

D-Luciferin, Potassium Salt

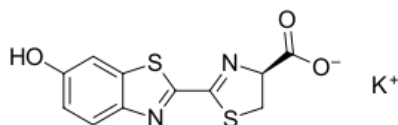
<http://www.lumiprobe.com/p/d-luciferin>

D-luciferin is a low-molecular-weight substrate for the firefly (*Photinus pyralis*) luciferase enzyme. The ATP-dependent oxidation of D-luciferin by luciferase is accompanied by intense chemiluminescence at 560 nm.

Luciferase is encoded by the *luc* gene, which is widely used as a reporter gene for the genetic modification of cells and organisms. When D-luciferin is administered, it is taken up by cells, and the appearance of luminescence indicates the presence and activity of the luciferase. Because most organisms do not naturally synthesize luciferase, the background signal is virtually absent, making this reporter system extremely sensitive.

The luciferase/luciferin system is used to study gene expression, noninvasively monitor tumor growth, metastasis, or the fate of transplanted stem cells in living animals over time, visualize infections, measure ATP levels in cells, and assess cell viability.

For *in vivo* experiments, the standard working dose is 100-150 mg/kg of mouse body weight administered intraperitoneally. For *in vitro* assays, the working concentration is typically 0.1-1.0 mM. The signal intensity and kinetics depend on pH, ATP and Mg²⁺ concentrations, temperature, and the permeability of cell membranes to the substrate.



Structure of D-Luciferin

General properties

Appearance: grey solid

Molecular weight: 318.42

CAS number: 115144-35-9 (potassium salt)

Molecular formula: C₁₁H₇KN₂O₃S₂

Solubility: well soluble in methanol, DMSO; moderately soluble in water (at pH > 6.5); poorly soluble in non-polar organic solvents

Quality control: NMR ¹H and HPLC-MS (99+%)

Storage conditions: 24 months after receipt at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.

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