Calpain Inhibitor I
Item No. 14921

CAS Registry No.: 110044-82-1
Formal Name: N-acetyl-L-leucyl-N-[(1S)-1-formylpentyl]-L-leucinamide
Synonyms: Ac-Leu-Leu-Nle-Aldehyde, ALLN, MG 101
MF: C_{38}H_{37}N_{3}O_{4}
FW: 383.5
Purity: >95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid

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

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

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

Calpain inhibitor I is a synthetic tripeptide aldehyde that acts as a potent inhibitor of cysteine proteases including calpain I (K_i = 190 nM), calpain II (K_i = 220 nM), cathepsin B (K_i = 150 nM), and cathepsin L (K_i = 500 pM). At 10-100 μM calpain inhibitor I dose-dependently prevents the degradation of IκBα and IκBβ by the ubiquitin-proteasome complex, which blocks activation of NFκB and the production of TNF and IL-1β, suggesting a potential therapeutic effect for inflammatory diseases. At 10 μM, calpain inhibitor I can inhibit nitric oxide production by activated macrophages by interfering with transcription of the inducible nitric oxide synthase gene.

References

Related Products
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