

Product information

Chemical name: D-Luciferin, 1-(4,5-dimethoxy-2-nitrophenyl) ethyl ester.

Formula: C₂₁H₁₉N₃O₇S₂

Molecular weight: 489.52

Physical state: Light yellow solid

Solubility: DMSO, DMF, Acetonitrile & Methanol

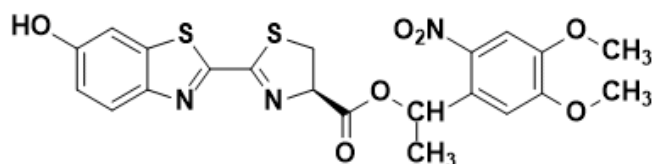
The cell permeable **DMNPE-caged Luciferin** is a bioluminescent luciferase substrate used to measure intracellular functions. It is a D-luciferin ester analogue of luciferin.

Description

DMNPE-caged luciferin appears a good alternative to D-Luciferin classically used to measure luciferase activity in live cells. The difficulty to deliver D-Luciferin into living cells renders *in vivo* quantification limited to a certain extent - for example permeability issues at neutral pH. DMNPE-caged-luciferin can cross cell membranes efficiently. Once inside the cells, active luciferin can be released by the action of esterases that hydrolyze ester providing a continuous supply of D-Luciferin or by a flash of UV light. This implies:

1. An improvement in sensitivity due to the more efficient D-Luciferin delivery into intact living cells
2. Stabilized and long-term measurements of luciferase activity as esterases allow a constant supply of active Luciferin.

Structure



Main Features

- High purity.
- Cell permeable: efficient luciferin delivery into intact cells even at neutral pH.
- Ideal for *in vivo* & *in vitro* experiments.
- Induces prolonged release of luciferin by the action of cells' esterases.
- Allows to follow changes in gene expression in live cells.

Applications

- Whole animal imaging (*in vivo* reporter assay)
- Reporter gene assays (a luciferase tagged gene is used as a marker in recombinant techniques)
- ATP assays (Luciferase catalyzes ATP)
- Pyrosequencing
- Luciferase fragment Complementation.

Use, handling and storage

For Research Use Only. Not for use in humans. Not for use in diagnostic or therapeutic purposes.

Shipping conditions: Room Temperature.

Storage conditions: -20°C.

Shelf life: 1 year from the date of purchase.

⚠ Protect from light.

Kit contents

LC10000: 10 mg DMNPE-caged luciferin.

LC25000: 25 mg DMNPE-caged luciferin.

LC50000: 50 mg DMNPE-caged luciferin.

Certificate of analysis on demand.

DMNPE-caged luciferin is provided in an amber bottle under nitrogen. DMNPE-caged Luciferin is sensitive to light, oxygen and moisture.

Method | Protocol

1. Prepare a **5 mM** stock solution in DMSO (200X): dissolve **2.45 mg** DMNPE-Caged luciferin in 1 mL DMSO.

2. Add stock solution to cell cultures for a final concentration of **25 µM**.

NOTE: we recommend preparing and using solution of DMNPE-caged Luciferin on the same day. However, the stock solution can be stored at -20°C protected from light for one month.

References and background reading

- Yang J. *et al.* An easily synthesized, photolabile luciferase substrate for *in vivo* luciferase activity measurement. *Biotechniques*, 1993.
- Calvert R.M. *et al.* Caged ATP- an internal calibration method for ATP bioluminescence assays. *Lett. Appl. Microbiol.*, 2000.
- Gelmini, S. *et al.* Luciferase gene as reporter: comparison with the CAT gene and use in transfection and microinjection of mammalian cells. *Methods in Enzymology*, 2000.
- Zhang Y. *et al.* Influence of bioluminescence imaging dynamics by D-luciferin uptake and efflux mechanisms. *Mol Imaging*, 2012.
- McCutcheon DC. *et al.* Rapid and scalable assembly of firefly luciferase substrates. *Org Biomol Chem*, 2014.

Purchaser Notification | Conditions of Sale

This product is sold in accordance with our general conditions of sale that you can find on our website: <https://ozbiosciences.com/content/3-terms-and-conditions>.