

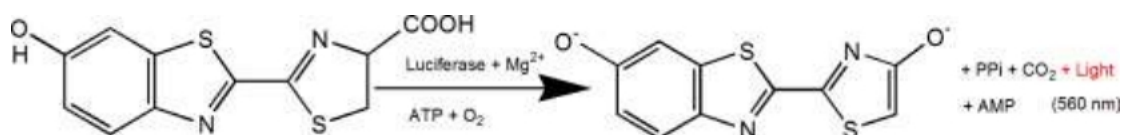
D-Luciferin Firefly, Free Acid

Product Information

Product Name	Cat#	Size
D-Luciferin Firefly, Free Acid	40903ES01	100 mg
	40903ES02	500 mg
	40903ES03	1 g

Product Description

D-luciferin is a common substrate for Luciferase and is widely used throughout biotechnology, especially in vivo imaging Art. The mechanism of action is that luciferin (substrate) can be oxidized to emit light in the presence of ATP and luciferase. When fluorescein is in excess, the number of light quanta produced is similar to fluorescence. The concentration of phototinsase was positively correlated (see figure below). The plasmids carrying luciferase encoding gene (Luc) were transfected into cells and introduced into study animals such as mice and rats.



D-luciferin is also commonly used in in vitro studies, including luciferase and ATP levels analysis, reporter gene analysis, high-throughput sequencing, and various contamination detection. The current market It is available in three product forms, D-luciferin (free acid), D-luciferin sodium salt, and D-luciferin potassium salt. The main difference between these three products lies in the solubility properties. D-fluorescein (free acid) is water-soluble and the solubility of buffering systems is weak, except in weak bases such as NaOH and KOH solutions. Sodium and potassium forms of D-fluorite Light element can be easily and quickly dissolved into water or buffer, convenient to use, the solvent is not toxic, especially suitable for in vivo experiments. These three products, when they're made into liquid, there is no substantial difference in many applications.

Product Properties

English synonym	(S)-4,5-Dihydro-2-(6-hydroxy-2-benzothiazolyl)-4-thiazolecarboxylic acid; D-Luciferin Firefly, free acid
CAS NO.	2591-17-5
Formula	C ₁₁ H ₈ N ₂ O ₃ S ₂
Molecular weight	280.33 g/mol
Appearance	Light yellow powder
Solubility	This product is difficult to dissolve in water, but dilute alkali can be added to promote its dissolution.
Purity (HPLC)	≥95%

Shipping and Storage

The products are shipped with ice pack and can be stored at -20°C to -80°C for 1 year.

Instructions

1. In vitro bioluminescence detection

1) Dilute alkali (such as NaOH, KOH solution) was used to dissolve D-luciferin and free acid to prepare 30 mg/mL storage solution (200×) and adjust the pH to 7.4. After mixing, use immediately or store separately at -20°C or -80°C to avoid repeated freeze-thaw.

[Note]: If precipitation occurs, the pH needs to be adjusted to a higher level until complete dissolution. It can then be neutralized again with an acidic solution and adjusted to pH 7.4.

2) The preheated tissue culture medium was used to dilute the storage solution at 1:200 to prepare the working solution (final concentration 150 µg/mL).

3) Cell culture medium was removed.

4) Before image analysis, fluorescein working solution was added into the cells and incubated at 37°C for few times, then image analysis was performed.

2. In vivo imaging analysis

1) D-fluorescein working solution (15 mg/mL) was prepared with dilute alkali (such as NaOH, KOH solution), and the pH was adjusted to 7.4, 0.2 µm filter membrane for sterilization. After blending Use immediately or store separately at -20°C or -80°C to avoid repeated freezing and thawing. Once in use, defrost at 4 °C, keep cold and out of light.

2) The amount of injection depends on the method of injection, as follows:

Injection method	dose
Iv (25-27gauge needle)	Add a corresponding volume of 15 mg/mL fluorescein working solution at the concentration of 10 µL/g body weight
intraperitoneal injection	Add a corresponding volume of 15 mg/mL fluorescein working solution at the concentration of 10 µL/g body weight
intramuscular injection	50 µL, the concentration of 1-2 mg/mL fluorescein working solution
nasal injection	50 µL, the concentration of 1-2 mg/mL fluorescein working solution

2) Imaging analysis was performed after 10-20 min of injection (when the optical signal reached the maximum stable plateau).

[Note]: It is suggested to establish luciferase kinetic curve for each animal model, to determine the maximum signal detection time and signal plateau period.

Matters needing attention

1) Firefly Luciferin and Beetle Luciferin both refer to the compound (S)-2-(6-hydroxy-2-benzothiazolyl)-2-thiazoline-4- Carboxylic acid, just the name difference between different companies.

2) Avoid light during storage and operation. In addition, after the storage solution is filtered and sterilized, it can be frozen separately at -20°C or -80°C to avoid repeated freezing and thawing. If conditions permit, the storage solution is filled with nitrogen or argon (to prevent oxidation) for longer stability and storage time up to 1 year.

3) The injection method, animal type and body weight will all affect the signal emission, so it is recommended that luciferase kinetic curve be done for each experiment to determine the optimal signal level Stage time and the best detection time.

4) For your safety and health, please wear lab coat and disposable gloves to operate.