

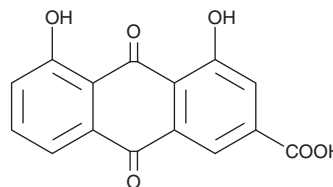
# PRODUCT INFORMATION



## Rhein

Item No. 17345

**CAS Registry No.:** 478-43-3  
**Formal Name:** 9,10-dihydro-4,5-dihydroxy-9,10-dioxo-2-anthracenecarboxylic acid  
**Synonyms:** NSC 38629, Rheic Acid  
**MF:** C<sub>15</sub>H<sub>8</sub>O<sub>6</sub>  
**FW:** 284.2  
**Purity:** ≥95%  
**UV/Vis.:** λ<sub>max</sub>: 231, 258, 431 nm  
**Supplied as:** A crystalline 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

Rhein is supplied as a crystalline solid. A stock solution may be made by dissolving the rhein in the solvent of choice, which should be purged with an inert gas. Rhein is soluble in organic solvents such as DMSO. The solubility of rhein in this solvent is approximately 15 mg/ml.

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

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.<sup>1-4</sup> 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.<sup>1</sup> Rhein (100 and 200 μM) also inhibits proliferation of MCF-7 and MDA-MB-435s breast cancer cells under normoxic and hypoxic conditions.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup>

### 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), 1-15 (2013).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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