

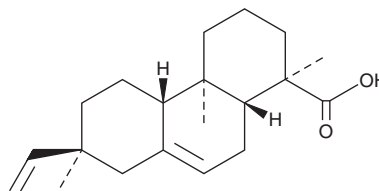
# PRODUCT INFORMATION



## Isopimaric Acid

Item No. 34544

**CAS Registry No.:** 5835-26-7  
**Formal Name:** (1R,4aR,4bS,7S,10aR)-7-ethenyl-1,2,3,4,4a,4b,5,6,7,8,10,10a-dodecahydro-1,4a,7-trimethyl-1-phenanthrenecarboxylic acid  
**Synonyms:** 7,15-Isopimaradien-18-oic Acid, (+)-Isopimaric Acid  
**MF:** C<sub>20</sub>H<sub>30</sub>O<sub>2</sub>  
**FW:** 302.5  
**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

Isopimaric acid is supplied as a solid. A stock solution may be made by dissolving the isopimaric acid in the solvent of choice, which should be purged with an inert gas. Isopimaric acid is slightly soluble in chloroform and methanol.

### Description

Isopimaric acid is a diterpenoid resin acid that has been found in *P. nigra* and has diverse biological activities.<sup>1-4</sup> It is active against clinical isolates of epidemic methicillin-resistant *S. aureus* (EMRSA; MICs = 32-64 µg/ml).<sup>1</sup> Isopimaric acid is an agonist of retinoid X receptor alpha (RXRα), RXRβ, and RXRγ in a reporter assay using HEK293T cells expressing human receptors (EC<sub>50</sub>s = 26, 32, and 33 µM, respectively).<sup>2</sup> It opens large conductance calcium-activated potassium channels (BKCa1.1/K<sub>Ca</sub>1.1) in HEK293 cells expressing recombinant channels and the activating β1 regulatory subunit when used at a concentration of 10 µM.<sup>3</sup> Isopimaric acid potentiates reductions in field excitatory postsynaptic potential (fEPSP) slopes in hippocampal slices and decreases escape latency in the Morris water maze in a 3xTg mouse model of Alzheimer's disease.<sup>4</sup> It has been found as an environmental contaminant in pulp and paper mill effluent.<sup>5</sup>

### References

1. Smith, E., Williamson, E., Zloh, M., *et al.* Isopimaric acid from *Pinus nigra* shows activity against multidrug-resistant and EMRSA strains of *Staphylococcus aureus*. *Phytother. Res.* **19(6)**, 538-542 (2005).
2. Merk, D., Grisoni, F., Friedrich, L., *et al.* Computer-assisted discovery of retinoid X receptor modulating natural products and isofunctional mimetics. *J. Med. Chem.* **61(12)**, 5442-5447 (2018).
3. Imaizumi, Y., Sakamoto, K., Yamada, A., *et al.* Molecular basis of pimarane compounds as novel activators of large-conductance Ca<sup>2+</sup>-activated K<sup>+</sup> channel α-subunit. *Mol. Pharmacol.* **62(4)**, 836-846 (2002).
4. Wang, L., Kang, H., Li, Y., *et al.* Cognitive recovery by chronic activation of the large-conductance calcium-activated potassium channel in a mouse model of Alzheimer's disease. *Neuropharmacology* **92**, 8-15 (2015).
5. van den Heuvel, M.R., Ellis, R.J., Tremblay, L.A., *et al.* Exposure of reproductively maturing rainbow trout to a New Zealand pulp and paper mill effluent. *Ecotoxicol. Environ. Saf.* **51(1)**, 65-75 (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.

#### WARRANTY AND LIMITATION OF REMEDY

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