

Certificate of Analysis

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Product Name: GTS 21 dihydrochloride

Catalog No.: 4557

Batch No.: 2

CAS Number: 156223-05-1

IUPAC Name: 3-[(2,4-Dimethoxyphenyl)methylene]-3,4,5,6-tetrahydro-2,3'-bipyridine dihydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₉H₂₀N₂O₂·2HCl·1¼H₂O

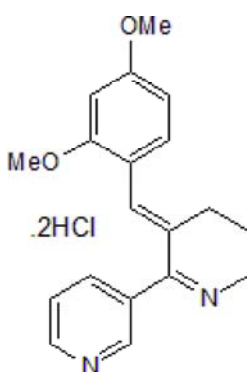
Batch Molecular Weight: 403.82

Physical Appearance: Yellow solid

Solubility: DMSO to 50 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

TLC: R_f = 0.45 (Chloroform:Methanol [9:1])

HPLC: Shows >99% purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

Carbon Hydrogen Nitrogen

	Carbon	Hydrogen	Nitrogen
Theoretical	56.51	6.11	6.94
Found	56.6	5.84	6.9

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Description:

Partial agonist of $\alpha 7$ nicotinic acetylcholine receptors (nAChRs); also a weak $\alpha 4\beta 2$ and 5-HT₃ antagonist at micromolar concentrations. Exhibits improved sensory inhibition in DBA/2 mice following both acute and chronic administration. Also shown to improve memory in several animal models; facilitates hippocampal long-term potentiation. Also has anti-inflammatory effects independent of $\alpha 7$ nAChRs.

Physical and Chemical Properties:

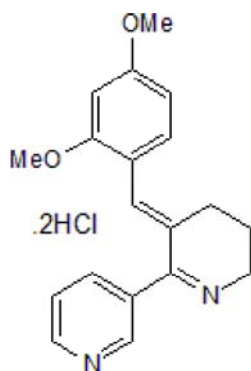
Batch Molecular Formula: C₁₉H₂₀N₂O₂·2HCl·1¼H₂O

Batch Molecular Weight: 403.82

Physical Appearance: Yellow solid

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Store at -20°C

Solubility & Usage Info:

DMSO to 50 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Garg and Loring *et al* (2019) GTS-21 has cell-specific anti-inflammatory effects independent of $\alpha 7$ nicotinic acetylcholine receptors. *PLoS One* **14** e0214942. PMID: 30947238.

Olincy *et al* (2012) Nicotinic mechanisms in the treatment of psychotic disorders: a focus on the $\alpha 7$ nicotinic receptor. *Handb.Exp.Pharmacol.* **213** 211. PMID: 23027417.

Stevens *et al* (2010) Continuous administration of a selective $\alpha 7$ nicotinic partial agonist, DMXBA, improves sensory inhibition without causing tachyphylaxis or receptor upregulation in DBA/2 mice. *Brain.Res.* **1352** 140. PMID: 20599427.

Meyer *et al* (1994) Effects of anabaseine-related analogs on rat brain nicotinic receptor binding and on avoidance behaviors. *Drug Dev.Res.* **31** 127.

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