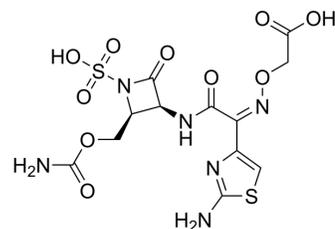


Carumonam

Cat. No.:	HY-121329
CAS No.:	87638-04-8
Molecular Formula:	C ₁₂ H ₁₄ N ₆ O ₁₀ S ₂
Molecular Weight:	466.4
Target:	Bacterial; Antibiotic; Penicillin-binding protein (PBP)
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Carumonam (AMA-1080; Ro 17-2301) is a sulfonated monocyclic β-Lactam Antibiotic, targeting to penicillin-binding protein (PBP). Carumonam exerts highly activity against Enterobacteriaceae, Pseudomonas aeruginosa, and Haemophilus influenzae, while it weakly and even inactively inhibits Streptococcus pneumoniae and Staphylococcus aureus. Carumonam is resistant to beta-lactamase-mediated hydrolysis ^[1] .																																
IC₅₀ & Target	β-lactam																																
In Vitro	<p>Carumonam shows inhibition against Enterobacteriaceae isolates with MIC₉₀ values of 0.013-25 μg/mL, while it inhibits P. aeruginosa with a MIC₉₀ value of 12.5 μg/mL^[1].</p> <p>Carumonam (0-400 μg/mL) has high affinity to binding PBP-3 in Enterobacteriaceae and P. aeruginosa with IC₅₀s as same with or smaller than the MICs^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>																																
In Vivo	<p>Carumonam (20 mg/kg; s.c. or i.m.; single dose) is easily absorbed and distributes in high concentrations in plasma, kidneys, liver and lungs in pharmacokinetic analysis in mice, rats, rabbits, dogs and cynomolgus monkeys^[2].</p> <p>Animal: Five-week-old male Slc:ICR mice (20-25 g), 7-week-old male Jcl:SD rats (210-250 g), male New Zealand White rabbits (2.5-3.5 kg), male and female beagle dogs (10-15 kg), and female cynomolgus monkeys (2.8-3.7 kg). They are deprived of feed for 16 to 18 h before the antibiotic was administered; water was given ad libitum^[2].</p> <p>Pharmacokinetic Analysis^[2]</p> <table border="1"> <thead> <tr> <th>Animal</th> <th>Dose (mg/kg)</th> <th>Route</th> <th>T_{max} (h)</th> <th>C_{max} (μg/mL)</th> <th>AUC (μg·h/mL)</th> <th>t_{1/2} (h)</th> <th>CL_p (mL/min/kg)</th> </tr> </thead> <tbody> <tr> <td>Mouse</td> <td>2 mg/mL, 0.1 mL/10 g</td> <td>s.c.</td> <td>0.12</td> <td>40.7</td> <td>20.0</td> <td>0.24</td> <td>16.7</td> </tr> <tr> <td>Rat</td> <td>10 mg/mL, 0.2 mL/100 g</td> <td>i.m.</td> <td>0.18</td> <td>37.9</td> <td>23.9</td> <td>0.28</td> <td>14.0</td> </tr> <tr> <td>Rabbit</td> <td>40 mg/mL, 0.5 mL/kg</td> <td>i.m.</td> <td>0.36</td> <td>44.9</td> <td>66.6</td> <td>0.73</td> <td>5.0</td> </tr> </tbody> </table>	Animal	Dose (mg/kg)	Route	T _{max} (h)	C _{max} (μg/mL)	AUC (μg·h/mL)	t _{1/2} (h)	CL _p (mL/min/kg)	Mouse	2 mg/mL, 0.1 mL/10 g	s.c.	0.12	40.7	20.0	0.24	16.7	Rat	10 mg/mL, 0.2 mL/100 g	i.m.	0.18	37.9	23.9	0.28	14.0	Rabbit	40 mg/mL, 0.5 mL/kg	i.m.	0.36	44.9	66.6	0.73	5.0
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Dog	100 mg/mL, 0.2 mL/kg	i.m.	0.36	36.3	61.1	1.10	5.5
Monkey	20 mg/mL/kg	i.m.	0.29	67.9	80.4	0.89	4.5

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

REFERENCES

- [1]. Imada A, et al. In vitro and in vivo antibacterial activities of carumonam (AMA-1080), a new N-sulfonated monocyclic beta-lactam antibiotic. *Antimicrob Agents Chemother.* 1985 May;27(5):821-7.
- [2]. Kita Y, et al. Comparative pharmacokinetics of carumonam and aztreonam in mice, rats, rabbits, dogs, and cynomolgus monkeys. *Antimicrob Agents Chemother.* 1986 Jan;29(1):127-34.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA