luminicell

USER PROTOCOL

Cellaris™– Cell Labelling Kit

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PRODUCT DESCRIPTION

Cellaris (previously known as Luminicell Tracker), is the next-generation cell labelling kit, which contains highly biocompatible fluorescence nanoparticles that are characterised by their exceptional brightness, photo-stability and resilience against various biological processes, yielding strong signal longevity. The extended duration of its tracking ability is unprecedented, compared with other exogeneous fluorophores, represents a leap forward in long-term live cell monitoring for biodistribution studies, regenerative medicines and other related applications. 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.

PRODUCT INFORMATION

Product Name	Ex (nm)	Product Code	Configuration				
			Kit Volume (µL) Code			Surface	
						Code	Description
Cellaris 470 (Blue)	355	LCTC-470	100	250	500	01	CPP
Cellaris 506 (Cyan)	355	LCTC-506					
Cellaris 540 (Green)	423	LCTC-540					
Cellaris 670 (Red)	506	LCTC-670					
Cellaris 810 (NIR-I)	635	LCTC-810					
Cellaris 1010 (NIR-II)	725	LCTC-1010					

Notes: Concentration of products are 200 nM in ultrapure water. Nanoparticle surfaces are PEGylated, and surface conjugated with cell-penetrating peptides (CPP) for enhanced cell uptake. Other surface chemistries are available upon request. Store in 2 – 8 °C upon receiving, do not freeze products.

Product Code	Compatible Laser Lines (nm)	Recommended Filter Sets (nm)
LCTC-470	**355***/390	400 – 500
LCTC-506	**355***/405	440 – 520
LCTC-540	355/**405***/458/488	480 – 560
LCTC-670	355/458/**488***/543	670 – 800
LCTC-810	355/543/**633***/755	700 – 1000
LCTC-1010	355/405/633/**755***	> 1000

* Denotes best excitation wavelength for fluorescent signal.

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 Cellaris™ solution using fresh growth medium.

Note: The working concentration is typically in the range of 2 – 10 nM, depending on different cell types 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: Depending on cells used in the experiment, longer incubation time (4 – 16 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 the **Tables** in Page 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.

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Labelling Cells in Suspension

1. Prepare the labelling solution at 2 nM working concentration by diluting the stock Cellaris™ 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.

2. Add 0.2 – 0.4 mL of labelling solution to a tube.
3. Add 1 × 10^6 cells from a cell suspension (volume ~ 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: Depending on cells used in the experiment, longer incubation time (4 – 24 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 the **Tables** in Page 1).

OTHER RECOMMENDATIONS

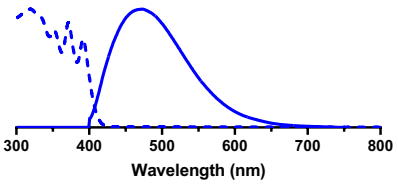
Listed below are some of the identified effective labelling conditions based on our users' feedback:

- Phagocytic cells, e.g. macrophages (1 hour with 2 nM)
- Islet cells (1 hour with 5 nM)
- Cancer cells (2 hours with 2 nM)
- Stem cells (4 hours with 4 nM)
- Neurons (24 hours with 2 nM)
- Progenitor cells (24 hours with 4 nM)

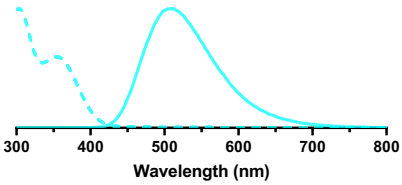
USER PROTOCOL

SPECTRAL PROFILE

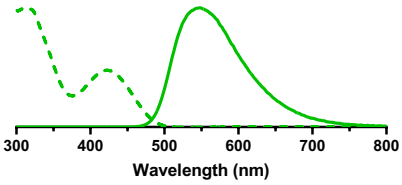
Cellaris 470 (Blue)



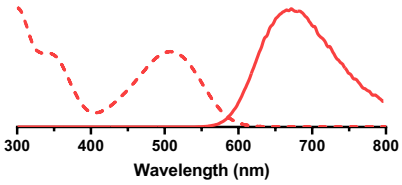
Cellaris 506 (Cyan)



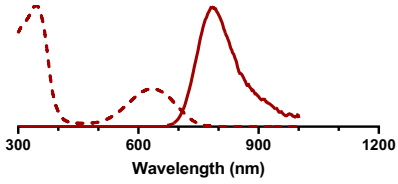
Cellaris 540 (Green)



Cellaris 670 (Red)



Cellaris 810 (NIR-I)



Cellaris 1010 (NIR-II)