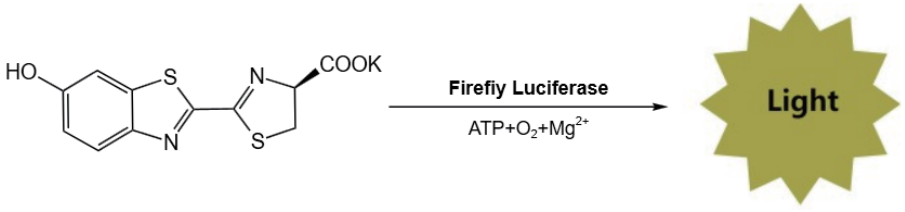
D-Luciferin, Potassium Salt

DD1210

Version 24.2

Product Description

D-Luciferin, Potassium Salt is a substrate used for reporting gene expression of luciferase in bioluminescence imaging assays for live organisms. The specific mechanism of action is as follows: In the presence of ATP, magnesium ions, and oxygen, luciferase catalyzes the oxidation of D-Luciferin, Potassium Salt as a substrate, resulting in the production of a strong bioluminescent signal. In vivo imaging experiments involve the introduction of cells or mRNA expression vectors capable of expressing luciferase into experimental animals. Subsequently, D-Luciferin, Potassium Salt is injected, and the changes in luminescence intensity are detected using a small animal optical imaging system, thereby reflecting the level of luciferase expression. It can be used for tumor research, immunology and stem cell research, drug studies, cell/protein/mRNA labeling, protein-protein interactions, and more.



Components

Components	DD1210-01	DD1210-02	DD1210-03
D-Luciferin, Potassium Salt	10 mg	100 mg	1 g

Storage

Store at -30 ~ -15°C and protect from light, ship at ≤0°C.

Applications

It is applicable for bioluminescence imaging detection in plants and animals.

Self-provided Materials

Self-provided Reagents

DPBS (without Ca^{2+}, Mg^{2+})

ddH_2O

Other Materials and Equipments

Sprayer

1 ml Syringe

0.22 μm Filter Membrane

Optical Imaging System for Live Plants and Animals

Notes

1. Please wear laboratory coats, masks, and gloves in accordance with biosafety regulations, and dispose of experimental waste in accordance with medical waste disposal requirements.
2. This product should be stored sealed and protected from light. After opening and dissolving, it is prone to oxidation. Aliquot and store at -20°C or -80°C to minimize freeze-thaw cycles.
3. After thawing, the product should be dissolved on ice or at 4°C. Thawed D-Luciferin can be temporarily stored at 4°C or on ice.
4. For in vivo injection in small animals, filter sterilization is required. If the product accidentally splashes into the eyes, skin, or other body parts, rinse immediately with plenty of water.
5. During ATP detection, wear disposable gloves to avoid interference from exogenous ATP.
6. Use DPBS without calcium and magnesium ions when dissolving the product, as these ions can interfere with the luminescence reaction.
7. Before in vivo imaging detection, it is recommended to conduct a pilot experiment to establish an in vivo luciferase kinetics curve to determine the signal plateau and detection time.

Experiment Process

Plant In Vivo Imaging Detection

1. Dissolve D-Luciferin, Potassium Salt in sterile ddH_2O to prepare a 30 mg/ml stock solution (100 - 200 ×), mix well. Use immediately or aliquot and store at -20°C in the dark, avoiding repeated freeze-thaw cycles.
2. Dilute the stock solution to a working concentration of 0.3 - 0.5 mg/ml with sterile ddH_2O.
3. Wet the underside of the leaves with the working solution, let stand in the dark at room temperature for 5 - 10 min before detection.

Animal In Vivo Imaging Detection

1. Prepare a 15 mg/ml luciferin stock solution in sterile DPBS (without Ca^{2+}, Mg^{2+}), mix well.
2. Filter sterilize using a 0.22 μm filter membrane, use immediately or aliquot and store at -20°C in the dark, avoiding repeated freeze-thaw cycles.
3. Administer intraperitoneally (i.p.) at a concentration of 150 mg/kg luciferin/body weight.
4. Perform imaging detection 10 - 15 min after injection (when the light signal reaches its strongest and most stable plateau).