

## LipiDye <Lipid Droplet Green>

### Product Background

Lipid droplets (LDs) are organelles which store neutral lipids such as triglycerides and sterol esters. LDs are frequently observed in adipose tissue and are considered as sites for energy storage or lipid turnover. Recent studies discovered that LDs are not only in adipocytes, but also in ubiquitous cells such as skeletal muscle cells, macrophages, and glia cells. LDs in adipocytes are about  $>10\ \mu\text{m}$  and can be detected by using commercial probes including Nile red. On the other hand, LDs in those non-adipocytes are too small ( $\sim 0.1\ \mu\text{m}$ ) to detect by these probes because of high background and low specificity. Sensitive and specific probes are desired to detect small LDs.

LipiDye is a novel green fluorescent probe for specific detection of LDs (ref.1). LipiDye shows high sensitivity, low cell toxicity and high photostability compared with Nile red (Figure 1). LipiDye is compatible for imaging of both live cells and fixed cells.

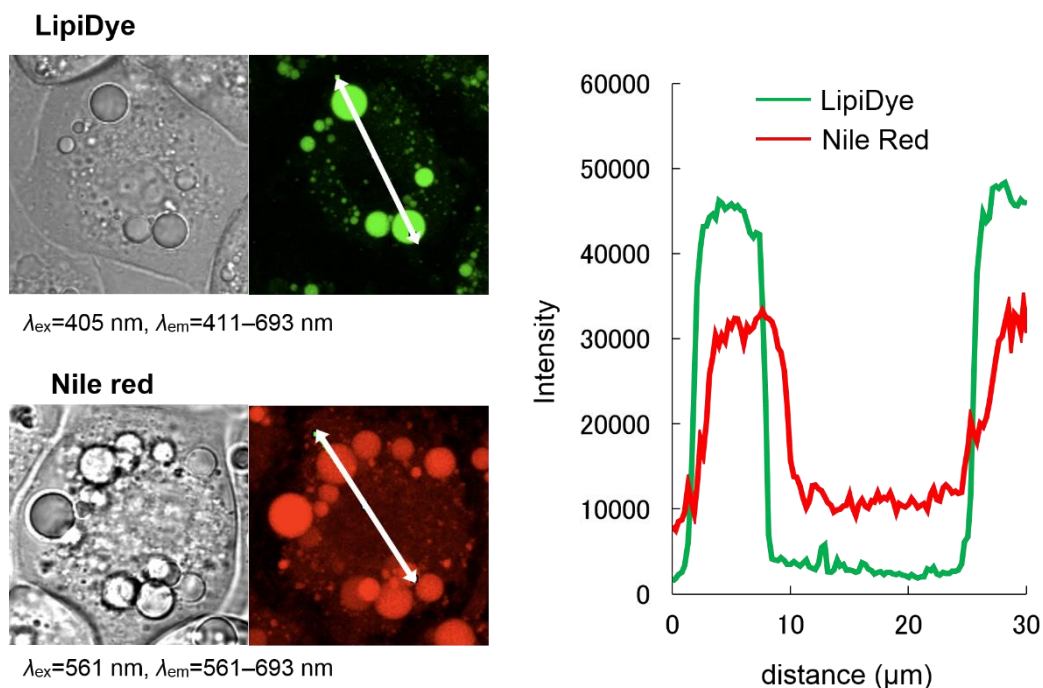


Figure 1. Comparison between LipiDye and Nile Red

## Description

Catalog Number: FDV-0010

Size : 0.1 mg

IUPAC name: 1,3-Diphenyl-2-[4-(*N,N*-diphenylamino)phenyl]benzo[*b*]phosphole-*P*-oxide

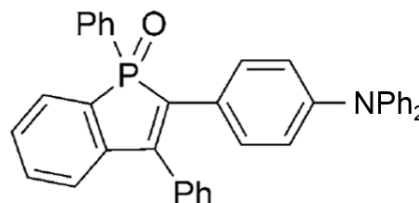
Formulation : C<sub>38</sub>H<sub>28</sub>NOP

Molecular weight : 545.58 g/mol

Chemical structure : See right

Solubility : Soluble in DMSO

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## Application

- Live cell imaging of lipid droplet
- Lipid droplet staining of fixed cells for immunostaining

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## Reconstitution and Storage

Shipping : Shipped on ambient temperature

Storage : Store at ambient temperature (powder). For reconstituted solution, store at -20°C. Protected from light.

Reconstitution : Reconstitute at 1 mM in 100% DMSO

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## How to use

Concentration:

For adipocytes, 1 μM LipiDye (0.1-1% DMSO) is desirable.

For other cell types, concentrations depend on cell types. Please optimize concentration.

- Live cell imaging

1. Prepare proper concentration of LipiDye in culture medium
2. Exchange culture medium to the LipiDye containing medium
3. Cells were stained by LipiDye for at least 2 hours

- Fixed cells

1. After fixing cells with 4% formaldehyde, cells were washed with PBS two times.
2. Cells were stained with proper concentration of LipiDye in PBS for at least 30 min on ice.

Excitation/ Emission: 405 nm/521-530 nm (Emission: if you need, 450-650nm are available)

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## Reference

- 1) Yamaguchi *et al.*, *Angew. Chem. Int. Ed.*, **54**, 4539-4543 (2015)