Luminicell Tracker™ – Cell Labelling Kit

PRODUCT INFORMATION

Product Name	Part No.	Concentration	Storage	Absorption Maximum	Emission Maximum
Luminicell Tracker™ 540 – Cell Labelling Kit	LCTC540-30-ST	200 nM in Ultrapure Water	2 – 8 °C, do not freeze	423 nm	540 nm
Luminicell Tracker™ 670 – Cell Labelling Kit	LCTC670-30-ST			510 nm	670 nm
Luminicell Tracker™ 810 – Cell Labelling Kit	LCTC810-30-ST			635 nm	810 nm

PRODUCT DESCRIPTION

Luminicell Tracker™ are highly emissive fluorescent organic nanoparticles with great biocompatibility, built for long-term tracking of live cells. They can be readily taken up by various types of cells within 1 hour. Once taken up by cells, they show intense luminescence with excellent photo-stability and possess durable signals for many cell generations with negligible cell toxicity.

LABELLING PROTOCOLS

Labelling Adherent Cells

1. Seed cells in an 8-well Lab-Tek chambered slide (well size of 0.8 cm^2) and keep it in a humidified incubator with 5% CO_2 at 37 °C.
   NOTE: The 8-well slide is used as an example here. Most of the commonly used cell culture dishes or multi-well plates are compatible.
2. When cells reach 80% confluence, remove the medium, and wash the cells with 1× PBS.
3. Prepare the labelling solution at 2 nM working concentration by diluting the stock Luminicell Tracker™ solution using fresh growth medium.
   NOTE: The working concentration is typically in the range of 2 – 10 nM depending on cell type and/or application requirements.
4. Add 0.4 mL of labelling solution into each well. For cells cultured on coverslips, pipet ~ 0.15 mL of labelling solution onto the cells grown on coverslips placed in a Petri dish.
5. Incubate the cells at 37 °C for 1 hour.
   NOTE: Longer incubation time (4 – 12 hours) can be used to achieve higher uptake efficiency depending on applications.
6. Gently wash the adherent cells twice with growth medium.

7. Analyse the labelled cells using any suitable fluorescence microscope or flow cytometer with compatible lasers/filters (refer to **Table 1** and **Figure 1**).
8. For fixed cell imaging, replace **Step 6** as follows:
    a. Wash the cells with 1× PBS twice and treat the cells with 75% alcohol or 3.7% formaldehyde in PBS for 15 minutes.
    b. Wash the cells twice after fixation prior to fluorescence imaging.

Labelling Cells in Suspension

1. Prepare the labelling solution at 2 nM working concentration by diluting the stock Luminicell Tracker™ solution using fresh growth medium.
   NOTE: The working concentration is typically in the range of 2 – 10 nM depending on cell type and/or application requirement.
2. Add 0.2 – 0.4 mL of labelling solution to a tube.
3. Add 1 × 10^6 cells from a cell suspension (vol ~ 0.1 mL) in growth medium into the tube containing the labelling solution.
4. Incubate the cells in a humidified incubator with 5% CO_2 at 37 °C for 1 hour.
   NOTE: Longer incubation time (4 – 12 hours) can be used to achieve higher uptake efficiency depending on applications.
5. Wash the cells twice with growth medium.
6. Analyse the labelled cells using any suitable fluorescence microscope or flow cytometer with compatible lasers/filters (refer to **Figure 1** and **Table 1**).

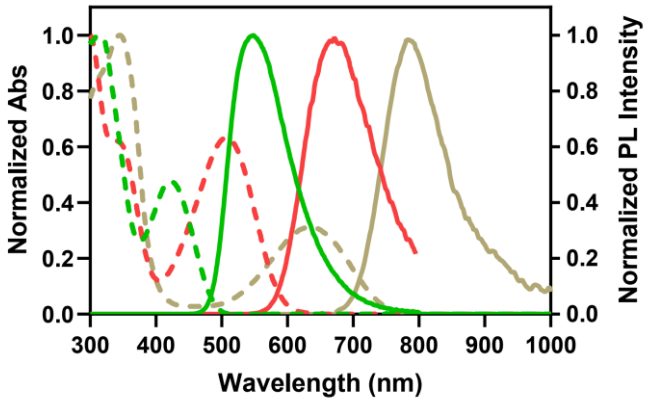

Figure 1. Absorption (dashed) and emission (solid) spectra of Luminicell Tracker™ 540 (green), 670 (red), and 810 (gold) in water.

Table1. Compatible instrument parameters.

Product Name	Laser excitation λ (nm)	Filter Set (nm)
Luminicell Tracker™ 540 – Cell Labelling Kit	**405***/458/488	480 – 560
Luminicell Tracker™ 670 – Cell Labelling Kit	458/**488***/543	670 – 800
Luminicell Tracker™ 810 – Cell Labelling Kit	543/**633***/755/	700-1000

*denotes the best excitation wavelength for fluorescent signal