

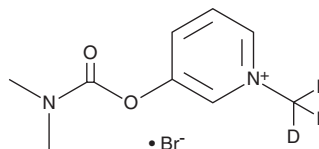
# PRODUCT INFORMATION



## Pyridostigmine-d<sub>3</sub> (bromide)

Item No. 35208

**Formal Name:** 3-[[[(dimethylamino)carbonyl]oxy]-1-methyl-d<sub>3</sub>-pyridinium, monobromide  
**MF:** C<sub>9</sub>H<sub>10</sub>D<sub>3</sub>N<sub>2</sub>O<sub>2</sub> • Br  
**FW:** 264.1  
**Chemical Purity:** ≥98% (Pyridostigmine (bromide))  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>3</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A 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

Pyridostigmine-d<sub>3</sub> (bromide) is intended for use as an internal standard for the quantification of pyridostigmine (Item No. 23831) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

### Description

Pyridostigmine is an inhibitor of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE; IC<sub>50</sub>s = 0.35 and 1 μM, respectively, for the human enzymes).<sup>1</sup> Pyridostigmine (10 μM) reduces decreases in AChE activity induced by the organophosphate pesticides diisopropyl fluorophosphate, chlorpyrifos-oxon, diazinon-oxon, paraoxon, and malaoxon in isolated bovine red blood cells.<sup>2</sup> It also reduces soman-induced membrane depolarization and decreases in AChE activity in isolated human muscle bundles in a concentration-dependent manner.<sup>3</sup> Pyridostigmine (3 mg/kg per day for four weeks) prevents tachycardia and increases in sympathetic tone in mice following myocardial infarction induced by left coronary artery ligation.<sup>4</sup> Formulations containing pyridostigmine have been used in the treatment of myasthenia gravis and as neuromuscular protective agents against organophosphate poisoning.

### References

1. Strelnik, A.D., Petukhov, A.S., Zueva, I.V., *et al.* Novel potent pyridoxine-based inhibitors of AChE and BChE, structural analogs of pyridostigmine, with improved *in vivo* safety profile. *Bioorg. Med. Chem. Lett.* **26(16)**, 4092-4094 (2016).
2. Henderson, J.D., Glucksman, G., Leong, B., *et al.* Pyridostigmine bromide protection against acetylcholinesterase inhibition by pesticides. *J. Biochem. Mol. Toxicol.* **26(1)**, 31-34 (2012).
3. Maselli, R.A., Henderson, J.D., Ng, J., *et al.* Protection of human muscle acetylcholinesterase from soman by pyridostigmine bromide. *Muscle Nerve* **43(4)**, 591-595 (2011).
4. Durand, M.T., Becari, C., de Oliveira, M., *et al.* Pyridostigmine restores cardiac autonomic balance after small myocardial infarction in mice. *PLoS One* **9(8)**, e104476 (2014).

#### 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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