detection of caspase activity <i>in vivo</i> . NIR-DyLight® 690 Tracers are non-cytotoxic, cell-permeant fluorescent inhibitors of caspases optimized for use in whole live animals. ICT's NIR-DyLight® 690 Tracer probe contains the preferred binding sequence for most caspases (Val-Ala-Asp or VAD). This preferred poly caspase tripeptide binding sequence is labeled with *DyLight® 690 dye and a fluoromethyl ketone (FMK) reactive entity.<br><br>*DyLight® is a registered trademark of Thermo Fisher Scientific, Inc. and its subsidiaries. | Optimized for whole live animal labeling; Non-invasive detection; Caspase detection allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; NIR 690 nm emission; Compatible with whole animal imaging systems                             |
|                          |                                       | <b>Near Infrared<br/>DyLight®<br/>690 Free Dye<br/>Control Assay</b>                               | • 9113         | ICT's near-infrared (NIR)-DyLight® Tracers are used in conjunction with NIR-DyLight® Free Dye Control Assays. The NIR-DyLight® Free Dye Control Assay uses the NIR-DyLight® Free Dye Control reagent (*DyLight® 690 Free Dye). When injected, both the Free Dye Control and the Tracer reagents will generate a fluorescent signal, but only the Tracer should bind to active caspases and remain inside an apoptotic cell, while signal associated with the Free Dye Control represents background noise.<br><br>*DyLight® is a registered trademark of Thermo Fisher Scientific, Inc. and its subsidiaries.            | Optimized for whole live animal labeling; Non-invasive detection; Detects background fluorescence associated with non-specific binding of the NIR 690 dye; Sensitive; Cell-permeant; Accurate; NIR 690 nm emission; Compatible with whole animal imaging systems |
|                          |                                       | <b>Near-Infrared<br/>DyLight® 747<br/>Tracer <i>in vivo</i><br/>Active Caspase<br/>(VAD) Assay</b> | • 9114         | Our <i>in vivo</i> Tracers are a powerful method for non-invasive detection of caspase activity <i>in vivo</i> . NIR-DyLight® 747 Tracers are non-cytotoxic, cell-permeant fluorescent inhibitors of caspases optimized for use in whole live animals. ICT's NIR-DyLight® 747 Tracer probe contains the preferred binding sequence for most caspases (Val-Ala-Asp or VAD). This preferred poly caspase tripeptide binding sequence is labeled with *DyLight® 747 dye and a fluoromethyl ketone (FMK) reactive entity.<br><br>*DyLight® is a registered trademark of Thermo Fisher Scientific, Inc. and its subsidiaries. | Optimized for whole live animal labeling; Non-invasive detection; Caspase detection allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; NIR 747 nm emission; Compatible with whole animal imaging systems                             |
|                          |                                       | <b>Near Infrared<br/>DyLight®<br/>747 Free Dye<br/>Control Assay</b>                               | • 9115         | ICT's near-infrared (NIR)-DyLight® Tracers are used in conjunction with NIR-DyLight® Free Dye Control Assays. The NIR-DyLight® Free Dye Control Assay uses the NIR-DyLight® Free Dye Control reagent (*DyLight® 747 Free Dye). When injected, both the Free Dye Control and the Tracer reagents will generate a fluorescent signal, but only the Tracer should bind to active caspases and remain inside an apoptotic cell, while signal associated with the Free Dye Control represents background noise.<br><br>*DyLight® is a registered trademark of Thermo Fisher Scientific, Inc. and its subsidiaries.            | Optimized for whole live animal labeling; Non-invasive detection; Detects background fluorescence associated with non-specific binding of the NIR 747 dye; Sensitive; Cell-permeant; Accurate; NIR 747 nm emission; Compatible with whole animal imaging systems |

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|--------------------------|-------------|--|-------------------------------------|--|---|
| APOPTOSIS<br>(continued) | Caspase-2   | <b>Green Fluorescent FAM-FLICA® Caspase-2 (VDVAD) Assay Kit</b>                                | •918<br>•919                        | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-2 inhibitor probe, FAM-VDVAD-FMK. This probe contains the preferred pentapeptide caspase 2 targeting sequence (VDVAD) that enables the detection of active caspase-2 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell permeant; Accurate  |
|                          |             | <b>Green Fluorescent FAM-FLICA® Caspase-3/7 (DEVVD) Assay Kit</b>                              | •93<br>•94                          | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-3/7 inhibitor probe, FAM-DEVVD-FMK. This probe contains the preferred tetrapeptide caspase-3/7 targeting sequence (DEVVD) that enables the detection of active caspase 3 and 7 enzymes in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.  | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          | Caspase-3/7 | <b>Green Fluorescent FAM-DEVVD-OPH <i>in vitro</i> caspase-3/7 Apoptosis Detection Reagent</b> | •6356                               | A novel set of inhibitor reagents that employ an O-phenoxy (OPH) reactive group instead of an FMK group. In a manner analogous to the FMK class of cysteine reactive compounds, the OPH inhibitors form a stable covalent thioether adduct with the reactive SH-site of caspase enzymes present in apoptotic cells. These reagents are used as simple and reliable methods for screening apoptosis in live cells. FAM-DEVVD-OPH [5-FAM-Asp-Glu-Val-Asp(OMe)-Oph (2,6-diF) caspase 3/7 inhibitor] can be used with a fluorescence microscope, fluorescence plate reader, or flow cytometry. | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          |             | <b>Far-Red Fluorescent FLICA® 660 Caspase-3/7 (DEVVD) Assay Kit</b>                            | •9125                               | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-3/7 inhibitor probe, 660-DEVVD-FMK. This probe contains the preferred tetrapeptide caspase-3/7 targeting sequence (DEVVD) that enables the detection of active caspase 3 and 7 enzyme in living cells. Analyze the fluorescent signal using fluorescence microscopy or flow cytometry.  | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Far-red emission can be combined with green emission reagents |
|                          |             | <b>Magic Red® Fluorescent Caspase-3/7 Assay Kit</b>  | •935<br>•936                        | Detect caspase 3 and 7 activity in real time with the Magic Red Caspase-3/7 Assay. The Magic Red fluorogenic substrate contains the preferred caspase-3/7 targeting sequences (DEVVD). It fluoresces upon cleavage by active caspase 3 and 7 enzymes. Analyze the fluorescent signal using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.  | Substrate-based assay; Dynamic; Red fluorescence increases in proportion to caspase-3/7 activity in apoptotic cells; Cell-permeant  |
|                          |             | <b>Red Fluorescent SR-FLICA® Caspase-3/7 (DEVVD) Assay Kit</b>                                 | •931<br>•932                        | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-3/7 inhibitor probe, SR-DEVVD-FMK. This probe contains the preferred tetrapeptide caspase-3/7 targeting sequence (DEVVD) that enables the detection of active caspase 3 and 7 enzymes in living cells. Analyze the fluorescent signal using fluorescence microscopy, a fluorescence plate reader, or by flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Red emission can be combined with green emission reagents     |
|                          |             | <b>Apo 3/7 HTS Assay Kit</b>   | •APO200-2<br>•APO200-3<br>•APO200-4 | A homogenous fluorescent assay that utilizes the quenched (z-DEVVD)2-R110 peptide substrate for caspase 3/7 detection. When R110 is cleaved away from the quenching DEVVD sequence by active caspase-3/7, the free dye excites at 488 nm and emits at 515-530 nm. The assay can be used for high throughput screening.   | Detection of active caspase-3/7. Substrate-based assay. Provides a homogenous platform that can be utilized for high throughput fluorescence plate reader applications.   |
|                          |             | <b>Apo Active PE - Caspase 3 Detection Kit</b>   | •PAB200-2                           | Antibody Specific Active Caspase-3 Phycoerythrin (PE) Kit is highly specific for active human and murine enzyme. The kit utilizes a rabbit affinity-purified polyclonal antibody made against amino acids 163-175 of murine caspase-3.   | Specific antibody-based detection of active caspase-3.  |
|                          |             | <b>Apo Active FITC - Caspase 3 Detection Kit</b>   | •FAB200-2                           | Antibody Specific Active Caspase-3 Fluorescein Isothiocyanate (FITC) Kit is highly specific for active human and murine enzyme. The kit utilizes a rabbit affinity purified polyclonal antibody made against amino acids 163-175 of murine caspase-3.  | Specific antibody-based detection of active caspase-3.  |

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| APOPTOSIS<br>(continued) | Caspase-6              | <b>Green Fluorescent FAM-FLICA® Caspase-6 (VEID) Assay Kit</b>  | • 95<br>• 96     | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-6 inhibitor probe, FAM-VEID-FMK. This probe contains the preferred tetrapeptide caspase-6 targeting sequence (VEID) that enables the detection of active caspase-6 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.  | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          | Caspase-8              | <b>Green Fluorescent FAM-FLICA® Caspase-8 (LETD) Assay Kit</b>  | • 99<br>• 910    | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-8 inhibitor probe, FAM-LETD-FMK. This probe contains the preferred tetrapeptide caspase-8 targeting sequence (LETD) that enables the detection of active caspase-8 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.  | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          |                        | <b>Red Fluorescent SR-FLICA® Caspase-8 (LETD) Assay Kit</b>     | • 9149<br>• 9150 | This <i>in vitro</i> assay employs the fluorescent, cell-membrane permeant, caspase-8 inhibitor probe, SR-LETD-FMK. This probe contains the preferred tetrapeptide caspase-8 targeting sequence (LETD) that enables the detection of active caspase-8 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.  | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Red emission can be combined with green emission reagents                   |
|                          | Caspase-9              | <b>Green Fluorescent FAM-FLICA® Caspase-9 (LEHD) Assay Kit</b>  | • 912<br>• 913   | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-9 inhibitor probe, FAM-LEHD-FMK. This probe contains the preferred tetrapeptide caspase-9 targeting sequence (LEHD) that enables the detection of active caspase-9 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.  | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          |                        | <b>Red Fluorescent SR-FLICA® Caspase-9 (LEHD) Assay Kit</b>     | • 960<br>• 961   | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-9 inhibitor probe, SR-LEHD-FMK. This probe contains the preferred tetrapeptide caspase-9 targeting sequence (LEHD) that enables the detection of active caspase-9 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate; Red emission can be combined with green emission reagents                   |
|                          | Caspase-10             | <b>Green Fluorescent FAM-FLICA® Caspase-10 (AEVD) Assay Kit</b> | • 922<br>• 923   | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-10 inhibitor probe, FAM-AEVD-FMK. This probe contains the preferred tetrapeptide caspase-10 targeting sequence (AEVD) that enables the detection of active caspase-10 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.   | Detection of active caspases allows for earlier detection of apoptosis; Sensitive; Cell-permeant; Accurate  |
|                          | Necrosis and Apoptosis | <b>Necrosis vs Apoptosis Assay</b>                              | • 9147<br>• 9148 | Simultaneously detects both apoptosis associated cytotoxicity events and cell death due to necrosis. This simple and straightforward tool allows researchers to understand the overall health-status of their cell populations. In addition, this kit is useful to researchers investigating the effect of their novel drug or therapeutic as it allows them to assess their experimental outcome and evaluate the overall treatment of the cells. Analyze using fluorescence microscopy or flow cytometry. | Dual detection method provides more complete picture of cell health status; Sensitive; Cell-permeant; Minimal spectral overlap; Necrosis vs apoptosis signals are easily differentiated |
|                          | Serine Protease        | <b>Green Fluorescent FAM-Leu-CMK Serine Protease Assay Kit</b>  | • 949<br>• 950   | These probes interact with active catalytic sites of chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.   | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options                                   |
|                          |                        | <b>Green Fluorescent FAM-Leu-DAP Serine Protease Assay Kit</b>  | • 967<br>• 968   | These probes interact with active catalytic sites of chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.   | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options                                   |

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|--------------------------|-----------------------------------|--|--------------|---|---|
| APOPTOSIS<br>(continued) | Serine<br>Protease<br>(continued) | <b>Green<br/>Fluorescent<br/>FAM-Phe-<br/>CMK Serine<br/>Protease<br/>Assay Kit</b>            | •945<br>•946 | These probes covalently bind to the catalytic sites of active chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.        | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options   |
|                          |                                   | <b>Green<br/>Fluorescent<br/>FAM-Phe-<br/>DAP Serine<br/>Protease<br/>Assay Kit</b>            | •984<br>•985 | These probes covalently bind to the catalytic sites of active chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.        | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options   |
|                          |                                   | <b>Green<br/>Fluorescent<br/>FAM-Spacer-<br/>Leu-CMK<br/>Serine<br/>Protease<br/>Assay Kit</b> | •965<br>•966 | These probes covalently bind to the catalytic sites of active chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.        | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options   |
|                          |                                   | <b>Green<br/>Fluorescent<br/>FAM-Spacer-<br/>Phe-CMK<br/>Serine<br/>Protease<br/>Assay Kit</b> | •963<br>•964 | These probes covalently bind to the catalytic sites of active chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.        | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options   |
|                          |                                   | <b>Red<br/>Fluorescent<br/>SR101-Leu-<br/>CMK Serine<br/>Protease<br/>Assay Kit</b>            | •955<br>•956 | These probes covalently bind to the catalytic sites of active chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.        | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options; Red fluorescent label can be combined with green labeled fluors in multi-parametric analyses |
|                          |                                   | <b>Red<br/>Fluorescent<br/>SR101-Phe-<br/>CMK Serine<br/>Protease<br/>Assay Kit</b>            | •951<br>•952 | These probes covalently bind to the catalytic sites of active chymotrypsin-like proteases, labeling cells with greater quantities of active chymotrypsin-like enzyme activity with a greater fluorescence potential than those that are not upregulated. Analyze your samples using a flow cytometer, fluorescence microscope, or fluorescence plate reader.        | Quantitative detection of chymotrypsin-like proteases in whole cells; Sensitive; Cell-permeant; Live cell detection method; Multiple analysis options; Red fluorescent label can be combined with green labeled fluors in multi-parametric analyses |
|                          |                                   | <b>Tumor<br/>Necrosis<br/>Factor alpha</b>   | •6213        | Tumor Necrosis Factor-Alpha (TNF- $\alpha$ ), also known as TNF ligand superfamily member 2 (TNFSF2) and cachectin, is a human recombinant protein that can be used in a variety of applications including cytotoxicity, cell proliferation assays, apoptosis, and viral protection. This product is best used for inducing apoptosis to create a positive control. | Sterile; Human; Recombinant; Lyophilized for long-term stability  |
|                          |                                   | <b>Tumor<br/>Necrosis<br/>Factor beta</b>  | •6214        | Tumor Necrosis Factor - Beta (TNF- $\beta$ ), also known as lymphotoxin-alpha is a human recombinant protein that can be used in a variety of applications including cytotoxicity, cell proliferation assays, and apoptosis. This product is best used for inducing apoptosis to create a positive control.   | Sterile; Human; Recombinant; Lyophilized for long-term stability  |

| CATEGORY   | SUBCATEGORY      | PRODUCT                                      | CATALOG #                                     | DESCRIPTION  | ADVANTAGES  |
|------------|------------------|--|---|--|---|
| AUTOPHAGY  | Autophagy        | Autophagy Assay, Red Fluorescent             | •9156<br>•9157                                | ICT's Autophagy Assay, Red enables researchers to detect and monitor the <i>in vitro</i> development of autophagy in living cells. The Autophagy Probe is cell-permeant and fluoresces red when inserted in the lipid membranes of autophagosomes and autolysosomes. Results can be read using a flow cytometer.   | Fast and quantitative detection of autophagy in whole cells; No transfection required   |
|            |                  | Magic Red® Fluorescent Cathepsin B Assay     | •937<br>•938                                  | The cell-membrane permeant Magic Red Fluorescent Cathepsin B substrate in this assay contains the preferred Arg-Arg (RR) cathepsin-B dipeptide targeting sequence. It fluoresces red upon cleavage by active cathepsin enzymes. Analyze the fluorescent signal using fluorescence microscopy or a fluorescence plate reader.   | Substrate-based assay; Dynamic; Red fluorescence increases in proportion to cathepsin activity in whole cells   |
| CATHEPSINS | Cathepsin B      | Cathepsin B                                  | •6202   | Cathepsin B purified from human liver tissue is best used to study enzyme kinetics, cleave target substrates, and screen for inhibitors.   | Highly pure lysosomal protease; ≥95% (SDS-PAGE)   |
|            |                  | Green Fluorescent Cathepsin B Assay          | •9151<br>•9152                                | The Green Fluorescent Cathepsin B Assay contains Rhodamine 110 Cathepsin B Substrate, which is a non-cytotoxic and cell membrane permeant substrate that fluoresces green upon cleavage by active cathepsins. To use Rhodamine 110-(RR)2, add the substrate directly to the cell culture medium, incubate, and analyze. Because the substrate is cell permeant, it easily penetrates the cell membrane and the membranes of the internal cellular organelles – no lysis or permeabilization steps are required. If active cathepsin enzymes are present, the quenched Rhodamine 110-(RR)2 substrate is cleaved, resulting in an increase in green fluorescence signal. Samples can be analyzed by flow cytometry or fluorescence microscopy. Hoechst 33342 is included in the kit to label nuclei. | Substrate-based assay; Dynamic; Green fluorescence increases in proportion to cathepsin activity in whole cells   |
|            |                  | Native Human Cathepsin D                     | •6203   | A ubiquitous lysosomal aspartyl protease that functions in protein degradation and apoptosis. This product is best used to study enzyme kinetics, cleave target substrates, and screen for inhibitors.   | Highly pure lysosomal protease; ≥95% (SDS-PAGE); Lyophilized  |
|            | Cathepsin K      | Magic Red® Fluorescent Cathepsin K Assay Kit | •939<br>•940                                  | The cell-membrane permeant Magic Red Cathepsin K substrate contains the preferred Leu-Arg (LR) cathepsin-K dipeptide targeting sequence. It fluoresces red upon cleavage by active cathepsin enzymes. Analyze the fluorescent signal using fluorescence microscopy or a fluorescence plate reader.   | Substrate-based assay; Dynamic; Red fluorescence increases in proportion to cathepsin activity in whole cells; Cell-permeant  |
|            | Cathepsin L      | Magic Red® Fluorescent Cathepsin L Assay Kit | •941<br>•942                                  | The cell-membrane permeant Magic Red Cathepsin L substrate contains the preferred Phe-Arg (FR) cathepsin-L dipeptide targeting sequence. It fluoresces red upon cleavage by active cathepsin enzymes. Analyze the fluorescent signal using fluorescence microscopy or a fluorescence plate reader.   | Substrate-based assay; Dynamic; Red fluorescence increases in proportion to cathepsin activity in whole cells; Cell-permeant  |
|            | CELLULAR IMAGING | Lysosome Stain                               | Acridine Orange Fluorescent Staining Solution | •6130  | Acridine Orange is used for fluorescence microscopy and flow cytometry analysis of cellular physiology and cell cycle status. This cell-permeant cellular stain can be utilized in conjunction with a number of other staining techniques and fluorogenic substrates including the Magic Red line of fluorogenic protease substrates. Acridine Orange is a useful bacteria stain for the fluorescent microscopic examination of microorganisms. |



| CATEGORY                     | SUBCATEGORY      | PRODUCT   | CATALOG # | DESCRIPTION   | ADVANTAGES  |
|------------------------------|------------------|---|-----------|---|---|
| CELLULAR IMAGING (continued) | Cell Label       | <b>CFSE Fluorescent Cellular Stain</b>              | • 6162    | 5-(and 6)-carboxyfluorescein diacetate, succinimidyl ester (5,6 CFDA,SE; CFSE), is a fluorogenic reagent which is frequently used in cell labeling and cell proliferation procedures. Non-fluorescent and moderately hydrophobic in its di-esterified form, 5,6 CFDA,SE easily penetrates lipid bi-layers of living cells and is quickly converted to the amine-reactive, green fluorescent form (CFSE) upon cleavage of the acetate groups by intracellular esterases. This highly fluorescent form is membrane-impermeant and is retained within the cells, while any excess CFSE probe is easily washed away in subsequent wash steps. | Stably labels cells via covalent coupling to intracellular molecules; Suitable for proliferation studies; Fluorescence is distributed equally between daughter cells following cell division  |
|                              | Nuclear Stain    | <b>DAPI Nuclear Stain</b>                           | • 6244    | DAPI is a blue fluorescent DNA stain that forms complexes with natural double-stranded DNA. Use it to detect DNA and visualize nuclear morphology.  | UV-excited; Cell-permeant; Stains live and fixed cells; Used extensively in fluorescence microscopy   |
|                              |                  | <b>Hoechst 33342 Fluorescent Nucleic Acid Stain</b> | • 639     | Hoechst 33342 nucleic acid stain is a popular cell-permeant nuclear counterstain that emits blue fluorescence when bound to dsDNA. This dye is often used to distinguish condensed pyknotic nuclei in apoptotic cells and for cell cycle studies.   | UV-excited; Cell-permeant; Stains live and fixed cells; Used extensively in fluorescence microscopy   |
|                              | Fixative         | <b>Fixative</b>                                     | • 636     | ICT's Fixative is a formaldehyde solution designed to cross-link intracellular components. It will not interfere with the fluorescent labels used on our fluorescent detection probes like FLICA, Magic Red, and FLISP.   | Preserves secondary structure of proteins and may protect tertiary structure as well; Preserves stained cells and tissues for up to 16 hours  |
| CYTO-TOXICITY                | Live/Dead Stains | <b>7-AAD Red Fluorescent Live/Dead Stain</b>        | • 6163    | 7-Aminoactinomycin D (7-AAD) is a red fluorescent chemical compound with a strong affinity for DNA. This live-cell impermeant vital dye intercalates in double-stranded DNA with a high affinity for GC-rich regions. 7-AAD does not pass through intact cell membranes, allowing it to be used as a cell viability dye. Alternatively, it may also be used to visualize or label all cells after fixation.   | Compatible with green and red emission reagents; Minimal spectral overlap with commonly used fluorescein isothiocyanate (FITC) and phycoerythrin (PE) labels  |
|                              |                  | <b>Green Live/Dead Stain</b>                        | • 6342    | Green Live/Dead Stain is a live-cell impermeant, green fluorescence-emitting DNA dye for viability, apoptosis and necrosis studies, and fixed cell nuclear counterstaining. This product binds to dsDNA/nuclei of necrotic or permeabilized cells and can be used in combination with live cell dyes for live/dead discrimination. Analyze samples using a flow cytometer or fluorescence microscope. DRAQ7 is a trademark of Biostatus.  | Penetrates only damaged cellular membranes; Excellent counterstain for DNA and chromatin - DNA intercalation amplifies fluorescence; Provided in a ready-to-use solution; Fast procedure -short incubation time and no washing needed       |
|                              |                  | <b>Propidium Iodide Stain</b>                       | • 638     | Propidium Iodide (PI) is an intercalating fluorescent agent that binds between the bases of DNA. Propidium Iodide is membrane impermeant, which prevents DNA binding in viable cells, allowing identification of dead cells in a population.  | Penetrates only damaged cellular membranes; Excellent counterstain for DNA and chromatin - DNA intercalation amplifies fluorescence; Provided in a ready-to-use solution; Fast procedure -short incubation time and no washing needed       |
|                              | Kits             | <b>Advanced Calcein AM Cell Viability Kit</b>       | • 9154    | Advanced Calcein AM Cell Viability Kit combines Calcein AM with 7-AAD to allow for easy and simultaneous labeling of live, membrane compromised, and dead cells within a single sample. Calcein AM is used to detect live cells, fluorescing green, while 7-AAD is used to detect necrotic or late-stage apoptotic cells, fluorescing red. Samples can be analyzed using a flow cytometer or fluorescence microscope.   | Versatile; Suitable for proliferating and non-proliferating cells, suspension and adherent cells; Two analysis options; Fast protocol- no washing needed; Simultaneous labeling of live and dead cells for complete cell viability analyses |

| CATEGORY                  | SUBCATEGORY      | PRODUCT   | CATALOG #                      | DESCRIPTION   | ADVANTAGES  |
|---------------------------|------------------|---|--------------------------------|---|---|
| CYTO-TOXICITY (continued) | Kits (continued) | <b>Basic Calcein AM Cell Viability Kit</b>                                      | •9153                          | Basic Calcein AM Cell Viability Kit allows researchers to easily and simultaneously differentiate between live and dead cells within a single sample. To use Calcein AM, simply add the reagent directly to the cell sample, incubate, and analyze. Samples can be analyzed using a flow cytometer, fluorescence plate reader, or fluorescence microscope.  | Versatile; Suitable for proliferating and non-proliferating cells, suspension and adherent cells; Multiple analysis options; Fast protocol- no washing needed   |
|                           |                  | <b>Cell-mediated Cytotoxicity Assay: Basic Cytotoxicity Test</b>                | •969<br>•970                   | Basic Cytotoxicity Assay is a single-tube, dual-color assay for determining cell-mediated cytolytic activity by flow cytometry. The assay employs a green fluorescent cellular stain, CFSE, to label target cells and the red live/dead viability dye 7-AAD to identify the dead cells present in the cytotoxicity assay samples. Analyze your results using a flow cytometer.  | Differentiates target and effector cells for more accurate detection of cytotoxicity; Includes detailed protocol and controls; Avoids exposure to radioactivity in 51Cr release assay   |
|                           |                  | <b>Cell-mediated Cytotoxicity Assay: Total Cytotoxicity Test</b>                | •971<br>•972                   | Total Cytotoxicity Assay is a single-tube, tri-color assay for quantitative assessment of cell-mediated cytolytic activity due to apoptosis and necrosis. The assay employs a green fluorescent cellular stain, CFSE, to label target cells green, the red live/dead viability dye, 7-AAD, to identify the dead cells present in the cytotoxicity assay samples, and the orange-red SR-FLICA reagent, SR-VAD-FMK, to measure caspase activity in the target cell population. Analyze your results using a flow cytometer. | Differentiates target and effector cells for more accurate detection of cytotoxicity; SR-FLICA is included for apoptosis detection, therefore total cytotoxicity can be calculated; Includes detailed protocol and controls; Avoids exposure to radioactivity in 51Cr release assay |
|                           |                  | <b>aCella-TOX</b>   | •CLATOX100-3<br>•CLATOX100-4   | aCella TOX is a bioluminescence, non-radioactive cytotoxicity assay designed to quantitatively measure the release of glyceraldehyde-3-phosphate dehydrogenase (GAPDH) from mammalian cell lines or bacterial cells. Analyze in a luminometer.  | Highly sensitive bioluminescent detection of GAPDH released from cells. Non-destructive.  |
|                           |                  | <b>aCella-TOX - with 5 Lumi plates</b>  | •CLATOX100-3L                  | aCella TOX is a bioluminescence, non-radioactive cytotoxicity assay designed to quantitatively measure the release of glyceraldehyde-3-phosphate dehydrogenase (GAPDH) from mammalian cell lines or bacterial cells. Analyze in a luminometer.  | Highly sensitive bioluminescent detection of GAPDH released from cells. Non-destructive.  |
|                           |                  | <b>aCella-TOX - with 5 Lumi plates + 5 TC plates</b>                            | •CLATOX100-3P                  | aCella TOX is a bioluminescence, non-radioactive cyto-toxicity assay designed to quantitatively measure the release of glyceraldehyde-3-phosphate dehydrogenase (GAPDH) from mammalian cell lines or bacterial cells. Analyze in a luminometer.   | Highly sensitive bioluminescent detection of GAPDH released from cells. Non-destructive. Kit comes 5 Lumi plates and 5 TC plates.   |
|                           |                  | <b>Flow Cytometry Cytotoxicity Assay</b>  | •ACT100-2                      | This kit requires no radioactive materials and detects cytolytic activity at a cellular level. It works with multiple types of mammalian cell lines. Analyze using a flow cytometer.  | Detects cytolytic activity at the cellular level.   |
|                           |                  | <b>Fluorescent Cell Proliferation Assay</b>                                     | •INDBLU100-3<br>•INNDBLU100-4  | Our Fluorescent Cell Proliferation Assay is a highly effective and stable assay for cell proliferation. An oxidation/reduction-based reagent quantitatively measures the reducing power of the cell. There is no need to wash out media from cell samples, just add the reagent directly to your experimental samples. It works for both cell viability and proliferation assays, and the plate can be read in 30 minutes to 3 hours.   | Can be used to measure both cell proliferation and cell viability. Reagent can be added directly to experimental samples. Measures reducing power of cells.   |
|                           |                  | <b>Fluorescent Cell Proliferation Assay - with 5 black clear bot-tom plates</b> | •INDBLU100-3P<br>•INDBLU100-4P | Our Fluorescent Cell Proliferation Assay is a highly effective and stable assay for cell proliferation. An oxidation/reduction-based reagent quantitatively measures the reducing power of the cell. There is no need to wash out media from cell samples, just add the reagent directly to your experimental samples. It works for both cell viability and proliferation assays, and the plate can be read in 30 minutes to 3 hours. This version of the kit is supplied with 5 black, clear bottom plates.              | Can be used to measure both cell proliferation and cell viability. Reagent can be added directly to experimental samples. Measures reducing power of cells. This version of the kit comes with 5 black, clear bottom plates.  |

| CATEGORY                       | SUBCATEGORY      | PRODUCT  | CATALOG#   | DESCRIPTION  | ADVANTAGES  |
|--------------------------------|------------------|--|--|--|---|
| METABOLIC AND ENZYMATIC ASSAYS | Metabolic Assays | <b>Fluorescent ADP Detection Kit</b>               | <ul style="list-style-type: none"> <li>• FLADP100-2</li> <li>• FLADP100-3</li> </ul>   | Our Fluorescent ADP Detection Kit provides a reliable, sensitive fluorometric assay for the quantification of ADP in biological samples. It can detect of ADP in cells or tissue extracts as well as bacterial, fungal and plant cells. Can provide ADP measurement for ADP-consuming enzymes such as ADPases.   | Compatible with various sample types. Can be used in kinetic and end-point modes.   |
|                                |                  | <b>Fluorescent ATP Detection Kit</b>               | <ul style="list-style-type: none"> <li>• FLATP100-2</li> <li>• FLATP100-3</li> </ul>   | Our Fluorescent ATP Detection Kit provides a reliable, sensitive fluorometric assay for the quantification of ATP in biological samples. It can detect of ATP in cells or tissue extracts as well as bacterial, fungal and plant cells. Can provide measurement for ATP consuming enzymes such as kinases and ATPases.   | Compatible with various sample types. Can be used in kinetic and end-point modes.   |
|                                |                  | <b>Fluorescent Total Cholesterol Detection Kit</b> | <ul style="list-style-type: none"> <li>• FLCHOL100-2</li> </ul>                        | Our Fluorescent Total Cholesterol kit is a simple one-step assay which can be used either as a fluorometric or colorimetric assay to help detect the level of total cholesterol in samples. Used to study the effect of drugs on cholesterol metabolism, it is highly sensitive and detects up to 200 nM of cholesterol.   | Simple and sensitive detection of total cholesterol using cholesterol esterase and cholesterol oxidase. Can be used fluorometrically or colorimetrically.   |
|                                |                  | <b>Fluorescent Lactate Detection Kit</b>           | <ul style="list-style-type: none"> <li>• FLLACT100-2</li> </ul>                        | Our Fluorescent Lactate assay provides a reliable, sensitive fluorometric method for the quantification of lactate in biological samples such as serum, plasma, urine, and tissue extracts. It is highly effective and stable fluorescent assay for L-lactate. A simple and fast assay - the reagent can be added directly to your experimental samples, and the plate can be incubated and read in 15-30 min. | Simple and rapid assay. Suitable for use with many sample types.  |
|                                |                  | <b>Fluoro NAD/NADH Detection Kit</b>               | <ul style="list-style-type: none"> <li>• FLNADH100-2</li> <li>• FLNADH100-3</li> </ul> | Our Fluoro NAD/NADH assay can be used for the detection of NAD/NADH content in cells or tissue extracts including NAD/NADH levels in apoptosis, metabolism, proliferation, DNA repair, senescence, endocrine signaling and life span. It can also detect NAD/NADH in bacterial, fungal and plant cells.  | Specific for NAD/NADH. No reactivity with NADP/NADPH.   |
|                                |                  | <b>Fluorescent NADP/NADPH Detection Kit</b>        | <ul style="list-style-type: none"> <li>• NADPH100-2</li> <li>• NADPH100-3</li> </ul>   | Use this kit for the detection of NADP/NADPH content in cells or tissue extracts. It detects NADP/NADPH levels in antioxidation, oxidative stress, cell death, energy metabolism, and mitochondria function. It is species independent, working in bacterial, fungal, and plant cells. Highly sensitive and specific, our kit can detect up to 4 nM NADP and NADPH, and no cross reactivity with NAD/NADH.     | Highly sensitive. Specific for NADP/NADPH. No reactivity with NAD/NADH.   |
|                                |                  | <b>Fluorescent Phosphate Detection Kit</b>         | <ul style="list-style-type: none"> <li>• FLPHOS100-2</li> </ul>                        | Our Fluorescent Phosphate Detection Kit is used for quantitation of the phosphate anion in blood, plasma, and serum samples. The kit is highly sensitive and can detect up to 200 nM phosphate.  | Simple, one-step assay. Highly sensitive.   |
|                                |                  | <b>Fluorescent Sarcosine Detection Kit</b>         | <ul style="list-style-type: none"> <li>• SARC100-2</li> </ul>                          | Our Fluorescent Sarcosine kit is easy to use. It is a no-wash assay that can detect sarcosine in cells, serum, tissue extracts.  | Simple, no-wash assay suitable for use with many sample types.  |
|                                |                  | <b>Ultra Pure ADP</b>                              | <ul style="list-style-type: none"> <li>• ADP100-2</li> <li>• ADP100-3</li> </ul>       | Our ADP is purified to remove trace ATP contaminants. It is 99.9% pure and is perfect for bioluminescence assays.  | Highly purified to improve assay sensitivity and reduce background signal.  |
|                                |                  | <b>Fluorescent Cell Proliferation Assay</b>        | <ul style="list-style-type: none"> <li>• INDBLU100-3</li> <li>• INDBLU100-4</li> </ul> | Our Fluorescent Cell Proliferation Assay is a highly effective and stable assay for cell proliferation. There is no need to wash out media from cell samples, just add the reagent directly to your experimental samples. It works for both cell viability and proliferation assays, and the plate can be read in 30 minutes to 3 hours.   | Can be used to measure both cell proliferation and cell viability. Reagent can be added directly to experimental samples. Measures reducing power of cells. |

| CATEGORY                                   | SUBCATEGORY                  | PRODUCT  | CATALOG #   | DESCRIPTION   | ADVANTAGES   |
|--|------------------------------|--|---|---|--|
| METABOLIC AND ENZYMATIC ASSAYS (continued) | Metabolic Assays (continued) | Fluorescent Cell Proliferation Assay (with 5 black clear bottom plates)                                  | <ul style="list-style-type: none"> <li>• INDBLU100-3P</li> <li>• INDBLU100-4P</li> </ul>                      | Our Myeloperoxidase Detection Kit can monitor multiple time points to follow kinetics. It is a one-step, no wash assay, that is adaptable for high throughput format and is highly sensitive  | Simple, one-step, no-wash assay. Highly sensitive. High throughput adaptable.                              |
|  | Enzymatic Assays             | Eosinophil Peroxidase Detection Kit  | • FLEPO100-2  | Our Myeloperoxidase Detection Kit can monitor multiple time points to follow kinetics. It is a one-step, no wash assay, that is adaptable for high throughput format and is highly sensitive  | Simple, one-step, no-wash assay. Highly sensitive. High throughput adaptable.                              |
|  |                              | Myeloperoxidase Detection Kit  | • FLMPO100-3  | Our Eosinophil Peroxidase Detection Kit can monitor multiple time points to follow kinetics. It is a one-step, no wash assay, that is adaptable for high throughput format and is highly sensitive  | Simple, one-step, no-wash assay. Highly sensitive. High throughput adaptable.                              |
|  |                              | Fluorescent Monoamine Oxidase Detection Kit  | • FLMAO100-3  | Our Fluoro MAO assay is non-radioactive and can monitor multiple time points to follow kinetics. It is a one-step, no wash assay, that is adaptable for high throughput format and is highly sensitive.   | Simple, one-step, no-wash assay. Highly sensitive. High throughput adaptable.                              |
|  |                              | Fluoro Catalase Activity Detection Kit   | • FLOCAT100-3   | Fluoro Catalase is a sensitive fluorescent assay that can monitor multiple time points to follow kinetics. It is a one-step, no wash assay, that is adaptable for high throughput format. An enzyme positive control included in the kit.   | Simple, one-step, no-wash assay. High throughput adaptable. Measures residual hydrogen peroxide substrate. |
|  |                              | Fluorescent Semicarbazide-Sensitive Amine Oxidase Detection Kit  | • SSAO100-3   | Our Fluorescent Semicarbazide-Sensitive Amine Oxidase Detection Kit is a non-radioactive assay that monitors enzymatic activity across multiple time points to follow kinetics. It is a one-step, no wash assay, that is adaptable for high throughput format. An enzyme positive control included in the kit.          | Simple, one-step, no-wash assay. Enzyme positive control supplied with the kit.                            |
|  |                              | Fluoro AChE - a fluorescence assay for monitoring and detecting acetylcholinesterase activity in samples | <ul style="list-style-type: none"> <li>• AChE100-2</li> <li>• AChE100-3</li> </ul>                            | This non-radioactive assay can monitor multiple time points to follow kinetics. It is a one-step, no wash assay with versatile uses: It can detect acetylcholine esterase activity in red blood cells, saliva, and tissue lysates.  | Simple, one-step, no-wash assay. Suitable for use with a range of samples.                                 |
|  |                              | Chlorination and Oxidation Detection Kit   | • MPOHOCL100-3  | This kit can monitor multiple time points to follow kinetics. This is a one-step, no wash assay that is adaptable for high-throughput format and is highly sensitive. The detection reagent is converted to its fluorescent form in the presence of HOCl.   | Simple, one-step, no-wash assay. High throughput adaptable.  |
|  |                              | Bioluminescent Acetylcholinesterase Assay Kit  | <ul style="list-style-type: none"> <li>• CLACHE100-2</li> <li>• CLACHE100-3</li> <li>• CLACHE100-4</li> </ul> | This safe, non-radioactive enzyme activity assay has many uses including nerve gas, pesticide monitoring, and drug screening applications. Get quick and easy results with a homogenous, one-step, no wash assay that only takes 30 secs - 5 minutes. It is highly sensitive and adaptable for high throughput formats. | Rapid and extremely sensitive assay. High throughput adaptable. Uses the natural substrate, acetylcholine. |

| CATEGORY          | SUBCATEGORY           | PRODUCT  | CATALOG #  | DESCRIPTION  | ADVANTAGES   |
|-------------------|-----------------------|--|--|--|--|
| MITOCH-<br>ONDRIA | Membrane<br>Potential | JC-1<br>Fluorescent<br>Mitochondrial<br>Membrane<br>Depolarization<br>Assay          | <ul style="list-style-type: none"> <li>• 924</li> <li>• 911</li> </ul>                 | JC-1 accumulates and fluoresces orange in polarized mitochondria. Following membrane depolarization, JC-1 disperses within the cell and fluoresces green. Analyze samples using a flow cytometer, fluorescence plate reader, or fluorescence microscope.   | Dual wavelength emission. Fluoresces orange when concentrated in healthy mitochondria. Displays green fluorescence when dispersed throughout the cell following mitochondrial membrane depolarization. |
|                   |                       | TMRE - Orange<br>Fluorescent<br>Mitochondrial<br>Membrane<br>Depolarization<br>Assay | <ul style="list-style-type: none"> <li>• 9103</li> </ul>                               | TMRE accumulates and fluoresces orange in polarized mitochondria. Fluorescence drops dramatically on depolarization in apoptotic or metabolically stressed cells. Analyze using a flow cytometer, fluorescence plate reader, or fluorescence microscopy.   | Rhodamine-based. Emits fluorescence (orange) at a single wavelength when concentrated in healthy mitochondria.   |
|                   |                       | TMRM - Orange<br>Fluorescent<br>Mitochondrial<br>Membrane<br>Depolarization<br>Assay | <ul style="list-style-type: none"> <li>• 9105</li> </ul>                               | TMRM accumulates and fluoresces orange in polarized mitochondria. Fluorescence drops dramatically on depolarization in apoptotic or metabolically stressed cells. Analyze using a flow cytometer, fluorescence plate reader, or fluorescence microscopy.   | Rhodamine-based. Emits fluorescence (orange) at a single wavelength when concentrated in healthy mitochondria.   |
|                   |                       | Mito Flow -<br>Mitochondrial<br>membrane<br>potential<br>detection kit               | <ul style="list-style-type: none"> <li>• FLO200-2</li> <li>• FLO200-3</li> </ul>       | Mito Flow is a cell permeable, easy, one-color assay for flow cytometry. It can be used with both suspension and monolayer adherent cell lines and is adaptable for high throughput format. Compatible with other antibodies or stains such as fluorescent protein expression vectors.   | Cell-permeable reagent. Compatible with other antibodies or stains such as fluorescent protein expression vectors.   |
|                   |                       | Dual Poly<br>Caspase and<br>Mitochondrial<br>Membrane<br>Potential Assay<br>Kit      | <ul style="list-style-type: none"> <li>• MITCAP100-1</li> <li>• MITCAP100-2</li> </ul> | The Dual Caspase and Mitochondrial Membrane Potential Detection Kits utilize a cationic dye to visualize mitochondrial membrane potential and caspase activity simultaneously. The kits yields quantitative and qualitative results and can be used in conjunction with other antibodies or stains. The reagents are cell permeable. Active poly caspase activity is detected with the caspase probe FAM-VAD-FMK which binds irreversibly to active caspases | Cell-permeable. Enable simultaneous measurement of mitochondrial membrane potential and caspase activity.  |
|                   |                       | Dual Caspase<br>3/7 &<br>Mitochondrial<br>Membrane<br>Potential Assay<br>Kit         | <ul style="list-style-type: none"> <li>• MITCAP200-1</li> <li>• MITCAP200-2</li> </ul> | The Dual Caspase and Mitochondrial Membrane Potential Detection Kits utilize a cationic dye to visualize mitochondrial membrane potential and caspase activity simultaneously. The kits yields quantitative and qualitative results and can be used in conjunction with other antibodies or stains. The reagents are cell permeable. Active caspase 3/7 is detected with the caspase probe FAM-DEVD-FMK which binds irreversibly to active caspase 3/7.      | Cell-permeable. Enable simultaneous measurement of mitochondrial membrane potential and caspase 3/7 activity.  |
|                   |                       | Dual Caspase<br>1 and<br>Mitochondrial<br>Membrane<br>Potential Assay<br>Kit         | <ul style="list-style-type: none"> <li>• MITCAP600-1</li> <li>• MITCAP600-2</li> </ul> | The Dual Caspase and Mitochondrial Membrane Potential Detection Kits utilize a cationic dye to visualize mitochondrial membrane potential and caspase activity simultaneously. The kits yields quantitative and qualitative results and can be used in conjunction with other antibodies or stains. The reagents are cell permeable. Active caspase-1 is detected with the caspase probe FAM-YVAD-FMK which binds irreversibly to active caspase-1.          | Cell-permeable. Enable simultaneous measurement of mitochondrial membrane potential and caspase 1 activity.  |

| CATEGORY         | SUBCATEGORY                       | PRODUCT                                      | CATALOG#         | DESCRIPTION  | ADVANTAGES   |
|------------------|-----------------------------------|--|------------------|--|--|
| OXIDATIVE STRESS | ELISA/<br>Biochemical Assay-Based | DNA Damage ELISA Kit                         | • 9143           | Quantify 8-OHdG in urine, cell culture, plasma and other sample matrices using ICT's DNA Damage (8-OHdG) ELISA Kit. This kit offers a quick incubation time, stable reagents, and a user-friendly protocol. Analyze results using an absorbance plate reader.  | Detects all 3 oxidized guanine species for more complete picture of oxidative damage (8-hydroxy-2-deoxyguanosine, 8-hydroxyguanosine, and 8-hydroxyguanine). |
|                  |                                   | Glutathione Colorimetric Detection Kit       | • 9135           | Quantitatively measure glutathione (GSH) and oxidized glutathione (GSSG) present in a variety of samples, including whole blood, serum, plasma, erythrocytes, urine, cell lysates, and tissue samples. Analyze the absorbance colorimetric signal by spectrophotometer.  | Versatile; Multi-species; Compatible with a multiple sample types.   |
|                  |                                   | Glutathione Fluorescent Detection Kit        | • 9133<br>• 9134 | ICT's Glutathione Fluorescent Detection Kit is designed to quantitatively measure reduced state glutathione (GSH), and oxidized state glutathione (GSSG) present in a variety of samples. Sample types validated include: human whole blood; serum; EDTA and heparin plasma; urine; and isolated erythrocytes. Most cell lysates and tissue homogenates should also be compatible.   | Versatile; Multi-species; Compatible with multiple sample types; Increased sensitivity compared to #9135   |
|                  |                                   | Hydrogen Peroxide Colorimetric Detection Kit | • 9132           | ICT's Hydrogen Peroxide Colorimetric Detection Kit allows you to quantitatively measure H <sub>2</sub> O <sub>2</sub> in a variety of samples. This kit is validated for use in fresh urine, buffers, and tissue culture media. This kit is species independent.   | Versatile; Multi-species; Compatible with a multiple sample types.   |
|                  |                                   | Hydrogen Peroxide Fluorescent Detection Kit  | • 9131           | ICT's Hydrogen Peroxide Fluorescent Detection Kit is designed to quantitatively measure H <sub>2</sub> O <sub>2</sub> in a variety of samples. This kit is validated for use in fresh urine, buffers, and tissue culture media samples. It is species independent.   | Versatile; Multi-species; Compatible with multiple sample types; Increased sensitivity compared to #9132.  |
|                  |                                   | Nitric Oxide Colorimetric Detection Kit      | • 9136           | ICT's flexible Nitric Oxide Colorimetric Detection Kit offers two assay capabilities. The first assay allows you to quantitatively measure endogenous Nitrite. In the second assay, Nitrate is converted to Nitrite using Nitrate Reductase and Total Nitric Oxide is measured. Nitrate concentration can be calculated by performing both assays.   | Versatile; Multi-species; Compatible with a multiple sample types.   |
|                  | Cell-Based Assays                 | Intracellular GSH Assay                      | • 9137           | ICT's Intracellular Total ROS Activity Assay provides a good screening option for assessing the potency of oxidative stress inhibitor and activator reagents, and will help to determine how oxidative stress modulates varied intracellular pathways. This product assesses the overall level of intracellular ROS activity and can be analyzed using a flow cytometer.   | Optimized for flow cytometry; Suitable for suspension and adherent cells; Cell-permeant; Sensitive; Fast protocol- no washing needed.                        |
|                  |                                   | Intracellular Total ROS Activity Assay       | • 9144           | ICT's Intracellular Total ROS Activity Assay provides a good screening option for assessing the potency of oxidative stress inhibitor and activator reagents, and will help to determine how oxidative stress modulates varied intracellular pathways. This product assesses the overall level of intracellular ROS activity and can be analyzed using a flow cytometer.   | Optimized for flow cytometry; Suitable for suspension and adherent cells; Cell-permeant; Sensitive; Fast protocol- no washing needed                         |
|                  |                                   | Nitric Oxide Synthase Assay                  | • 9155           | ICT's Nitric Oxide Synthase Assay provides a good screening option for assessing the potency of nitrosative stress inhibitor and activator reagents, and will help to determine how oxidative and nitrosative stress modulates varied intracellular pathways. This kit assesses the overall intracellular levels of free nitric oxide and NOS using a Diaminofluorescein-2 Diacetate (DAF-2DA) dye. Results can be analyzed using a flow cytometer, fluorescence plate reader, or fluorescence microscope. | Versatile; Suitable for suspension and adherent cells; Multiple analysis options; Fast protocol- minimal procedural steps and hands on time.                 |

| CATEGORY         | SUBCATEGORY                   | PRODUCT   | CATALOG#         | DESCRIPTION   | ADVANTAGES  |
|------------------|-------------------------------|---|------------------|---|---|
| OXIDATIVE STRESS | Cell-Based Assays (continued) | Highly Reactive Oxygen Species (hROS) Detection Kit       | • FLAPF100-2     | Quenched cell permeable dye. One step, no-wash, homogenous assays. Adaptable to high throughput assay platforms. Can monitor multiple time points to follow real time kinetics. Non-destructive cell-based assay allows monitoring of additional parameters.  | Cell-permeable dye. Can be used to detect hydroxyl radical, peroxynitrite and hypochlorite production. Little reactivity towards other ROS.                                 |
|                  |                               | Peroxynitrite Detection Kit                               | • FLHPF100-2     | Quenched cell permeable dye. One step, no-wash, homogenous assays. Adaptable to high throughput assay platforms. Can monitor multiple time points to follow real time kinetics. Non-destructive cell-based assay allows monitoring of additional parameters.  | Cell-permeable. Penetrates the blood-brain-barrier. Little reactivity with hypochlorite, singlet oxygen, superoxide, hydrogen peroxide, nitric oxide and alkyl peroxide.    |
|                  |                               | Fluorescent Hypochlorite Detection Kit                    | • FLOCL100-2     | Quenched cell permeable dye. One step, no-wash, homogenous assays. Adaptable to high throughput assay platforms. Can monitor multiple time points to follow real time kinetics. Non-destructive cell-based assay allows monitoring of additional parameters.  | Two cell permeable dyes used to measure hypochlorite production in cells. Non-destructive.  |
|                  |                               | Hydrogen Peroxide Detection / Peroxidase Detection Kit    | • FLOH100-3      | Quick 10-minute assay. Can monitor multiple time points to follow kinetics. Dual mode can detect H2O2 or peroxidase activity. One-step, no wash assay. Adaptable for high throughput format. Non-destructive cell-based assay allows monitoring of additional parameters.   | Can be used to measure hydrogen peroxide production in cells or enzyme coupled reactions.   |
| PYROPTOSIS       | Caspase-1                     | Green Fluorescent FAM-FLICA® Caspase-1 (YVAD) Assay Kit   | • 97<br>• 98     | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-1 inhibitor probe, FAM-YVAD-FMK. This probe contains the preferred tetrapeptide caspase-1 targeting sequence (YVAD) that enables the detection of active caspase-1 enzyme in living cells. Analyze samples using fluorescence microscopy, a fluorescence plate reader, or flow cytometry.                              | Identifies inflammasome activation and pyroptosis in whole cells; Sensitive; Cell-permeant; Accurate  |
|                  |                               | Far-Red Fluorescent FLICA® 660 Caspase-1 (YVAD) Assay Kit | • 9122           | This <i>in vitro</i> assay employs the fluorescent cell-membrane permeant, caspase-1 inhibitor probe, 660-YVAD-FMK. This probe contains the preferred tetrapeptide caspase-1 targeting sequence (YVAD) that enables the detection of active caspase-1 enzyme in living cells. Analyze the fluorescent signal using fluorescence microscopy or flow cytometry.   | Identifies inflammasome activation and pyroptosis in whole cells; Sensitive; Cell-permeant; Accurate; Far-red emission can be easily combined with green emission reagents  |
|                  |                               | Pyroptosis/Caspase-1 Assay - Green Fluorescent            | • 9145<br>• 9146 | ICT's Pyroptosis/Caspase-1 Assay Kit utilizes our popular FLICA technology to detect caspase-1 activation. Using this kit, researchers can easily assess pyroptotic cells and utilize nigericin as a positive control. Analyze the green fluorescent signal using fluorescence microscopy, a fluorescence plate reader, or by flow cytometry.   | Identifies inflammasome activation and pyroptosis in whole cells; Sensitive; Cell-permeant; Accurate.   |
|                  |                               | Pyroptosis/Caspase-1 Assay - Far Red Fluorescent          | • 9158           | This kit utilizes the far red, cell-permeant FLICA reagent, 660-YVAD-FMK, for the <i>in vitro</i> detection of caspase-1 in whole living cells. 660-YVAD-FMK enters each cell and irreversibly binds to activated caspase-1. Because 660-YVAD-FMK becomes covalently coupled to the active enzyme, it is retained within the cell, while any unbound reagent diffuses out of the cell and is washed away. | Identifies inflammasome activation and pyroptosis in whole cells; Sensitive; Cell-permeant; Accurate; Far-red emission can be easily combined with green emission reagents. |
|                  | Pyroptosis Inducing Agent     | Nigericin   | • 6698           | Nigericin is a potent microbial toxin that acts as a potassium ionophore, inducing a net decrease in intracellular levels of potassium. This is critical for the oligomerization of the NLRP3 inflammasome and activation of caspase-1 in pyroptosis. Nigericin can be used as a positive control in pyroptosis experiments.  | High purity; ≥98%; Lyophilized for long-term stability.   |

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