Description

The In Vivo-Luc™ imaging solution is a ready-to-use, sterilized, endotoxin-free solution of *D*-Luciferin for *in vivo* imaging of the expression of firefly luciferase. Real-time disease progress or drug efficacy in animals can be monitored in a non-invasive manner using the In Vivo-Luc™ Imaging Solution.

Background

Luciferases are enzymes that produce light when they oxidize their substrate. Oxidation of luciferin, the substrate for the most commonly used firefly (*Photinus pyralis*) luciferase, results in bioluminescence that can be accurately measured using a luminometer and is proportional to the amount of luciferase enzyme present in the system under study. The firefly luciferase reaction requires luciferin, plus adenosine triphosphate (ATP) and Mg^{2+} as cofactors, and when in the presence of O_2, emits a characteristic glow (Figure 1). Common biological experiments that utilize the luciferase reaction are promoter activity assays in which luciferase expression is under the control of a specific promoter, and cell line-derived xenograft (CDX) models in which constitutive luciferase expression allows for real-time, non-invasive monitoring of tumor growth and measurement of disease progression or drug efficacy.

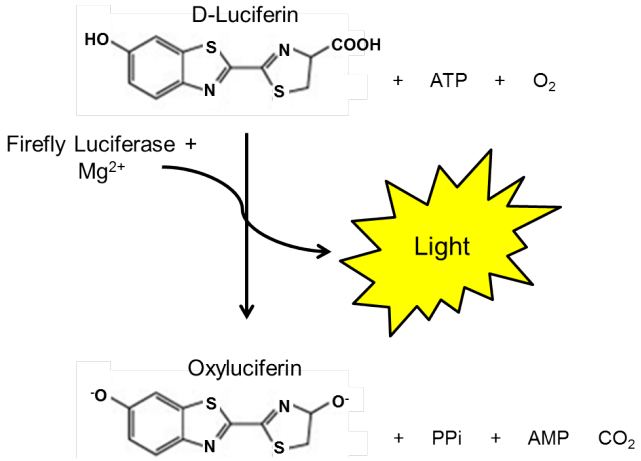

Figure 1. Bioluminescent Reaction Catalyzed by Luciferase.

Application(s)

In vivo imaging of luciferase activity

Formulation

15 mg/ml D-Luciferin in Phosphate-Buffered Saline (PBS) sterilized and endotoxin free.

Supplied Materials

Catalog #	Name	Amount	Storage
78803-1	Luciferase Reagent Substrate	5 ml (5 x 1 ml)	-20°C

Important Product Information

Avoid exposing to excessive heat or light. Upon first thaw, prepare single-use aliquots and store at -20°C. Luciferin is very sensitive to multiple freeze/thaw cycles. Discard any unused product after thawing from aliquots.

Storage Conditions

Reagents will perform optimally for up to **6 months** from date of receipt when the materials are stored as directed. Upon first thaw, prepare single-use aliquots and store at -20°C. Luciferin is very sensitive to multiple freeze/thaw cycles. Discard any unused product after thawing from aliquots.

Safety

This product is for research purposes only and not for human or therapeutic use. Overall, this product should be considered hazardous and harmful by inhalation, in contact with skin or eyes, and if swallowed. If contact occurs, wash thoroughly.

Validation

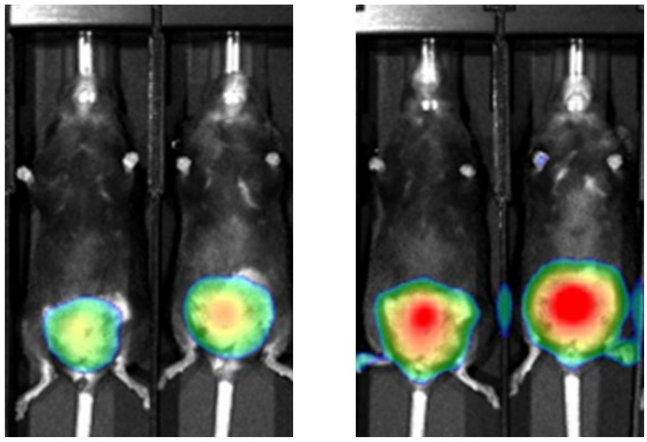

Figure 2: Bioluminescence imaging of tumor growth in a mouse orthotopic bladder cancer model. The In Vivo-Luc™ Imaging Solution was injected into mice 5 and 8 days after tumor cell inoculation using an orthotopic bladder cancer model. Luciferase activity in the whole mouse was measured using an IVIS imaging system. Two tumor-bearing mice are shown for each time-point. Total flux color range was between 10^5 and 10^8 (number of photons per second) in region of interest.

Reference

Eun H., 1996 Marker/Reporter Enzymes. Elsevier EBooks, 567–645.

Related Products

Products	*Catalog #*	*Size*
Dual Luciferase Assay System	60683-1	10 ml
NF-κB reporter (Luc) - HEK293 Recombinant Cell line	60650	2 vials
Firefly Luciferase THP-1 Cell Line	78409	2 vials
Firefly Luciferase NALM6 Cell Line	78494	2 vials
Firefly Luciferase Raji Cell Line	78622	2 vials

Version 072624