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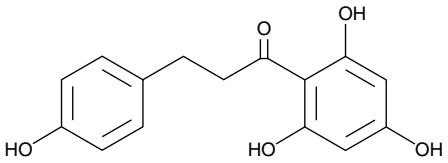
Product Information

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%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 225, 287 nm



Laboratory Procedures

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

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

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**, 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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