

Product Data Sheet

Product Name: Rhein-¹³C₆

Cat. No.: GC91920

Chemical Properties

Cas. No.

Chemical Name 9,10-dihydro-4,5-dihydroxy-9,10-dioxo-2-anthracenecarboxylic acid-1,2,3,4,4a,9a-¹³C₆

SMILES O=C1[13C]2=[13C](O)[13CH]=[13C](C(O)=O)[13CH]=[13C]2C(C3=C1C(O)=CC=C3)=O

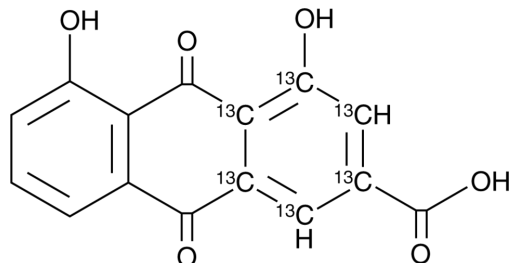
Formula C₉[¹³C]₆H₈O₆ M.Wt 290.2

Solubility DMSO: Soluble Storage -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Rhein-¹³C₆ is intended for use as an internal standard for the quantification of rhein by GC- or LC-MS. Rhein is an anthraquinone derivative that has been found in *R. rhabarbarum* and is an active metabolite of diacerein that has diverse biological activities, including anticancer, antioxidant, and anti-inflammatory activities.^{1,2,3,4} It induces cell cycle arrest at the S phase and inhibits the proliferation of HepG2 cells when used at concentrations of 40 and 100 μM, respectively.¹ Rhein (100 and 200 μM) also inhibits the proliferation of MCF-7 and MDA-MB-435s breast cancer cells under normoxic and hypoxic conditions.² It reduces controlled cortical impact-induced decreases in catalase and superoxide dismutase (SOD) activity and malondialdehyde (MDA), glutathione, and

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glutathione disulfide levels in the brain in a rat model of traumatic brain injury when administered at a dose of 12 mg/kg.³ Rhein (50 mg/kg per day) reduces cerulein-induced increases in serum TNF- α , IL-1 β , and amylase levels, as well as reduces pancreatic glandular atrophy and fibrosis, in a mouse model of chronic pancreatitis.⁴

References:

- [1]. Liu, S., Wang, J., Shao, T., et al. The natural agent rhein induces β -catenin degradation and tumour growth arrest. *J. Cell. Mol. Med.* 22(1)589-599(2018).
- [2]. Fernand, V.E., Losso, J.N., Traux, R.E., et al. Rhein inhibits angiogenesis and the viability of hormone-dependent and -independent cancer cells under normoxic or hypoxic conditions in vitro. *Chem. Biol. Interact.* 192(3)220-232(2011).
- [3]. Xu, X., Lv, H., Xia, Z., et al. Rhein exhibits antioxidative effects similar to Rhubarb in a rat model of traumatic brain injury. *BMC Complement. Altern. Med.* 17(1)140(2017).
- [4]. Tsang, S.W., Zhang, H., Lin, C., et al. Rhein, a natural anthraquinone derivative, attenuates the activation of pancreatic stellate cells and ameliorates pancreatic fibrosis in mice with experimental chronic pancreatitis. *PLoS One* 8(12)e82201(2013).

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