

# PRODUCT INFORMATION



## Lithospermic Acid

Item No. 33694

**CAS Registry No.:** 28831-65-4  
**Formal Name:** (2S,3S)-4-[(1E)-3-[(1R)-1-carboxy-2-(3,4-dihydroxyphenyl)ethoxy]-3-oxo-1-propen-1-yl]-2-(3,4-dihydroxyphenyl)-2,3-dihydro-7-hydroxy-3-benzofurancarboxylic acid  
**Synonyms:** (+)-Lithospermic Acid, Lithospermic Acid A

**MF:** C<sub>27</sub>H<sub>22</sub>O<sub>12</sub>

**FW:** 538.5

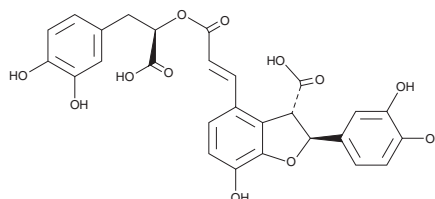
**Purity:** ≥98%

**Supplied as:** A solid

**Storage:** -20°C

**Stability:** ≥4 years

**Item Origin:** Plant/*Salvia miltiorrhiza* root



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

### Laboratory Procedures

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

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of lithospermic acid can be prepared by directly dissolving the solid in aqueous buffers. The solubility of lithospermic acid in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Lithospermic acid is a polyphenol that has been found in *S. miltiorrhiza* and has diverse biological activities.<sup>1,2</sup> It inhibits xanthine oxidase (IC<sub>50</sub> = 5.2 µg/ml) and scavenges DPPH (Item No. 14805) radicals in cell-free assays (IC<sub>50</sub> = 23.2 µg/ml). It also inhibits the production of reactive oxygen species (ROS) induced by phorbol 12-myristate 13-acetate (PMA; Item No. 10008014) in isolated human neutrophils in a concentration-dependent manner.<sup>1</sup> Lithospermic acid inhibits 3'-processing and 3'-joining to target DNA by HIV-1 integrase in cell-free assays (IC<sub>50</sub>S = 0.83 and 0.48 µM, respectively).<sup>3</sup> It also inhibits acute HIV-1 infection of H9 human lymphoma cells (IC<sub>50</sub> = 2 µM) without inducing cytotoxicity. Lithospermic acid (100 mg/kg) prevents carbon tetrachloride-induced hepatic necrosis in mice.<sup>2</sup>

### References

1. Liu, X., Chen, R., Shang, Y., *et al.* Lithospermic acid as a novel xanthine oxidase inhibitor has anti-inflammatory and hypouricemic effects in rats. *Chem. Biol. Interact.* **176(2-3)**, 137-142 (2008).
2. Chan, K.W.K. and Ho, W.S. Anti-oxidative and hepatoprotective effects of lithospermic acid against carbon tetrachloride-induced liver oxidative damage *in vitro* and *in vivo*. *Oncol. Rep.* **34(2)**, 673-680 (2015).
3. Abd-Elazem, I.S., Chen, H.S., Bates, R.B., *et al.* Isolation of two highly potent and non-toxic inhibitors of human immunodeficiency virus type 1 (HIV-1) integrase from *Salvia miltiorrhiza*. *Antiviral Res.* **55(1)**, 91-106 (2002).

#### 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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