

# PRODUCT INFORMATION



## Calpain Inhibitor XI

Item No. 17281

CAS Registry No.: 145731-49-3

Formal Name: [1-[[[1-ethyl-3-[[3-(4-morpholinyl)propyl]amino]-2,3-dioxopropyl]amino]carbonyl]-3-methylbutyl]-carbamic acid, phenylmethyl ester

Synonyms: AK 295, CaXI, Cbz-Leu-D,L-Abu-CONH-(CH<sub>2</sub>)<sub>3</sub>-morpholine, CX295, Z-L-Abu-CONH(CH<sub>2</sub>)<sub>3</sub>-morpholine, Z-Leu-Abu-CONH(CH<sub>2</sub>)<sub>3</sub>-morpholine

MF: C<sub>26</sub>H<sub>40</sub>N<sub>4</sub>O<sub>6</sub>

FW: 504.6

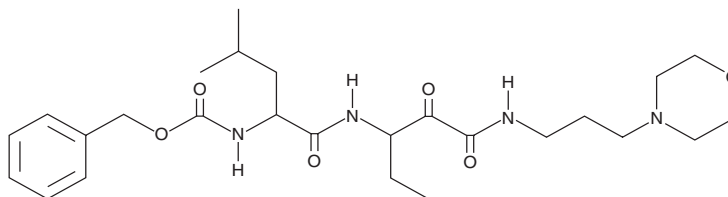
Purity: ≥95%

Supplied as: A solid

Storage: -20°C

Stability: ≥2 years

Special Conditions: Light sensitive



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

### Laboratory Procedures

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

Calpain inhibitor XI is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, calpain inhibitor XI should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Calpain inhibitor XI 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 XI is an inhibitor of calpain-1 and calpain-2 (K<sub>i</sub> = 140 and 41 μM, respectively) that also inhibits cathepsin K<sup>1,2</sup>. It is selective for calpain-1 and cathepsin K over cathepsin B and papain in a cell-free assay at 1 μM.<sup>2</sup> It reduces the levels of spectrin breakdown products (SBDPs), proteolysis products of calpain-1, in HT22 mouse hippocampal neuronal cells at a concentration of 10 μM. Calpain inhibitor XI reduces the degradation of the calpain substrates calpastatin and fodrin in a rat model of cerebral hypoxia-ischemia.<sup>3</sup>

### References

1. Li, Z., Ortega-Vilain, A. C., Patil, G. S., *et al.* Novel peptidyl α-keto amide inhibitors of calpains and other cysteine proteases. *J. Med. Chem.* **39**(20), 4089-4098 (1996).
2. Knopp, R. C., Jastaniah, A., Dubrovskiy, O., *et al.* Extending the calpain-cathepsin hypothesis to the neurovasculature: Protection of brain endothelial cells and mice from neurotrauma. *ACS Pharmacol. Transl. Sci.* **4**(1), 372-385 (2021).
3. Blomgren, K., Hallin, U., Andersson, A. L., *et al.* Calpastatin is up-regulated in response to hypoxia and is a suicide substrate to calpain after neonatal cerebral hypoxia-ischemia. *The Journal of Biological Chemistry* **274**(20), 14046-14052 (1999).

#### 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, 04/02/2026

#### 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