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SZABO-SCANDIC Handels GmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic)



PRODUCT INFORMATION



Cilastatin-¹⁵N-d₃

Item No. 29098

Formal Name: (Z)-7-((2-(amino-¹⁵N)-2-carboxyethyl-1,1,2-d³)thio)-2-((S)-2,2-dimethylcyclopropane-1-carboxamido)hept-2-enoic acid

MF: C₁₆H₂₃D₃N[¹⁵N]O₅S

FW: 362.5

Chemical Purity: ≥98% (Cilastatin)

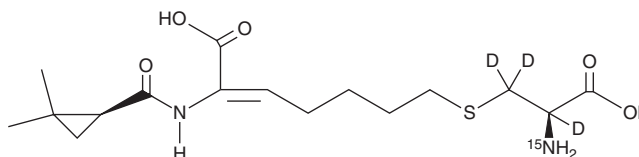
Deuterium

Incorporation: ≥99% deuterated forms (d₁-d₃); ≤1% d₀

Supplied as: A solid

Storage: -20°C

Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Cilastatin-¹⁵N-d₃ is intended for use as an internal standard for the quantification of cilastatin (Item No. 23511) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Cilastatin-¹⁵N-d₃ is supplied as a solid. A stock solution may be made by dissolving the cilastatin-¹⁵N-d₃ in the solvent of choice. Cilastatin-¹⁵N-d₃ is soluble in organic solvents such as methanol and DMSO, which should be purged with an inert gas.

Description

Cilastatin is an inhibitor of dipeptidase (dehydropeptidase I), a renal dipeptidase.¹ It inhibits human renal dipeptidase (K_i = 0.7 μM), porcine dipeptidase (IC₅₀ = 0.11 μM), and bacterial metallo-β-lactamase CphA from *A. hydrophila* (IC₅₀ = 178 μM).¹⁻³ Cilastatin (200 μg/ml) protects primary porcine renal proximal tubular epithelial cells from nephrotoxicity and apoptosis induced by vancomycin (Item No. 15327).⁴ In a mouse model of systemic infection, cilastatin in combination with imipenem (Item No. 16039) protects mice from *S. aureus*, *E. coli*, and *P. aeruginosa* infection.⁵ Cilastatin was designed to inhibit renal metabolism of imipenem and prolong its half-life.² Formulations containing cilastatin in combination with imipenem have been used to treat susceptible bacterial infections.

References

1. Campbell, B.J., Forrester, L.J., Zahler, W.L., *et al.* *J. Biol. Chem.* **259**(23), 14586-14590 (1984).
2. Kahan, F.M., Kropp, H., Sundelof, J.G., *et al.* *J. Antimicrob. Chemother.* **12**(Suppl. D), 1-35 (1983).
3. Keynan, S., Hooper, N.M., Felici, A., *et al.* *Antimicrob. Agents Chemother.* **39**(7), 1629-1631 (1995).
4. Humanes, B., Jado, J.C., Camaño, S., *et al.* *Biomed Res. Int.* 704382 (2015).
5. Petersen, P.J., Jacobus, N.V., Weiss, W.J., *et al.* *Antimicrob. Agents Chemother.* **35**(1), 203-207 (1991).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM