

## Rhein-13C4

## Chemical Properties

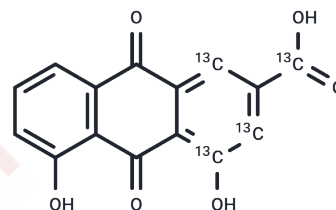
CAS No. : 1189928-10-6

Formula: C<sub>15</sub>H<sub>8</sub>O<sub>6</sub>

Molecular Weight: 288.192

Appearance:

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year



## Biological Description

Description	Rhein-13C4 is intended for use as an internal standard for the quantification of rhein by GC- or LC-MS. Rhein is an anti-inflammatory anthraquinone found in rhubarb and is the bioactive derivative of its prodrug diacerein . At 10 $\mu$ M, rhein inhibits IL-1 $\beta$ signaling, suppressing signaling through NF- $\kappa$ B, and reduces the expression of the matrix metalloproteases MMP-1 and MMP-13. <sup>1</sup> It inhibits IKK $\beta$ (IC <sub>50</sub> = 11.8 $\mu$ M), decreasing iNOS and IL-6 expression in LPS-stimulated macrophages but paradoxically increasing TNF- $\alpha$ , IL-1 $\beta$ , and HMBG1 expression. <sup>2</sup> Rhein shows efficacy against pancreatic fibrosis, chronic pancreatitis, and hyperglycemia-induced pancreatic $\beta$ -cell apoptosis. <sup>3,4</sup> It also inhibits angiogenesis of breast cancer cells under normoxic and hypoxic conditions. <sup>5</sup>
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## Solubility Information

Solubility	DMSO: Soluble ( $< 1$ mg/ml refers to the product slightly soluble or insoluble)
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## Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.4699 mL	17.3497 mL	34.6993 mL
5 mM	0.694 mL	3.4699 mL	6.9399 mL
10 mM	0.347 mL	1.735 mL	3.4699 mL
50 mM	0.0694 mL	0.347 mL	0.694 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

### Reference

- Domagala, F., Martin, G., Bogdanowicz, P., et al. Inhibition of interleukin-1 $\beta$ -induced activation of MEK/ERK pathway and DNA binding of NF- $\kappa$ B and AP-1: Potential mechanism for Diacerein effects in osteoarthritis. *Biorheology* 43(3-4), 577-587 (2006).
- Gao, Y., Chen, X., Fang, L., et al. Rhein exerts pro- and anti-inflammatory actions by targeting IKK $\beta$  inhibition in LPS-activated macrophages. *Free Radic. Biol. Med.* 72, 104-112 (2014).
- 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).
- Sayre, L.M., Larson, D.L., Takemori, A.E., et al. Design and synthesis of naltrexone-derived affinity labels with nonequilibrium opioid agonist and antagonist activities. Evidence for the existence of different  $\mu$  receptor subtypes in different tissues. *Journal of Medicinal Chemistry* 27(10), 1325-1335 (1984).
- 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).

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