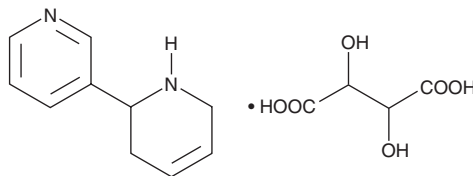


# PRODUCT INFORMATION

## (R,S)-Anatabine (tartrate)

Item No. 15132

**Formal Name:** 1,2,3,6-tetrahydro-2,3'-bipyridine  
2,3-dihydroxysuccinate  
**Synonym:** (±)-Anatabine  
**MF:** C<sub>10</sub>H<sub>12</sub>O<sub>2</sub> • C<sub>4</sub>H<sub>6</sub>O<sub>6</sub>  
**FW:** 310.3  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 260 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

(R,S)-Anatabine (tartrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the (R,S)-anatabine (tartrate) in the solvent of choice. (R,S)-Anatabine (tartrate) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of (R,S)-anatabine (tartrate) in these solvents is approximately 1, 20, and 33 mg/ml, respectively.

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 (R,S)-anatabine (tartrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (R,S)-anatabine (tartrate) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

(R,S)-Anatabine is an alkaloid that has been found as a minor component in tobacco (*Nicotiana*).<sup>1</sup> It is an agonist of α4β2 and α6/α3β2β4 subunit-containing nicotinic acetylcholine receptors (nAChRs; EC<sub>50</sub>s = 6.1 and 3.6 μM, respectively). It is selective for α4β2 and α6/α3β2β4 subunit-containing nAChRs over α3β4 subunit-containing nAChRs and α7 nAChRs (EC<sub>50</sub>s = 70.6 and 158.5 μM, respectively).<sup>2</sup> (R,S)-Anatabine stimulates dopamine, but not norepinephrine, release from isolated rat brain synaptosomes (EC<sub>50</sub>s = 1.76 and >100 μM, respectively). It increases the time spent at the top of the tank in a novel tank test, indicating anxiolytic-like activity, in zebrafish when used at a concentration of 10 mg/L. (R,S)-Anatabine (0.05 mg/ml in the drinking water) decreases disease severity in a mouse model of moderate, but not low or severe, experimental autoimmune thyroiditis induced by immunization with thyroglobulin, complete Freund's adjuvant (CFA), and *M. tuberculosis*.<sup>3</sup> It decreases food and nicotine self-administration in monkeys (ED<sub>50</sub>s = 2.085 and 0.854 mg/kg, respectively).<sup>4</sup> (R,S)-Anatabine has been used as a biomarker of tobacco use.<sup>5,6</sup>

### References

- Weeks, W.W. and Bush, L.P. *Plant Physiol.* **53**(1), 73-75 (1974).
- Alijevic, O., Jaka, O., Alzualde, A., et al. *Front. Pharmacol.* **13**, 668065 (2022).
- Caturegli, P., De Remigis, A., Ferlito, M., et al. *Endocrinology* **153**(9), 4580-4587 (2012).
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- Jacob, P., III, Yu, L., Shulgin, A.T., et al. *Am. J. Public Health* **89**(5), 731-736 (1999).
- Murphy, S.E., Link, C.A., Jensen, J., et al. *Cancer Epidemiol. Biomarkers Prev.* **13**(10), 1617-1623 (2004).

#### 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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