D-Luciferin Sodium salt

Cat: IL0230

Storage: Powder: 2-8℃, 2 years; 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 fluorescein enzyme can catalyze the chemiluminescence of the substrate, and implant the cell line that can stably express fluorescein enzyme in vitro into the animal body, which reacts with the substrate injected into the body in the later stage. The optical system is used to detect the light intensity, which indirectly reflects the changes in the number of cells or the positioning of cells.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 the enzyme luciferase, which is commonly used throughout biotechnology, especially for 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.

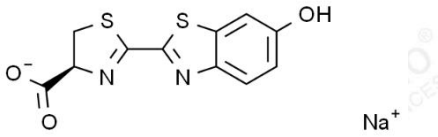
Parameter

Ex/Em: 328/533 nm

CAS No: 103404-75-7

Molecular Formula: $C_{11}H_7N_2NaO_3S_2$

Molecular Weight: 302.3



Appearance: Light yellow to yellow Solid

Solubility: Soluble in Water ≥ 5mg/mL

Applications: 1) In vitro chemiluminescence analysis (in vitro)
2) In vivo imaging experiments (in vivo)
3) High sensitivity ATP analysis.

Protocols (*only for reference*)

In vitro luminescence detection

(1) Dissolve 10 mg of D-Luciferin Sodium salt in 330.8 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 in which the cells are cultured.

(4) Add an appropriate amount of 1× Fluorescein working solution to the cells, then perform image analysis

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

In Vivo Imaging Analyzer

(1) Dissolve 10 mg of D-bug fluorescein sodium salt with 667 μL of sterile D-PBS (without Mg^{2+}, Ca^{2+}) to obtain the D-bug fluorescein sodium salt working solution (15 mg/mL), which was filtered through a 0.2 μm filter membrane to remove bacteria.

(2) Refer to the table below, inject different volumes depending on the type of injection.

(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]. Shao B, Ren SH, Wang ZB, Wang HD, Zhang JY, Qin H, Zhu YL, Sun CL, Xu YN, Li X, Wang H. CD73 mediated host purinergic metabolism in intestine contributes to the therapeutic efficacy of a novel mesenchymal-like endometrial regenerative cells against experimental colitis. Front Immunol. 2023 Apr 25;14:1155090. doi: 10.3389/fimmu.2023.1155090. PMID: 37180168; PMCID: PMC10167049.（IF:8.7）

[2]. Zhou F, Wu H, Chen Y, Wang M, Tuskan GA, Yin T. Function and molecular mechanism of a poplar placenta limited MIXTA gene in regulating differentiation of plant epidermal cells. Int J Biol

Macromol. 2023 Jul 1;242(Pt 2):124743. doi: 10.1016/j.ijbiomac.2023.124743. Epub 2023 May 6. PMID: 37150377.（IF:8.0）

[3]. Lin H, Yao Y, Sun P, Feng L, Wang S, Ren Y, Yu X, Xi Z, Liu J. Haplotype-resolved genomes of two buckwheat crops provide insights into their contrasted rutin concentrations and reproductive systems. BMC Biol. 2023 Apr 17;21(1):87. doi: 10.1186/s12915-023-01587-1. PMID: 37069628; PMCID: PMC10111841.（IF:7.3）

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