# Fosfomycin calcium

**Cat. No.:** HY-B1075

**CAS No.:** 26016-98-8

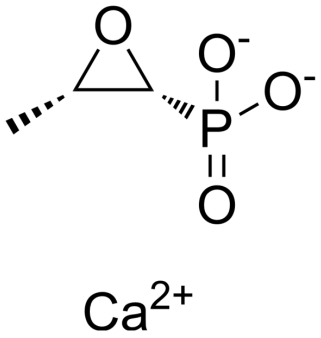
**Molecular Formula:** $C_3H_5CaO_4P$

**Molecular Weight:** 176.12

**Target:** Bacterial; Antibiotic

**Pathway:** Anti-infection

**Storage:** 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



## SOLVENT & SOLUBILITY

**In Vitro**

$H_2O$ : 50 mg/mL (283.90 mM; ultrasonic and adjust pH to 2 with HCl)
DMSO : < 1 mg/mL (insoluble or slightly soluble)

**Preparing Stock Solutions**

| Concentration / Solvent / Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 5.6779 mL | 28.3897 mL | 56.7795 mL |
| 5 mM | 1.1356 mL | 5.6779 mL | 11.3559 mL |
| 10 mM | 0.5678 mL | 2.8390 mL | 5.6779 mL |

Please refer to the solubility information to select the appropriate solvent.

## BIOLOGICAL ACTIVITY

**Description**

Fosfomycin (MK-0955) calcium is a blood-brain barrier penetrating, broad-spectrum antibiotic by irreversibly inhibiting an early stage in cell wall synthesis. Fosfomycin calcium shows both in vivo and in vitro activity against a wide range of bacteria, including multidrug-resistant (MDR), extensively drug-resistant (XDR), and pan-drug-resistant (PDR) bacteria[1][2].

**In Vitro**

Fosfomycin calcium is an epoxy antibacterial agent. Compared with other antibacterial agents, it acts by inhibiting the early process of cell wall synthesis[1].
Fosfomycin calcium has bactericidal activity against a variety of gram-negative and gram-positive pathogens, including broad-spectrum production β-Bacteria of lactamase and carbapenemase, and against S. aureus strains with an inhibition rate of 90%[1].
Fosfomycin calcium displays extensive tissue penetration, can be used to research of infections of the CNS, soft tissues, bone, lungs, and abscesses[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**In Vivo**

Fosfomycin calcium (80 mg/kg; i.v.-i.v. or i.v.-p.o.) displays the protective effect on the nephrotoxicity of double beckacin, and is not affected by different administration routes[3].
Pharmacokinetic of Fosfomycin calcium in Rats[4]

| Dibekacin Dose (mg) | $V_{dss}$ (l/kg) | β ($min^{-1}$) | $T_{1/2}$ (min) | Urinary recovery (%) |
|---|---|---|---|---|
| 30 | 0.261 | 0.0244 | 28.4 | 85 |

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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|---|---|
| Animal Model: | Fischer 344 rats[3] |
| Dosage: | 320 mg/kg |
| Administration: | Intramuscular injection, 5 schedules: 1 h, 0.5 h earlier than dibekacin, concomitantly, 0.5 h later and 1 h later; 11 days |
| Result: | Reduced polyuria, proteinuria, enzymes and cytosine caused by dibecacin (40 mg/kg), followed by the previous treatment. |

| | |
|---|---|
| Animal Model: | Dehydrated Wistar rat with acute renal failure (8-week-old)[4] |
| Dosage: | 120 mg/kg |
| Administration: | Intravenous injection; once |
| Result: | Recovered the exclusion rate of rats basically to normal, and improved the nephrotoxicity parameters.<br>Protects proximal tubular lysosomes from aminoglycosides by inhibiting myeloid formation and protecting the integrity of lysosomal membrane of rats treated with double bekacin. |

## CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 2;13(1):1116.
- Front Cell Infect Microbiol. 2019 Jul 15;9:253.
- Antibiotics (Basel). 2021 Sep 14;10(9):1110.
- J Med Microbiol. 2019 Mar;68(3):493-502.

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## REFERENCES

[1]. Falagas ME, et al. Fosfomycin. Clin Microbiol Rev. 2016 Apr. 29(2):321-47.

[2]. Inouye S, et al. Protective effect of fosfomycin on the experimental nephrotoxicity induced by dibekacin. J Pharmacobiodyn. 1982 Sep. 5(9):659-69.

[3]. Inouye S, et al. Mode of protective action of fosfomycin against dibekacin-induced nephrotoxicity in the dehydrated rats. J Pharmacobiodyn. 1982 Dec. 5(12):941-50.

[4]. Dijkmans AC, et al. Fosfomycin: Pharmacological, Clinical and Future Perspectives. Antibiotics (Basel). 2017 Oct 31;6(4). pii: E24.

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

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