Product Information

1-Deoxygalactonojirimycin (hydrochloride)
Item No. 17179

CAS Registry No.: 75172-81-5
Formal Name: (2R,3S,4R,5S)-2-(hydroxymethyl)-3,4,5-piperidinetriol, monohydrochloride
Synonyms: DGJ, Migalastat
MF: C_{9}H_{15}NO_{4} • HCl
FW: 199.6
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: \(\lambda_{\text{max}}: 314 \text{ nm}\)

Laboratory Procedures
For long term storage, we suggest that 1-deoxygalactonojirimycin (hydrochloride) be stored as supplied at -20°C. It should be stable for at least two years.

1-Deoxygalactonojirimycin (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the 1-deoxygalactonojirimycin (hydrochloride) in the solvent of choice. 1-Deoxygalactonojirimycin (hydrochloride) is soluble in DMSO, which should be purged with an inert gas. The solubility of 1-deoxygalactonojirimycin (hydrochloride) in this solvent is approximately 10 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 1-deoxygalactonojirimycin (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 1-deoxygalactonojirimycin (hydrochloride) in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Fabry disease is an X-linked hereditary lysosomal storage disorder caused by mutations in the \(\alpha\)-galactosidase gene that commonly lead to enzyme instability, misfolding, and degradation.\(^1,2\) 1-Deoxygalactonojirimycin is a competitive inhibitor of \(\alpha\)-galactosidase (IC_{50} = 40 nM). At subinhibitory concentrations, 1-Deoxygalactonojirimycin binds to \(\alpha\)-galactosidase and chaperones unstable enzyme variants through the endoplasmic reticulum, allowing its movement into lysosomes.\(^1,4\) Pharmacological chaperones, including 1-Deoxygalactonojirimycin, are used to promote lysosomal delivery of unstable proteins in lysosomal storage disorders, like Fabry disease.\(^1\)

References

Related Products
For a list of related products please visit: www.caymanchem.com/catalog/17179

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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Cayman Chemical makes no warranty or guarantee of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman’s sole liability hereunder shall be limited to a refund of the purchase price, or at Cayman’s option, the replacement, at no cost to Buyer, of all material that does not meet our specifications.

For further details, please refer to our Warranty and Limitation of Remedy located on our website and in our catalog.