

Certificate of Analysis

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Product Name: E 64

Catalog No.: 5208

Batch No.: 7

CAS Number: 66701-25-5

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

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₅H₂₇N₅O₅·½H₂O

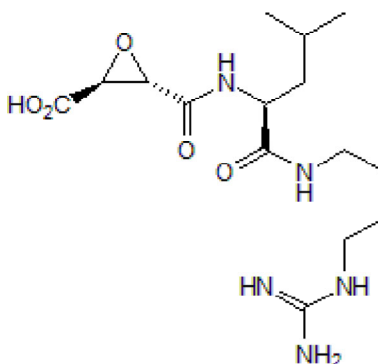
Batch Molecular Weight: 366.42

Physical Appearance: White solid

Solubility: water to 20 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.4 % purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	49.17	7.7	19.11
Found	48.47	8	18.95

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

E 64 is a potent and irreversible cysteine protease inhibitor (IC₅₀ values are 1.4, 2.5 and 4.1 nM for cathepsin K, L and S respectively. Also inhibits papain, calpain, cathepsin B and cathepsin H. Has no effect on serine proteases. Reduces HSC-3 tongue cancer cell invasion and induces oxidative stress and apoptosis in filarial parasites. Also inhibits autophagy-associated lysosomal degradation in vitro.

Physical and Chemical Properties:

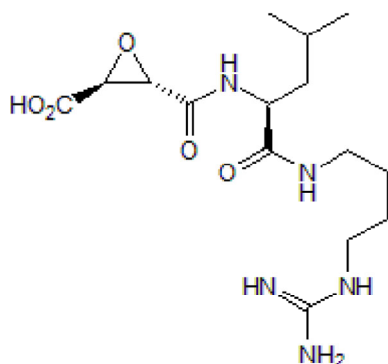
Batch Molecular Formula: C₁₅H₂₇N₅O₅·½H₂O

Batch Molecular Weight: 366.42

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Store at -20°C

Solubility & Usage Info:

water to 20 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Wadhawan et al (2014) Inhibition of cathepsin B by E-64 induces oxidative stress and apoptosis in filarial parasite. *PLoS ONE* **9** e93161. PMID: 24667798.

Bitu et al (2013) Cathepsin K is present in invasive oral tongue squamous cell carcinoma in vivo and in vitro. *PLoS ONE* **8** e70925. PMID: 23951042.

Zhao et al (2010) Cytosolic FoxO1 is essential for the induction of autophagy and tumour suppressor activity. *Nat.Cell.Biol.* **12** 665. PMID: 20543840.

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