# Detect Lysosomal Iron with Precision

## Lyso-FerroRed

FL Micro scope | FCM | FL Plate Reader

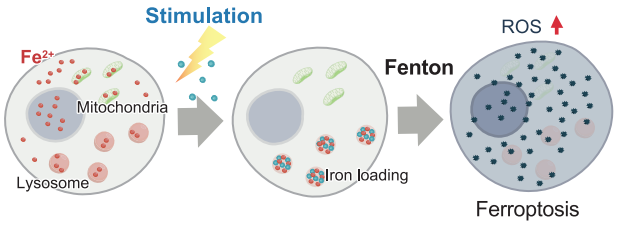
This product was developed under the guidance of Professor Tasuku Hirayama, Gifu Pharmaceutical University.

## How Crucial Is Lysosomal Iron in Ferroptosis?

Ferroptosis, an iron-dependent form of cell death driven by lipid peroxidation, is implicated in cancer, neurodegenerative, and age-related diseases. While early studies focused on total cellular iron, increasing attention has shifted to its subcellular distribution, particularly within lysosomes. As major sites of iron storage, lysosomes may provide a critical trigger for ferroptosis*, highlighting the importance of technologies that enable selective detection and evaluation of lysosomal iron.

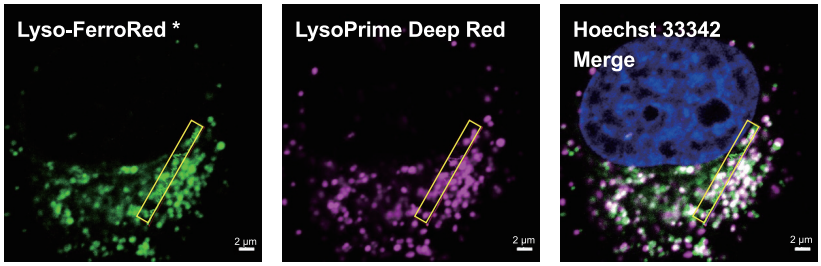
＊Saimoto. Y, *et al., Nat Commun* **2025** *16*, 3554.

Iron Redistribution and Ferroptosis Upon Stimulation

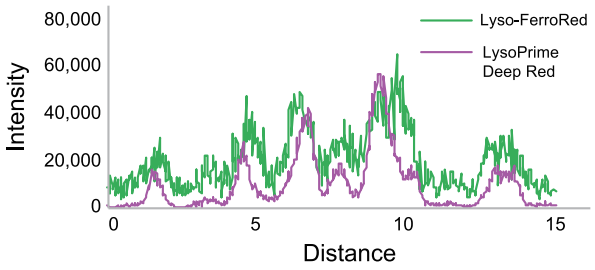



## Product Feature

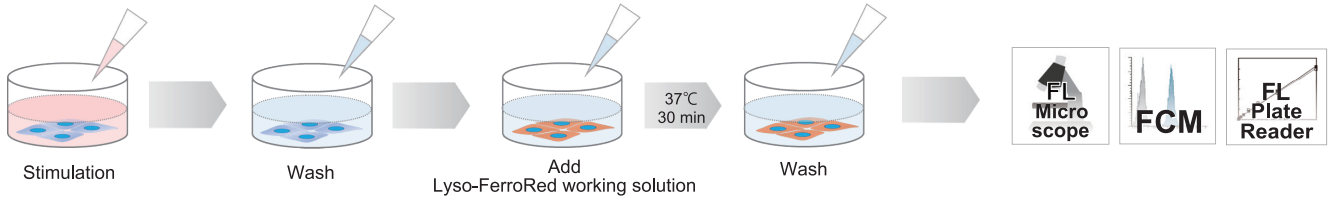
Lyso-FerroRed selectively reacts with $Fe^{2+}$ in lysosomes, producing strong fluorescence and clearly revealing lysosomal localization. Co-staining with a lysosomal dye (LysoPrime Deep Red, Cat#L264) showed overlapping signals, confirming its lysosome-specific staining.




*The merged image is shown in pseudo-color for clarity.




## Workflow




## Feature Comparison

Flexible selection according to your assay and instrument

| | Lyso-FerroRed | FerroOrange | Mito-FerroGreen |
|---|---|---|---|
| Localization | Lysosome | Intracellular* | Mitochondria |
| Fluorescence | λex=551 nm, λem=571 nm | λex=543 nm, λem=580 nm | λex=505 nm, λem= 535 nm |
| Instruments | Fluorescence microscope、Plate reader、FCM | Fluorescence microscope、Plate reader | Fluorescence microscope |
| Sample | Live Cells | Live Cells | Live Cells |

*For information on the staining localization, please visit our website.

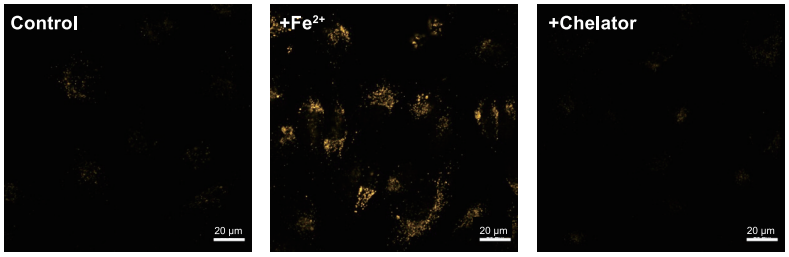
NEXT » Featured Experiment

# Lyso-FerroRed

## Featured Experiment

### Fluorescence Microscopy Imaging

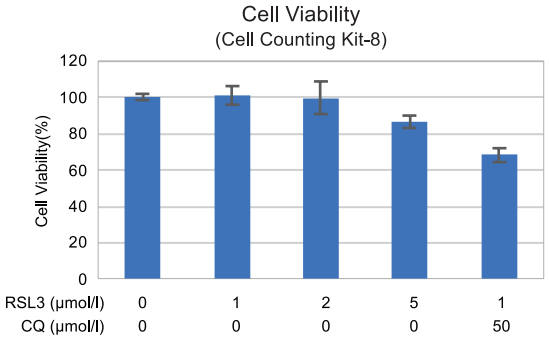
Experiments were performed in HeLa cells, and changes in lysosomal $Fe^{2+}$ were monitored with Lyso-FerroRed in the presence or absence of added iron (ferrous ammonium sulfate, final concentration: 200 µM) and the iron chelator Bpy (2,2'-bipyridine, final concentration: 1 mM).



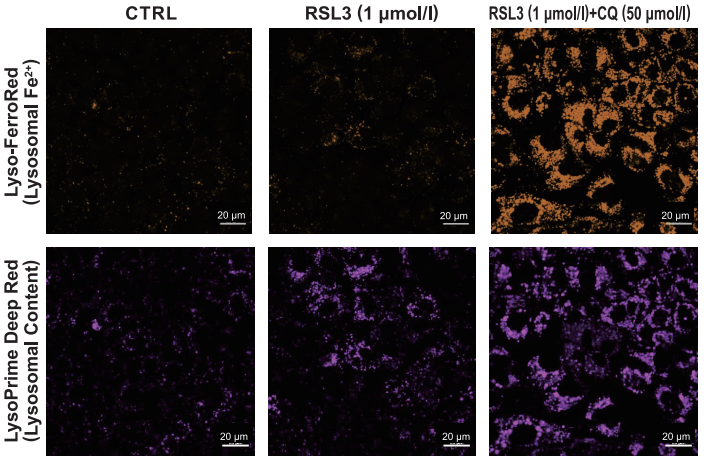

Detection settings (Ex/Em): 564/565-620 nm

### Effects of Ferroptosis Inducer and Lysosomal Inhibitor Co-treatment

Ferroptosis-resistant A549 cells were treated for 24 h with the ferroptosis inducer RSL3, alone or in combination with the lysosomal inhibitor chloroquine (CQ). RSL3 alone caused minimal effects on viability or lysosomal $Fe^{2+}$, though partial lysosomal accumulation was observed. In contrast, co-treatment with CQ increased lysosomal $Fe^{2+}$ and lysosomal size while reducing viability, suggesting a role of lysosomal $Fe^{2+}$ in ferroptosis promotion.




Detection settings (Ex/Em)
Lyso-Ferro Red: 564/565-620 nm
LysoPrime Deep Red: 633/640-700 nm




| Product name | Unit | Code |
|---|---|---|
| **Lyso-FerroRed** | 35 nmol | L270-10 |

Typical Usage: 17 x 35 mm dishs per 35 nmol

| Product name | Unit | Code |
|---|---|---|
| FerroOrange | 1 tube | F374-10 |
| | 3 tubes | F374-12 |
| Mito-FerroGreen | 50 µg x 2 | M489-10 |
| LysoPrime Deep Red<br>- High Specificity and pH Resistance | 1 tube | L264-10 |
| | 3 tubes | L264-12 |

Typical Usage: FerroOrange: 17 x 35 mm dishes per 1 tube; Mito-FerroGreen: 5 x 35 mm dishs per 50 µg;
LysoPrime Deep Red: 10 x 35 mm dishes per 1 tube

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