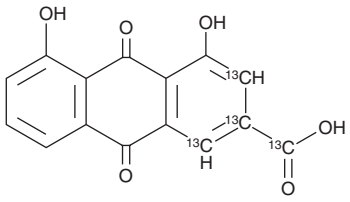
PRODUCT INFORMATION

Rhein-$^{13}C_4$

Item No. 28803

CAS Registry No.: 2971753-59-8
Formal Name: 9,10-dihydro-4,5-dihydroxy-9,10-dioxo-2-anthracene-1,3,4-$^{13}C_3$-carboxylic acid-^{13}C
Synonym: Rheic Acid-$^{13}C_4$
MF: $C_{11}[^{13}C_4]H_8O_6$
FW: 288.2
Purity: ≥90%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Synthetic



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

Laboratory Procedures

Rhein-$^{13}C_4$ is supplied as a solid. A stock solution may be made by dissolving the rhein-$^{13}C_4$ in the solvent of choice, which should be purged with an inert gas. Rhein-$^{13}C_4$ is soluble in the organic solvent DMSO.

Description

Rhein-$^{13}C_4$ is intended for use as an internal standard for the quantification of rhein (Item No. 17345) by GC- or LC-MS. Rhein is an anthraquinone derivative that has been found in *R. rhabarbarum* and a metabolite of diacerein (Item No. 11710) that has diverse biological activities, including anticancer, antioxidant, and anti-inflammatory activities.[1-4] 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.[2] Rhein (100 and 200 µM) also inhibits proliferation of MCF-7 and MDA-MB-435s breast cancer cells under normoxic and hypoxic conditions.[3] It reduces controlled cortical impact-induced decreases in catalase and superoxide dismutase (SOD) activity and malondialdehyde (MDA), glutathione, and glutathione disulfide levels in the brain in a rat model of traumatic brain injury when administered at a dose of 12 mg/kg.[1] Rhein (50 mg/kg per day) reduces increased serum TNF-α, IL-1β, and amylase levels, as well as reduces pancreatic glandular atrophy and fibrosis, in a mouse model of chronic pancreatitis induced by cerulein.[4]

References

1. 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).
2. 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).
3. 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).
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)**, 1-15 (2013).

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