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Product Information

Z-Leu-Leu-Leu Fluoromethyl Ketone

Product Number **C8984**

Storage Temperature –20 °C

Product Description

Molecular formula: C₂₇H₄₂ FN₃O₅

Molecular weight: 507.6

Z-Leu-Leu-Leu Fluoromethyl Ketone (Z-LLL-FMK, Z = benzylloxcarbonyl) is an irreversible inhibitor of proteosome-associated proteolytic activity.

Degradation of short-lived proteins is reversibly inhibited by peptide aldehyde inhibitors of proteasomes, such as Z-Leu-Leu-Leu-CHO.

Heat-shock protein 90 (Hsp 90) has been implicated in protection against inhibition of the multicatalytic proteinase (MCP, also known as 20 S proteasome). Hsp 90 inhibits the Z-Leu-Leu-Leu-MCA hydrolyzing activity (MCA = 7-amino-4-methylcoumarin) when the rat liver MCP is in its latent form, but no inhibitory effects are observed when the MCP is in its active form.³

FMK is a trapping group responsible for irreversible inhibition but is non-cytotoxic. Inhibition occurs when the FMK group covalently bonds to the –SH of an adjacent cysteine residue on the target protein.

Preparation Instructions

Prepare stock 20 mM solutions in dry (≥99.9%) DMSO to maintain product stability. DMF has also been used.

Storage/Stability

Store at –20 °C

Store stock solutions at –20 °C for 6–8 months. Allowing the material to warm to room temperature before use to ensure stability.

References

1. Lee, D.H., et al., Selective inhibitors of the proteasome-dependent and vacuolare pathways of protein degradation in *Saccharomyces cerevisiae*. *J. Biol. Chem.*, **271**, 27280–27284 (1996).
2. Rock, K.L., et al., Inhibitors of the proteasome block the degradation of most cell proteins and the generation of peptides presented on MHC class I molecules. *Cell*, **78**, 761 (1994).
3. Conconi, M., et al., Protection from oxidative inactivation of the 20S proteasome by heat-shock protein 90. *Biochem. J.*, **333**, 407–415 (1998).

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