

LuminiCell Tracker™ 540- Vascular Labeling Kit

Cat. # SCT012

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NOT FOR USE IN DIAGNOSTIC PROCEDURES.
NOT FOR HUMAN OR ANIMAL CONSUMPTION.

pack size: 1 Kit

Store at 2-8°C



Certificate of Analysis

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Description

Long-term noninvasive cell tracking by fluorescent probes and quantum dots is of great importance to life science and biomedical engineering. Current methods used to fluorescently tag cells have been limited by short signal duration, high background auto-fluorescence or lengthy molecular cloning manipulations using GFP. Vascular structural change or dysfunction is regarded as implications for many diseases such as cardiovascular diseases and cancers. Fluorescence imaging is an emerging modality for vascular structure study.

LuminiCell Trackers™ are biocompatible organic fluorescent nanoparticles based on Aggregation Induced Emission (AIEdot) technology. Aggregation induced emission (AIE) molecules emit fluorescence in an opposite manner than other common fluorophores (Quantum Dots, GFP). Propeller-shaped AIE fluorogens are non-emissive in solutions but become highly fluorescent upon aggregate formation. Due to these differences, LuminiCell Trackers™ have very high fluorescence intensities with minimal signal quenching allowing live cell fluorescent tagging for up to 10 days in vitro and 21 days in vivo. These properties make them optimal candidates for long interval live cell bioimaging experiments.

The LuminiCell Tracker™-540 Vascular Labeling Kit contain green fluorescent AIE Dots nanoparticles without TAT sequences. These nanoparticles can be used to fluorescently tag vasculature in living tissues and animals for studies of inflammation and vascular leakage.

Quality Control

Absorbance: 422± 5nM

Concentration: 180-220nM

Fluorescence: 540± 10nm

Quantum Yield: ≥50%

Brightness at 540nm: $\geq 4.6 \times 10^7 \text{ M}^{-1} \text{ cm}^{-1}$

Storage and Handling

- Store at -2-8°C upon receipt. Thaw at room temperature or in a water bath. Do not Freeze.

Note: Some particulates may form as a result of nanoparticle aggregation during shipping. To get particulates back in solution, sonicate the vial containing LuminiCell Tracker™ three times for 1 min each before use.

References

- 1) Liu B, Tang BZ et al. Photostable fluorescent organic dots with aggregation-induced emission (AIE dots) for noninvasive long-term cell tracing. *Sci Rep.* 2013;3:1150.
- 2) Kang Y et al. Long-Term Tracking Mesenchymal Stem Cell Differentiation with Photostable Fluorescent Nanoparticles. *ACS Appl Mater Interfaces.* 2016 May 18;8(19):11925-33.

SPECIES LEGEND: H Human Ca Canine M Mouse R Rat Rb Rabbit B Bovine P Porcine WR Most Common Vertebrates

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LuminiCell Tracker™ - User Protocol

Product Information

| Product Name | Concentration | Storage | Shelf-life | Absorption Maximum | Emission Maximum |
|------------------------------------|---------------------------|---------|---|--------------------|------------------|
| LuminiCell Tracker™ (vascular) 540 | 500 nM in 1 × PBS, pH 7.4 | 2–8 °C | When store as instructed, stable for at least 6 months. | 425 nm | 547 nm |
| LuminiCell Tracker™ (vascular) 670 | 500 nM in 1 × PBS, pH 7.4 | | | 510 nm | 670 nm |

Table: Compatible Instrument Parameters

| LuminiCell Tracker™ | Laser excitation λ (nm) | Filter (nm) |
|---------------------|-------------------------|-------------|
| 540 | 405/458/488 | 480–560 |
| 670 | 458/488/543 | 670–800 |

Preparing Mice for Imaging

- 1) Remove the hair on/around the area of the animal to be imaged to minimize absorption/scattering of light by the hair. Remove hair thoroughly from the animal for 3D imaging using IVIS or FMT.
- 2) For imaging skull bone marrow, make a skin incision to expose the skull before immobilizing the head on the imaging stage.

Microinjection

- 3) Dilute 20–50 µl of LuminiCell Tracker™ (Vascular) stock solution using 1×PBS to afford 100 µL of injection solution. The recommended dose for intravenous injection into a mouse (~25 grams each) is ~50 µL of stock solution.

Note: For imaging of rats, the concentration of the labeling solution may be adjusted based on the blood volume.

- 4) Intravenously inject the LuminiCell Tracker™ (Vascular) labelling solution via the lateral tail vein. The injection can be repeated daily if needed.
- 5) For bone marrow imaging, anesthetize the mice and place it on the heating pad to maintain core body temperature of 37°C before injection. Inject the LuminiCell Tracker™ (Vascular) labelling solution via retro-orbital injection.

In Vivo Imaging

- 6) The animal can be directly imaged after injection with LuminiCell Tracker™ (Vascular) using fluorescence imaging systems such as IVIS and two-photon microscope. The injected nanoparticles can be retained in the vascular system with minimum leakage and can be imaged for up to 3 hours.

■ antibodies ■ Multiplex products ■ biotools ■ cell culture ■ enzymes ■ kits ■ proteins/peptides ■ siRNA/cDNA products

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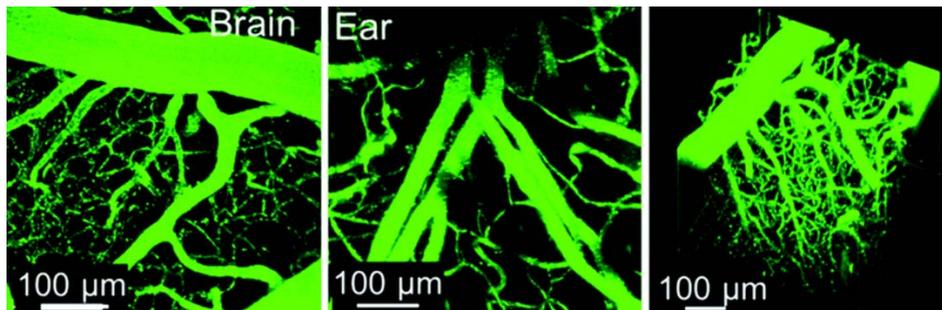


Figure 1. LuminiCell Tracker™-540 Vascular Labeling Kit allows for *in vivo* fluorescent blood vessel imaging in mouse brain and ear tissue.

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