

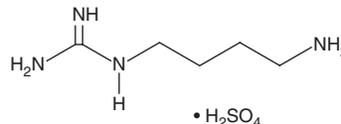
PRODUCT INFORMATION



Agmatine (sulfate)

Item No. 23513

CAS Registry No.: 2482-00-0
Formal Name: N-(4-aminobutyl)-guanidine, monosulfate
Synonym: NIH 11035
MF: C₅H₁₄N₄ • H₂SO₄
FW: 228.3
Purity: ≥98%
Supplied as: A crystalline solid
Storage: 4°C
Stability: ≥4 years



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

Laboratory Procedures

Agmatine (sulfate) is supplied as a crystalline solid. Aqueous solutions of agmatine (sulfate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of agmatine (sulfate) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Agmatine is a metabolite formed during polyamine biosynthesis with diverse biological activities.¹ Agmatine is released from and taken up by synaptosomes, demonstrating neurotransmitter-like activity. It binds to human adrenergic receptors (ARs) and imidazoline (I) receptors (K_is = 46.98, 164.4, 26.3, and 74.4 μM for α_{2A}, α_{2B}, and α_{2C}-ARs and I_{2b}, respectively).² Agmatine acts as an antagonist of the NMDA receptor (NMDAR) in a voltage- and concentration-dependent manner in primary rat hippocampal neurons and antagonizes nicotinic acetylcholine receptors (nAChRs) in intact chick retina at 1 mM.^{3,4} It is an antagonist of the serotonin (5-HT) receptor subtype 5-HT₃ in mouse N1E-115 neuroblastoma cells (IC₅₀ = 141 μM) and blocks ATP-sensitive potassium channels (K_{ATP}) in a concentration-dependent manner in mouse islets of Langerhans β-cells.^{5,6} Agmatine competitively inhibits neuronal, macrophage, endothelial, and inducible nitric oxide synthase (NOS; K_is = 660, 220, 7,500, and 260 μM, respectively) and irreversibly inactivates neuronal NOS in the presence of calmodulin (K_i = 29 μM).⁷ *In vivo*, agmatine (10 mg/kg) lowers the ED₅₀ value by 5.2- and 4.7-fold for morphine (Item No. ISO60147) and [D-Pen²,D-Pen⁵]enkephalin (DPDPE), respectively, in mice in a tail flick assay.⁸ It increases the nephron filtration rate when microperfused into the urinary space of rats, an effect that is reversed by the non-selective NOS inhibitor L-N^G-monomethyl arginine (L-NMMA; Item Nos. 80200 | 10005031).⁹

References

1. Reis, D.J. and Regunathan, S. *Trends Pharmacol. Sci.* **21(5)**, 187-193 (2000).
2. Piletz, J.E. *J. Pharmacol. Exp. Ther.* **272(2)**, 581-587 (1995).
3. Yang, X.C. and Reis, D.J. *J. Pharmacol. Exp. Ther.* **288(2)**, 544-549 (1999).
4. Loring, R.H. *Br. J. Pharmacol.* **99(1)**, 207-211 (1990).
5. Molderings, G.J., Schmidt, K., Bönisch, H., et al. *Naunyn Schmiedebergs Arch. Pharmacol.* **345(3)**, 245-252 (1996).
6. Shepherd, R.M., Hashmi, M.N., Kane, C., et al. *Br. J. Pharmacol.* **119(5)**, 911-916 (1996).
7. Demady, D.R., Jianmongkol, S., Vuletich, J.L., et al. *Mol. Pharmacol.* **59(1)**, 24-29 (2001).
8. Kolesnikov, Y., Jain, S., and Pasternak, G.W. *Eur. J. Pharmacol.* **296(1)**, 17-22 (1996).
9. Schwartz, D., Peterson, O.W., Mendonca, M., et al. *Am. J. Physiol.* **272(5 Pt 2)**, F597-F601 (1997).

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

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/14/2022

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