# Tebipenem pivoxil

**Cat. No.:** HY-B0396

**CAS No.:** 161715-24-8

**Molecular Formula:** $C_{22}H_{31}N_3O_6S_2$

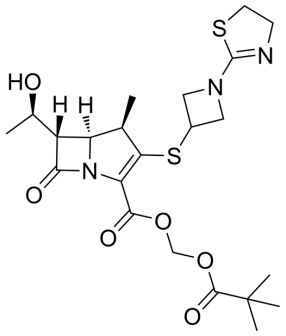
**Molecular Weight:** 497.63

**Target:** Bacterial; Antibiotic; Penicillin-binding protein (PBP)

**Pathway:** Anti-infection

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 2 years |
| | -20°C | 1 year |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 200 mg/mL (401.91 mM; Need ultrasonic)

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.0095 mL | 10.0476 mL | 20.0953 mL |
| 5 mM | 0.4019 mL | 2.0095 mL | 4.0191 mL |
| 10 mM | 0.2010 mL | 1.0048 mL | 2.0095 mL |

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 5 mg/mL (10.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 5 mg/mL (10.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5 mg/mL (10.05 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Tebipenem pivoxil (L084) is an orally active antibiotic against a variety of pathogenic bacteria. Tebipenem pivoxil binds penicillin-binding protein (PBP), thereby inhibiting cell wall synthesis[1].

**$IC_{50}$ & Target**

β-lactam

**In Vitro**

Tebipenem pivoxil (0-128 μg/mL; 18–24 h) displays excellent antibacterial activity against a variety of pathogenic bacteria[1].

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

Cell Viability Assay[1]

| | |
|---|---|
| Cell Line: | Gram-positive and Gram-negative bacteria |
| Concentration: | 0-128 μg/mL |
| Incubation Time: | 18–24 h |
| Result: | Showed inhibition with $MIC_{50}$s below 64 μg/mL against tested Gram-positive and Gram-negative bacteria. |

**In Vivo**

Tebipenem pivoxil (L084) (0-4.00 g/kg; p.o.; once) shows minimal lethal dosage (MLD) of 4.00 g/kg and the maximum tolerance dosage (MTD) of 3.40 g/kg in mice[1].
Tebipenem pivoxil (50 and 100 mg/kg; p.o.; once) significantly protects the sepsis mice challenged with various pathogenic bacteria[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | KM mice weighing 18–22 g[1] |
| Dosage: | 2.89, 3.40 and 4.00 g/kg |
| Administration: | Oral administration (tablet), once |
| Result: | Within the 14-day observation period, only one mouse was dead in the maximum oral dosage (4.00 g/kg). The minimal lethal dosage (MLD) was 4.00 g/kg and the maximum tolerance dosage (MTD) in the mice was 3.40 g/kg. Showed dose-dependent liver and kidney damage. |

| | |
|---|---|
| Animal Model: | ICR mice, sepsis mouse models[1] |
| Dosage: | 50 and 100 mg/kg |
| Administration: | Oral administration (tablet), once |
| Result: | Significantly increased the survival number of the sepsis mice within a 168 h observation period. |

## REFERENCES

[1]. Yao Q, et al. Antibacterial Properties of Tebipenem Pivoxil Tablet, a New Oral Carbapenem Preparation against a Variety of Pathogenic Bacteria in Vitro and in Vivo. Molecules. 2016 Jan 6;21(1):62.



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