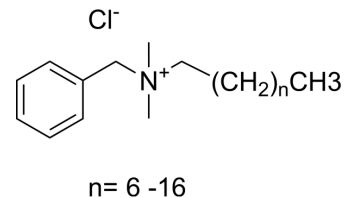


## Benzalkonium chloride

Cat. No.:	HY-B2232
CAS No.:	8001-54-5
Molecular Formula:	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> RCl (R=C <sub>8</sub> H <sub>17</sub> to C <sub>18</sub> H <sub>37</sub> )
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Solution, -20°C, 2 years



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	<p>Ethanol : 50 mg/mL (Need ultrasonic)</p> <p>DMSO : 50 mg/mL (Need ultrasonic)</p> <p>H<sub>2</sub>O : ≥ 20 mg/mL</p> <p>* "≥" means soluble, but saturation unknown.</p>
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: PBS Solubility: 50 mg/mL (Infinity mM); Clear solution; Need ultrasonic</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 3.25 mg/mL (Infinity mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 3.25 mg/mL (Infinity mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 3.25 mg/mL (Infinity mM); Clear solution</li> </ol>

### BIOLOGICAL ACTIVITY

<b>Description</b>	Benzalkonium chloride is a potent anti-microbial agent, used as a preservative in eye drops.
<b>In Vitro</b>	<p>Benzalkonium chloride (0.0001%-0.5%) results in a dose-dependent cytotoxicity in cells. Benzalkonium chloride also shows cytotoxicity against human keratinocytes, with 50% loss of viability of 4 μM. Benzalkonium chloride shows different results in NHEK and NB1RGB cell cultures, and the ED<sub>50</sub> of 3.9 and 62 μM, respectively. The clinically used concentration (0.01% Benzalkonium chloride) significantly reduces cell viability, with only 14%-19% of nasal epithelial cells surviving the treatment<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>Benzalkonium chloride (0.02%) causes no abnormalities in the nasal epithelium of the monkeys after light and electron microscopical examination. In 4-5 week-old SD rats, 0.01% and 0.1% Benzalkonium chloride induce a time-dependent increase in the thickness of the nasal respiratory epithelium<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

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## CUSTOMER VALIDATION

- Acs Biomater Sci Eng. 2022 Oct 10.

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## REFERENCES

[1]. Johnson NF. Pulmonary Toxicity of Benzalkonium Chloride. J Aerosol Med Pulm Drug Deliv. 2017 Jul 6.

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

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