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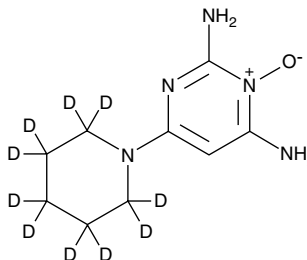
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Product Information



Minoxidil-d₁₀ Item No. 17563

CAS Registry No.: 1020718-66-4
Formal Name: 6-(1-piperidinyld₁₀)-2,4-pyrimidinediamine 3-oxide
Synonyms: Loniten-d₁₀, U-10858-d₁₀
MF: C₉H₅D₁₀N₅O
FW: 219.3
Chemical Purity: ≥98% Minoxidil
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₁₀); ≤1% d₀
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 230, 262, 284 nm



Laboratory Procedures

Minoxidil-d₁₀ contains 10 deuterium atoms on the piperidine ring. It is intended for use as an internal standard for the quantification of minoxidil (Item No. 15302) by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that minoxidil-d₁₀ be stored as supplied at -20°C. It should be stable for at least two years.

Minoxidil-d₁₀ is supplied as a crystalline solid. A stock solution may be made by dissolving the minoxidil-d₁₀ in the solvent of choice. Minoxidil-d₁₀ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of minoxidil-d₁₀ in ethanol is approximately 5 mg/ml and approximately 2 mg/ml in DMSO and DMF.

Minoxidil-d₁₀ is used as an internal standard for the quantification of minoxidil by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Minoxidil is a pyrimidine derivative that was originally developed as an anti-hypertensive agent and unexpectedly found to stimulate hair growth. Minoxidil directly affects arteriolar smooth muscle to decrease vascular resistance in part by opening ATP-sensitive potassium channels.^{1,2} It can activate cyclooxygenase 1 (AC₅₀ = 80 μM), which is expressed in the dermal papilla of hair follicles, increasing prostaglandin E₂ (Item No. 14010) production in BALB/c 3T3 fibroblasts and human dermal papilla fibroblasts.³

References

1. Limas, C.J. and Cohn, J.N. Stimulation of vascular smooth muscle sodium, potassium-adenosinetriphosphatase by vasodilators. *Circ. Res.* **35**(4), 601-607 (1974).
2. Imenshahidi, M., Hadizadeh, F., Firoozeh-Moghadam, A., *et al.* Synthesis and vasorelaxant effect of 9-aryl-1,8-acridinediones as potassium channel openers in isolated rat aorta. *Iran. J. Pharm. Res.* **11**(1), 229-233 (2012).
3. Michelet, J.-F., Commo, S., Billoni, N., *et al.* Activation of cytoprotective prostaglandin synthase-1 by minoxidil as a possible explanation for its hair growth-stimulating effect. *J. Invest. Dermatol.* **108**, 205-209 (1997).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/17563

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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