

Product Number
926-50401

Storage: -20°C prior to
reconstitution; 4°C for
1 week after reconstitution

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BrightSite™
Small Animal Imaging Agents

IRDye® 800CW PEG Contrast Agent

Description

Poly(ethylene glycol) (PEG) is a soluble synthetic polymer that has properties suitable for bio-medical applications. PEG is commonly used as a carrier agent in drug development to alter the pharmacokinetics of an agent and/or control its biodistribution *in vivo*.^[1-3]

IRDye 800CW PEG Contrast Agent from LI-COR® Biosciences is a near-infrared labeled contrast imaging agent designed to exploit the enhanced permeability and retention effect (EPR) of leaky or discontinuous vascular endothelium. EPR is a feature common to many tumor microenvironments. In addition, viewing lymph vessels and nodes is possible depending on the route of administration. All images presented were captured on the Pearl® Imaging System. Figure 1 illustrates tumor retention 9 h post injection in a nude mouse. An image captured 20 min after an intradermal injection of IRDye 800CW PEG external to the right lateral caudal vein shows the fluorescent lymph track and right ischial lymph node (Figure 2). In appropriate mouse models, the agent highlights surface vasculature for approximately 30 min post injection as seen in Figure 3.

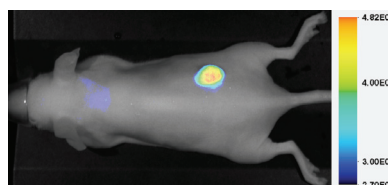


Figure 1. Athymic male nu/nu mouse bearing a subcutaneous A431 tumor imaged ~9 h post intravenous injection of IRDye 800CW PEG (1 nmole). Tumor and margins are well defined.

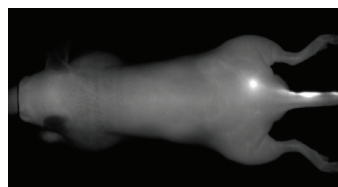


Figure 2. Athymic male nu/nu mouse ~20 min after receiving IRDye 800CW PEG (~0.1 nmole) intradermally external to the right lateral caudal vein. Image highlights use of IRDye 800CW PEG as a lymph imaging agent.

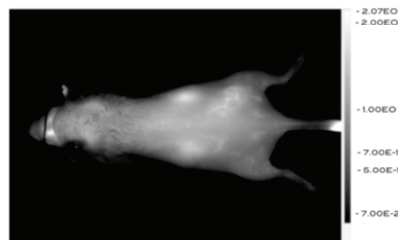


Figure 3. Athymic male nu/nu mouse (5-6 wks old) 30 min after receiving IRDye 800CW PEG (1 nmole) intravenously. Superficial blood vessels are visible. This product feature is highly mouse-model dependent, see Precautions.

Target

Vasculature (IV)
Tumor (IV)
Lymph node (tracking) (ID)

Imaging Time Post Injection

Up to 30 min
Approximately 4 hrs to > 8 days (may vary with tumor model)
Approximately 20 min (will persist for hours in lymph vessel and for days in nodes)

*Note: IV – intravenous; ID – intradermal injections

Material

The IRDye 800CW PEG Contrast Agent was passed through a 0.2 µm nylon membrane into a sterile polypropylene tube and lyophilized. The reagent is supplied as a lyophilized powder. Each tube contains 15 nmole of IRDye 800CW PEG Contrast Agent.

Continued

IRDye® 800CW PEG Properties (in water)

- Absorption maximum: 778 nm
- Emission maximum: 806 nm

Storage and Handling

Upon receipt, immediately store at -20°C prior to reconstitution. When stored properly, this product is stable in the lyophilized state for up to 3 months. After reconstitution, store at 4°C for a maximum of 1 week. **Protect from light.**

Directions for Use

- For tumor imaging: reconstitute material in 1.5 ml of sterile 1X PBS for a final concentration of 1 nmole per 100 µL.
- For lymph imaging: reconstitute material in 0.15 ml of sterile 1X PBS for a final concentration of 10 nmol per 100 µL.
- To ensure sterility, filter through a 0.2 µm nylon membrane.
- Recommended administration:
Vascular and tumor imaging: Inject 1 nmole intravenously via the tail vein.
Lymph imaging: Inject 0.1 - 0.5 nmole intradermally.

For best results, determine the optimal dose and imaging time point for each tumor model. Images presented in this document were captured using the Pearl® Imaging System.

Precautions

- Clearance of contrast agent from interstitial regions of the tumor and lymph system is slow.
- Vascular imaging post injection is highly mouse model-dependent. Vessels may not be as visible in haired mouse models or obese mice.
- Shaving and the use of a depilatory may cause irritation and inflammation, which masks the effect of the contrast agent.

References

- ^[1] Vasey, PA, et al. 1999. Clin. Cancer Res. 5:83-94.
- ^[2] Matsumura, Y and H Maeda. 1986. Cancer Res 46:6387-6392.
- ^[3] Seymour, LW. 1992. Crit. Rev. Ther. Drug Carrier Syst. 9(2):135-187.