

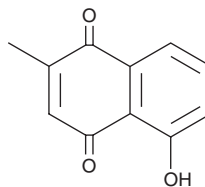
# PRODUCT INFORMATION



## Plumbagin

Item No. 14314

**CAS Registry No.:** 481-42-5  
**Formal Name:** 5-hydroxy-2-methyl-1,4-naphthalenedione  
**Synonyms:** NSC 236613, NSC 688284  
**MF:** C<sub>11</sub>H<sub>8</sub>O<sub>3</sub>  
**FW:** 188.2  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 210, 264 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Plumbagin is supplied as a crystalline solid. A stock solution may be made by dissolving the plumbagin in the solvent of choice, which should be purged with an inert gas. Plumbagin is soluble in organic solvents such as methanol, ethanol, and DMSO. The solubility of plumbagin in methanol and ethanol is approximately 5 mg/ml and approximately 10 mg/ml in DMSO.

### Description

Plumbagin is a natural 1,4-naphthoquinone first isolated from plants of the genus *Plumbago*. It has diverse effects in cells and animals. Plumbagin causes the generation of reactive oxygen species and induces apoptosis in cancer cells.<sup>1,2</sup> It activates signaling through Nrf2 and the antioxidant response element, inducing the expression of Nrf2 target genes, including NQO1 and heme oxygenase-1 in cultured neuronal cells.<sup>1</sup> Plumbagin also inhibits NADPH oxidase 4 in a time- and dose-dependent manner.<sup>3</sup> It can be protective against peroxide stress or deprivation of glucose or oxygen.<sup>1</sup>

### References

1. Klotz, L.-O., Hou, X., and Jacob, C. 1,4-Naphthoquinones: From oxidative damage to cellular and inter-cellular signaling. *Molecules* **19(9)**, 14902-14918 (2014).
2. Gupta, S.C., Kim, J.H., Prasad, S., et al. Regulation of survival, proliferation, invasion, angiogenesis, and metastasis of tumor cells through modulation of inflammatory pathways by nutraceuticals. *Cancer Metastasis Rev.* **29(3)**, 405-434 (2010).
3. Schramm, A., Matusik, P., Osmenda, G., et al. Targeting NADPH oxidases in vascular pharmacology. *Vascul. Pharmacol.* **56(5-6)**, 216-231 (2012).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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