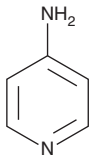
PRODUCT INFORMATION

4-Aminopyridine

Item No. 18511

CAS Registry No.: 504-24-5
Formal Name: 4-pyridinamine
Synonyms: 4-AP, BRL 34915, Dalfampridine, Fampridine, NSC 15041
MF: $C_5H_6N_2$
FW: 94.1
Purity: ≥95%
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 245 nm
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

4-AP is supplied as a crystalline solid. A stock solution may be made by dissolving the 4-AP in the solvent of choice. 4-AP is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 4-AP in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 4-AP can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 4-AP in PBS, pH 7.2, is approximately 30 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

4-AP is a non-selective blocker of voltage-dependent K^+-channels (K_v proteins in the KCN gene family). It has greatest potency at K_v1 (KCNA) and K_v3 (KCNC) family members (IC_{50}s = 290, 590, 195, 13, 29, and 100 µM for subunits 1.1, 1.2, 1.3, 1.4, 3.1, and 3.2, respectively).[1] 4-AP also blocks K_v2 and K_v4 subunits at millimolar concentrations.[1] When administered orally, 4-AP has benefits against multiple sclerosis, while injection into the brain produces epileptiform activity and can be used to study seizures.[2-4]

References

1. Gutman, G.A., Chandy, K.G., Grissmer, S., *et al*. International Union of Pharmacology. LIII. Nomenclature and molecular relationships of voltage-gated potassium channels. *Pharmacol. Rev.* **57(4)**, 473-508 (2005).
2. Blight, A.R., Henney, H.R., III, and Cohen, R. Development of dalfampridine, a novel pharmacologic approach for treating walking impairment in multiple sclerosis. *Ann. N. Y. Acad. Sci.* **1329**, 33-44 (2014).
3. Jensen, H.B., Ravnborg, M., Dalgas, U., *et al*. 4-Aminopyridine for symptomatic treatment of multiple sclerosis: A systematic review. *Ther. Adv. Neurol. Disord.* **7(2)**, 97-113 (2014).
4. Medina-Ceja, L., Flores-Ponce, X., Santerre, A., *et al*. Analysis of connexin expression during seizures induced by 4-aminopyridine in the rat hippocampus. *J. Biomed. Sci.* **22**, (2015).

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