

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

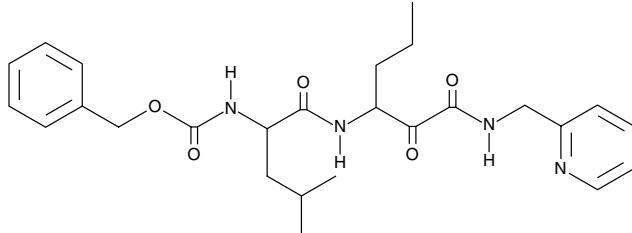
MF: C₂₆H₃₄N₄O₅

FW: 482.6

Purity: ≥90%

Stability: ≥2 years at -20°C

Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that calpain inhibitor XII be stored as supplied at -20°C. It should be stable for at least two years.

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. Calpain inhibitor XII is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. 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.

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 α-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).
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).

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