

D-Luciferin Potassium Salt

Catalog No.: MB102

Background

Luciferin, the small molecule substrate, and the enzyme Luciferase are present in a variety of bioluminescent organisms including fireflies. Light can be generated by oxidation of D-luciferin but the reaction rate is extremely slow in absence of the enzyme luciferase and the cofactor ATP. Luminometers and optical microscopes have been developed to detect light emitted from the two-step luciferase-catalyzed reaction. The protein Luciferase can be transiently or stably expressed in cells and organisms. Thus, luciferase and luciferin have been widely used in *in vitro* and *in vivo* luciferase reporter assays detecting gene expression and detecting the level of cellular ATP in cell viability assays or for kinase activity assays. The applications of luciferase and luciferin including *in vivo* imaging are still expanding.

CAS No.: 115144-35-9

Molecular Formula: C₁₁ H₇ N₂ O₃ S₂.K

Molecular weight: 318.42

Purity: >99% (chemical and optical purity)

Shipping: The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & storage:

Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

12 months from date of receipt if stored at -20°C to -70°C as supplied.

3 weeks after being dissolved if stored at 2°C to 8°C under sterile conditions.

3 months after being dissolved if stored at -20°C to -70°C under sterile conditions.

Preparation of Luciferin for *in Vitro* Bioluminescent Assays

Materials

- D-Luciferin potassium salt
- Sterile water
- Complete media

Adherent cells should be seeded in a plate overnight or a few hours prior to *in vitro* bioluminescent assay so that the cells can attach to the bottom. Suspension cell lines can be seeded in the working solution in the plate for direct incubation and imaging.

Note: If doubling time is relatively short, it should be considered for cell counting.

Procedure

1. Make a 200x D-Luciferin stock solution (30 mg/ml) in sterile water. Mix gently by inversion until D-Luciferin is completely dissolved.*

2. Quick thaw the 200x D-Luciferin stock solution and dilute 1:200 in pre-warmed tissue culture medium to make a D-Luciferin working solution with 150 µg/ml final concentration.
3. (Optional) Incubate cultured cells for ~10 min at 37°C before imaging. Incubation time for the specific cell type should be tested and adjusted to optimize signal.
4. Aspirate media from the cultured cells.
5. Add the 1x D-Luciferin working solution to the cells just prior to imaging.
6. Check the *in vitro* bioluminescence using the IVIS imaging system every 10 min, up to 40 min, to determine the kinetic curve and find the peak signal time point for each cell type.

Preparation of Luciferin for *in Vivo* Bioluminescent Assays

Materials

- D-Luciferin potassium salt
- DPBS without Mg²⁺ and Ca²⁺
- Syringe filter, 0.2 µm

Procedure

1. Prepare a fresh D-Luciferin stock solution (15 mg/ml) in DPBS.*
2. Filter sterilize the solution through a 0.2 µm filter.
3. Determine injection amount at 10 µL/g of body weight. A 10 g mouse should receive 1.5 mg D-Luciferin, i.e. 150 mg D-Luciferin/kg body weight.
4. Inject D-Luciferin stock solution intra-peritoneally (i.p.) 10-15 min prior to imaging.
5. Check the *in vivo* bioluminescence using the IVIS imaging system every 10 min, up to 40 min, to determine the kinetic curve and find the peak signal time point for each animal model.

NOTE:

D-Luciferin potassium salt and its solution are light sensitive, and should be kept out of direct light as much as possible. It is recommended to protect D-Luciferin from light with a light blocking material such as tin foil during the entire assay, from the stock solution preparation until completion of the whole procedure.

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<https://www.duozhaozhao.com/d-luciferin-potassium-salt-mb000102-r70170/>