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## Product Data Sheet

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Product Name: (R,S)-Anatabine (tartrate)

Cat. No.: GC16139

### Chemical Properties

Cas. No.

Chemical Name 1,2,3,6-tetrahydro-2,3'-bipyridine 2,3-dihydroxysuccinate

SMILES OC(C(O)C(O)=O)C(O)=O.C1(C2=CN=CC=C2)CC=CCN1Formula  $C_{10}H_{12}O_2 \cdot C_4H_6O_6$  M.Wt 310.3Solubility  $\leq 1\text{mg/ml}$  in ethanol;  $20\text{mg/ml}$  in DMSO;  $33\text{mg/ml}$  in dimethyl formamide Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure 

### Background

Anatabine is a minor tobacco alkaloid with a chemical structural similarity to nicotine. Anatabine is produced in plants of the Solanacea family including tobacco, green tomatoes, peppers and eggplants [1]. Anatabine is an A $\beta$  inhibitor [1]. (R,S)-Anatabine (tartrate) is preferable to (R,S)-Anatabine for certain applications and formulations.

A $\beta$  peptides play a dominant role in the development of Alzheimer's disease. Natural soluble A $\beta$  oligomers and more specifically A $\beta$  dimers isolated from Alzheimer's disease brains have been involved in inducing tau hyperphosphorylation and neuritic degeneration, which results in the accumulation of A $\beta$  oligomers to the neurofibrillary degeneration observed in Alzheimer's disease (AD) [1].

In vitro: Anatabine dose-dependently lowered A $\beta$ 1-40 and A $\beta$ 1-42 levels and reduced sAPP $\beta$  production without any effects on sAPP $\alpha$  levels. Anatabine lowered A $\beta$  production by mainly impacting the  $\beta$ -cleavage of APP. Anatabine lowered NF $\kappa$ B activation.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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Anatabine inhibited BACE-1 transcription and reduced BACE-1 protein levels in human neuronal like SHSY-5Y cells. (R,S)-Anatabine also dose dependently inhibits NF- $\kappa$ B activation [1].

In vivo: In a transgenic mouse model with AD, treatment with anatabine for 4 days remarkably lowered brain soluble A $\beta$ 1-40 and A $\beta$ 1-42 levels [1].

### Reference:

[1] Paris D, Beaulieu-Abdelahad D, Bachmeier C, et al. Anatabine lowers Alzheimer's A $\beta$  production in vitro and in vivo[J]. European journal of pharmacology, 2011, 670(2): 384-391.

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