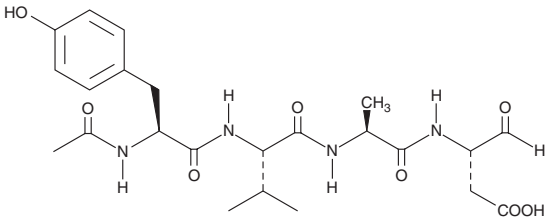
PRODUCT INFORMATION

Ac-YVAD-CHO

Item No. 10016

CAS Registry No.:	143313-51-3
Formal Name:	N-acetyl-L-tyrosyl-L-valyl-N-[(1S)-2-carboxyl-1-formylethyl]-L-alaninamide
Synonyms:	Caspase-1 Inhibitor I, L 709049, N-Ac-Tyr-Val-Ala-Asp-CHO
MF:	$C_{23}H_{32}N_4O_8$
FW:	492.5
Purity:	≥98%
Supplied as:	A crystalline 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

Ac-YVAD-CHO is supplied as a crystalline solid. A stock solution may be made by dissolving the Ac-YVAD-CHO in the solvent of choice, which should be purged with an inert gas. Ac-YVAD-CHO is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of Ac-YVAD-CHO in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of Ac-YVAD-CHO can be prepared by directly dissolving the solid in aqueous buffers. The solubility of Ac-YVAD-CHO in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Ac-YVAD-CHO is an inhibitor of caspase-1/interleukin-1β converting enzyme (ICE; K_i = 0.76 nM) and an acetylated form of the caspase-1 inhibitor YVAD-CHO (Item No. 27420).[1,2] It is selective for caspase-1 over caspase-4, -5, -8, -9, and -10 (K_is = 163-970 nM), as well as over caspase-2, -3, -6, and -7 (K_is = >10,000 nM for all).[1] It inhibits activation of caspase-1 and IL-1β in a cell-free assay using LPS-treated THP-1 cell homogenates when used at a concentration of 5 µM.[3] Ac-YVAD-CHO (12.5 µmol/kg) reduces pancreatic levels of IL-18 and serum levels of IL-1β, as well as reduces pyroptosis of pancreatic cells, in a mouse model of cerulein-induced acute pancreatitis but does not decrease pancreatic expression of NOD-like receptor protein 3 (NLRP3).[4] It increases susceptibility to lethal *E. coli* infection but prevents LPS-induced death in C3H/HeN mice when administered at doses of 5 and 10 mg/kg, respectively.[5]

References

1. Garcia-Calvo, M., Peterson, E.P., Leiting, B., *et al.* Inhibition of human caspases by peptide-based and macromolecular inhibitors. *J. Biol. Chem.* **273(49)**, 32608-32613 (1998).
2. Chapman, K.T. Synthesis of a potent, reversible inhibitor of interleukin-1β converting enzyme. *Bioorg. Med. Chem. Lett.* **2(6)**, 613-618 (1992).
3. Walsh, J.G., Logue, S.E., Lüthi, A.U., *et al.* Caspase-1 promiscuity is counterbalanced by rapid inactivation of processed enzyme. *J. Biol. Chem.* **286(37)**, 32513-32524 (2011).
4. Wang, J., Wang, L., Zhang, X., *et al.* Cathepsin B aggravates acute pancreatitis by activating the NLRP3 inflammasome and promoting the caspase-1-induced pyroptosis. *Int. Immunopharmacol.* **94**, 107496 (2021).
5. Joshi, V.D., Kalvakolanu, D.V., Hebel, J.R., *et al.* Role of caspase 1 in murine antibacterial host defenses and lethal endotoxemia. *Infect. Immun.* **70(12)**, 6896-6903 (2002).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM