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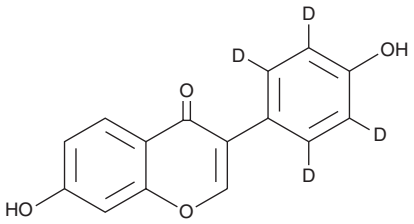
PRODUCT INFORMATION

Daidzein-d_4

Item No. 18249

CAS Registry No.: 1219803-57-2
Formal Name: 7-hydroxy-3-(4-hydroxyphenyl-2,3,5,6-d_4)-4H-1-benzopyran-4-one
MF: $C_{15}H_6D_4O_4$
FW: 258.3
Chemical Purity: ≥98% (Daidzein)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤1% d_0
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

Daidzein-d_4 is intended for use as an internal standard for the quantification of daidzein (Item No. 10005166) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Daidzein-d_4 is supplied as a solid. A stock solution may be made by dissolving the daidzein-d_4 in the solvent of choice. Daidzein-d_4 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of daidzein-d_4 in these solvents is approximately 0.1, 30, and 10 mg/ml, respectively.

Description

Daidzein is an isoflavone phytoestrogenic compound that has been found in soybeans and other legumes.[1] It binds to estrogen receptor β (ERβ; K_i = 2.8 µM) but not ERα at concentrations up to 1 mM.[2] It is estrogenic *in vitro*, increasing gene transcription mediated by the estrogen response element (ERE) in a reporter assay in an ERβ-dependent manner (EC_{50} = 2.8 µM for MCF-7 cells expressing ERβ).[1] Daidzein is an inhibitor of carbonic anhydrase (CA) that is selective for carbonic CAVII and CAXII (K_is = 4.2 and 56 nM, respectively) over CAI, II, and IV (K_is = >10,000, >10,000, and 718.7 nM, respectively).[3] It reduces tumor growth in a PC3 prostate cancer mouse orthotopic model when administered at a dose of 50 mg/kg per day and potentiates the effects of radiation therapy.[4]

References

1. Harris, D.M., Besselink, E., Henning, S.M., *et al.* Phytoestrogens induce differential estrogen receptor alpha- or beta-mediated responses in transfected breast cancer cells. *Exp. Biol. Med. (Maywood)* **230(8)**, 558-568 (2005).
2. Zhao, L. and Brinton, R.D. Structure-based virtual screening for plant-based ERβ-selective ligands as potential preventative therapy against age-related neurodegenerative diseases. *J. Med. Chem.* **48(10)**, 3463-3466 (2005).
3. Karioti, A., Ceruso, M., Carta, F., *et al.* New natural product carbonic anhydrase inhibitors incorporating phenol moieties. *Bioorg. Med. Chem.* **23(22)**, 7219-7225 (2015).
4. Singh-Gupta, V., Zhang, H., Yunker, C.K., *et al.* Daidzein effect on hormone refractory prostate cancer *in vitro* and *in vivo* compared to genistein and soy extract: Potentiation of radiotherapy. *Pharm. Res.* **27(6)**, 1115-1127 (2010).

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