D-Luciferin potassium

Cat: IL2330
Storage: Powder: -20℃, 1 year; Insolvent (mother liquid): -20℃, 6 months; -80℃ ,1 year (protect from light)

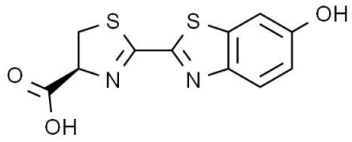
Introduction

At present, optical in vivo imaging (OIVI) mainly adopts bioluminescence and fluorescence. Bioluminescence is based on the principle that luciferase can catalyze substrate chemiluminescence, implanting cell lines that can stably express luciferase in vitro into animals, reacting with substrates injected into the body later, using an optical system to detect light intensity, indirectly reflecting changes in the number of cells or cell positioning. This technology has been widely used in many fields, the most commonly used is the establishment of tumor or disease animal models, and can be used in virology research, siRNA research, stem cell research, protein interaction research.

D-Luciferin is a common substrate for Luciferase, which is commonly used throughout biotechnology, especially in in vivo live imaging. In the presence of magnesium ions, luciferase reacts luciferin with ATP, which is then oxidized to form a dioxetane structure and emit a yellow-green light. Luciferin is encoded by the luc gene, which is present as a reporter gene in a variety of cells. Due to the low background nature of chemiluminescence, the luc gene can be monitored at very low expression levels.

Parameter

Ex/Em: 328/533 nm
CAS: 115144-35-9
Molecular Formula: $C_{11}H_7KN_2O_3S_2$
Molecular Weight: 318.41
Appearance: Light yellow to yellow Solid
Solubility: Soluble in Water≥10mg/mL(Need ultrasonic)



Applications:
1) Imaging analysis of in vivo/in vitro expression of luc-tagged genes and fluorokinase-fusion genes in living cells, tissues or organisms
2) Reporter gene analysis, immunoassay and ATP fluorochrome hygiene monitoring analysis.

Protocols (*only for reference*)

In vitro luminescence detection

(1) Dissolve 10 mg of D-Luciferin potassiumin 314 μL of sterile water to make a 100 mM storage solution (200×).

Note: Unused storage solution is recommended to be stored in portions at -20°C to avoid repeated freezing and thawing.

(2) Dilute the storage solution with cell culture medium 1:200 to obtain 1× fluorescein working solution.
(3) Remove the medium from the cultured cells.
(4) Add an appropriate amount of 1× Fluorescein Working Solution to the cells, and then perform

image analysis.

Note: Before image analysis, the signal can be enhanced by incubating the cells at 37℃ for a short period of time.

In Vivo Imaging Analyzer

(1) Dissolve 10 mg of D-Luciferin potassiumin with 667 μL of sterile D-PBS (without Mg^{2+}, Ca^{2+}) to obtain D-Luciferin potassiumin working solution (15 mg/mL), and filter through 0.2 μm filter membrane to remove bacteria.
(2) Refer to the table below and inject different volumes depending on the injection method.
(3) Imaging analysis was performed 5-15 min after injection into the body.

Injection Methods	Injectable dose (for reference only)
Intravenous injection	At a concentration of 10 μL/g body weight, add the corresponding volume of 15 mg/mL Fluorescein Working Solution.
Intraperitoneal injection	At a concentration of 10 μL/g body weight, add the corresponding volume of 15 mg/mL Fluorescein Working Solution.
Intramuscular injection	50 μL at a concentration of 1-2 mg/mL Fluorescein Working Solution.
Intranasal injection	50 μL at a concentration of 3 mg/mL Fluorescein Working Solution.

Note

1. The final concentration of the working solution is recommended to be optimized for different experimental systems.
2. All fluorescent dyes have quenching problems, please try to avoid light to slow down the fluorescence quenching.
3. For your safety and health, please wear lab coat and disposable gloves.
4. This product is for scientific research use only. Do not use in medicine, clinical diagnosis or treatment, food and cosmetics. Do not store in ordinary residential areas.

Related Literature

[1]. Wang H, Chen Y, Wei R, Zhang J, Zhu J, Wang W, Wang Z, Wupur Z, Li Y, Meng H. Synergistic Chemoimmunotherapy Augmentation via Sequential Nanocomposite Hydrogel-Mediated Reprogramming of Cancer-Associated Fibroblasts in Osteosarcoma. Adv Mater. 2024 Apr;36(15):e2309591. doi: 10.1002/adma.202309591. Epub 2023 Dec 29. PMID: 38113900. （IF: 29.4）

Note: For more literature, please visit the Solarbio official website.

Related Products

IL2320 D-Luciferin
IL2330 D-Luciferin potassium
IL0230 D-Luciferin Sodium salt