LiveLight™
Liver Carcinoma Cell Line

Continuous light output with automatic intensity adjustments reflecting real-time cellular health

Intended Use
This product is intended for research use only. It is not intended for any animal or human therapeutic or diagnostic use.

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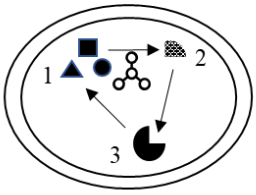
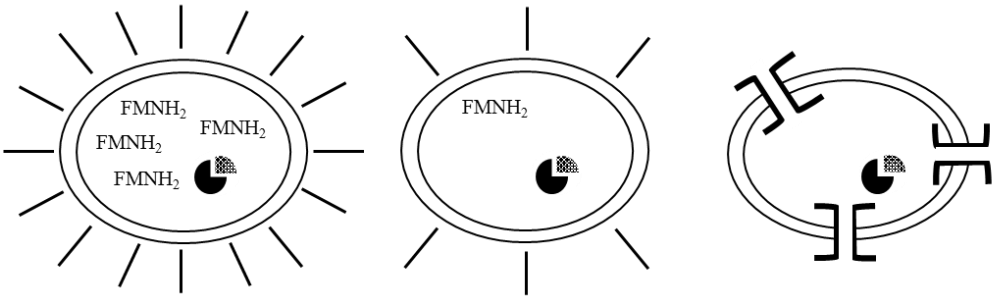
Description

LiveLight™ cell lines are a convenient solution for tracking cellular proliferation and health in real-time. Every LiveLight™ cell line has been genetically modified to express both a luciferase enzyme and the genes necessary for luciferin synthesis and recycling. By carefully balancing expression of these genes with the host's unique physiological requirements, the cell can continuously produce a bioluminescent signal without altering normal functionality. The result is a bioluminescent model that continuously and autonomously modulates bioluminescent intensity to reflect metabolic activity dynamics, providing a real-time report of cellular health. Healthy cells glow brightly, unhealthy cells become dim, and dead cells produce no light.



1. Luciferin precursors
2. Functional luciferin
3. Luciferase

LiveLight™ cell lines stably express genes for both luciferase and luciferin production enzymes. They use cytosolic components to continuously generate and recycle luciferin.



Bioluminescent production is modulated in real-time based on the availability of reducing power components that reflect metabolic activity dynamics. Healthy viable cells produce bright signals, unhealthy viable cells produce dim signals, and dead cells do not produce light.

Figure 1. LiveLight™ cell lines provide continuous bioluminescence without luciferin supplementation and continuously adjust signal intensity to reflect real-time cellular health dynamics.

Product Information

Product name: LiveLight™ Liver Carcinoma
Catalog #: 490-104-01
Size: 1×10^6 cells
Format: Cryopreserved

Cellular Background

Source organism: *Homo sapiens*
Age: 15 years
Gender: Male
Tissue type: Hepatocellular carcinoma
Morphology: Epithelial
Growth format: Adherent
Modifications: LiveLight™ continuous bioluminescence

Biosafety Information

The supplied cells are categorized as biosafety level 1 products. Appropriate safety procedures should always be followed when working with or using these cells.

Common Uses

***in vitro* screening** - The LiveLight™ Liver Carcinoma cell line is adherent and can be used for monolayer or three-dimensional culture applications.

Transfection - The LiveLight™ Liver Carcinoma cell line is suitable for transfection, and cease autonomous bioluminescence upon death, so they can be multiplexed with destructive, luciferin-dependent bioluminescent or fluorescent assays without signal overlap.

Handling Upon Receipt

- Inspect packaging for damage or leaks
- Remove the vial containing cells from dry ice and either store immediately in liquid nitrogen vapor (< -165 °C) or thaw and culture

Recommended Growth Medium

The following medium formulation is recommended for culture (**Tip 1**):

- Minimum Essential Medium base medium
- 10% Fetal bovine serum
- 1× Antibiotic/Antimycotic

Tip 1: In most cases, it is not necessary to apply selection to maintain the autobioluminescent phenotype. However, addition of 200 µg G418/mL may be used during routine culture if desired.

Thawing Frozen Cells

Tip 2: To reduce the possibility of contamination, do not submerge the O-ring or cap during thawing.

1. Incubate the vial in a 37 °C water bath with gentle agitation until contents have thawed (approximately 2 min) (**Tip 2**).
2. Spray the thawed vial with 70% ethanol and transfer to a sterilized environment. All further steps should be performed using aseptic technique.
3. Transfer the full contents of the vial (1 mL) to a 15 mL centrifuge tube containing 9 mL of complete growth medium pre-warmed to 37 °C and centrifuge at 125× g for 7 min.
4. Resuspend the cell pellet in complete growth medium pre-warmed to 37 °C and transfer to an appropriate cell culture vessel (**Tip 3**).

Tip 3: 25 cm^2 flasks are recommended for initial thawing of cryopreserved cells.

Incubate the recovered cells at 37 °C and 5% CO_2 in a humidity controlled environment and monitor for growth.

Routine Growth And Maintenance

Recommended medium refreshment interval: Every 2 – 3 days

Recommended maximum confluence: 80 – 90%

Recommended subcultivation ratio: Between 1:3 – 1:6 as needed

Use the following steps to passage cells for routine growth:

1. Remove and discard the spent medium
2. Rinse cells with an appropriate volume of sterile, 37 °C phosphate buffered saline (PBS)
3. Add an appropriate volume of Trypsin-EDTA solution to the flask and incubate until cells have detached from the culture surface
4. Resuspend detached cells in an appropriate amount of pre-warmed 37 °C complete growth medium
5. Aliquot cells into new culture vessel(s) containing complete growth medium pre-warmed to 37 °C
6. Incubate the subcultured cells at 37 °C and 5% CO_2 in a humidified environment

Revision 06/21

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