Small Molecules

Z-VAD-FMK

Inhibits caspases

Catalog #100-0534	1 mg
100-0535	5 mg

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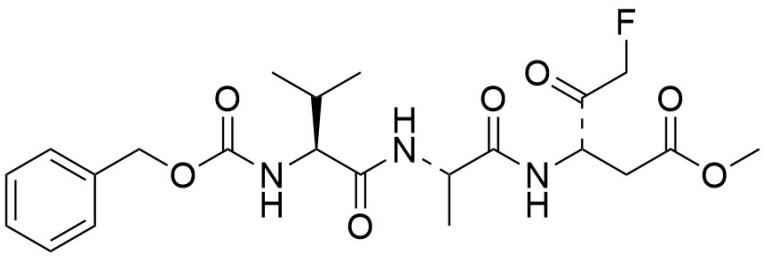
Product Description

Z-VAD-FMK is a cell-permeable synthetic peptide that inhibits caspases and blocks caspase-mediated apoptosis in vivo (Garcia-Calvo et al.; Xiang et al.). Z-VAD-FMK prevents differentiation and enhances the freeze-thaw survival rate of human embryonic stem cells when subjected to cryopreservation conditions (Heng et al.).

Molecular Name:	Z-VAD-FMK
Alternative Names:	Z-Val-Ala-Asp-(OMe)-fluoromethyl ketone; ZVAD(OMe)-FMK
CAS Number:	187389-52-2
Chemical Formula:	$C_{22}H_{30}FN_3O_7$
Molecular Weight:	467.5 g/mol
Purity:	≥ 95%
Chemical Name:	N-[(phenylmethoxy)carbonyl]-L-valyl-N-[(1S)-3-fluoro-1-(2-methoxy-2-oxoethyl)-2-oxopropyl]-L-alaninamide
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	• DMSO ≤ 10 mM

For example, to prepare a 6 mM stock solution in DMSO, resuspend 1 mg in 357 µL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CANCER RESEARCH
· Blocks Fas-induced apoptosis in T lymphocytes (Chow et al.).

References

Chow SC et al. (1995) Involvement of multiple proteases during Fas-mediated apoptosis in T lymphocytes. FEBS Lett 364(2): 134–8.
Garcia-Calvo M et al. (1998) Inhibition of human caspases by peptide-based and macromolecular inhibitors. J Biol Chem 273(49): 32608–13.
Heng BC et al. (2007) Caspase inhibitor Z-VAD-FMK enhances the freeze-thaw survival rate of human embryonic stem cells. Biosci Rep 27(4–5): 257–64.
Xiang J et al. (1996) BAX-induced cell death may not require interleukin 1 beta-converting enzyme-like proteases. Proc Natl Acad Sci USA 93(25): 14559–63.

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