

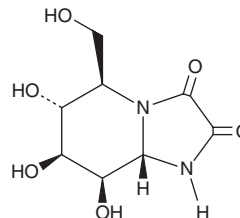
PRODUCT INFORMATION



Kifunensine

Item No. 10009437

CAS Registry No.: 109944-15-2
Formal Name: hexahydro-6R,7S,8aS-trihydroxy-5R-(hydroxymethyl)-imidazo[1,2-a]pyridine-2,3-dione
Synonym: FR900494
MF: C₈H₁₂N₂O₆
FW: 232.2
Purity: ≥98%
UV/Vis.: λ_{max}: 225 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥5 years



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

Laboratory Procedures

Kifunensine is supplied as a crystalline solid. Kifunensine is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. For biological experiments, we suggest that organic solvent-free aqueous solutions of kifunensine be prepared by directly dissolving the crystalline compound in water. The solubility of kifunensine in warm distilled water is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Kifunensine was originally isolated from the actinomycete *Kitasatosporia kifunensine* No. 9482 and shown to be a weak inhibitor of aryl mannosidase.^{1,2} It has since been shown to be a potent and selective inhibitor of class I α -mannosidases and may serve as a key inhibitor of glycoprotein biosynthesis.³ Kifunensine inhibits both human endoplasmic reticulum α -1,2-mannosidase I and members of the Golgi subfamily of the class I mannosidases (Golgi α -mannosidase IA, IB, and IC) exhibiting K_i values of 130 and 23 nM, respectively. It also inhibits mung bean α -1,2-mannosidase I with an IC₅₀ value of 20-50 nM.³ Kifunensine can be used to block α -mannosidase I activity at the endoplasmic reticulum (ER), preventing the removal of desired mutated proteins through ER quality control mechanisms.^{4,5}

References

1. Iwami, M., Nakayama, O., Terano, H., et al. A new immunomodulator, FR-900494: Taxonomy, fermentation, isolation, and physico-chemical and biological characteristics. *J. Antibiotics* **5**, 612-622 (1987).
2. Kayakiri, H., Takase, S., Shibata, T., et al. Structure of kifunensine, a new immunomodulator isolated from an actinomycete. *J. Org. Chem.* **54**, 4015-4016 (1989).
3. Hering, K.W., Karaveg, K., Moremen, K.W., et al. A practical synthesis of kifunensine analogues as inhibitors of endoplasmic reticulum α -mannosidase I. *J. Org. Chem.* **70**, 9892-9904 (2005).
4. Bartoli, M., Gicquel, E., Barrault, L., et al. Mannosidase I inhibition rescues the human α -sarcoglycan R77C recurrent mutation. *Hum. Mol. Genet.* **17(9)**, 1214-1221 (2008).
5. Soheili, T., Gicquel, E., Poupiot, J., et al. Rescue of sarcoglycan mutations by inhibition of endoplasmic reticulum quality control is associated with minimal structural modifications. *Hum. Mutat.* **33(2)**, 429-439 (2012).

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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