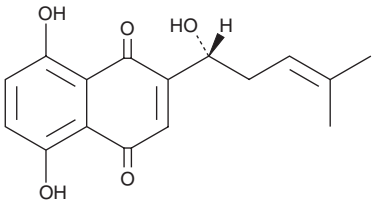
PRODUCT INFORMATION

Shikonin

Item No. 14751

CAS Registry No.:	517-89-5
Formal Name:	5,8-dihydroxy-2-[(1R)-1-hydroxy-4-methyl-3-penten-1-yl]-1,4-naphthalenedione
Synonyms:	C.I. 75535, Isoarnebin 4, NSC 252844
MF:	$C_{16}H_{16}O_5$
FW:	288.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 214, 278, 515 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/*Arnebiae radix*



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

Laboratory Procedures

Shikonin is supplied as a crystalline solid. A stock solution may be made by dissolving the shikonin in the solvent of choice, which should be purged with an inert gas. Shikonin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of shikonin in these solvents is approximately 2, 11, and 16 mg/ml, respectively.

Shikonin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, shikonin should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Shikonin has a solubility of approximately 0.16 mg/ml in a 1:5 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Shikonin is a naturally occurring naphthoquinine isolated from the dried root of *L. erythrorhizon*, an herb used in traditional Chinese medicine. It increases glucose uptake by adipocytes and myocytes and inhibits the activity of phosphatase and tensin homolog (PTEN; IC_{50} = 2.7 µM).[1,2] It inhibits glycolysis in cancer cells by inhibiting tumor-specific pyruvate kinase M_2 (IC_{50} = 0.3 µM).[3] Shikonin induces cell death consistent with necroptosis in MCF-7 and HEK293 cancer cell lines.[4] It inhibits leukocyte migration, downregulates chemokine receptor expression, and inhibits HIV-1 replication at nanomolar concentrations.[5] Shikonin exhibits anti-inflammatory activity, reducing joint swelling and cartilage destruction in a mouse model of collagen-induced arthritis.[6]

References

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2. Nigorikawa, K., Yoshikawa, K., Sasaki, T., *et al. Mol. Pharmacol.* **70(3)**, 1143-1149 (2006).
3. Chen, J., Xie, J., Jiang, Z., *et al. Oncogene* **30(42)**, 4297-4306 (2011).
4. Han, W., Li, L., Qiu, S., *et al. Mol. Cancer Ther.* **6(5)**, 1641-1649 (2007).
5. Chen, X., Yang, L., Zhang, N., *et al. Antimicrob. Agents Chemother.* **47(9)**, 2810-2816 (2003).
6. Kim, Y.O., Hong, S.J., and Yim, S.V. *Korean J. Physiol. Pharmacol.* **14(4)**, 199-204 (2010).

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