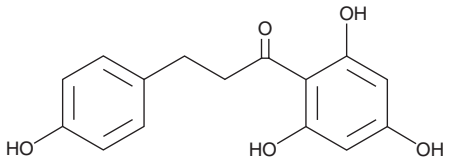
PRODUCT INFORMATION

Phloretin

Item No. 14452

CAS Registry No.:	60-82-2
Formal Name:	3-(4-hydroxyphenyl)-1-(2,4,6-trihydroxyphenyl)-1-propanone
Synonyms:	NSC 407292, RJC 02792
MF:	$C_{15}H_{14}O_5$
FW:	274.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 225, 287 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

Phloretin is supplied as a crystalline solid. A stock solution may be made by dissolving the phloretin in the solvent of choice, which should be purged with an inert gas. Phloretin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of phloretin in ethanol is approximately 10 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Phloretin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, phloretin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Phloretin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Phloretin is a natural phenol which inhibits a variety of transporters. It inhibits the monocarboxylate transporters MCT1 and MCT2 (IC_{50} = 28 and 14 µM, respectively), restricting the rapid transport of monocarboxylates like lactate and pyruvate across the plasma membrane.[1] Phloretin also blocks the sodium/D-glucose cotransporter (K_i = 86 µM) and the human concentrative nucleoside transporter 3 (K_i = 32 µM).[2,3]

References

1. Bröer, S., Bröer, A., Schneider, H.P., *et al.* Characterization of the high-affinity monocarboxylate transporter MCT2 in *Xenopus laevis* oocytes. *Biochem. J.* **341(Pt 3)**, 529-535 (1999).
2. Wielert-Badt, S., Lin, J.T., Lorenz, M., *et al.* Probing the conformation of the sugar transport inhibitor phlorizin by 2D-NMR, molecular dynamics studies, and pharmacophore analysis. *J. Med. Chem.* **43(9)**, 1692-1698 (2000).
3. Gupte, A. and Buolamwini, J.K. Synthesis and biological evaluation of phloridzin analogs as human concentrative nucleoside transporter 3 (hCNT3) inhibitors. *Bioorg. Med. Chem. Lett.* **19(3)**, 917-921 (2009).

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