PRODUCT INFORMATION

PSI (trifluoroacetate salt)

Item No. 28382

Formal Name: *tert*-butyl (S)-4-((2S,3S)-2-(((benzyloxy) carbonyl)amino)-3-methylpentanamido)-5-(((S)-1-(((S)-4-methyl-1-oxopentan-2-yl)amino)-1-oxopropan-2-yl)amino)-5-oxopentanoate, trifluoroacetate salt

Synonyms: Proteasome Inhibitor I, Z-Ile-Glu(O*t*Bu)-Ala-Leu-aldehyde, Z-Ile-Glu(O*t*Bu)-Ala-Leu-CHO

MF: $C_{32}H_{50}N_4O_8 \bullet XCF_3COOH$

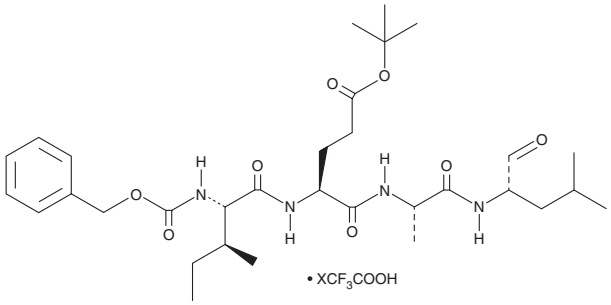
FW: 618.8

Purity: ≥95%

Supplied as: A solid

Storage: -20°C

Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

PSI (trifluoroacetate salt) is supplied as a solid. A stock solution may be made by dissolving the PSI (trifluoroacetate salt) in the solvent of choice, which should be purged with an inert gas. PSI (trifluoroacetate salt) is soluble in the organic solvent formic acid at a concentration of approximately 1 mg/ml.

Description

PSI is a synthetic peptide proteasome inhibitor.[1-3] It inhibits the acidic and neutral chymotrypsin-like activities of the 20S proteasome (IC_{50}s = 0.25 and 6.5 µM, respectively).[3] PSI is cytotoxic to HL-60, KG-1a, RWLeu-4, AR230, and K562 human leukemia cells (IC_{50}s = 4.9, 17.5, 7.8, 7.3, and 10 nM, respectively).[4] It selectively induces apoptosis in subconfluent bovine aortic endothelial cells (BAECs) and human umbilical vein endothelial cells (HUVECs; EC_{50}s = 24 and 7 nM, respectively) over confluent BAECs and HUVECs (EC_{50}s = 8,150 and 7,830 nM, respectively).[5] PSI induces accumulation of ubiquitin-protein conjugates in HT4 mouse neuronal cells.[6]

References

1. Collins, G.A. and Goldberg, A.L. The logic of the 26S proteasome. *Cell* **169(5)**, 792-806 (2017).
2. Orlowski, M. and Wilk, S. Catalytic activities of the 20 S proteasome, a multicatalytic proteinase complex. *Arch. Biochem. Biophys.* **383(1)**, 1-16 (2000).
3. Figueiredo-Pereira, M.E., Chen, W.-E., Yuan, H.-M., *et al.* A novel chymotrypsin-like component of the multicatalytic proteinase complex optimally active at acidic pH. *Arch. Biochem. Biophys.* **317(1)**, 69-78 (1995).
4. Soligo, D., Servida, F., Delia, D., *et al.* The apoptogenic response of human myeloid leukaemia cell lines and of normal and malignant haematopoietic progenitor cells to the proteasome inhibitor PSI. *Br. J. Haematol.* **113(1)**, 126-135 (2001).
5. Drexler, H.C., Risau, W., and Konerding, M.A. Inhibition of proteasome function induces programmed cell death in proliferating endothelial cells. *FASEB J.* **14(1)**, 65-77 (2000).
6. Figueiredo-Pereira, M.E., Berg, K.A., and Wilk, S. A new inhibitor of the chymotrypsin-like activity of the multicatalytic proteinase complex (20S proteasome) induces accumulation of ubiquitin-protein conjugates in a neuronal cell. *J. Neurochem.* **63(4)**, 1578-1581 (1994).

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