GFP-CERTIFIED® Apoptosis/Necrosis Detection kit

Multiplex assay that distinguishes between healthy, early apoptotic, late apoptotic and necrotic cells, compatible with GFP and other fluorescent probes (blue or cyan)

Enzo Life Sciences GFP-CERTIFIED® Apoptosis/Necrosis Detection Kit includes all the necessary reagents for determination of early and late stages of apoptosis as well as necrosis. An Annexin V-EnzoGold (enhanced Cyanine-3) conjugate enables the detection of externalized phosphatidylserine (PS) (a marker of early apoptosis) distinct from fluorescein or GFP signals. The Necrosis Detection Reagent (Red), similarly to the red-emitting dye 7-AAD, diffuses into dead or damaged cells and binds to the DNA. Both Apoptosis Detection Reagent and Necrosis Detection Reagent are excluded from live cells with intact membranes. This kit also includes an Apoptosis Inducer (Staurosporine) for use as a positive control.

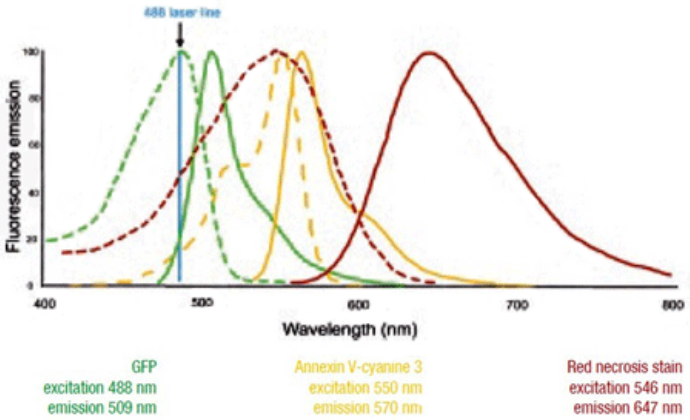
Citations: 84 View Online »

Ordering Information Order Online »

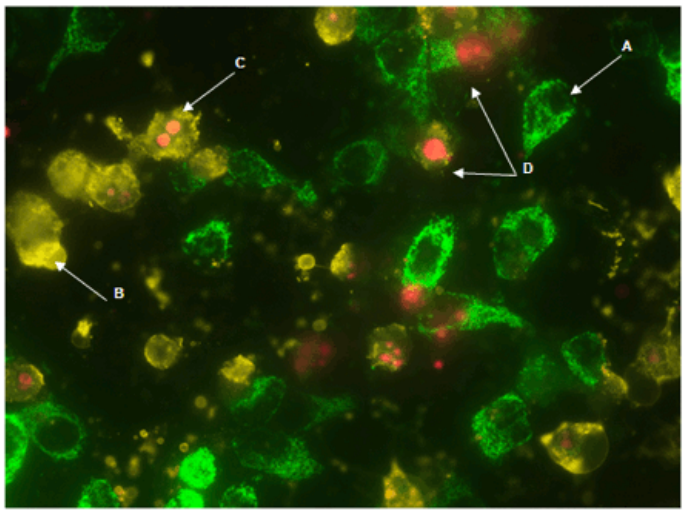
ENZ-51002-25	25 assays
ENZ-51002-100	100 assays

Manuals, SDS & CofA View Online »

- Specifically designed for use with GFP-expressing cell lines and cells expressing blue or cyan fluorescent proteins (BFPs, CFPs)
- Readily distinguishes between healthy, early apoptotic, late apoptotic and necrotic cells
- Optimized for both fluorescence microscopy and flow cytometry applications
- Suitable for death pathway analysis and drug/toxin studies
- Suitable for use with live or post-fixed cells



Excitation (hatched) and emission (solid) spectra for GFP, Annexin V-Cyanine 3 conjugate and Necrosis Detection Reagent (Red). All three dyes are readily excited with a 488nm laser source. The emission maxima of all fluorophores are well separated from one another.



GFP-CERTIFIED Apoptosis/Necrosis Detection Kit (ENZ-51002) detects four distinct cell states. Mitochondrial GFP-expressing HeLa cells were treated with 2µM Staurosporine for 4 hours. The Apoptosis Detection Reagent (Gold) and Necrosis Detection Reagent (Red) specifically detect cell states with clear spectral separation from mitochondria-associated GFP signal. Healthy cells (A), cells undergoing apoptosis (B), cells undergoing late-stage apoptosis (C), and necrotic cells (D).

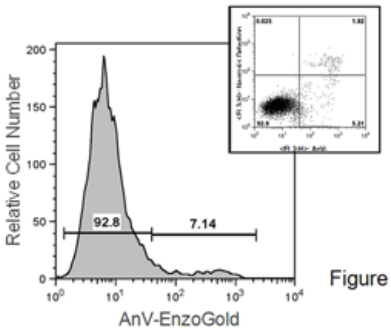


Figure 1A

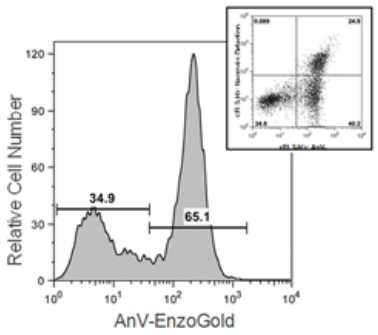
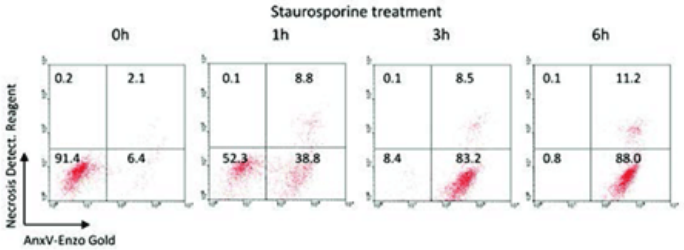


Figure 1B

FLOW CYTOMETRY. Jurkat cells were mocked-induced with 0.2% DMSO (panel A) or induced with 2uM Staurosporine (panel B) for 4 hrs. at 37°C. After treatment, cells were incubated with a buffer containing Annexin V-Cyanine 3 and the Necrosis Detection Reagent (Red), a far red emitting DNA-intercalating dye, then analyzed by flow cytometry using a 488nm laser with fluorescence detection with FL2 (Apoptosis Detection Reagent) and FL3 (Necrosis Detection Reagent) channels. Mock-induced cells were primarily negative for apoptosis and necrosis. After a 4 hour treatment there were three populations of cells: (1) cells that were viable and not apoptotic or necrotic (Annexin V-Cyanine 3 and Necrosis Detection Reagent negative); (2) cells undergoing apoptosis (Annexin V-cyanine 3 positive and NDR negative); and (3) cells undergoing late-stage apoptosis and early necrosis (Annexin V-Cyanine 3 and Necrosis Detection Reagent positive).



Jurkat cells stimulated with 2.5 µM Staurosporine for 0-6 h. Flow cytometry results using Jurkat suspension cells, showing early apoptotic (Annexin V-EnzoGold) and late apoptotic/necrosis (Annexin V-EnzoGold and necrosis stain).

Handling & Storage

Use/Stability	Store the Annexin V-EnzoGold and Binding Buffer at 4°C. Store all other reagents at -20°C. Reconstituted inducer (staurosporine) should be stored at -20°C. Refer to manual.
Handling	Protect from light.
Short Term Storage	+4°C
Shipping	Blue Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Phosphatidylserine (PS)/DNA stain
Application	Flow Cytometry, Fluorescence microscopy, Fluorescent detection
Contents	Apoptosis Detection Reagent (Annexin V-EnzoGold) Necrosis Detection Reagent Apoptosis Inducer (Staurosporine) Binding Buffer (10X)
Technical Info / Product Notes	**Application Note:** *Image-Based Analysis of a Human Neurosphere Stem Cell Model for the Evaluation of Potential Neurotoxicants* **Cited samples:** *For an overview on cited samples please click here.*

Last modified: May 29, 2024

ENZO LIFE SCIENCES, INC.
Phone: 800.942.0430
info-usa@enzolifesciences.com

European Sales Office
ENZO LIFE SCIENCES (ELS) AG
Phone: +41 61 926 8989
info-eu@enzolifesciences.com

Belgium, The Netherlands & Luxembourg
Phone: +32 3 466 0420
info-be@enzolifesciences.com

France
Phone: +33 472 440 655
info-fr@enzolifesciences.com

Germany
Phone: +49 7621 5500 526
info-de@enzolifesciences.com

UK & Ireland
Phone (UK customers): 0845 601 1488
Phone: +44 1392 825900
info-uk@enzolifesciences.com