

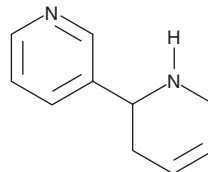
# PRODUCT INFORMATION



## (R,S)-Anatabine

Item No. 11001

**CAS Registry No.:** 2743-90-0  
**Formal Name:** 1,2,3,6-tetrahydro-2,3'-bipyridine  
**Synonym:** (±)-Anatabine  
**MF:** C<sub>10</sub>H<sub>12</sub>N<sub>2</sub>  
**FW:** 160.2  
**Purity:** ≥95%  
**UV/Vis.:** λ<sub>max</sub>: 261 nm  
**Supplied as:** A solution in ethanol  
**Storage:** -20°C  
**Stability:** ≥2 years



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

### Laboratory Procedures

(R,S)-Anatabine is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of (R,S)-anatabine in these solvents is approximately 15 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. If an organic solvent-free solution of (R,S)-anatabine is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of (R,S)-anatabine in PBS (pH 7.2) is approximately 0.3 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

1. Weeks, W.W. and Bush, L.P. *Plant Physiol.* **53**(1), 73-75 (1974).
2. Alijevic, O., Jaka, O., Alzualde, A., et al. *Front. Pharmacol.* **13**, 668065 (2022).
3. Caturegli, P., De Remigis, A., Ferlito, M., et al. *Endocrinology* **153**(9), 4580-4587 (2012).
4. Mello, N.K., Fivel, P.A., Kohut, S.J., et al. *Exp. Clin. Psychopharmacol.* **22**(1), 1-8 (2014).
5. Jacob, P., III, Yu, L., Shulgin, A.T., et al. *Am. J. Public Health* **89**(5), 731-736 (1999).
6. 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.

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