

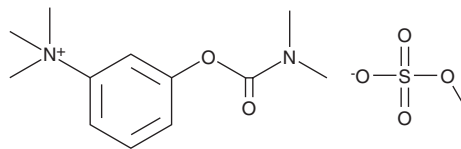
# PRODUCT INFORMATION



## Neostigmine (methyl sulfate)

Item No. 23501

**CAS Registry No.:** 51-60-5  
**Formal Name:** 3-[[[(dimethylamino)carbonyl]oxy]-N,N,N-trimethyl-benzenaminium, methyl sulfate  
**Synonym:** NSC 93753  
**MF:** C<sub>12</sub>H<sub>19</sub>N<sub>2</sub>O<sub>2</sub> • CH<sub>3</sub>SO<sub>4</sub>  
**FW:** 334.4  
**Purity:** ≥98%  
**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

Neostigmine (methyl sulfate) is supplied as a crystalline solid. A stock solution may be made by dissolving the neostigmine (methyl sulfate) in the solvent of choice, which should be purged with an inert gas. Neostigmine (methyl sulfate) is soluble in the organic solvent DMSO. It is also soluble in water. We do not recommend storing the aqueous solution for more than one day.

### Description

Neostigmine is a reversible inhibitor of acetylcholinesterase (AChE;  $K_d = 260 \mu\text{M}$ ).<sup>1</sup> In a rat model of knee joint inflammation, intrathecal administration of neostigmine (2-30  $\mu\text{g}$ ) increases endogenous acetylcholine levels and dose-dependently increases the latency of paw withdrawal in response to thermal and mechanical stimuli ( $\text{ED}_{50}\text{s} = 6.6$  and  $3.5 \mu\text{g}$ , respectively).<sup>2</sup> Neostigmine (5  $\mu\text{g}$ , i.p.) restores muscle action potentials in mice with a thymopointin-induced neuromuscular block.<sup>3</sup> Formulations containing neostigmine have been used in the treatment of myasthenia gravis and Ogilvie syndrome.

### References

1. Milkani, E., Lambert, C.R., and McGimpsey, W.G. Direct detection of acetylcholinesterase inhibitor binding with an enzyme-based surface plasmon resonance sensor. *Anal. Biochem.* **408(2)**, 212-219 (2011).
2. Buerkle, H., Boschini, M., Marcus, M.A.E., et al. Central and peripheral analgesia mediated by the acetylcholinesterase-inhibitor neostigmine in the rat inflamed knee joint model. *Anesth. Analg.* **86(5)**, 1027-1032 (1998).
3. Goldstein, G. and Schlesinger, D.H. Thymopointin and myasthenia gravis: Neostigmine-responsive neuromuscular block produced in mice by a synthetic peptide fragment of thymopointin. *Lancet* **2(7928)**, 256-259 (1975).

#### 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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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM