

## Product Data Sheet

Product Name: Relebactam

Cat. No.: GC19308

### Chemical Properties

Cas. No. 1174018-99-5

SMILES O=S(ON1[C@]2([H])CC[C@@H](C(NC3CCNCC3)=O)[N@@](C2)C1=O)(O)=O

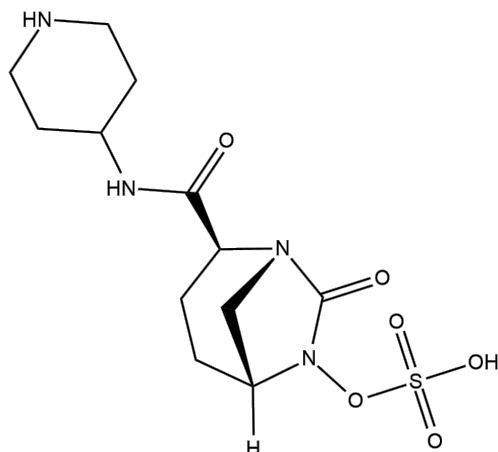
Formula  $C_{12}H_{20}N_4O_6S$  M.Wt 348.38

Solubility Water : 72 mg/mL (206.67 mM) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



### Background

Relebactam is a  $\beta$ -lactamase (AmpC) inhibitor that can irreversibly inhibit Class A (extended-spectrum  $\beta$ -lactamase and KPC enzymes) and Class C AmpC<sup>[1]</sup>. Relebactam is a diazabicyclooctane derivative that covalently binds to the active site serine residue of  $\beta$ -lactamase, irreversibly inhibiting its ability to hydrolyze  $\beta$ -lactam antibiotics, thereby restoring the bactericidal activity of imipenem against enzyme-producing resistant bacteria<sup>[2]</sup>. The combination of Relebactam and Imipenem can significantly reduce the minimum inhibitory concentration (MIC) and improve the efficacy against resistant bacteria (such as *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*)<sup>[3]</sup>.

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

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<sup>4]</sup>. Relebactam can reduce the MIC of multiple cephalosporins and carbapenems against *Mycobacterium abscessus*<sup>[5]</sup>.

### References:

- [1] Alfei S, Schito A M.  $\beta$ -lactam antibiotics and  $\beta$ -lactamase enzymes inhibitors, part 2: our limited resources[J]. Pharmaceuticals, 2022, 15(4): 476.
- [2] Tooke C L, Hinchliffe P, Lang P A, et al. Molecular basis of class A  $\beta$ -lactamase inhibition by relebactam[J]. Antimicrobial agents and chemotherapy, 2019, 63(10): 10.1128/aac. 00564-19.
- [3] McCarthy M W. Clinical Pharmacokinetics and Pharmacodynamics of Imipenem–Cilastatin/Relebactam Combination Therapy[J]. Clinical Pharmacokinetics, 2020, 59(5): 567-573.
- [4] Young K, Painter R E, Raghoobar S L, et al. In vitro studies evaluating the activity of imipenem in combination with relebactam against *Pseudomonas aeruginosa*[J]. BMC microbiology, 2019, 19: 1-14.
- [5] Kaushik A, Ammerman N C, Parrish N M, et al. New  $\beta$ -lactamase inhibitors nacubactam and zidebactam improve the in vitro activity of  $\beta$ -lactam antibiotics against *Mycobacterium abscessus* complex clinical isolates[J]. Antimicrobial agents and chemotherapy, 2019, 63(9): 10.1128/aac. 00733-19.

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