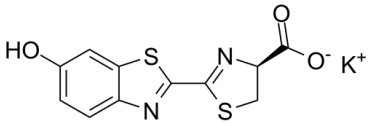
Data Sheet

Product Name:	D-Luciferin potassium salt
Cat. No.:	CS-7701
CAS No.:	115144-35-9
Molecular Formula:	C11H7KN2O3S2
Molecular Weight:	318.41
Target:	Others
Pathway:	Others
Solubility:	H2O : 12.5 mg/mL (39.26 mM; ultrasonic and warming and heat to 40°C); DMSO : 2.63 mg/mL (8.26 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

D-Luciferin potassium salt is the substrate of luciferases that catalyze the production of light in bioluminescent insects. **In Vitro:** D-luciferin is the natural substrate of the enzyme luciferase (Luc), that catalyzes the production of the typical yellowgreen light of fireflies.The present review covers the synthesis of D-luciferin and derivatives or analogues that are substrates or inhibitors of the luciferase from the American firefly Photinus pyralis, the enzyme more frequently used in techniques of in vitro and optical imaging[1]. Thaw D-Luciferin (either Potassium or Sodium Salt) at room temperature and dissolve in DPBS (no calcium or magnesium) to a final concentration of 15 mg/mL. Pre-wet a 0.22 µm filter by drawing through 5-10 mL of sterile H_2O and discard water. Sterilize the D-Luciferin solution through the prepared 0.22 µm syringe filter. **In Vivo:** Bioluminescence imaging (BLI) using the firefly luciferase (Fluc) as a reporter gene and D-luciferin as a substrate is currently the most widely employed technique. The total signal intensity is plotted against the time after D-luciferin injection to generate a time-intensity curve. In addition to the peak signal, the signals at fixed time points (5, 10, 15, and 20 min) after D-luciferin injection are determined as alternatives to the peak signal. The signal in a given time-intensity curve is normalized for the peak signal in the curve to represent the pattern of temporal changes after D-luciferin injection[2]. Inject with 10 µL of D-luciferin (intraperitoneally or intravenously) stock solution per gram of body weight: normally ~200 µL for a 20 g mouse for a standard 150 mg/kg injection.

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: D-luciferin is prepared in phosphate-buffered saline (Mice)[2].[2]Mice[2]
In vivo BLI is performed using a cooled charge-coupled device camera system (IVIS Imaging System 100) 3, 5, 7, 10, 12, 14, 19, 21, 24, and 28 days after the inoculation of HCT116-Luc cells. Mice are injected with 75 mg/kg D-luciferin in 100 µL of phosphate-buffered saline subcutaneously near the scapula and were placed in the light-tight chamber of the imaging system under isoflurane anesthesia. Beginning 5 min after injection, dorsal luminescent images with an exposure time of 1 s are acquired sequentially at a rate of one image per min until 20 min after D-luciferin injection. Data acquisition is continued until 40 min postinjection on days 3 or 5 and until 25 min on day 7, because of the prolonged time course of light emission. Binning is 4 and the field of view is 15 cm.

References:

[1]. Giuseppe Meroni, et al. D-Luciferin, derivatives and analogues: synthesis and in vitro/in vivo luciferase-catalyzed bioluminescent activity. ARKIVOC 2009 (i) 265-288.

[2]. Inoue Y, et al. Timing of imaging after d-luciferin injection affects the longitudinal assessment of tumor growthusing in vivo bioluminescence imaging. Int J Biomed Imaging. 2010;2010:471408.

CAIndexNames:

4-Thiazolecarboxylic acid, 4,5-dihydro-2-(6-hydroxy-2-benzothiazolyl)-, potassium salt (1:1), (4S)-

SMILES:

O=C([C@@H]1N=C(C2=NC3=CC=C(O)C=C3S2)SC1)[O-].[K+]

Caution: Product has not been fully validated for medical applications. For research use only.

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