

# 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<sub>26</sub>H<sub>34</sub>N<sub>4</sub>O<sub>5</sub>

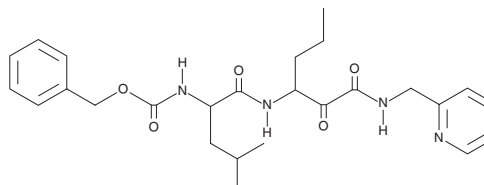
**FW:** 482.6

**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 ( $\mu$ -calpain,  $K_i = 19$  nM), with lower affinities for calpain II ( $m$ -calpain,  $K_i = 120$  nM) and cathepsin B ( $K_i = 750$  nM).<sup>1</sup> 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.<sup>2-5</sup>

### References

1. Li, Z., Ortega-Vilain, A.-C., Patil, G.S., *et al.* Novel peptidyl  $\alpha$ -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 aplasia 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).
5. Cai, W.-F., Pritchard, T., Florea, S., *et al.* Ablation of junctin or triadin is associated with increased cardiac injury following ischaemia/reperfusion. *Cardiovasc. Res.* **94(2)**, 333-341 (2012).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/15/2022

#### 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