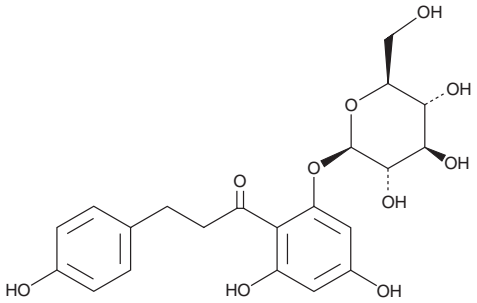
PRODUCT INFORMATION

Phlorizin

Item No. 11576

CAS Registry No.: 60-81-1
Formal Name: 1-[2-(β-D-glucopyranosyloxy)-4,6-dihydroxyphenyl]-3-(4-hydroxyphenyl)-1-propanone
Synonyms: Floridzin, NSC 2833
MF: $C_{21}H_{24}O_{10}$
FW: 436.4
Purity: ≥98%
UV/Vis.: λ_{max}: 224, 285 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly



Laboratory Procedures

Phlorizin is supplied as a crystalline solid. A stock solution may be made by dissolving the phlorizin in the solvent of choice. Phlorizin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of phlorizin in ethanol is approximately 5 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Phlorizin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, phlorizin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Phlorizin 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

Sodium-glucose cotransporter 1 (SGLT1) is a high affinity, low capacity transporter abundant in the small intestine, with some expression in the kidney as well. SGLT2 is a low affinity, high capacity transporter in the kidney that accounts for approximately 90% of glucose reabsorption into the blood stream. Selective inhibition of SGLT2 is a potential strategy for reducing plasma glucose levels as a treatment for diabetes.[1] Phlorizin is a natural product, first isolated from the bark of apple trees, that reduces plasma glucose levels by blocking renal and intestinal glucose absorption through inhibition of SGLT1 and SGLT2.[2,3] It competitively inhibits the initial rate of α-methyl-D-glucopyranoside (α-MDG) uptake in human COS-1 cells expressing hSGLT1 and hSGLT2 with IC_{50} values of 400 and 65 nM, respectively.[4] In HEK293T cells expressing human SGLT1 and SGLT2, phlorizin exhibits K_i values of 140 and 11 nM, respectively, at 37°C.[4,5]

References

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2. White, J.R., Jr. *Clinical Diabetes* **28(1)**, 5-10 (2010).
3. Ehrenkranz, J.R.L., Lewis, N.G., Kahn, C.R., *et al. Diabetes Metab. Res. Rev.* **21**, 31-38 (2005).
4. Hummel, C.S., Lu, C., Liu, J., *et al. Am. J. Physiol. Cell Physiol.* **302(2)**, C373-C382 (2012).
5. Hummel, C.S., Lu, C., Loo, D.D.F., *et al. Am. J. Physiol. Cell Physiol.* **300**, C14-C21 (2011).

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