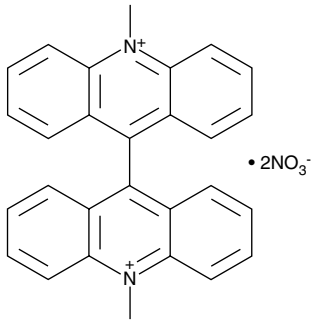
Product Information

Lucigenin

Item No. 14872

CAS Registry No.:	2315-97-1
Formal Name:	10,10'-dimethyl-9,9'-biacridinium, dinitrate
Synonyms:	L-6,868, NSC 151912
MF:	$C_{28}H_{22}N_2 \bullet 2NO_3$
FW:	510.5
Purity:	≥95%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ_{max}: 222, 261, 369, 429 nm



Laboratory Procedures

For long term storage, we suggest that lucigenin be stored as supplied at -20°C. It should be stable for at least two years.

Lucigenin is supplied as a crystalline solid. A stock solution may be made by dissolving the lucigenin in the solvent of choice. Lucigenin is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of lucigenin in these solvents is approximately 5 and 0.33 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of lucigenin can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of lucigenin in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Lucigenin is a dual purpose probe. It can be used as a chemiluminescent probe to detect superoxide production by enzymatic and cellular sources.[1-3] It is a very sensitive method that has been applied to the monitoring of superoxide production from xanthine oxidase, microsomal NADPH cytochrome reductase, and NADPH oxidases of phagocytes, endothelial cells, fibroblasts, and smooth muscle cells of blood vessel walls.[2,4] Lucigenin is also used as a fluorescent chloride-sensitive indicator, with fluorescence being quenched by chloride (excitation: 455 nm; emission: 505 nm).[5-7] Lucigenin fluorescence is insensitive to phosphate, sulfate, and nitrate.[5]

References

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3. Skatchkov, M.P., Sperling, D., Hink, U., *et al.* Validation of lucigenin as a chemiluminescent probe to monitor vascular superoxide as well as basal vascular nitric oxide production. *Biochem. Biophys. Res. Commun.* **254**, 319-324 (1999).
4. Cai, H., Dikalov, S., Griendling, K.K., *et al.* Detection of reactive oxygen species and nitric oxide in vascular cells and tissues: Comparison of sensitivity and specificity, Chapter 20, in Vascular Biology Protocols. 293-311 (2007).
5. Biwersi, J., Tulk, B., and Werkman, A.S. Long-wavelength chloride-sensitive fluorescent indicators. *Anal. Biochem.* **219(1)**, 139-143 (1994).
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7. Ruedas-Rama, M.J., Orte, A., Hall, E.A.H., *et al.* A chloride ion nanosensor for time-resolved fluorimetry and fluorescence lifetime imaging. *Analyst* **137(6)**, 1500-1508 (2012).

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