ROS-ID® ROS/RNS detection kit

Widely cited kit to measure reactive oxygen and nitrogen species in live cells by fluorescence microscopy

Enzo Life Sciences ROS-ID® ROS/RNS detection kit is designed to directly monitor real time reactive oxygen and/or nitrogen species (ROS/RNS) production in live cells using fluorescence microscopy. The kit includes three detection probes: NO Detection Reagent (Red, Ex/Em 650/670 nm), Oxidative Stress Detection Reagent (Green, Ex/Em 490/525 nm) for total ROS detection, and Superoxide Detection Reagent (Orange, Ex/Em 550/620 nm). It also includes the positive controls, pyocyanin and L-arginine, which are common inducers of ROS and NO production, respectively, as well as the negative controls, N-acetyl-L-cysteine and c-PTIO (common scavengers of ROS and NO, respectively). Through the combination of the three detection probes with a set of specific inhibitors and activators, this kit enables discrimination among superoxide, nitric oxide and peroxynitrite.

Free radicals and other reactive species play seminal roles in many psychological and pathophysiological processes. Once produced within a cell, free radicals can damage a wide variety of cellular constituents, including proteins, lipids and DNA. However, at lower concentrations these very same agents may serve as second messengers in cellular signaling. Information-rich methods are required to quantify the relative levels of various reactive species.

Citations: 18 View Online »

Ordering Information

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ENZ-51001-200	1Kit

Manuals, SDS & CofA

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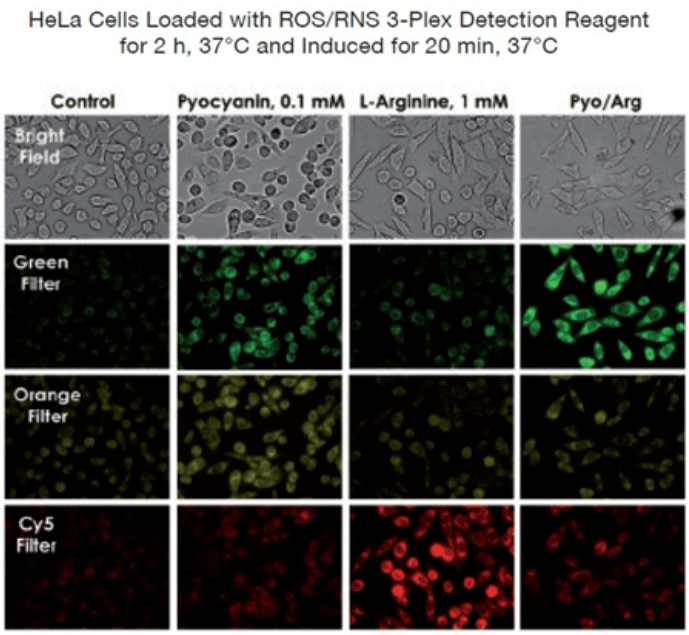
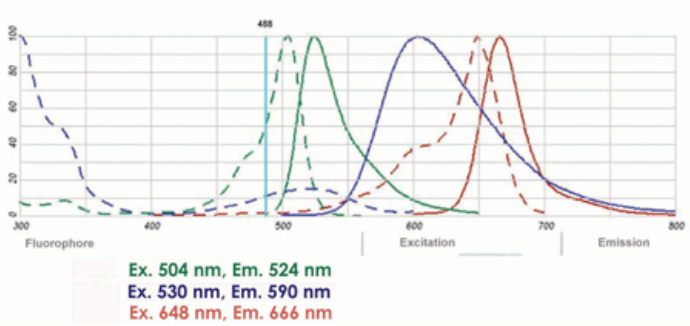
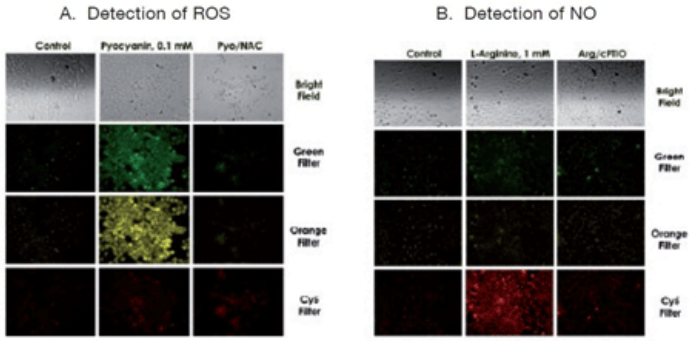
- Directly monitors reactive oxygen and/or nitrogen species (ROS/RNS) in live cells
- Discriminates among superoxide, nitric oxide and peroxynitrite
- High sensitivity, specificity and accuracy for live cell studies
- Compatible with major components of tissue culture media (phenol red, FBS and BSA)
- Complete set of reagents, including ROS/RNS inducers and scavengers



Representative experiment demonstrating peroxynitrite and NO generation in HeLa cells using the ROS/RNS Detection Kit. The analysis demonstrates that combined treatment with L-arginine and pyocyanin generates peroxynitrite (green fluorescence), due to the reaction of NO with superoxide, but little NO (red fluorescence).



Excitation and emission spectra of Oxidative Stress Detection Reagent (green), Superoxide Detection Reagent (blue), and NO Detection Reagent (red).



Handling & Storage

Use/Stability	With proper storage, the kit components are stable up to the date noted on the product label. Store the kit at -20°C in a non-frost free freezer, or -80°C for longer term storage.
Handling	Protect from light. Avoid freeze/thaw cycles.
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Reactive oxygen species / Reactive nitrogen species
Application	Fluorescence microscopy
Application Notes	This kit is designed to directly monitor real time reactive oxygen and/or nitrogen species (ROS/RNS) production in live cells using fluorescence microscopy.
Contents	NO Detection Reagent (Red), 60µl Oxidative Stress Detection Reagent (Green), 300 nmoles Superoxide Detection Reagent (Orange), 300 nmoles NO Inducer (L-Arginine), 100 µl ROS Inducer (Pyocyanin), 1 µmole NO Scavenger (c-PTIO), 400 nmoles ROS Inhibitor (N-acetyl-L-cysteine), 2×10 mg 10X Wash Buffer, 15 ml

Quality Control

ROS-ID® ROS/RNS detection kit is used to stain HeLa cells using the procedures described in the user manual. The stained cells are analyzed using a wide-field fluorescence microscope equipped with standard green (490/525 nm), orange (550/620 nm), and red (650/670 nm) fluorescent cubes. Stained HeLa cells induced with L-arginine exhibit bright red fluorescence with a red punctuate cytoplasmic staining pattern. L-arginine-induced cells incubated with NO Scavenger (c-PTIO) demonstrate minimal red fluorescence comparable to control values. Stained HeLa cells induced with pyocyanin exhibit bright orange signal in the nucleus as well as bright green fluorescence in the cytoplasm, but no red signal specific for nitric oxide. Pyocyanin-induced cells incubated with ROS Inhibitor (N-acetyl-L-cysteine) demonstrate minimal green or orange fluorescence signal comparable to control values.

Quantity

200 assays

Technical Info / Product Notes

The ROS-ID® ROS/RNS detection kit is a member of the CELLESTIAL® product line, reagents and assay kits comprising fluorescent molecular probes that have been extensively benchmarked for live cell analysis applications. CELLESTIAL® reagents and kits are optimal for use in demanding imaging applications, such as confocal microscopy, flow cytometry and HCS, where consistency and reproducibility are required.

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