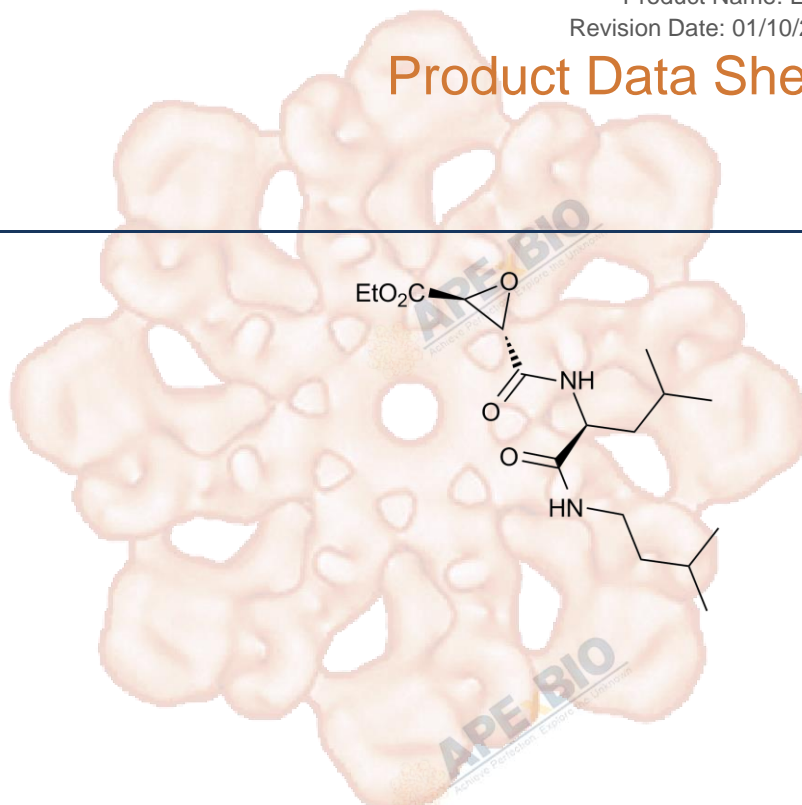


# Product Data Sheet

## E 64d

<b>Cat. No.:</b>	A1903
<b>CAS No.:</b>	88321-09-9
<b>Formula:</b>	C17H30N2O5
<b>M.Wt:</b>	342.43
<b>Synonyms:</b>	
<b>Target:</b>	Proteases
<b>Pathway:</b>	Cathepsin
<b>Storage:</b>	Store at -20°C



## Solvent & Solubility

insoluble in H<sub>2</sub>O; ≥17.12 mg/mL in DMSO; ≥18.5 mg/mL in EtOH

In Vitro

Preparing Stock Solutions	Solvent	Mass		
		1mg	5mg	10mg
	<b>Concentration</b>			
	<b>1 mM</b>	2.9203 mL	14.6015 mL	29.2030 mL
	<b>5 mM</b>	0.5841 mL	2.9203 mL	5.8406 mL
	<b>10 mM</b>	0.2920 mL	1.4602 mL	2.9203 mL

Please refer to the solubility information to select the appropriate solvent.

## Biological Activity

Shortsummary

Cysteine protease inhibitor

IC<sub>50</sub> & Target

In Vitro

### Cell Viability Assay

Cell Line:	Platelets
Preparation method:	The solubility of this compound in DMSO is >10 mM. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Reacting conditions:	50 µg/ml, 10 min

	Applications:	Platelets were activated with A23187 plus calcium, a condition known to lead to calpain-catalyzed proteolysis of ABP and talin. In the absence of inhibitor, A23187 led to complete degradation of ABP and talin. E 64d, the permeant inhibitor, did inhibit intracellular proteolysis. Some inhibition was observed at the lowest concentration tested, 20 µg/ml, and essentially complete inhibition was obtained with 50 µg/ml.
In Vivo	<b>Animal experiment</b>	
	Animal models:	Male Sprague–Dawley rats
	Dosage form:	Intraperitoneal injection, 4 µg
	Applications:	After E-64d treatment, mice were treated with penicillin to induce recurrent seizures. The result showed that E-64d remarkably reduced the aberrant mossy fiber sprouting in the supragranular region of dentate gyrus and CA3 subfield of hippocampus. In rats without E-64d treatment, there was prominent aggregation of mossy fiber terminals in the dentate gyrus and in the stratum pyramidale of CA3 subfield. In rats treated with E-64d, the aggregation of mossy fiber terminals was remarkably decreased in both the supragranular region of dentate gyrus and CA3 subfield.
	Other notes:	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

## Product Citations

1. Dziekan, Jerzy Michal. "Molecular analysis of antimalarial therapies : from drug development to mode of action." Nanyang Technological University. 2019.
2. Maxine Bauzon, Penelope M. Drake, et al. "Maytansine-bearing antibody-drug conjugates induce in vitro hallmarks of immunogenic cell death selectively in antigen-positive target cells." *Oncolmmunology*. Received 09 Aug 2018, Accepted 12 Dec 2018, Published online: 22 Jan 2019.
3. An H, Harper JW. "Systematic analysis of ribophagy in human cells reveals bystander flux during selective autophagy." *Nat Cell Biol*. 2017 Dec 11. PMID:29230017
4. Tsai YC, Kotiya A, et al. "Deubiquitinating enzyme VCIP135 dictates the duration of botulinum neurotoxin type A intoxication." *Proc Natl Acad Sci U S A*. 2017 Jun 27;114(26):E5158-E5166. PMID:28584101

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## References

- [1] McGowan E B, Becker E, Detwiler T C. Inhibition of calpain in intact platelets by the thiol protease inhibitor E-64d. *Biochemical and biophysical research communications*, 1989, 158(2): 432-435.
- [2] Ni H, Ren S, Zhang L, et al. Expression profiles of hippocampal regenerative sprouting-related genes and their regulation by E-64d in a developmental rat model of penicillin-induced recurrent epilepticus. *Toxicology letters*, 2013, 217(2): 162-169.

## Caution

**FOR RESEARCH PURPOSES ONLY.**

**NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

**APExBIO Technology**

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