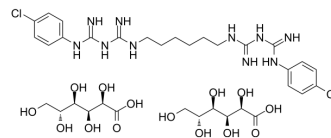


Chlorhexidine (digluconate)

Cat. No.:	HY-B0608
CAS No.:	18472-51-0
Molecular Formula:	C ₃₄ H ₅₄ Cl ₂ N ₁₀ O ₁₄
Molecular Weight:	897.76
Target:	Bacterial; Antibiotic; Apoptosis; Necroptosis
Pathway:	Anti-infection; Apoptosis
Storage:	Solution, -20°C, 2 years



SOLVENT & SOLUBILITY

In Vitro	<p>H₂O : 100 mg/mL (111.39 mM; Need ultrasonic)</p> <p>DMSO : ≥ 38 mg/mL (42.33 mM)</p> <p>* "≥" means soluble, but saturation unknown.</p>
In Vivo	<p>1. Add each solvent one by one: PBS</p> <p>Solubility: 100 mg/mL (111.39 mM); Clear solution; Need ultrasonic</p>

BIOLOGICAL ACTIVITY

Description	<p>Chlorhexidine digluconate is a chlorophenyl biguanide with broad antibacterial action against both Gram (+) and (-) bacteria and fungi. Chlorhexidine digluconate is a broad-spectrum antiseptic and disinfectant. Chlorhexidine digluconate is effective to prevent and control infectious diseases of the mouth by killing bacteria in saliva and tongue. Chlorhexidine digluconate is a cytotoxic agent and induces cell necrosis and apoptosis^{[1][2][3]}.</p>								
In Vitro	<p>Chlorhexidine digluconate (0.00001%, 0.00005%, 0.0001%, 0.0005%; 1-4 h) demonstrates a cytotoxic effect on CHO cells. Chlorhexidine digluconate reduces the activity of dehydrogenase of CHO cells in a dose-dependent and a time-dependent manner^[2].</p> <p>Chlorhexidine digluconate (0.00005%, 0.0001%, 0.0005%; 1 h) causes the amount of cell apoptosis of about 1.62%, 5.51%, and 5.47%, respectively. The amount of cell necrosis was 2.38%, 8.62%, and 22.50%, respectively^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Cytotoxicity Assay^[2]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>Chinese hamster ovary cells</td> </tr> <tr> <td>Concentration:</td> <td>0.00001%, 0.00005%, 0.0001%, 0.0005%</td> </tr> <tr> <td>Incubation Time:</td> <td>1, 2, 4 h</td> </tr> <tr> <td>Result:</td> <td>Demonstrated a cytotoxic effect on CHO cells.</td> </tr> </table> <p>Apoptosis Analysis^[2]</p>	Cell Line:	Chinese hamster ovary cells	Concentration:	0.00001%, 0.00005%, 0.0001%, 0.0005%	Incubation Time:	1, 2, 4 h	Result:	Demonstrated a cytotoxic effect on CHO cells.
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	Cell Line:	Chinese hamster ovary cells
	Concentration:	0.00005%, 0.0001%, 0.0005%
	Incubation Time:	1 h
	Result:	After a 1 hour treatment, the amount of cell apoptosis was about 1.62%, 5.51%, and 5.47%, respectively. The amount of cell necrosis was 2.38%, 8.62%, and 22.50%, respectively.
In Vivo	Chlorhexidine gluconate (0.05%, 0.025%; One-time intraperitoneal injection) with 0.05% lavage has significantly lower incidence of postoperative intra-abdominal abscesses compared with the mice that had saline lavage only ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
	Animal Model:	Male Imprinting Control Region (ICR) mice at 6 to 8-wk-old (body weight, 25g) ^[1]
	Dosage:	Chlorhexidine gluconate 0.05% and 0.025%
	Administration:	One-time intraperitoneal injection
	Result:	With 0.05% lavage had significantly lower incidence of postoperative intra-abdominal abscesses compared with the mice that had saline lavage only.

CUSTOMER VALIDATION

- Nat Commun. 2021 Mar 29;12(1):1940.
- Cell Death Dis. 2022 Apr 22;13(4):396.
- Mol Oncol. 2020 Feb;14(2):373-386.
- Front Cell Dev Biol. 30 March 2021.
- Transl Oncol. 2024 Apr 24;45:101958.

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REFERENCES

- [1]. Hon-Yeung Cheung, et al. Differential actions of chlorhexidine on the cell wall of Bacillus subtilis and Escherichia coli. PLoS One. 2012;7(5):e36659.
- [2]. Wael E Shams, et al. Peritoneal Lavage Using Chlorhexidine Gluconate at the End of Colon Surgery Reduces Postoperative Intra-Abdominal Infection in Mice. J Surg Res. 2015 May 1;195(1):121-7.
- [3]. Yi-Ching Li, et al. Assessment of the cytotoxicity of chlorhexidine by employing an in vitro mammalian test system. Journal of Dental Sciences. Volume 9, Issue 2, June 2014, Pages 130-135.

Caution: Product has not been fully validated for medical applications. For research use only.

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