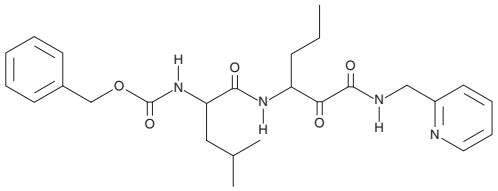
PRODUCT INFORMATION

Calpain Inhibitor XII

Item No. 14466

CAS Registry No.: 181769-57-3
Formal Name: [3-methyl-1-[[[1-[oxo[(2-pyridinylmethyl)amino]acetyl]butyl]amino]carbonyl]butyl]-carbamic acid, phenylmethyl ester
Synonym: Z-L-Nva-CONH-CH2-2-Py
MF: $C_{26}H_{34}N_4O_5$
FW: 482.6
Purity: ≥90%
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

Calpain inhibitor XII is supplied as a crystalline solid. A stock solution may be made by dissolving the calpain inhibitor XII in the solvent of choice, which should be purged with an inert gas. Calpain inhibitor XII is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of calpain inhibitor XII in ethanol and DMSO is approximately 16 mg/ml and approximately 20 mg/ml in DMF.

Calpain inhibitor XII is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, calpain inhibitor XII should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Calpain inhibitor XII has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Calpain inhibitor XII is a reversible and selective inhibitor of calpain I (μ-calpain, K_i = 19 nM), with lower affinities for calpain II (m-calpain, K_i = 120 nM) and cathepsin B (K_i = 750 nM).[1] Calpain inhibitors, including this compound, have been used to study the role of calpains in diverse processes, including neutrophil chemotaxis, neuronal signaling, and cardiac response to injury.[2-5]

References

1. Li, Z., Ortega-Vilain, A.-C., Patil, G.S., *et al.* Novel peptidyl a-keto amide inhibitors of calpains and other cysteine proteases. *J. Med. Chem.* **39(20)**, 4089-4098 (1996).
2. Khoutorsky, A. and Spira, M.E. Calpain inhibitors alter the excitable membrane properties of cultured aplysia neurons. *J. Neurophysiol.* **100(5)**, 2784-2793 (2008).
3. Lokuta, M.A., Nuzzi, P.A., and Huttenlocher, A. Calpain regulates neutrophil chemotaxis. *Proc. Natl. Acad. Sci. USA* **100(7)**, 4006-4011 (2003).
4. Puskarjov, M., Ahmad, F., Kaila, K., *et al.* Activity-dependent cleavage of the K-Cl cotransporter KCC2 mediated by calcium-activated protease calpain. *J. Neurosci.* **32(33)**, 11356-11364 (2012).
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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