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Product Information

Luciferase from *Photinus pyralis* (firefly) recombinant, expressed in *Escherichia coli*

Catalog Number **L9420**
Storage Temperature –20 °C

CAS RN 61970-00-1
EC 1.13.12.7
Synonyms: Luciferin 4-monooxygenase, Firefly Luciferase

Product Description

Luciferase, a 62 kDa protein, catalyzes a reaction which produces light. The enzyme requires ATP, molecular oxygen, and the heterocyclic compound luciferin to generate light in a two-step process.[1] The light-producing reaction is initiated with activation of luciferin by adenylation of its carboxylate group. The reaction proceeds in the presence of molecular oxygen to yield a photon of yellow-green light.[1,2]

Luciferase is used extensively in molecular and cell biology, in particular for the efficient detection and quantitation of ATP, and as a reporter for genetic function.[3,4]

This product is a recombinant luciferase from *Photinus pyralis* (American firefly) produced from the *luc* gene expressed in *E. coli*. It is supplied in a buffered solution containing Tris-acetate, pH 7.8, ammonium sulfate, glycerol, ethylene glycol, EDTA, and DTT.

Specific Activity: $\geq 10 \times 10^{10}$ light units/mg protein

Unit definition: One luciferase enzyme unit will produce one Relative Light Unit (RLU) at 20–25 °C over a 10-second period, measured in a 100 µL assay mixture containing 40 pmol ATP and 15 nmol luciferin in Tris-glycine buffer, pH 7.6, using a GloMax® 20/20 Luminometer.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at –20 °C. The product can be stored at 2–8 °C for up to 1 week without loss of activity. Do not vortex and avoid vigorous agitation.

References

1. DeWet, J.R. *et al.*, Firefly luciferase gene: Structure and expression in mammalian cells. *Mol. Cell. Biol.*, **7**, 725-737 (1987).
2. Stanley, P.E., A review of bioluminescent ATP techniques in rapid microbiology. *J. Biolumin. Chemilumin.*, **4**, 375-380 (1989).
3. Kricka, L.J., Clinical and biochemical applications of luciferases and luciferins. *Anal. Biochem.*, **175**, 14-21 (1988).
4. Chappelle, E.W. et al., Determination of bacterial content in fluids. Meth. Enzymol., **57**, 65-72 (1978).

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