**PRODUCT INFORMATION**

**Totarol**

*Item No. 26412*

**CAS Registry No.**: 511-15-9  
**Formal Name**: (4bS,8aS)-4b,5,6,7,8,8a,9,10-octahydro-4b,8,8-trimethyl-1-(1-methylethyl)-2-phenanthrenol  
**Synonyms**: NSC 299936, (+)-Totarol, trans-Totarol  
**MF**: C₂₀H₃₀O  
**FW**: 286.5  
**Purity**: ≥98%  
**UV/Vis.**: λ_{max}: 281 nm  
**Storage**: -20°C  
**Stability**: ≥2 years  
**Item Origin**: *Podocarpus totara*

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

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**Laboratory Procedures**

Totarol is supplied as a crystalline solid. A stock solution may be made by dissolving the totarol in the solvent of choice. Totarol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of totarol in these solvents is approximately 2, 3, and 2.5 mg/ml, respectively.

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**Description**

Totarol is a diterpene originally isolated from *P. totara* that has diverse biological activities, including antibacterial, antioxidant, and neuroprotective properties.¹ It is active against Gram-positive bacteria, including *P. acnes*, *S. mutans*, *B. subtilis*, and *B. ammoniagenes* (MICs = 0.39, 0.78, 1.56, and 0.78 µg/ml, respectively), as well as penicillin-resistant and -susceptible strains of *S. aureus* (MICs = 0.78 and 1.56 µg/ml, respectively).² It inhibits mitochondrial respiration in *P. aeruginosa*, inhibiting NADH-cytochrome c, NADH-DPIP, and NADH-coenzyme Q reductases but not cytochrome c oxidase.³ Totarol inhibits Fe(III)-ADP/NADPH-induced lipid oxidation in rat liver microsomes and mitochondria (IC₅₀ = 4.79 and 0.47 µM, respectively) and autooxidation of linoleic acid (Item No. 90150) with an IC₅₀ value of 9.8 µM.⁴ In rat primary cerebellar granule cells, totarol increases Akt and GSK-3β phosphorylation when used at a concentration of 5 µM and prevents neuronal death induced by glutamate or oxygen and glucose deprivation.⁵ It also reduces infarct volume in a rat model of acute cerebral ischemic injury when administered at doses of 1 and 10 microgram/kg.

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**References**