

Product Information



Bafilomycin A₁

Item No. 11038

CAS Registry No.: 88899-55-2

Formal Name: (3Z,5E,7R,8S,9S,11E,13E,15S,16R)-8-hydroxy-16-[(1S,2R,3S)-2-hydroxy-1-methyl-3-[(2R,4R,5S,6R)-tetrahydro-2,4-dihydroxy-5-methyl-6-(1-methylethyl)-2H-pyran-2-yl]butyl]-3,15-dimethoxy-5,7,9,11-tetramethyloxacyclohexadeca-3,5,11,13-tetraen-2-one

Synonym: NSC 381866

MF: C₃₅H₅₈O₉

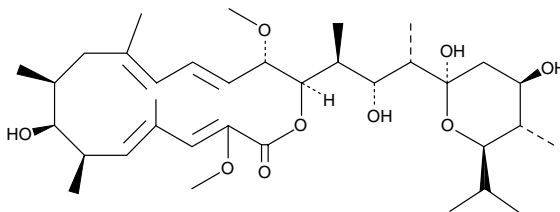
FW: 622.8

Purity: ≥95%

Stability: ≥1 year at -20°C

Supplied as: A crystalline solid

UV/Vis.: λ_{max}: 248, 288 nm



Laboratory Procedures

For long term storage, we suggest that bafilomycin A₁ be stored as supplied at -20°C. It should be stable for at least one year.

Bafilomycin A₁ is supplied as a crystalline solid. A stock solution may be made by dissolving the bafilomycin A₁ in the solvent of choice. Bafilomycin A₁ is soluble in organic solvents such as DMSO and methanol which should be purged with an inert gas. The solubility of bafilomycin A₁ in these solvents is approximately 5 mg/ml.

Bafilomycin A₁ is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Bafilomycin A₁ is a selective, reversible inhibitor of vacuolar H⁺ ATPases (V-ATPases), blocking these proton pumps in mammalian, plant, or fungal cells with an IC₅₀ value in the 4-400 nM range.¹ It is at least 1,000-fold less potent at most other types of ATPases.¹ Bafilomycin A₁ also inhibits autophagy by preventing vacuolar acidification necessary for autophagosome maturation.^{2,3}

References

1. Bowman, E.J., Siebers, A., and Altendorf, K. Bafilomycins: A class of inhibitors of membrane ATPases from microorganisms, animal cells, and plant cells. *Proc. Natl. Acad. Sci. USA* **85**, 7972-7976 (1988).
2. Yamamoto, A., Tagawa, Y., Yoshimori, T., *et al.* Bafilomycin A₁ prevents maturation of autophagic vacuoles by inhibiting fusion between autophagosomes and lysosomes in rat hepatoma cell line, H-4-II-E cells. *Cell Struct. Funct.* **23**, 33-42 (1998).
3. Shacka, J.J., Klocke, B.J., and Roth, K.A. Autophagy, bafilomycin and cell death: The "A-B-Cs" of plecomacrolide-induced neuroprotection. *Autophagy* **2**(3), 228-230 (2006).

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