

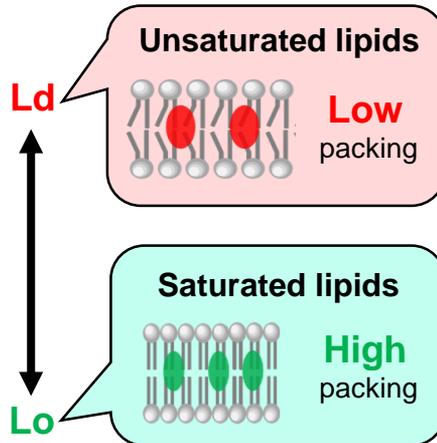
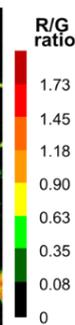
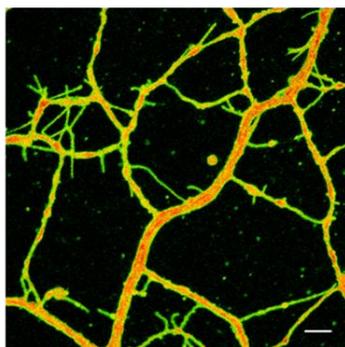


# LipiORDER



For more information : [https://www.funakoshi.co.jp/exports\\_contents/95007?FL](https://www.funakoshi.co.jp/exports_contents/95007?FL)

## Lipid order imaging



LipiORDER is a photostable imaging dye for membrane lipid order (Lo/Ld). LipiORDER is excited at around 400 nm wavelength, which is compatible with live-cell imaging and changes its emission fluorescent color from green to red depending on membrane lipid order.

## What is membrane lipid order?

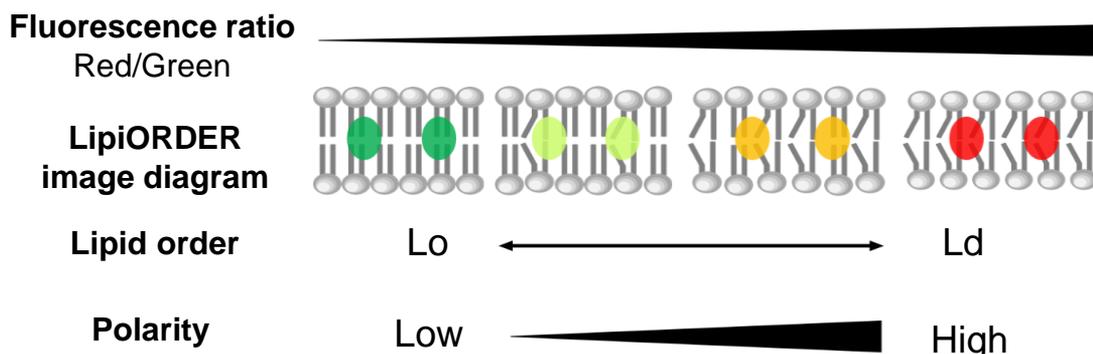
Membrane lipid order is a biophysical parameter that defines a membrane organization and is often described by the degree of lipid packing.

For example, phospholipids only containing saturated lipids create high packing and thick lipid bilayer, called liquid-order (Lo) phase. On the other hand, phospholipids containing unsaturated lipids, which have bent structure, form low packing and thin membrane structure, called liquid-disorder (Ld) phase.

Actual cells have numerous types of lipids and form very complicated membrane lipid orders, so there are also the intermediate phase, not only Lo and Ld.

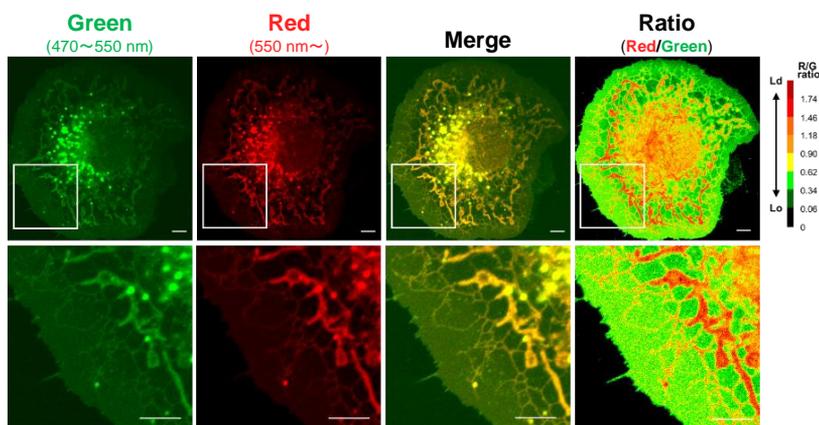
## How LipiORDER reveal the lipid order?

LipiORDER enables to observe the membrane lipid order quantitatively by taking a ratio of red and green fluorescence. Based on polarity of lipid bilayer derived from lipid order, LipiORDER will change its fluorescent color, from green on Lo membrane to red on Ld membrane. Ratiometric fluorescent value ( $F_R/F_G$ ) is correlated to lipid order (Lo and Ld).



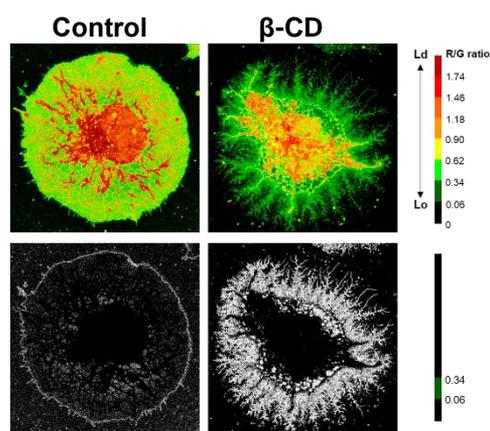
## Ratiometric imaging of COS7 cells

COS7 cells were treated with 300 nM LipiORDER in HBSS for 10 min and observed by confocal laser microscopy (Ex. 405 nm, Em. 470-550 nm for Green channel and >550 nm for Red channel). Ratiometric analysis was performed with ImageJ using green and red channel data and lipid order was shown by green-to-red pseudocolor. Plasma membrane and intramembranes are shown Lo and Ld, respectively.



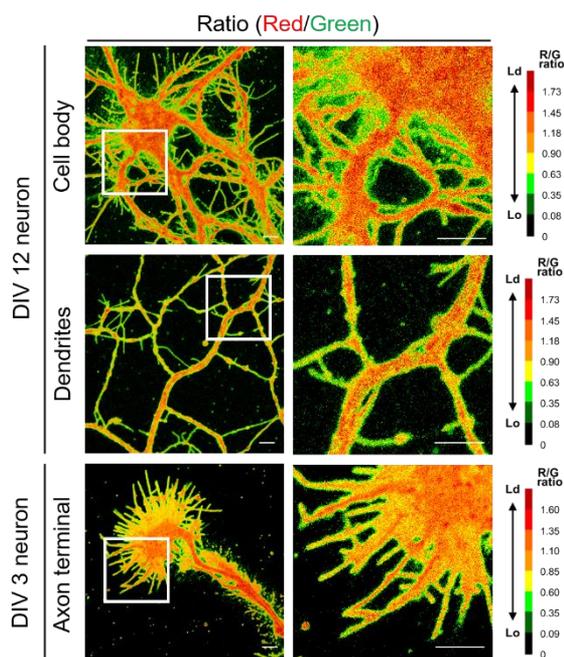
## Drug-induced cellular lipid order changes

COS7 cells were treated with 15 mM beta-cyclodextrin (beta-CD), a membrane-disrupting chemical via removing endogenous cholesterol, for 4 hours. After beta-CD treatment, cells were washed and stained with 300 nM LipiORDER in HBSS for 10 min. The cells were observed by confocal laser microscopy (Ex. 405 nm, Em. 470-550 nm for Green channel and >550 nm for Red channel). Ratiometric analysis was performed with ImageJ using green and red channel data and lipid order is shown by green-to-red pseudocolor. The cell structure was dramatically changed by beta-CD and at the same time, the distribution of Lo phase clearly changed.



## Ratiometric imaging of neuronal cells

Primary cultured hippocampal neurons (DIV 3 or DIV 12) from E17.5 mice were stained with 300 nM LipiORDER in HBSS for 10 min and observed by confocal laser microscopy (Ex. 405 nm, Em. 470-550 nm for Green channel and >550 nm for Red channel). Ratiometric analysis was performed with ImageJ using green and red channel data and lipid order was shown by green-to-red pseudocolor



<Manufacturer: FNA>

Product Name	Code	Size	Price
LipiORDER <Membrane Lipid Order Imaging Dye>	FDV-0041	0.1 mg	

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 ※ Specs might be changed for improvement without notice.  
 ※ Numbers after "#" represents product code.

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