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PRODUCT INFORMATION



Chlorhexidine-d₈ (hydrochloride)

Item No. 33463

CAS Registry No.: 2012598-75-1

Formal Name: N¹,N¹⁴-bis(4-chlorophenyl-d₄)-3,12-diimino-2,4,11,13-tetraazatetradecanediiimidamide, dihydrochloride

Synonym: CHX-d₈

MF: C₂₂H₂₂Cl₂D₈N₁₀ • 2HCl

FW: 586.4

Chemical Purity: ≥95% (Chlorhexidine)

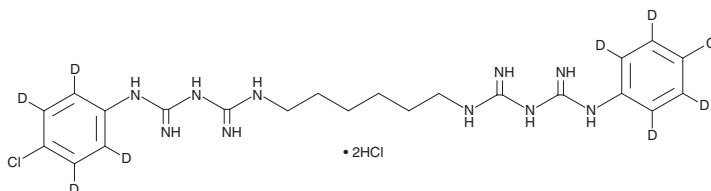
Deuterium

Incorporation: ≥99% deuterated forms (d₁-d₈); ≤1% d₀

Supplied as: A solid

Storage: -20°C

Stability: ≥2 years



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

Laboratory Procedures

Chlorhexidine-d₈ (hydrochloride) is intended for use as an internal standard for the quantification of chlorhexidine (Item Nos. 17343 | 26924) by GC- or LC-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).

Chlorhexidine-d₈ (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the chlorhexidine-d₈ (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Chlorhexidine-d₈ (hydrochloride) is soluble in methanol and DMSO.

Description

Chlorhexidine is a bis(biguanide) antimicrobial disinfectant and antiseptic agent.¹ It inhibits growth of clinical methicillin-resistant *S. aureus* (MRSA) isolates (MIC₉₀ = 4 µg/ml).² It is also active against canine isolates of MRSA, methicillin-susceptible *S. aureus* (MSSA), methicillin-resistant *S. pseudintermedius* (MRSP), and methicillin-susceptible *S. pseudintermedius* (MSSP; MIC₉₀s = 4, 2, 2, and 1 mg/L, respectively).³ Chlorhexidine inhibits growth of *E. faecium* strains (MICs = 1.2-19.6 µg/ml) and *C. albicans* (MIC = 5.15 µg/ml).^{4,5} It generates cations that bind to and destabilize the bacterial cell wall to induce death.⁶ Chlorhexidine also completely inhibits matrix metalloproteinase-2 (MMP-2) and MMP-9 when used at concentrations of 0.0001 and 0.002%, respectively, in a gelatin degradation assay.⁷ Formulations containing chlorhexidine have been used in antiseptic wound dressings, mouthwash, and toothpaste.

References

1. Karpiński, T.M. and Szkaradkiewicz, A.K. *Eur. Rev. Med. Pharmacol. Sci.* **19**(7), 1321-1326 (2015).
2. McDanel, J.S., Murphy, C.R., Diekema, D.J., et al. *Antimicrob. Agents Chemother.* **57**(1), 552-558 (2013).
3. Clark, S.M., Loeffler, A., and Bond, R. *J. Antimicrob. Chemother.* **70**(7), 2048-2052 (2015).
4. Bhardwaj, P., Hans, A., Ruikar, K., et al. *Antimicrob. Agents Chemother.* **62**(1), e01235-17 (2017).
5. Scheibler, E., da Silva, R.M., Leite, C.E., et al. *Arch. Oral Biol.* **89**, 70-76 (2018).
6. Barrett-Bee, K., Newbould, L., and Edwards, S. *FEMS Microbiol. Lett.* **119**(1-2), 249-253 (1994).
7. Gendron, R., Grenier, D., Sorsa, T., et al. *Clin. Diag. Lab. Immun.* **6**(3), 437-439 (1999).

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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