

IVIS | XenoLight DiR

Fluorescent Reagent for *In Vivo* Imaging

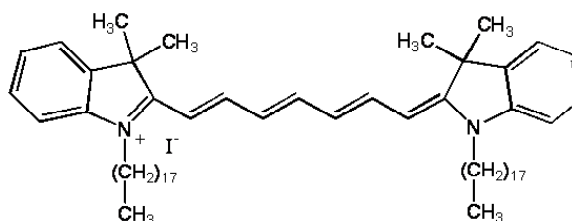
Product Name: XenoLight DiR (DiR18(7) or 1,1'-dioctadecyltetramethyl indotricarbocyanine Iodide)

Part Number: 125964

Molecular Information: $C_{63}H_{101}IN_2$
Mwt: 1013.4

Absorption\Emission: 748/780 nm

Ideal IVIS Filter Set: 710 ex/760 em



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 in combination with Caliper's IVIS imaging systems 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 autofluorescence from the animal at higher wavelengths.

- DiR



+ DiR

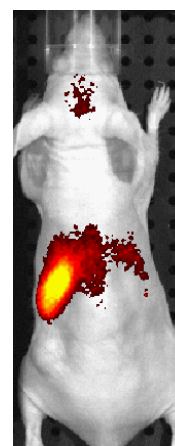


Figure 1. T-cells isolated from the spleen were fluorescently stained with DiR and i.v. injected (5×10^6 cells/mouse) into a Nu/Nu mouse. Images above taken 24hrs post injection with IVIS Spectrum show cells homing to the spleen.

Key Applications

Cell Staining

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 autofluorescent tissue background, resulting in high sensitivity of detection.

In Vivo Imaging of DiR Stained Spleen T-cell Distribution

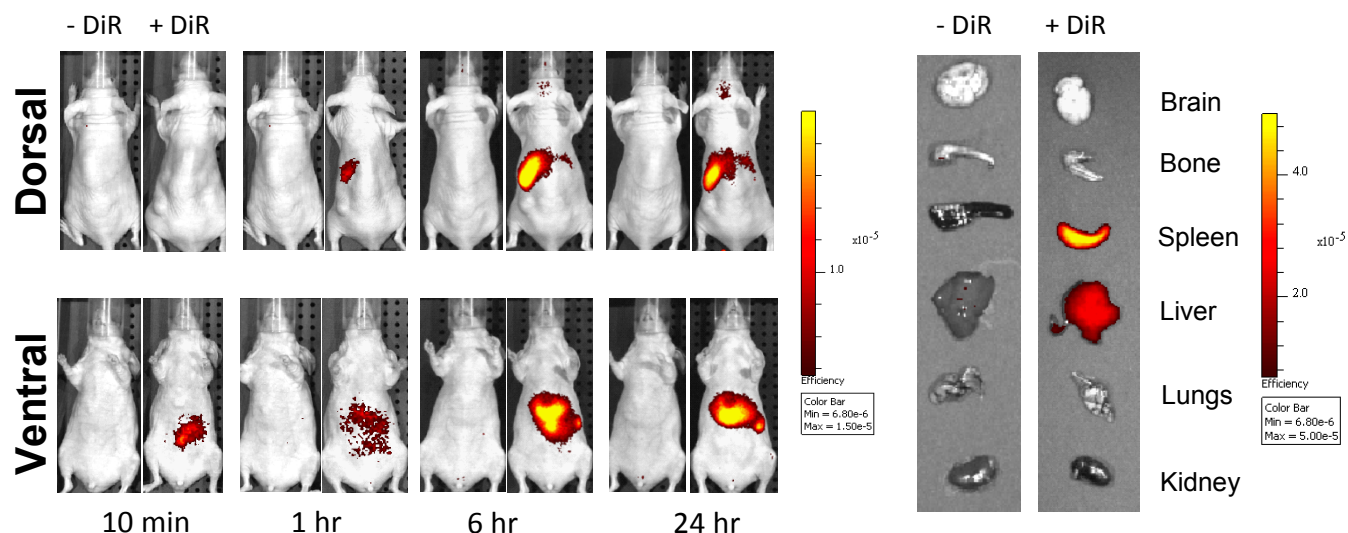


Figure 2. DiR stock was prepared by dissolving 25 mg in 3 mL ethanol. Working solution of 320 µg/mL was prepared by diluting 199 µL of stock solution in 5 mL PBS. T-cells isolated from the spleen were incubated with 320 µg/mL DiR. After 30 min incubation, cells were spun down for 3 min at 1000 rpm at 4 °C resulting in a blue pellet. Cells were washed twice in PBS and injected intravenously (5×10^6 cells/mouse). Control group was injected with 5×10^6 cells/mouse in PBS. Mice were imaged with IVIS Spectrum at 10 min, 1hr, 6hr 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, 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.

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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