

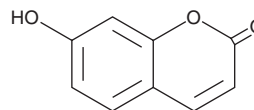
PRODUCT INFORMATION



Umbelliferone

Item No. 24665

CAS Registry No.: 93-35-6
Formal Name: 7-hydroxy-2H-1-benzopyran-2-one
Synonyms: 7-hydroxy Coumarin, NSC 19790
MF: C₉H₆O₃
FW: 162.1
Purity: ≥98%
UV/Vis.: λ_{max}: 326 nm
Ex./Em.: 330 and 370/460 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

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

Description

Umbelliferone is a naturally occurring derivative and metabolite of coumarin that has diverse biological activities including antitumor and antidepressant-like properties.¹⁻³ It inhibits the growth of a variety of human cell lines, including human ACHN renal, A549 lung, HCT15 colon, and LNCaP prostate carcinoma as well as Dakiki myeloma and HL-60 lymphoma cells, when used at concentrations ranging from 250 to 300 µg/ml.¹ It also reversibly inhibits the production of prostate-specific androgen in LNCaP prostate cancer cells. Umbelliferone increases the production of reactive oxygen species (ROS), depolarizes the mitochondrial membrane, and halts the cell cycle at the G₀/G₁ phase in KB human oral carcinoma cells.² In a rat model of depression induced by chronic unpredictable mild stress, umbelliferone (15 and 30 mg/kg) decreases immobility time in the forced swim test and increases sucrose consumption in the sucrose preference test, indicating antidepressant-like activity.³ Umbelliferone has been used as a ratiometric pH indicator that displays an emission maxima of 460 nm when solutions with a pH of less than six or greater than eight are excited at 330 and 370 nm, respectively.⁴

References

1. Marshall, M.E., Kervin, K., Benefield, C., *et al.* Growth-inhibitory effects of coumarin (1,2-benzopyrone) and 7-hydroxycoumarin on human malignant cell lines in vitro. *J. Cancer Res. Clin. Oncol.* **120(Suppl.)**, S3-S10 (1994).
2. Vijayalakshmi, A. and Sindhu, G. Umbelliferone arrest cell cycle at G₀/G₁ phase and induces apoptosis in human oral carcinoma (KB) cells possibly via oxidative DNA damage. *Biomed. Pharmacother.* **92**, 661-671 (2017).
3. Qin, T., Fang, F., Song, M., *et al.* Umbelliferone reverses depression-like behavior in chronic unpredictable mild stress-induced rats by attenuating neuronal apoptosis via regulating ROCK/Akt pathway. *Behav. Brain Res.* **317**, 147-156 (2017).
4. Fink, D.W. and Koehler, W.R. pH Effects on fluorescence of umbelliferone. *Anal. Chem.* **42(9)**, 990-993 (1970).

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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