

## Small Molecules

### Z-VAD-FMK

Inhibits caspases

Catalog #100-0534  
100-0535

1 mg  
5 mg



Scientists Helping Scientists™ | [WWW.STEMCELL.COM](http://WWW.STEMCELL.COM)

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

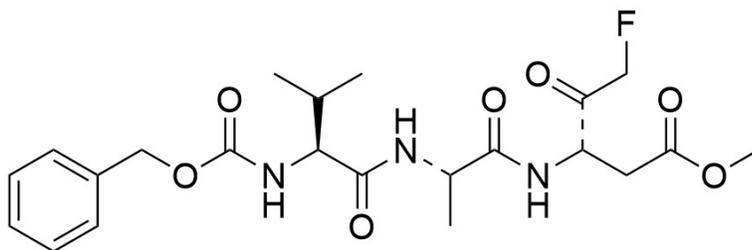
[INFO@STEMCELL.COM](mailto:INFO@STEMCELL.COM) • [TECHSUPPORT@STEMCELL.COM](mailto:TECHSUPPORT@STEMCELL.COM)

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

## 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 <sub>22</sub> H <sub>30</sub> FN <sub>3</sub> O <sub>7</sub>
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.

## Related Small Molecules

For a complete list of small molecules available from STEMCELL Technologies, visit [www.stemcell.com/smallmolecules](http://www.stemcell.com/smallmolecules) or contact us at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

**PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.**

Copyright © 2021 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, and Scientists Helping Scientists are trademarks of STEMCELL Technologies Canada Inc. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.