

PRODUCT INFORMATION



E-64

Item No. 10007963

CAS Registry No.: 66701-25-5

Formal Name: (2S,3S)-3-[[[(1S)-1-[[[4-(aminoiminomethyl)amino]butyl]amino]carbonyl]-3-methylbutyl]amino]carbonyl]-2-oxiranecarboxylic acid

MF: C₁₅H₂₇N₅O₅

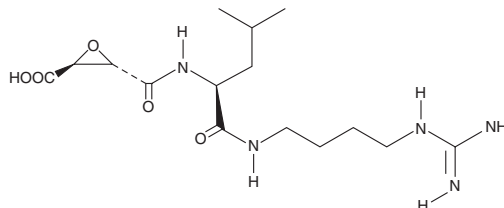
FW: 357.4

Purity: ≥95%

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥4 years



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

Laboratory Procedures

E-64 is supplied as a crystalline solid. A stock solution may be made by dissolving the E-64 in the solvent of choice, which should be purged with an inert gas. E-64 is soluble in the organic solvent DMSO. It is also soluble in water. The solubility of E-64 in DMSO and water is approximately 25 and 20 mg/ml, respectively. We do not recommend storing the aqueous solution for more than one day.

Description

E-64 is a fungal metabolite originally isolated from *Aspergillus japonicus* that has diverse biological activities.¹⁻⁵ It inhibits a variety of cysteine proteases, including cathepsins B, H, and L, as well as papain, ficin, and bromelain, but not the serine proteases plasmin, trypsin, and tissue kallikrein or the aspartic protease pepsin.^{1,2} E-64 (0.1-2 mg/ml) reduces the autocatalytic activity of the foot-and-mouth-disease virus (FMDV) leader protease.³ It is active against the FCR3 *P. falciparum* strain with an IC₅₀ value of 836 nM.⁴ E-64 (5-25 μM) reduces bone resorption in embryonic mouse bone explants.⁵

References

1. Hanada, K., Tamai, M., Yamagishi, M., et al. Isolation and characterization of E-64, a new thiol protease inhibitor. *Agric. Biol. Chem.* **42(3)**, 523-528 (1977).
2. Barrett, A.J., Kembhavi, A.A., Brown, M.A., et al. L-trans-Epoxy succinyl-leucylamido(4-guanidino)butane (E-64) and its analogues as inhibitors of cysteine proteinases including cathepsins B, H and L. *Biochem. J.* **201(1)**, 189-198 (1982).
3. Kleina, L.G. and Grubman, M.J. Antiviral effects of a thiol protease inhibitor on foot-and-mouth disease virus. *J. Virol.* **66(12)**, 7168-7175 (1992).
4. Wijayanti, M.A., Sholikhah, E.N., Hadanu, R., et al. Additive *in vitro* antiplasmodial effect of N-alkyl and N-benzyl-1,10-phenanthroline derivatives and cysteine protease inhibitor E64. *Malar. Res. Treat.* 540786 (2010).
5. Delaissé, J.-M., Eeckhout, Y., and Vaes, G. In vivo and in vitro evidence for the involvement of cysteine proteinases in bone resorption. *Biochem. Biophys. Res. Commun.* **125(2)**, 441-447 (1984).

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