

Fluorescent Probes for Lipid Peroxidation



MitoPeDPP [Code#: M466-10] 3 x 5 μ g
 Liperfluo [Code#: L248-10] 1 set (5 x 50 μ g)
 Spy-LHP [Code#: S343-10] 1 mg

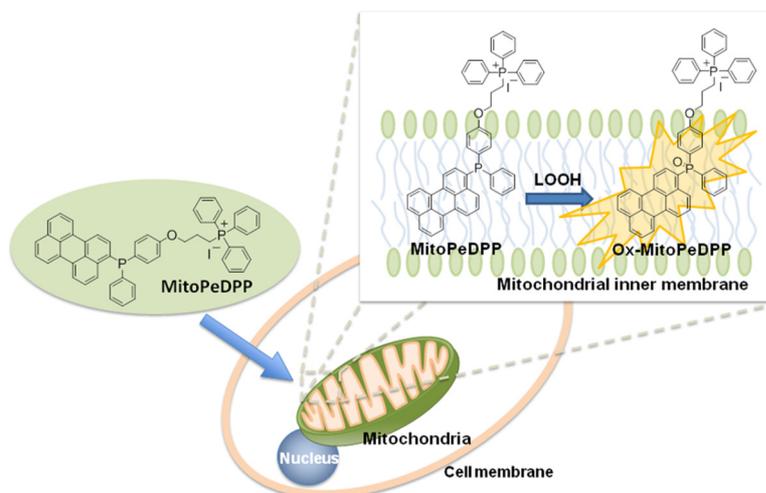
MitoPeDPP

PRODUCT DESCRIPTION

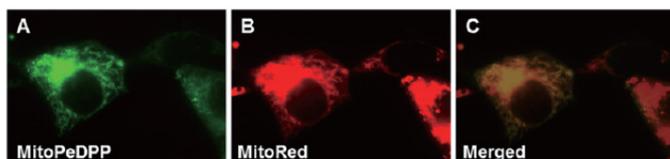
MitoPeDPP is a cell-membrane-permeable probe, Perylene-based dye. It specifically localizes in mitochondria due to the triphenylphosphonium moiety introduced.

As the excitation and emission wavelength of MitoPeDPP are 452 nm and 470 nm, respectively, the probe can be applied for lipophilic peroxide imaging in living cells.

This probe has been developed by Dr. Shioji *et. al.* at Fukuoka University, Department of Chemistry.



LOCALIZATION

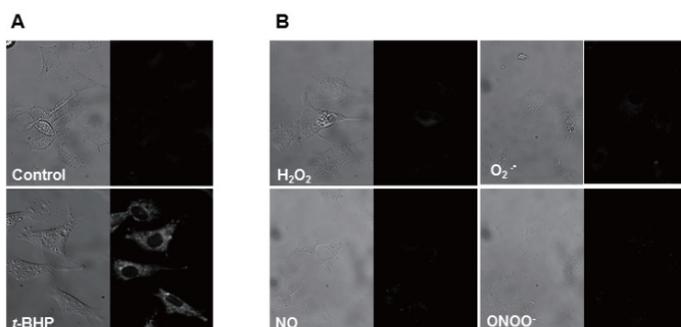


Lipophilic Peroxides Detection in Mitochondria (HepG2 cell)

A: MitoPeDPP stained Mitochondria with t-BHP treatment
 B: MitoRed stained Mitochondria
 C: Merged Image (A/B)

SELECTIVITY

Even though MitoPeDPP reacts with various peroxides (H_2O_2 , t-BHP, ONOO⁻) in homogeneous systems (data is not shown), the MitoPeDPP is specifically-oxidized by t-BHP in mitochondria (A) but not with ROS and RNS (B).

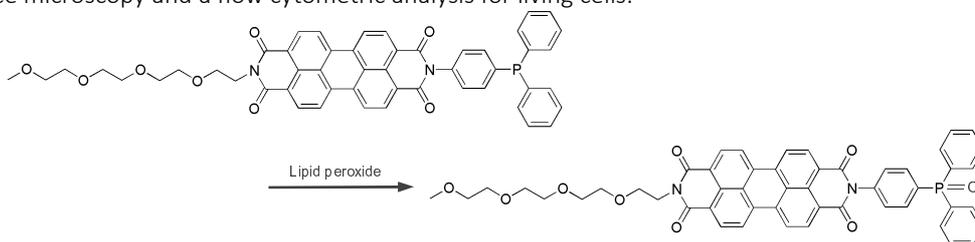


Selectivity of MitoPeDPP as a Peroxides Probe

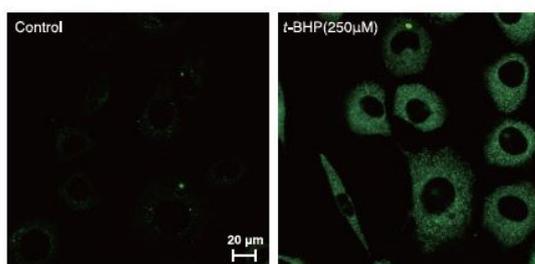
A: MitoPeDPP stained cells with t-BHP treatment (t-BHP) and without (control).
 B: MitoPeDPP stained cells with ROS or RNS exposure.

Liperfluo

Liperfluo, a perylene derivative containing oligooxyethylene, is designed and exclusively developed by Dojindo for a detection of lipid peroxides and emits intense fluorescence by a lipid peroxide specific oxidation in organic solvents such as ethanol. Liperfluo oxidized form is almost nonfluorescent in an aqueous media, it emits fluorescence in lipophilic sites such as in cell membranes. Therefore it can easily be applied to lipid peroxide imaging by a fluorescence microscopy and a flow cytometric analysis for living cells.



IMAGING DATA



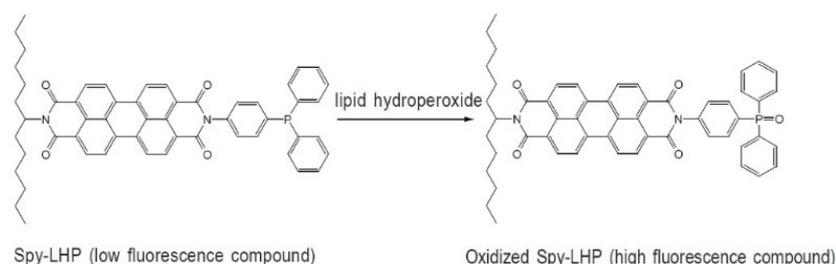
Liperfluo stained cells with t-BHP treatment (t-BHP) and without treatment (control)

Data was provided by Dr. Hiroataka Imai and Dr. Takeshi Kumagai (Kitasato University School of Pharmacy).

Fluorescent Image of Lipid Peroxidation in Living Cells (L929 cell)

Spy-LHP

Spy-LHP is a low-fluorescent compound, but is oxidized with lipid hydroperoxide to become a high fluorescent compound. Since the oxidized Spy-LHP emits strong fluorescence (quantum yield: ~ 1) with maximum wavelength at 535 nm when excited at 524 nm, damage to live cells is very small. Spy-LHP has two alkyl chains to improve the affinity to the lipid bilayer. Spy-LHP is highly selective to lipid hydroperoxide and does not react with hydrogen peroxide, hydroxy radicals, superoxide anion, nitric oxides, peroxyxynitrite, and alkylperoxy radicals.



Spy-LHP (low fluorescence compound)

Oxidized Spy-LHP (high fluorescence compound)

PROPERTIES OF EACH FLUORESCENT PROBE

Description	MitoPeDPP	Liperfluo	Spy-LHP
Product Code	M466-10	L248-10	S343-10
Staining Area	mitochondria	intracellular	intracellular
Fluorescent Property	Ex: 452 nm	Ex: 524 nm	Ex: 524 nm
	Em: 470 nm	Em: 535 nm	Em: 535 nm