# SANTA CRUZ BIOTECHNOLOGY, INC.

# Luciferase (Luci 21 1-107): sc-57603



# BACKGROUND

Luciferase isolated from the common North American firefly, *Photinus pyralis*, is one of the most extensively studied enzymes that catalyze light production in bioluminescent organisms. Luciferase belongs to the ATP-dependent AMP-binding enzyme family. It produces green light with a wavelength of 562 nM. Following is the chemical catalytic reaction, which is catalyzed by Luciferase: *Photinus* Luciferin +  $O_2$  + ATP = oxidized *Photinus* Luciferin +  $CO_2$  + AMP + diphosphate + light.

#### **REFERENCES**

- Wood, K.V., et al. 1985. Synthesis of active firefly Luciferase by *in vitro* translation of RNA obtained from adult lanterns. Biochem. Biophys. Res. Commun. 124: 592-596.
- 2. de Wet, J.R., et al. 1987. Firefly Luciferase gene: structure and expression in mammalian cells. Mol. Cell. Biol. 7: 725-737.
- Keller, G.A., et al. 1987. Firefly Luciferase is targeted to peroxisomes in mammalian cells. Proc. Natl. Acad. Sci. USA 84: 3264-3268.
- 4. Franks, N.P., et al. 1998. Structural basis for the inhibition of firefly Luciferase by a general anesthetic. Biophys. J. 75: 2205-2211.
- 5. Dubuisson, M., et al. 2004. Firefly Luciferin as antioxidant and light emitter: the evolution of insect bioluminescence. Luminescence 19: 339-344.
- Vishwanath, R.P., et al. 2005. A quantitative high-throughput chemotaxis assay using bioluminescent reporter cells. J. Immunol. Methods 302: 78-89.
- Branchini, B.R., et al. 2005. Red- and green-emitting firefly Luciferase mutants for bioluminescent reporter applications. Anal. Biochem. 345: 140-148.
- Zhao, H., et al. 2005. Emission spectra of bioluminescent reporters and interaction with mammalian tissue determine the sensitivity of detection *in vivo*. J. Biomed. Opt. 10: 41210.

## SOURCE

Luciferase (Luci 21 1-107) is a mouse monoclonal antibody raised against full length native Luciferase of *Photinus pyralis* origin.

#### PRODUCT

Each vial contains 200  $\mu g$  lgG\_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

# STORAGE

Store at 4° C, \*\*D0 NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

#### PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

#### APPLICATIONS

Luciferase (Luci 21 1-107) is recommended for detection of Luciferase of *Photinus pyralis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Luciferase: 62 kDa.

#### **RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

#### DATA



Luciferase (Luci 21 1-107): sc-57603. Western blot analysis of *Photinus pyralis* recombinant Luciferase

## SELECT PRODUCT CITATIONS

- 1. Hwang, S., et al. 2008. Persistent gammaherpesvirus replication and dynamic interaction with the host *in vivo*. J. Virol. 82: 12498-12509.
- Zheng, W., et al. 2016. Far upstream element-binding protein 1 binds the 3' untranslated region of PKD2 and suppresses its translation. J. Am. Soc. Nephrol. 27: 2645-2657.
- Perez-Leal, O., et al. 2017. Pharmacological stimulation of nuclear factor (erythroid-derived 2)-like 2 translation activates antioxidant responses. J. Biol. Chem. 292: 14108-14121.

## **RESEARCH USE**

For research use only, not for use in diagnostic procedures.



See Luciferase (C-12): sc-74548 for Luciferase antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.