

## XenoLight DiR

Product No.: 125964

### DESCRIPTION:

XenoLight DiR is a lipophilic, near infrared fluorescent cyanine dye ideal for staining the cytoplasmic membrane.

The two long 18- carbon chains insert into the cell membrane, resulting in specific and stable cell staining with negligible dye transfer between cells.

XenoLight DiR can be used for non-invasive imaging of cell homing (T cells, stem cells etc.) in vivo. The near infrared property of this dye makes it ideal for in vivo imaging because of significantly reduced auto-fluorescence from the animal at higher wavelengths.

CONTENTS: 25mg of XenoLight DiR (DiIC18(7) or 1,1'- dioctadecyltetramethyl indotricarbocyanine Iodide)

PROPERTIES: The physical properties of XenoLight DiR can be found in Table 1.

### STORAGE & HANDLING:

- Store at  $\leq 4^{\circ}\text{C}$  and protect from light.
- When stored and handled properly, XenoLight DiR is stable for up to twelve months from the date of shipment.

### IN VIVO IMAGING & APPLICATIONS:

- A stock solution of the dye can be made in ethanol
- Cell staining can be affected using the dye at 1-10  $\mu\text{M}$  concentration and 10-20 minute incubation time.

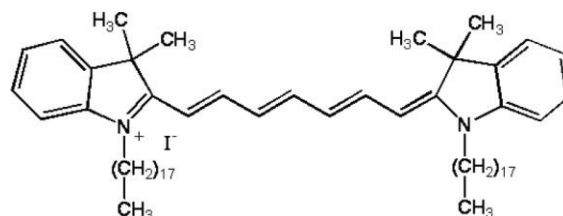
### Key Applications:

#### Cell Staining

XenoLight DiR can be applied to fluorescence staining of primary cells, such as embryonic stem cells, bone marrow derived stem cells, adipose derived stem cells, lymphocytes and erythrocytes, which will enable fluorescence detection of stained cells and their in vivo distribution. Since DiR has excitation and emission maxima in the NIR range, fluorescence detection of DiR stained cells will have less interference from auto-fluorescent tissue background, resulting in high sensitivity of detection.

Table 1. XenoLight DiR Properties

Property	Specification
Molecular Weight	1013.4
Fluorescence <ul style="list-style-type: none"> <li>• Absorption</li> <li>• Emission</li> </ul>	748 nm (in MeOH) 780 nm (in MeOH)
IVIS Filter Set	710 ex/760 em
Extinction	270,000 (in MeOH)
Color and Form	Blue-green oily solid
Solubility	Soluble in ethanol, DMF or DMSO



## In Vivo Imaging of DiR-Stained Spleen T-cell Distribution

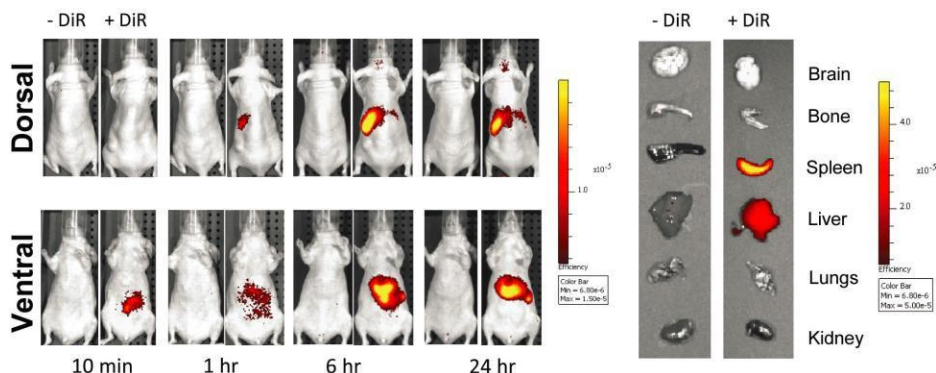


Figure 1. Xenolight DiR stock was prepared by dissolving 25 mg in 3 mL ethanol. Working solution of 320  $\mu\text{g}/\text{mL}$  was prepared by diluting 199  $\mu\text{L}$  of stock solution in 5 mL PBS. T-cells isolated from the spleen were incubated with 320  $\mu\text{g}/\text{mL}$  DiR. After 30 min incubation, cells were spun down for 3 min at 1000 rpm at 4  $^{\circ}\text{C}$  resulting in a blue pellet. Cells were washed twice in PBS and injected intravenously (5 x 10<sup>6</sup> cells/mouse). Control group was injected with 5 x 10<sup>6</sup> cells/mouse in PBS. Mice were imaged with IVIS Spectrum at 10 min, 1 hr, 6 hr and 24 hrs post injection. Ideal filter set for DiR imaging is 710 nm excitation and 760 nm emission. Mice were imaged dorsally as well as ventrally at all time points. Brain, bones, spleen, liver, lungs and kidneys were harvested for ex vivo imaging 24 hrs post injection. Non-invasive in vivo imaging showed the homing process of injected T cells to the liver and spleen in real time, which was confirmed by ex vivo imaging.

### NOTES:

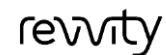
### Reference:

Kalchenko et al., Use of lipophilic near-infrared dye in whole-body optical imaging of hematopoietic cell homing. *Journal of Biomedical Optics*, September/October 2006, Vol 11(5).

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