Enzyme Inhibitors

1) D. Leung, G. Abbenante, and D.P. Fairlie, *J. Med. Chem.*, **43**, 305 (2000).
"Protease Inhibitors: Current Status and Future Prospects"

Code	Compound			Price:Yen
3221-v	**Ac-Asp-Asn-Leu-Asp-H (aldehyde)**	Vial	5 mg	20,000

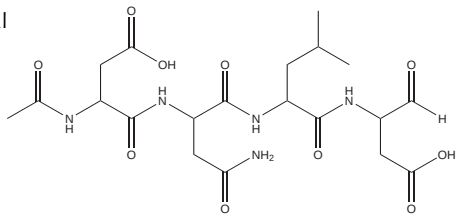
-20℃

[Ac-DNLD-CHO]

Acetyl-L-aspartyl-L-asparaginyl-L-leucyl-L-aspart-1-al

(M.W. 501.49) $C_{20}H_{31}N_5O_{10}$

Synthetic Product



Selective Inhibitor for Caspase-3 Designed by in silico Screening System

1) A. Yoshimori, R. Takasawa, and S. Tanuma, *BMC Pharmacol.*, **4**, 7 (2004).
2) S. Tanuma, R. Takasawa, and S. Tanuma, *Biol. Pharm. Bull.*, **27**, 968 (2004).

Code	Compound			Price:Yen
3194-v	**Ac-Asp-Gln-Thr-Asp-H (aldehyde)**	Vial	5 mg	25,000

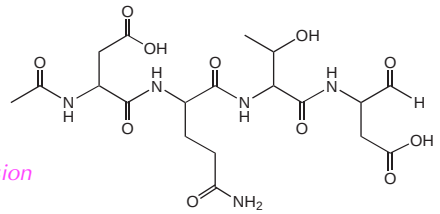
-20℃

[Ac-DQTD-CHO]

Acetyl-L-aspartyl-L-glutaminyl-L-threonyl-L-aspart-1-al

(M.W. 503.46) $C_{19}H_{29}N_5O_{11}$

Synthetic Product



Inhibitor for Caspase-7/3
(Deduced from the Cleavage Site of Focal Adhesion Kinase and Gelsolin)

1) L.-P. Wen, J.A. Fahrni, S. Troie, J.-L. Guan, K. Orth, and G.D. Rosen, *J. Biol. Chem.*, **272**, 26056 (1997).
2) S. Kothakota, T. Azuma, C. Reinhard, A. Klippel, J. Tang, K. Chu, T.J. McGarry, M.W. Kirschner, K. Koths, D.J. Kwiatkowski, and L.T. Williams, *Science*, **278**, 294 (1997).

Code	Compound			Price:Yen
3172-v	**Ac-Asp-Glu-Val-Asp-H (aldehyde)**	Vial	5 mg	20,000

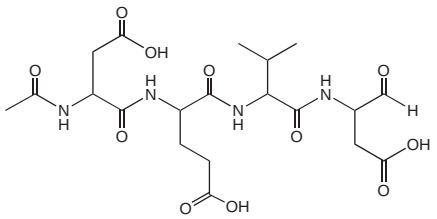
-20℃

[Ac-DEVD-CHO]

Acetyl-L-aspartyl-L-glutamyl-L-valyl-L-aspart-1-al

(M.W. 502.47) $C_{20}H_{30}N_4O_{11}$ [184179-08-6]

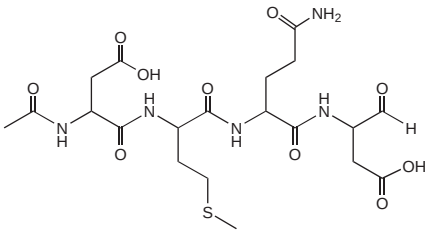
Synthetic Product



Inhibitor for Caspase-3/7/8

1) D.W. Nicholson, A. Ali, N.A. Thornberry, J.P. Vaillancourt, C.K. Ding, M. Gallant, Y. Gareau, P.R. Griffin, M. Labelle, Y.A. Lazebnik, N.A. Munday, S.M. Raju, M.E. Smulson, T.-T. Yamin, V.L. Yu, and D.K. Miller, *Nature*, **376**, 37 (1995).
2) M. Enari, R.V. Talanian, W.W. Wong, and S. Nagata, *Nature*, **380**, 723 (1996).
3) N.A. Thornberry, T.A- Rano, E.P. Peterson, D.M. Rasper, T. Timkey, M. Garcia-Calvo, V.M. Houtzager, P.A. Nordstrom, S. Roy, J.P. Vaillancourt, K.T. Chapman, and D.W. Nicholson, *J. Biol. Chem.*, **272**, 17907 (1997).

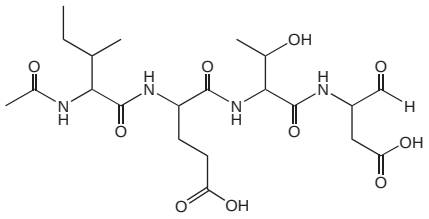
Code	Compound			Price:Yen
3192-v -20℃	**Ac-Asp-Met-Gln-Asp-H (aldehyde)** **[Ac-DMQD-CHO]** Acetyl-L-aspartyl-L-methionyl-L-glutaminyl-L-aspart-1-al (M.W. 533.55) $C_{20}H_{31}N_5O_{10}S$ [259199-63-8] Synthetic Product	Vial	5 mg	30,000



Inhibitor for Caspase-3

1) A. Takahashi, H. Hirata, S. Yonehara, Y. Imai, K.-K. Lee, R.W. Moyer, P.C. Turner, P.W. Mesner, T. Okazaki, H. Sawai, S. Kishi, K. Yamamoto, M. Okuma, and M. Sasada, *Oncogene*, **14**, 2741 (1997).
2) H. Hirata, A. Takahashi, S. Kobayashi, S. Yonehara, H. Sawai, T. Okazaki, K. Yamamoto, and M. Sasada, *J. Exp. Med.*, **187**, 587 (1998).

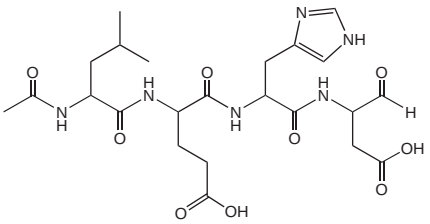
Code	Compound			Price:Yen
3196-v -20℃	**Ac-Ile-Glu-Thr-Asp-H (aldehyde)** **[Ac-IETD-CHO]** Acetyl-L-isoleucyl-L-glutamyl-L-threonyl-L-aspart-1-al (M.W. 502.52) $C_{21}H_{34}N_4O_{10}$ [191338-86-0] Synthetic Product	Vial	5 mg	20,000



Inhibitor for Caspase-8/6 and Granzyme B
(Deduced from the Cleavage Site of Procaspase-3)

1) Z. Han, E.A. Hendrickson, T.A. Bremner, and J.H. Wyche, *J. Biol. Chem.*, **272**, 13432 (1997).
2) M. Garcia-Calvo, E.P. Peterson, B. Leiting, R. Ruel, D.W. Nicholson, and N.A. Thornberry, *J. Biol. Chem.*, **273**, 32608 (1998).

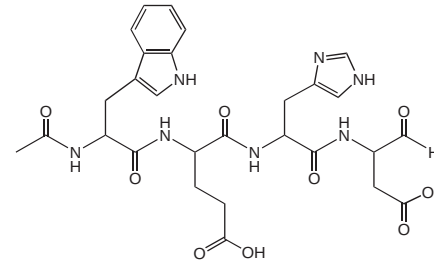
Code	Compound			Price:Yen
3199-v -20℃	**Ac-Leu-Glu-His-Asp-H (aldehyde)** **[Ac-LEHD-CHO]** (Trifluoroacetate Form) Acetyl-L-leucyl-L-glutamyl-L-histidyl-L-aspart-1-al (M.W. 538.55) $C_{23}H_{34}N_6O_9$ Synthetic Product	Vial	5 mg	25,000



Inhibitor for Caspase-9

1) N.A. Thornberry, T.A. Rano, E.P. Peterson, D.M. Rasper, T. Timkey, M. Garcia-Calvo, V.M. Houtzager, P.A. Nordstrom, S. Roy, J.P. Vaillancourt, K.T. Chapman, and D.W. Nicholson, *J. Biol. Chem.*, **272**, 17907 (1997).

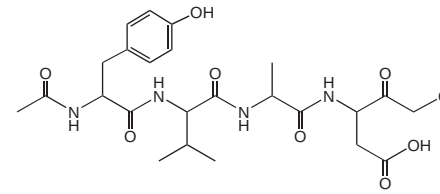
Code	Compound			Price:Yen
3187-v -20℃	**Ac-Trp-Glu-His-Asp-H (aldehyde)** **[Ac-WEHD-CHO]** (Trifluoroacetate Form) Acetyl-L-tryptophyl-L-glutamyl-L-histidyl-L-aspart-1-al (M.W. 611.60) $C_{28}H_{33}N_7O_9$ [189275-71-6] Synthetic Product	Vial	5 mg	20,000



Inhibitor for Caspase-1

1) T.A. Rano, T. Timkey, E.P. Peterson, J. Rotonda, D.W. Nicholson, J.W. Becker, K.T. Chapman, and N.A. Thornberry, *Chem. Biol.*, **4**, 149 (1997).
2) M. Garcia-Calvo, E.P. Peterson, B. Leiting, R. Ruel, D.W. Nicholson, and N.A. Thornberry, *J. Biol. Chem.*, **273**, 32608 (1998).

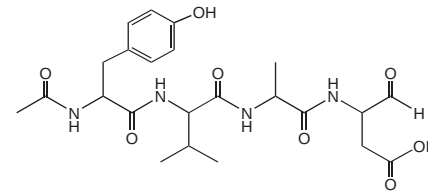
Code	Compound			Price:Yen
3180-v -20℃	**Ac-Tyr-Val-Ala-Asp-CH_2Cl** **[Ac-YVAD-CMK]** (Acetyl-L-tyrosyl-L-valyl-L-alanyl-L-aspart-1-yl)chloromethane (M.W. 540.99) $C_{24}H_{33}N_4O_8Cl$ [178603-78-6] Synthetic Product	Vial	5 mg	20,000



Inhibitor for Caspases

1) Y.A. Lazebnik, S.H. Kaufmann, S. Desnoyers, G.G. Poirier, and W.C. Earnshaw, *Nature*, **371**, 346 (1994).
2) M. Enari, H. Hug, and S. Nagata, *Nature*, **375**, 78 (1995).
3) C.E. Milligan, D. Prevette, H. Yaginuma, S. Homma, C. Cardwell, L.C. Fritz, K.J. Tomaselli, R.W. Oppenheim, and L.M. Schwartz, *Neuron*, **15**, 385 (1995).
4) E. Fujita, T. Mukasa, T. Tsukahara, K. Arahata, S. Omura, and T. Momoi, *Biochem. Biophys. Res. Commun.*, **224**, 74 (1996).

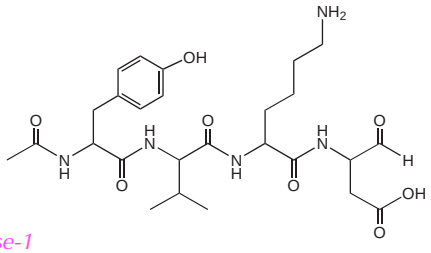
Code	Compound			Price:Yen
3165-v -20℃	**Ac-Tyr-Val-Ala-Asp-H (aldehyde)** **[Ac-YVAD-CHO]** Acetyl-L-tyrosyl-L-valyl-L-alanyl-L-aspart-1-al (M.W. 492.52) $C_{23}H_{32}N_4O_8$ [143313-51-3] Synthetic Product	Vial	5 mg	20,000



Inhibitor for Caspase-1

1) N.A. Thornberry, H.G. Bull, J.R. Calaycay, K.T. Chapman, A.D. Howard, M.J. Kostura, D.K. Miller, S.M. Molineaux, J.R. Weidner, J. Aunins, K.O. Elliston, J.M. Ayala, F.J. Casano, J. Chin, G.J.-F. Ding, L.A. Egger, E.P. Gaffney, G. Limjuco, O.C. Palyha, S.M. Raju, A.M. Rolando, J.P. Salley, T.-T. Yamin, T.D. Lee, J.E. Shively, M. MacCross, R.A. Mumford, J.A. Schmidt, and M.J. Tocci, *Nature*, **356**, 768 (1992).
2) S.M. Molineaux, F.J. Casano, A.M. Rolando, E.P. Peterson, G. Limjuco, J. Chin, P.R. Griffin, J.R. Calaycay, G.J.-F. Ding, T.-T. Yamin, O.C. Palyha, S. Luell, D. Fletcher, D.K. Miller, A.D. Howard, N.A. Thornberry, and M.J. Kostura, *Proc. Natl. Acad. Sci. U.S.A.*, **90**, 1809 (1993).
3) M. Enari, R.V. Talanian, W.W. Wong, and S. Nagata, *Nature*, **380**, 723 (1996).
4) M. Garcia-Calvo, E.P. Peterson, B. Leiting, R. Ruel, D.W. Nicholson, and N.A. Thornberry, *J. Biol. Chem.*, **273**, 32608 (1998).

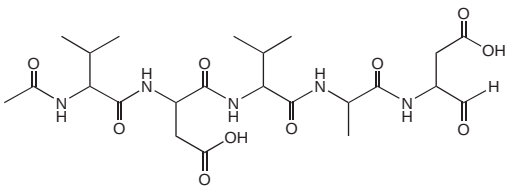
Code	Compound			Price:Yen
3166-v -20℃	**Ac-Tyr-Val-Lys-Asp-H (aldehyde)** **[Ac-YVKD-CHO]** (Trifluoroacetate Form) Acetyl-L-tyrosyl-L-valyl-L-lysyl-L-aspart-1-al (M.W. 549.62) $C_{26}H_{39}N_5O_8$ [147821-01-0] Synthetic Product	Vial	5 mg	20,000



Inhibitor for Caspase-1, Affinity Ligand for Caspase-1

1) N.A. Thornberry, H.G. Bull, J.R. Calaycay, K.T. Chapman, A.D. Howard, M.J. Kostura, D.K. Miller, S.M. Molineaux, J.R. Weidner, J. Aunins, K.O. Elliston, J.M. Ayala, F.J. Casano, J. Chin, G.J.-F. Ding, L.A. Egger, E.P. Gaffney, G. Limjuco, O.C. Palyha, S.M. Raju, A.M. Rolando, J.P. Salley, T.-T. Yamin, T.D. Lee, J.E. Shively, M. MacCross, R.A. Mumford, J.A. Schmidt, and M.J. Tocci, *Nature*, **356**, 768 (1992).
2) T.L. Graybill, R.E. Dolle, C.T. Helaszek, R.E. Miller, and M.A. Ator, *Int. J. Pept. Protein Res.*, **44**, 173 (1994).

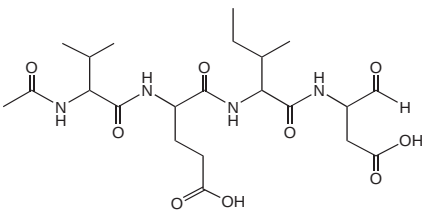
Code	Compound			Price:Yen
3204-v -20℃	**Ac-Val-Asp-Val-Ala-Asp-H (aldehyde)** **[Ac-VDVAD-CHO]** Acetyl-L-valyl-L-aspartyl-L-valyl-L-alanyl-L-aspart-1-al (M.W. 543.57) $C_{23}H_{37}N_5O_{10}$ [194022-51-0] Synthetic Product	Vial	5 mg	30,000



Inhibitor for Caspase-2

1) R.V. Talanian, C. Quinlan, S. Trautz, M.C. Hackett, J.A. Mankovich, D. Banach, T. Ghayur, K.D. Brady, and W.W. Wong, *J. Biol. Chem.*, **272**, 9677 (1997).

Code	Compound			Price:Yen
3182-v -20℃	**Ac-Val-Glu-Ile-Asp-H (aldehyde)** **[Ac-VEID-CHO]** Acetyl-L-valyl-L-glutamyl-L-isoleucyl-L-aspart-1-al (M.W. 500.54) $C_{22}H_{36}N_4O_9$ Synthetic Product	Vial	5 mg	20,000

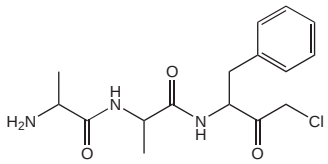


Inhibitor for Caspase-6

1) H. Hirata, A. Takahashi, S. Kobayashi, S. Yonehara, H. Sawai, T. Okazaki, K. Yamamoto, and M. Sasada, *J. Exp. Med.*, **187**, 587 (1998).

AIP See Code 4374 **Lys-Lys-Lys-Leu-Arg-Arg-Gln-Glu-Ala-Phe-Asp-Ala-Tyr** on page 196

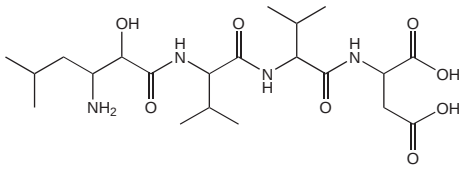
Code	Compound			Price:Yen
3202-v -20℃	**Ala-Ala-Phe-CH_2Cl** **[AAF-CMK]** (Trifluoroacetate Form) (L-Alanyl-L-alanyl-L-phenylalanyl)chloromethane (M.W. 339.82) $C_{16}H_{22}N_3O_3Cl$ [102129-66-8] Synthetic Product	Vial	5 mg	6,000



Inhibitor for Tripeptidyl Peptidase II (Component of Giant Protease with Some Proteasome Function), Chymotrypsin, and Chymase

1) R. Glas, M. Bogyo, J.S. McMaster, M. Gaczynska, and H.L. Ploegh, *Nature*, **392**, 618 (1998).
2) E. Geier, G. Pfeifer, M. Wilm, M. Lucchiari-Hartz, W. Baumeister, K. Eichmann, and G. Niedermann, *Science*, **283**, 978 (1999).
3) L.A. Johnson, K.E. Moon, and M. Eisenberg, *Biochim. Biophys. Acta*, **953**, 269 (1988).

Code	Compound			Price:Yen
4095-v -20℃	**Amastatin** [(2*S*,3*R*)-3-Amino-2-hydroxy-5-methylhexanoyl]-L-valyl-L-valyl-L-aspartic acid (M.W. 474.55) $C_{21}H_{38}N_4O_8$ [67655-94-1] Synthetic Product	Vial	0.5 mg	6,900



Code	Compound			Price:Yen
4095 -20℃	**Amastatin** [(2*S*,3*R*)-3-Amino-2-hydroxy-5-methylhexanoyl]-L-valyl-L-valyl-L-aspartic acid (M.W. 474.55) $C_{21}H_{38}N_4O_8$ Synthetic Product	Bulk	25 mg	99,300

Inhibitor for Aminopeptidase A/PS and Leucyl Aminopeptidase

1) T. Aoyagi, H. Tobe, F. Kojima, M. Hamada, T. Takeuchi, and H. Umezawa, *J. Antibiotics*, **31**, 636 (1978). (*Original*)
2) H. Tobe, H. Morishima, H. Naganawa, T. Takita, T. Aoyagi, and H. Umezawa, *Agric. Biol. Chem.*, **43**, 591 (1979). (*Structure & Chem. Synthesis*)
3) P.M. Dando and A.J. Barrett, In, Enzyme 343.Aminopeptidase PS, *Handbook of Proteolytic Enzymes*, (A.J. Barrett, N.D. Rawlings, and J.F. Woessner, eds.), Academic Press, New York, 1998, (*Inhibitory Activity*)

****** Angiotensin I Converting Enzyme Inhibitors ******

Code	Compound			Price:Yen
4009-v -20℃	**Bradykinin-Potentiator B** **(Mamushi, *Agkistrodon halys blomhoffii*)** Pyr-Gly-Leu-Pro-Pro-Arg-Pro-Lys-Ile-Pro-Pro (M.W. 1182.4) $C_{56}H_{91}N_{15}O_{13}$ [30892-86-5] Synthetic Product *Inhibitor for Peptidyl-Dipeptidase A, Kininase II, and ACE (Angiotensin I Converting Enzyme)* 1) H. Kato and T. Suzuki, *Biochemistry*, **10**, 972 (1971). (*Original*)	Vial	0.5 mg	2,800
4010-v -20℃	**Bradykinin-Potentiator C** **(Mamushi, *Agkistrodon halys blomhoffii*)** Pyr-Gly-Leu-Pro-Pro-Gly-Pro-Pro-Ile-Pro-Pro (M.W. 1052.2) $C_{51}H_{77}N_{11}O_{13}$ [30953-20-9] Synthetic Product *Inhibitor for Peptidyl-Dipeptidase A, Kininase II, and ACE (Angiotensin I Converting Enzyme)* 1) H. Kato and T. Suzuki, *Biochemistry*, **10**, 972 (1971). (*Original*)	Vial	0.5 mg	2,300
4097-v -20℃	**Des-Pro^2-Bradykinin** Arg-Pro-Gly-Phe-Ser-Pro-Phe-Arg (M.W. 963.09) $C_{45}H_{66}N_{14}O_{10}$ [80943-05-1] Synthetic Product	Vial	0.5 mg	2,800
4097 -20℃	**Des-Pro^2-Bradykinin** Arg-Pro-Gly-Phe-Ser-Pro-Phe-Arg • 2AcOH • $3H_2O$ (M.W. 963.09 • 120.10 • 54.05) $C_{45}H_{66}N_{14}O_{10}$ • $2CH_3COOH$ • $3H_2O$ Synthetic Product *Inhibitor for Peptidyl-Dipeptidase A, Kininase II, and ACE (Angiotensin I Converting Enzyme)* 1) M. Naruse, S. Tamanami, K. Shuto, S. Sakakibara, and T. Kimura, *Chem. Pharm. Bull.*, **29**, 3369 (1981). (*Original*)	Bulk	25 mg	43,000

Code	Compound			Price:Yen
4062-v	**Antipain**	Vial	0.5 mg	3,500
-20℃	(Hydrochloride Form) [(*S*)-1-Carboxy-2-phenylethyl]carbamoyl-L-arginyl-L-valylargininal (M.W. 604.70) $C_{27}H_{44}N_{10}O_6$ [37691-11-5] Microbial Product			
4062	**Antipain**	Bulk	25 mg	8,600
-20℃	[(*S*)-1-Carboxy-2-phenylethyl]carbamoyl-L-arginyl-L-valylargininal monohydrochloride dihydrate (M.W. 604.70 • 36.46 • 36.03) $C_{27}H_{44}N_{10}O_6 \cdot HCl \cdot 2H_2O$ Microbial Product		100 mg	25,400

Inhibitor for Trypsin, u-PA, Papain, and Cathepsin A/B

1) H. Suda, T. Aoyagi, M. Hamada, T. Takeuchi, and H. Umezawa, *J. Antibiotics*, **25**, 263 (1972). (*Original*)
2) S. Umezawa, K. Tatsuta, K. Fujimoto, T. Tsuchiya, H. Umezawa, and H. Naganawa, *J. Antibiotics*, **25**, 267 (1972). (*Original; Chem. Structure*)
3) J. Chau, *J. Biol. Chem.*, **258**, 4434 (1983). (*Inhibitory Activity*)

****** Arphamenines (continued) ******

Code	Compound			Price:Yen
4149-v -20℃	**Arphamenine B** (Sulfate Form) (2*R*,5*S*)-5-Amino-8-guanidino-4-oxo-2-*p*-hydroxyphenylmethyloctanoic acid (M.W. 336.39) $C_{16}H_{24}N_4O_4$ [103900-19-2] Microbial Product	Vial	0.5 mg	3,900
4149 -20℃	**Arphamenine B** (2*R*,5*S*)-5-Amino-8-guanidino-4-oxo-2-*p*-hydroxyphenylmethyloctanoic acid hemisulfate monohydrate (M.W. 336.39 • 49.04 • 18.02) $C_{16}H_{24}N_4O_4 \cdot {}^1/_2H_2SO_4 \cdot H_2O$ [144110-38-3] Microbial Product	Bulk	25 mg 100 mg	24,000 87,000

Inhibitor for Aminopeptidase B

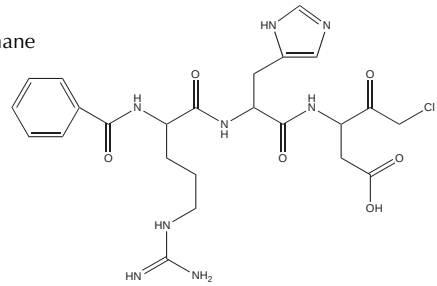
1) H. Umezawa, T. Aoyagi, S. Ohuchi, A. Okuyama, H. Suda, T. Takita, M. Hamada, and T. Takeuchi, *J. Antibiotics*, **36**, 1572 (1983). (*Original; IC_{50}*)
2) S. Ohuchi, H. Suda, H. Naganawa, T. Takita, T. Aoyagi, H. Umezawa, H. Nakamura, and Y.Iitaka, *J. Antibiotics*, **36**, 1576 (1983). (*Original; Chem. Structure*)

Code	Compound			Price:Yen
3173-v -20℃	**Biotinyl-Asp-Glu-Val-Asp-H (aldehyde)** **[Biotin-DEVD-CHO]** Biotinyl-L-aspartyl-L-glutamyl-L-valyl-L-aspart-1-al (M.W. 686.73) $C_{28}H_{42}N_6O_{12}S$ [178603-73-1] Synthetic Product	Vial	1 mg	10,000

Inhibitor for Caspase-3/7/8

1) D.W. Nicholson, A. Ali, N.A. Thornberry, J.P. Vaillancourt, C.K. Ding, M. Gallant, Y. Gareau, P.R. Griffin, M. Labelle, Y.A. Lazebnik, N.A. Munday, S.M. Raju, M.E. Smulson, T.-T. Yamin, V.L. Yu, and D.K. Miller, *Nature*, **376**, 37 (1995).

Code	Compound			Price:Yen
3223-v -20℃	**Bz-Arg-His-D-Asp-CH_2Cl** **[Bz-RHd-CMK]** (d: D-Asp) (Trifluoroacetate Form) (Benzoyl-L-arginyl-L-histidyl-D-aspart-1-yl)chloromethane (M.W. 563.01) $C_{24}H_{31}N_8O_6Cl$ Synthetic Product	Vial	5 mg	20,000



Selective Inhibitor for D-Aspartyl Endopeptidase

1) T. Kinouchi, S. Ishiura, Y. Mabuchi, Y. Urakami-Manaka, H. Nishio, Y. Nishiuchi, M. Tsunemi, K. Takada, M. Watanabe, M. Ikeda, H. Matsui, S. Tomioka, H. Kawahara, T. Hamamoto, K. Suzuki, and Y. Kagawa, *Biochem. Biophys. Res. Commun.*, **314**, 730 (2004).

- This compound is produced by Peptide Institute, Inc. under the license of Japan Science and Technology Agency.

CA-074 See Code 4322 on page 188

CA-074 Me See Code 4323 on page 188

Caspase Inhibitors and Substrates See **List of Inhibitors and Substrates for Various Proteases** on page 141

Code	Compound			Price:Yen
4063-v -20℃	**Chymostatin** A mixture of type A, B, and C [(*S*)-1-Carboxy-2-phenylethyl]carbamoyl-α-[2-iminohexahydro-4(*S*)-pyrimidyl]-(*S*)-glycyl-X-phenylalaninal X: L-leucyl(type A), L-valyl(type B), L-isoleucyl(type C) [9076-44-2] Microbial Product	Vial	0.5 mg	3,500
4063 -20℃	**Chymostatin** A mixture of type A, B, and C [(*S*)-1-Carboxy-2-phenylethyl]carbamoyl-α-[2-iminohexahydro-4(*S*)-pyrimidyl]-(*S*)-glycyl-X-phenylalaninal X: L-leucyl(type A), L-valyl(type B), L-isoleucyl(type C) [9076-44-2] Microbial Product	Bulk	25 mg 100 mg	15,300 52,000

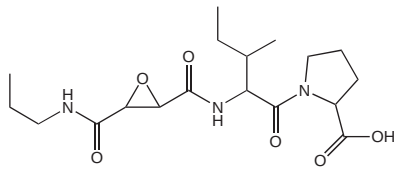
Inhibitor for Chymotrypsin, Chymase, Papain, and Cathepsin B/G

1) H. Umezawa, T. Aoyagi, H. Morishima, S. Kunimoto, M. Matsuzaki, M. Hamada, and T. Takeuchi, *J. Antibiotics*, **23**, 425 (1970). (*Original*)
2) K. Tatsuta, N. Mikami, K. Fujimoto, S. Umezawa, H. Umezawa, and T. Aoyagi, *J. Antibiotics*, **26**, 625 (1973). (*Chem. Structure*)
3) R.L. Stein and A.M. Strimpler, *Biochemistry*, **26**, 2611 (1987). (*Inhibitory Activity*)
4) L.A. Johnson, K.E. Moon, and M. Eisenberg, *Biochim. Biophys. Acta*, **953**, 269 (1988). (*Inhibitory Activity*)

Code	Compound			Price:Yen
4146-v -20℃	**Cl-Ac-(OH)Leu-Ala-Gly-NH_2** *N*-Chloroacetyl-*N*-hydroxy-L-leucyl-L-alanylglycine amide (M.W. 350.80) $C_{13}H_{23}N_4O_5Cl$ Synthetic Product	Vial	0.5 mg	2,900
4146 -20℃	**Cl-Ac-(OH)Leu-Ala-Gly-NH_2** *N*-Chloroacetyl-*N*-hydroxy-L-leucyl-L-alanylglycine amide (M.W. 350.80) $C_{13}H_{23}N_4O_5Cl$ Synthetic Product *Inhibitor for P. aeruginosa Elastase* 1) N. Nishino and J.C. Powers, *J. Biol. Chem.*, **255**, 3482 (1980). (*Original*)	Bulk	25 mg 100 mg	18,700 48,600
3219-v -20℃	**(3,5-Difluorophenylacetyl)-Ala-Phg-OBu^t** **[DAPT]** (3,5-Difluorophenylacetyl)-L-alanyl-L-2-phenylglycine *t*-butyl ester (M.W. 432.46) $C_{23}H_{26}N_2O_4F_2$ [208255-80-5] Synthetic Product *Inhibitor for γ-Secretase* 1) H.F. Dovey, V. John, J.P. Anderson, L.Z. Chen, P. de Saint Andrieu, L.Y. Fang, S.B. Freedman, B. Folmer, E. Goldbach, E.J. Holsztynska, K.L. Hu, K.L. Johnson-Wood, S.L. Kennedy, D. Kholodenko, J.E. Knops, L.H. Latimer, M. Lee, Z. Liao, I.M. Lieberburg, R.N. Motter, L.C. Mutter, J. Nietz, K.P. Quinn, K.L. Sacchi, P.A. Seubert, G.M. Shopp, E.D. Thorsett, J.S. Tung, J. Wu, S. Yang, C.T. Yin, D.B. Schenk, P.C. May, L.D. Altstiel, M.H. Bender, L.N. Boggs, T.C. Britton, J.C. Clemens, D.L. Czilli, D.K. Dieckman-McGinty, J.J. Droste, K.S. Fuson, B.D. Gitter, P.A. Hyslop, E.M. Johnstone, W-Y. Li, S.P. Little, T.E. Mabry, F.D. Miller, B. Ni, J.S. Nissen, W.J. Porter, B.D. Potts, J.K. Reel, D. Stephenson, Y. Su, L.A. Shipley, C.A. Whitesitt, T. Yin, and J.E. Audia, *J. Neurochem.*, **76**, 173 (2001). (*Original; Functional γ-Secretase Inhibitor in Brain*) 2) A.Y. Kornilova, C. Das, and M.S. Wolfe, *J. Biol. Chem.*, **278**, 16470 (2003). (*Comparison of in Cells and Cell-Free Activity*)	Vial	5 mg	10,000
4132-v -20℃	**Diprotin A** Ile-Pro-Ile (M.W. 341.45) $C_{17}H_{31}N_3O_4$ [90614-48-5] Synthetic Product	Vial	0.5 mg	1,800
4132 -20℃	**Diprotin A** Ile-Pro-Ile • H_2O (M.W. 341.45 • 18.02) $C_{17}H_{31}N_3O_4$ • H_2O [90614-48-5] Synthetic Product *Inhibitor for Dipeptidyl-Aminopeptidase IV* 1) H. Umezawa, T. Aoyagi, K. Ogawa, H. Naganawa, M. Hamada, and T. Takeuchi, *J. Antibiotics*, **37**, 422 (1984). (*Original; IC_{50} & Chem. Structure*)	Bulk	25 mg 100 mg	4,800 13,300

****** E-64 and Related Inhibitors ******

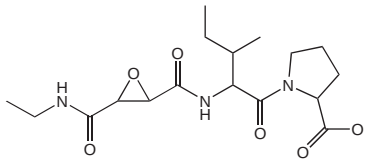
Code	Compound			Price:Yen
4322-v -20℃	**CA-074** [(2*S*,3*S*)-3-Propylcarbamoyloxirane-2-carbonyl]-L-isoleucyl-L-proline (M.W. 383.44) $C_{18}H_{29}N_3O_6$ [134448-10-5] Synthetic Product	Vial	5 mg	15,000



Inhibitor for Cathepsin B

1) M. Murata, S. Miyashita, C. Yokoo, M. Tamai, K. Hanada, K. Hatayama, T. Towatari, T. Nikawa, and N. Katunuma, *FEBS Lett.*, **280**, 307 (1991). (*Original; IC_{50}*)
2) T. Towatari, T. Nikawa, M. Murata, C. Yokoo, M. Tamai, K. Hanada, and N. Katunuma, *FEBS Lett.*, **280**, 311 (1991). (*Original; Pharmacol.*)
3) T. Inubushi, H. Kakegawa, Y. Kishino, and N. Katunuma, *J. Biochem.*, **116**, 282 (1994). (*Biochem.*)

Code	Compound			Price:Yen
4323-v -20℃	**CA-074 Me** [(2*S*,3*S*)-3-Propylcarbamoyloxirane-2-carbonyl]-L-isoleucyl-L-proline methyl ester (M.W. 397.47) $C_{19}H_{31}N_3O_6$ [147859-80-1] Synthetic Product	Vial	5 mg	15,000

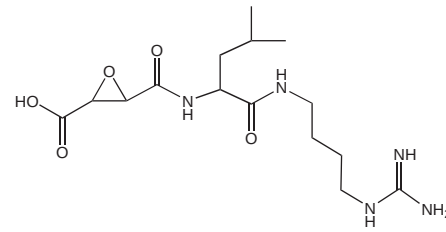


Proinhibitor for Intracellular Cathepsin B
Membrane Permeable Analog of CA-074

1) D.J. Buttle, M. Murata, C.G. Knight, and A.J. Barrett, *Arch. Biochem. Biophys.*, **299**, 377 (1992). (*Original*)

****** E-64 and Related Inhibitors (continued) ******

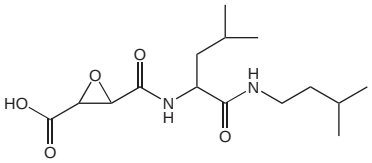
Code	Compound			Price:Yen
4096-v -20℃	**E-64** [(2*S*,3*S*)-3-Carboxyoxirane-2-carbonyl]-L-leucine (4-guanidinobutyl)amide (M.W. 357.41) $C_{15}H_{27}N_5O_5$ [66701-25-5] Synthetic Product	Vial	0.5 mg	2,900
4096 -20℃	**E-64** [(2*S*,3*S*)-3-Carboxyoxirane-2-carbonyl]-L-leucine (4-guanidinobutyl)amide hemihydrate (M.W. 357.41 • 9.01) $C_{15}H_{27}N_5O_5 \cdot {}^1/_2H_2O$ [66701-25-5] Synthetic Product	Bulk	25 mg 100 mg 1 g	11,400 28,500 171,000



Inhibitor for Thiol Proteases

1) K. Hanada, M. Tamai, M. Yamagishi, S. Ohmura, J. Sawada, and I. Tanaka, *Agric. Biol. Chem.*, **42**, 523 (1978). (*Original*)
2) K. Hanada, M. Tamai, S. Ohmura, J. Sawada, T. Seki and I. Tanaka, *Agric. Biol. Chem.*, **42**, 529 (1978). (*Structure & Chem. Synthesis*)
3) Y. Shoji-Kasai, M. Senshu, S. Iwashita, and K. Imahori, *Proc. Natl. Acad. Sci. U.S.A.*, **85**, 146 (1988). (*Pharmacol.*)

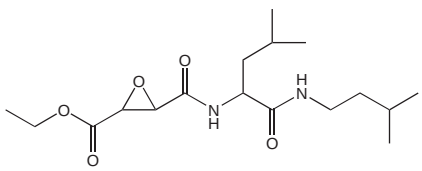
Code	Compound			Price:Yen
4320-v -20℃	**E-64-c** [(2*S*,3*S*)-3-Carboxyoxirane-2-carbonyl]-L-leucine (3-methylbutyl)amide (M.W. 314.38) $C_{15}H_{26}N_2O_5$ [76684-89-4] Synthetic Product	Vial	5 mg	10,000



Inhibitor for Thiol Protease (Cathepsin B/H/L and Calpain)

1) S. Hashida, T. Towatari, E. Kominami, and N. Katunuma, *J. Biochem.*, **88**, 1805 (1980). (*Original; IC_{50}*)
2) M. Tamai, K. Hanada, T. Adachi, K. Oguma, K. Kashiwagi, S. Omura, and M. Ohzeki, *J. Biochem.*, **90**, 255 (1981). (*Chem. Structure & Biochem.*)
3) A. J. Barrett, A. A. Kembhavi, M. A. Brown, H. Kirschke, C. G. Knight, M. Tamai, and K. Hanada, *Biochem. J.*, **201**, 189 (1982). (*Biochem.*)
4) K. Suzuki, *J. Biochem.*, **93**, 1305 (1983). (*Biochem.*)

Code	Compound			Price:Yen
4321-v -20℃	**E-64-d** [(2*S*,3*S*)-3-Ethoxycarbonyloxirane-2-carbonyl]-L-leucine (3-methylbutyl)amide (M.W. 342.43) $C_{17}H_{30}N_2O_5$ [88321-09-9] Synthetic Product	Vial	5 mg	10,000

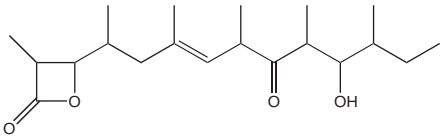


Inhibitor for Thiol Protease (Cathepsin B/H/L and Calpain)
Membrane Permeable Analog of E-64-c

1) M. Tamai, K. Matsumoto, S. Omura, I. Koyama, Y. Ozawa, and K. Hanada, *J. Pharmacobio-Dyn.*, **9**, 672 (1986). (*Original*)
2) M. Tamai, C. Yokoo, M. Murata, K. Oguma, K. Sota, E. Sato, and Y. Kanaoka, *Chem. Pharm. Bull.*, **35**, 1098 (1987). (*Chem. Synthesis & Biochem.*)

****** Ebelactones ******

Code	Compound			Price:Yen
4155	**Ebelactone A**	Bulk	25 mg	100,000
-20℃	3,11-Dihydroxy-2,4,6,8,10,12-hexamethyl-9-oxo-(*E*)-6-tetradecen-3-olide (M.W. 338.48) $C_{20}H_{34}O_4$ [76808-16-7] Microbial Product			



Inhibitor for Esterase, Lipase, and N-Formylmethionine Aminopeptidase

1) H. Umezawa, T. Aoyagi, K. Uotani, M. Hamada, T. Takeuchi, and S. Takahashi, *J. Antibiotics*, **33**, 1594 (1980). (*Original; IC_{50}*)
2) K. Uotani, H. Naganawa, S. Kondo, T. Aoyagi, and H. Umezawa, *J. Antibiotics*, **35**, 1495 (1982). (*Original; Chem. Structure*)
3) K. Uotani, H. Naganawa, T. Aoyagi, and H. Umezawa, *J. Antibiotics*, **35**, 1670 (1982). (*Biosynthetic Pathway*)

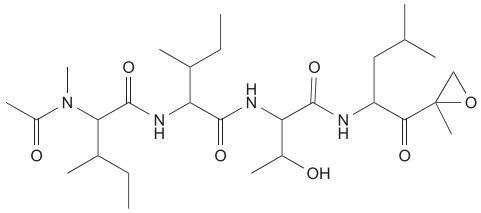
Code	Compound			Price:Yen
4243-v -20℃	**Elafin (Human)** Ala-Gln-Glu-Pro-Val-Lys-Gly-Pro-Val-Ser- Thr-Lys-Pro-Gly-Ser-Cys-Pro-Ile-Ile-Leu- Ile-Arg-Cys-Ala-Met-Leu-Asn-Pro-Pro-Asn- Arg-Cys-Leu-Lys-Asp-Thr-Asp-Cys-Pro-Gly- Ile-Lys-Lys-Cys-Cys-Glu-Gly-Ser-Cys-Gly- Met-Ala-Cys-Phe-Val-Pro-Gln (Disulfide bonds between Cys^{16}-Cys^{45},Cys^{23}-Cys^{49},Cys^{32}-Cys^{44},and Cys^{38}-Cys^{53}) (M.W. 5999.1) $C_{254}H_{416}N_{72}O_{75}S_{10}$ Synthetic Product	Vial	20 µg	20,000
4064-v -20℃	**Elastatinal** Microbial Product	Vial	0.5 mg	3,600
4064 -20℃	**Elastatinal** Microbial Product	Bulk	25 mg 100 mg	16,700 57,600
4381-v -20℃	**Epoxomicin** (2*R*)-2-[Acetyl-(*N*-methyl-L-isoleucyl)-L-isoleucyl- L-threonyl-L-leucyl]-2-methyloxirane (M.W. 554.72) $C_{28}H_{50}N_4O_7$ [134381-21-8] Synthetic Product	Vial	0.2 mg	20,000

Elastase-Specific Inhibitor from Human Skin

1) O. Wiedow, J.-M. Schröder, H. Gregory, J.A. Young, and E. Christophers, *J. Biol. Chem.*, **265**, 14791 (1990). (*Original*)
2) O. Wiedow, J.-M. Schröder, H. Gregory, J.A. Young, and E. Christophers, *J. Biol. Chem.*, **266**, 3356 (1991). (*Correction of Sequence*)
3) M. Tsunemi, H. Kato, Y. Nishiuchi, S. Kumagaye, and S. Sakakibara, *Biochem. Biophys. Res. Commun.*, **185**, 967 (1992). (*Chem. Synthesis & Biochem.*)
4) M. Tsunemi, Y. Matsuura, S. Sakakibara, and Y. Katsube, *Biochemistry*, **35**, 11570 (1996). (*Biochem.; Crystal Structure of Elafin-Pancreatic Elastase Complex*)

Inhibitor for Elastase

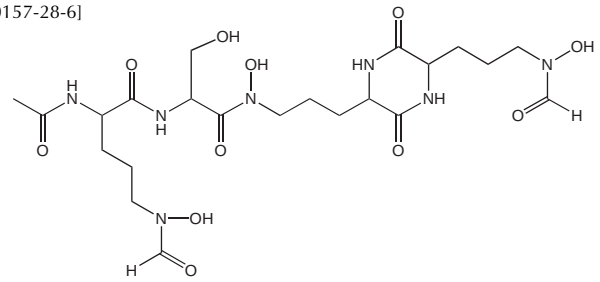
1) H. Umezawa, T. Aoyagi, A. Okura, H. Morishima, T. Takeuchi, and Y. Okami, *J. Antibiotics*, **26**, 787 (1973). (*Original*)



Inhibitor for Proteasome

1) L. Meng, R. Mohan, B.H.B. Kwok, M. Elofsson, N. Sin, and C.M. Crews, *Proc. Natl. Acad. Sci. U.S.A.*, **96**, 10403 (1999). (*Proteasome Inhibitor & Antiinflammatory Activity*)
2) N. Sin, K.B. Kim, M. Elofsson, L. Meng, H. Auth, B.H.B. Kwok, and C.M. Crews, *Bioorg. Med. Chem. Lett.*, **9**, 2283 (1999). (*Proteasome Inhibitor*)
3) K.B. Kim, J. Myung, N. Sin, and C.M. Crews, *Bioorg. Med. Chem. Lett.*, **9**, 3335 (1999). (*Proteasome Inhibitor*)
4) M. Groll, K.B. Kim, N. Kairies, R. Huber, and C.M. Crews, *J. Am. Chem. Soc.*, **122**, 1237 (2000). (*Crystal Structure of Proteasome Complex*)

Code	Compound			Price:Yen
4190-v -20℃	**Foroxymithine** (3*S*,6*S*)-3-(3-{*N*-[*N*-(*N*$^{\alpha}$-Acetyl-*N*$^{\delta}$-formyl-*N*$^{\delta}$-hydroxy-L-ornithyl)-L-seryl]-*N*-(hydroxy)amino}propyl)-6-[3-(*N*-formyl-*N*-hydroxyamino)propyl]-2,5-piperazinedione (M.W. 575.57) $C_{22}H_{37}N_7O_{11}$ [100157-28-6] Microbial Product	Vial	0.5 mg	6,500
4190 -20℃	**Foroxymithine** (3*S*,6*S*)-3-(3-{*N*-[*N*-(*N*$^{\alpha}$-Acetyl-*N*$^{\delta}$-formyl-*N*$^{\delta}$-hydroxy-L-ornithyl)-L-seryl]-*N*-(hydroxy)amino}propyl)-6-[3-(*N*-formyl-*N*-hydroxyamino)propyl]-2,5-piperazinedione (M.W. 575.57) $C_{22}H_{37}N_7O_{11}$ [100157-28-6] Microbial Product	Bulk	25 mg	90,500



Inhibitor for ACE (Angiotensin I Converting Enzyme)

1) H. Umezawa, T. Aoyagi, K. Ogawa, T. Obata, H. Iinuma, H. Naganawa, M. Hamada, and T. Takeuchi, *J. Antibiotics*, **38**, 1813 (1985). (*Original; Chem. Structure & IC$_{50}$*)
2) T. Aoyagi, T. Wada, H. Iinuma, K. Ogawa, F. Kojima, M. Nagai, H. Kuroda, A. Obayashi, and H. Umezawa, *J. Appl. Biochem.*, **7**, 388 (1985). (*Pharmacol.*)

D-Glucaro-δ-Lactam See Code 24004 on page 254

Code	Compound			Price:Yen
3119 2～10℃	**Gly-Gly-Tyr-Arg** • AcOH • 2H_2O Glycylglycyl-L-tyrosyl-L-arginine (M.W. 451.48 • 60.05 • 36.03) $C_{19}H_{29}N_7O_6$ • CH_3COOH •2H_2O Synthetic Product	Bulk	0.1 g 1 g	5,800 30,000

Affinity Ligand for Papain

1) M.O. Funk, Y. Nakagawa, J. Skochdopole, and E.T. Kaiser, *Int. J. Pept. Protein Res.*, **13**, 296 (1979).

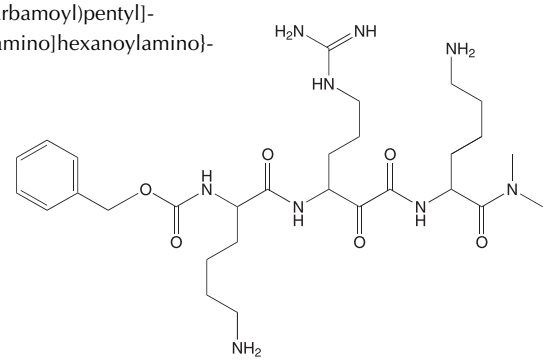
****** KYT ******

Code	Compound			Price:Yen
4395-v	**KYT-1**	Vial	1 mg	25,000

-20℃

(Hydrochloride Form)
(3*S*)-*N*-[(1*S*)-5-Amino-1-(*N*,*N*-dimethylcarbamoyl)pentyl]-3-{(2*S*)-6-amino-2-[(benzyloxycarbonyl)amino]hexanoylamino}-6-guanidino-2-oxohexanamide
(M.W. 619.76) $C_{29}H_{49}N_9O_6$

Synthetic product



Inhibitor for Arg-Gingipain

1) T. Kadowaki, A. Baba, N. Abe, R. Takii, M. Hashimoto, T. Tsukuba, S. Okazaki, Y. Suda, T. Asao, and K.Yamamoto, *Mol. Pharmacol.*, **66**, 1599 (2004). (*Original*)

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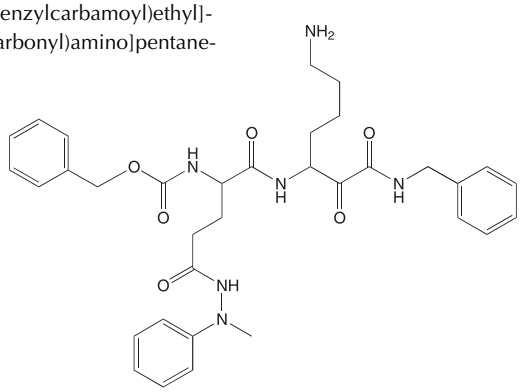
Code	Compound			Price:Yen
4396-v	**KYT-36**	Vial	1 mg	25,000

-20℃

(Hydrochloride Form)
(2*S*)-*N*-[(1*S*)-1-(4-Aminobutyl)-2-oxo-2-(*N*-benzylcarbamoyl)ethyl]-*N'*-(*N*-methylphenylamino)-2-[(benzyloxycarbonyl)amino]pentane-1,5-diamide
(M.W. 630.73) $C_{34}H_{42}N_6O_6$

Synthetic product



Inhibitor for Lys-Gingipain

1) T. Kadowaki, A. Baba, N. Abe, R. Takii, M. Hashimoto, T. Tsukuba, S. Okazaki, Y. Suda, T. Asao, and K.Yamamoto, *Mol. Pharmacol.*, **66**, 1599 (2004). (*Original*)

- This compound is distributed through Peptide Institute, Inc. under the license of Prof. Kenji Ymamoto.

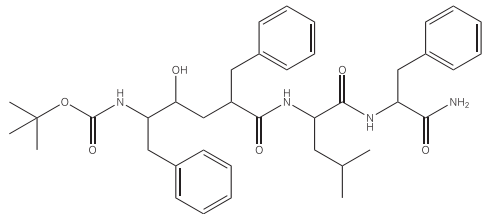
Code	Compound			Price:Yen
4394-v	**L-685,458**	Vial	1 mg	30,000

-20°C

[(2*R*,4*R*,5*S*)-2-Benzyl-5-(*t*-butyloxycarbonylamino)-4-hydroxy-6-phenylhexanoyl]-L-leucyl-L-phenylalanine amide

(M.W. 672.85) $C_{39}H_{52}N_4O_6$ [292632-98-5]

Synthetic Product



Inhibitor for γ-Secretase

1) Y.-M. Li, M. Xu, M.-T. Lai, Q. Huang, J.L. Castro, J. DiMuzio-Mower, T. Harrison, C. Lellis, A. Nadin, J.G. Neduvelil, R.B. Register, M.K. Sardana, M.S. Shearman, A.L. Smith, X.-P. Shi, K.-C. Yin, J.A. Shafer, and S.J. Gardell, *Nature*, **405**, 689 (2000). (*Biochem.; γ-Secretase Inhibitor*)
2) Y.-M. Li, M.-T. Lai, M. Xu, Q. Huang, J. DiMuzio-Mower, M.K. Sardana, X.-P. Shi, K.-C. Yin, J.A. Shafer, and S.J. Gardell, *Proc. Natl. Acad. Sci. U.S.A.*, **97**, 6138 (2000). (*Biochem.; γ-Secretase Inhibitor*)
3) M.S. Shearman, D. Beher, E.E. Clarke, H.D. Lewis, T. Harrison, P. Hunt, A. Nadin, A.L. Smith, G. Stevenson, and J.L. Castro, *Biochemistry*, **39**, 8698 (2000). (*Biochem.; γ-Secretase Inhibitor*)
4) G.Tian, C.D. Sobotka-Briner, J. Zysk, X. Liu, C. Birr, M.A. Sylvester, P.D. Edwards, C.D. Scott, and B.D. Greenberg, *J. Biol. Chem.*, **277**, 31499 (2002). (*Biochem.; Inhibition Mechanism*)

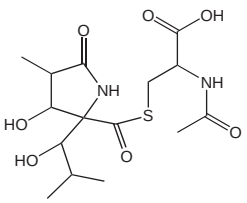
Code	Compound			Price:Yen
4368-v	**Lactacystin**	Vial	0.2 mg	20,000

-20°C

N-Acetyl-*S*-{(2*R*,3*S*,4*R*)-3-hydroxy-2-[(1*S*)-1-hydroxy-2-methylpropyl]-4-methyl-5-oxo-pyrrolidine-2-carbonyl}-L-cysteine

(M.W. 376.43) $C_{15}H_{24}N_2O_7S$ [133343-34-7]

Microbial Product

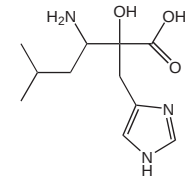


Inhibitor for Proteasome

1) S. Omura, T. Fujimoto, K. Otoguro, K. Matsuzaki, R. Moriguchi, H. Tanaka, and Y. Sasaki, *J. Antibiotics*, **44**, 113 (1991). (*Original*)
2) S. Omura, K. Matsuzaki, T. Fujimoto, K. Kosuge, T. Furuya, S. Fujita, and A. Nakagawa, *J. Antibiotics*, **44**, 117 (1991). (*Original; Chem. Structure*)
3) G. Fenteany, R.F. Standaert, W.S. Lane, S. Choi, E.J. Corey, and S.L. Schreiber, *Science*, **268**, 726 (1995). (*Biochem.; Proteasome Inhibition*)
4) S. Imajoh-Ohmi, T. Kawaguchi, S. Sugiyama, K. Tanaka, S. Omura, and H. Kikuchi, *Biochem. Biophys. Res. Commun.*, **217**, 1070 (1995). (*Biochem.; Apoptotic Effect*)

- This compound is produced by Kyowa Medex Co., Ltd.

Code	Compound			Price:Yen
4249-v -20℃	**Leuhistin** (2*R*,3*S*)-3-Amino-2-hydroxy-2-(1*H*-imidazol-4-ylmethyl)-5-methylhexanoic acid (M.W. 241.29) $C_{11}H_{19}N_3O_3$ [129085-76-3] Microbial Product	Vial	0.5 mg	3,400



Inhibitor for Aminopeptidase M

1) T. Aoyagi, S. Yoshida, N. Matsuda, T. Ikeda, M. Hamada, and T. Takeuchi, *J. Antibiotics*, **44**, 573 (1991). (*Original; IC_{50}*)
2) S. Yoshida, H. Nagasawa, T. Aoyagi, T. Takeuchi, Y. Takeuchi, and Y. Kodama, *J. Antibiotics*, **44**, 579 (1991). (*Original; Chem. Structure*)
3) S. Yoshida, T. Aoyagi, and T. Takeuchi, *J. Antibiotics*, **44**, 683 (1991). (*Original; Biosynthesis*)

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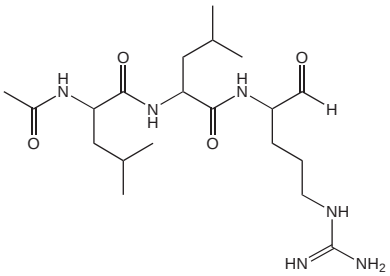
Code	Compound			Price:Yen
4041-v -20℃	**Leupeptin** (Sulfate Form) Acetyl-L-leucyl-L-leucyl-L-argininal (M.W. 426.55) $C_{20}H_{38}N_6O_4$ [55123-66-5] Microbial Product	Vial	0.5 mg	3,100



4041 -20℃	**Leupeptin** Acetyl-L-leucyl-L-leucyl-L-argininal hemisulfate monohydrate (M.W. 426.55 • 49.04 • 18.02) $C_{20}H_{38}N_6O_4$ • $^1/_2H_2SO_4$ • H_2O [103476-89-7] Microbial Product	Bulk	25 mg 100 mg 1 g	5,700 13,900 111,200

Inhibitor for Trypsin, Plasmin, Papain, and Cathepsin B

1) T. Aoyagi, T. Takeuchi, A. Matsuzaki, K. Kawamura, S. Kondo, M. Hamada, K. Maeda, and H. Umezawa, J. Antibiotics, **22**, 283 (1969). (Original)
2) T. Aoyagi, S. Miyata, M. Nanbo, F. Kojima, M. Matsuzaki, M. Ishizuka, T. Takeuchi, and H. Umezawa, *J. Antibiotics*, **22**, 558 (1969). (*Biological Activity*)
3) S. Kondo, K. Kawamura, J. Iwanaga, M. Hamada, T. Aoyagi, K. Maeda, T. Takeuchi, and H. Umezawa, *Chem. Pharm. Bull.*, **17**, 1896 (1969). (*Biological Activity*)
4) R.M. McConnell, J.L. York, D. Frizzell, and C. Ezell, *J. Med. Chem.*, **36**, 1084 (1993). (*Inhibitory Activity*)

Code	Compound			Price:Yen
4374-v -20℃	**Lys-Lys-Lys-Leu-Arg-Arg-Gln-Glu-Ala-Phe-Asp-Ala-Tyr** **[Lys^3,Phe^{10},Tyr^{13}]-Autocamtide-2-Related Inhibitory Peptide (AIP)** (M.W. 1652.9) $C_{74}H_{121}N_{23}O_{20}$ Synthetic Product	Vial	0.5 mg	10,000

Inhibitor for Calmodulin-Dependent Protein Kinase II

Calmodulin-dependent protein kinase II (CaMKII) is one of a number of second-messenger-responsive multifunctional protein kinases, which responds to an increase in intracellular Ca^{2+}. CaMKII exerts controlling functions in many tissues and organs, especially in the central nervous system. **AIP (autocamtide-2-related inhibitory peptide)**, a potent inhibitor of CaMKII[1], is a designed peptide based on the autophosphorylation site in the autoinhibitory domain of the enzyme, where the phosphorylating Thr (at position 9 in **AIP**) is replaced by Ala. Recent structure/activity study of **AIP** revealed that the substitution of Lys and Phe for Ala^3 and Val^{10}, respectively, in **AIP** affords a stronger inhibitor with an IC_{50} value of 4.1 nM[2]. Inhibitory activity of the **AIP** analog is specific for CaMKII because other enzymes of the family, protein kinase A, protein kinase C and CaMKIV, were not inhibited or marginally suppressed by this inhibitor. This stronger inhibiting peptide, thus, might be a useful reagent to study the physiological roles of CaMKII, such as neurotransmitter synthesis/release, long-term potentiation and formation of spatial learning.

1) A. Ishida and H. Fujisawa, *J. Biol. Chem.*, **270**, 2163 (1995). (*AIP; Autocamtide-2-Related Inhibitory Peptide*).
2) A. Ishida, Y. Shigeri, Y. Tatsu, K. Uegaki, I. Kameshita, S. Okuno, T. Kitani, N. Yumoto, and H. Fujisawa, *FEBS Lett.*, **427**, 115 (1998). (*Original*)

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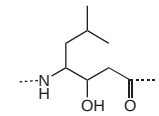
4378-v -20℃	**Lys-Thr-Glu-Glu-Ile-Ser-Glu-Val-Asn-Sta-Val-Ala-Glu-Phe** (Sta(Statine): (3*S*,4*S*)-4-Amino-3-hydroxy-6-methylheptanoic acid) (M.W. 1651.8) $C_{73}H_{118}N_{16}O_{27}$ [350228-37-4] Synthetic Product	Vial	1 mg	20,000

Sta : 

Inhibitor for β-Secretase

1) S. Sinha, J.P. Anderson, R. Barbour, G.S. Basi, R. Caccavello, D. Davis, M. Doan, H.F. Dovey, N. Frigon, J. Hong, K. Jacobson-Croak, N. Jewett, P. Keim, J. Knops, I. Lieberburg, M. Power, H. Tan, G. Tatsuno, J. Tung, D. Schenk, P. Seubert, S.M. Suomensaari, S. Wang, D. Walker, J. Zhao, L. McConlogue, and V. John, *Nature*, **402**, 537 (1999). (*Original*)

MG-115 See Code 3170 **Z-Leu-Leu-Nva-H (aldehyde)** on page 201

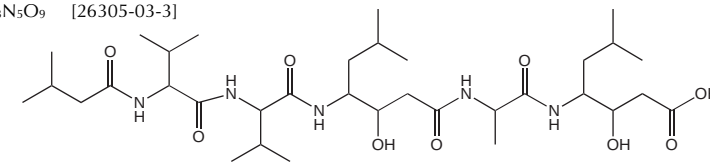
MG-132 See Code 3175 **Z-Leu-Leu-Leu-H (aldehyde)** on page 200

Nojirimycin Bisulfite See Code 24003 on page 254

More soluble Pepstatin A (Code 4397-v / 4397) has released !

In 2003, we started to distribute Pepstatin A of the purity "higher than 90%" when analyzed by RP-HPLC (code 4397). This new item was welcomed by majority of customers. However, this accompanied some complaints because of its low solubility. At the beginning, we thought this low solubility is the destiny of the higher purity Pepstatin A. In striving to offer our customers satisfactory service, we continued to improve the solubility of this item. Recently, we have succeeded to obtain both high purity Pepstatin A and higher solubility. This new improved Pepstatin A is now available from us with easier handling.

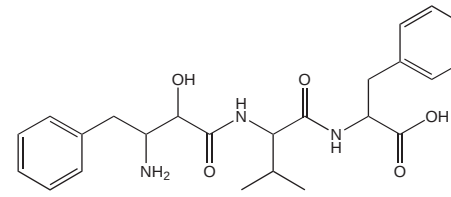
Code	Compound			Price:Yen
4397-v -20℃	**Pepstatin A** **Purity : higher than 90% (HPLC)** Isovaleryl-L-valyl-L-valyl[(3*S*,4*S*)-4-amino-3-hydroxy-6-methylheptanoyl]-L-alanyl[(3*S*,4*S*)-4-amino-3-hydroxy-6-methylheptanoic acid] (M.W. 685.89) $C_{34}H_{63}N_5O_9$ [26305-03-3] Microbial Product	Vial	0.5 mg	3,800
4397 -20℃	**Pepstatin A** **Purity : higher than 90% (HPLC)** Isovaleryl-L-valyl-L-valyl[(3*S*,4*S*)-4-amino-3-hydroxy-6-methylheptanoyl]-L-alanyl[(3*S*,4*S*)-4-amino-3-hydroxy-6-methylheptanoic acid] (M.W. 685.89) $C_{34}H_{63}N_5O_9$ [26305-03-3] Microbial Product	Bulk	25 mg 100 mg 1 g	7,000 17,000 138,000



Inhibitor for Pepsin, Cathepsin D/E, and Renin

1) H. Umezawa, T. Aoyagi, H. Morishima, M. Matsuzaki, M. Hamada, and T. Takeuchi, *J. Antibiotics*, **23**, 259 (1970). (*Original*)
2) T. Aoyagi, H. Morishima, R. Nishizawa, S. Kunimoto, T. Takeuchi, H.Umezawa, and H. Ikezawa, *J. Antibiotics*, **25**, 689 (1972). (*Biological Activity*)

Code	Compound			Price:Yen
4342-v -20℃	**Phebestin** (2*S*,3*R*)-3-Amino-2-hydroxy-4-phenylbutanoyl-L-valyl-L-phenylalanine (M.W. 441.52) $C_{24}H_{31}N_3O_5$ Synthetic Product	Vial	5 mg	10,000



Inhibitor for Aminopeptidase N

1) M. Nagai, F. Kojima, H. Naganawa, M. Hamada, T. Aoyagi, and T. Takeuchi, *J. Antibiotics*, **50**, 82 (1997). (*Original*)

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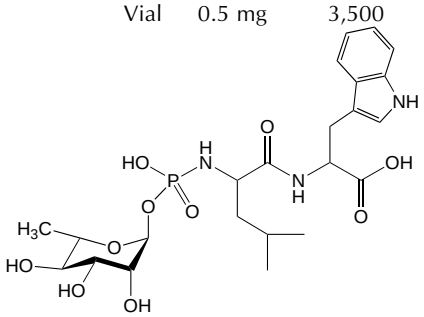
Code	Compound			Price:Yen
4082-v -20℃	**Phosphoramidon** (Sodium Salt) *N*-(α-Rhamnopyranosyloxyhydroxyphosphinyl)-L-leucyl-L-tryptophan (M.W. 543.50) $C_{23}H_{34}N_3O_{10}P$ [36357-77-4] Microbial Product	Vial	0.5 mg	3,500
4082 -20℃	**Phosphoramidon** *N*-(α-Rhamnopyranosyloxyhydroxyphosphinyl)-L-leucyl-L-tryptophan disodium salt dihydrate (M.W. 541.49 • 45.98 • 36.03) $C_{23}H_{32}N_3O_{10}P \cdot 2Na \cdot 2H_2O$ [119942-99-3] Microbial Product	Bulk	25 mg 100 mg	14,400 48,500



Inhibitor for Thermolysin, Neutral Endopeptidase-24.11(ANP Degradation Enzyme), and Endothelin Converting Enzyme

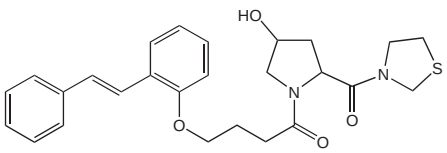
1) H. Suda, T. Aoyagi, T. Takeuchi, and H. Umezawa, *J. Antibiotics*, **26**, 621 (1973). (*Original*)
2) S.L. Stephenson and A.J. Kenny, *Biochem. J.*, **243**, 183 (1987). (*Pharmacol.*)
3) B.P. Roques and A. Beaumont, *Trends Pharmacol. Sci.*, **11**, 245 (1990). (*Review*)
4) Y. Matsumura, K. Hisaki, M. Takaoka, and S. Morimoto, *Eur. J. Pharmacol.*, **185**, 103 (1990). (*Pharmacol.*)

PSI See Code 3169 **Z-Ile-Glu(OBu^t)-Ala-Leu-H (aldehyde)** on page 200

Siastatin B See Code 24002 on page 254

Sodium Potassium ATPase Inhibitor-1 (Porcine) See Code 4216 **SPAI-1 (Porcine)** on page 140

Code	Compound			Price:Yen
3214-v -20℃	**SUAM-14746** 3-({4-[2-(*E*)-Styrylphenoxy]butanoyl}-L-4-hydroxyprolyl)thiazolidine (M.W. 466.59) $C_{26}H_{30}N_2O_4S$ Synthetic Product	Vial	5 mg	15,000



Inhibitor for Prolyl Endopeptidase

1) M. Saito, M. Hashimoto, N. Kawaguchi, H. Shibata, H. Fukami, T. Tanaka, and N. Higuchi, *J. Enzyme Inhib.*, **5**, 51 (1991). (*Assay Method*)

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TAPI-0 See Code INH-3850-PI on page 316

TAPI-1 See Code INH-3855-PI on page 316

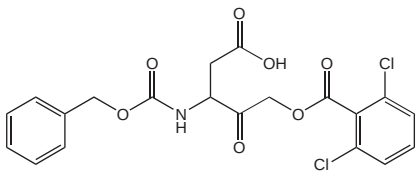
TAPI–2 See Code INH-3852-PI on page 316

Code	Compound			Price:Yen
3207-v -20℃	**Ubiquitin Aldehyde** Met*-Gln-Ile-Phe-Val-Lys-Thr-Leu-Thr-Gly-Lys-Thr-Ile-Thr-Leu-Glu-Val-Glu-Pro-Ser-Asp-Thr-Ile-Glu-Asn-Val-Lys-Ala-Lys-Ile-Gln-Asp-Lys-Glu-Gly-Ile-Pro-Pro-Asp-Gln-Gln-Arg-Leu-Ile-Phe-Ala-Gly-Lys-Gln-Leu-Glu-Asp-Gly-Arg-Thr-Leu-Ser-Asp-Tyr-Asn-Ile-Gln-Lys-Glu-Ser-Thr-Leu-His-Leu-Val-Leu-Arg-Leu-Arg-Gly-Gly-H (aldehyde) * Met at position 1 is oxidized to Met(O). (M.W. 8564.7) $C_{378}H_{629}N_{105}O_{118}S$ Semi-synthetic Product	Vial	50 µg	20,000

Inhibitor for Deubiquitinating Enzyme

1) J.R. Shaeffer and R.E. Cohen, *Biochemistry*, **35**, 10886 (1996).
2) F. Melandri, L. Grenier, L. Plamondon, W.P. Huskey, and R.L. Stein, *Biochemistry*, **35**, 12893 (1996).
3) S.H. Baek, K.S. Choi, Y.J. Yoo, J.M. Cho, R.T. Baker, K. Tanaka, and C.H. Chung, *J. Biol. Chem.*, **272**, 25560 (1997).
4) L.C. Dang, F.D. Melandri, and R.L. Stein, *Biochemistry*, **37**, 1868 (1998).

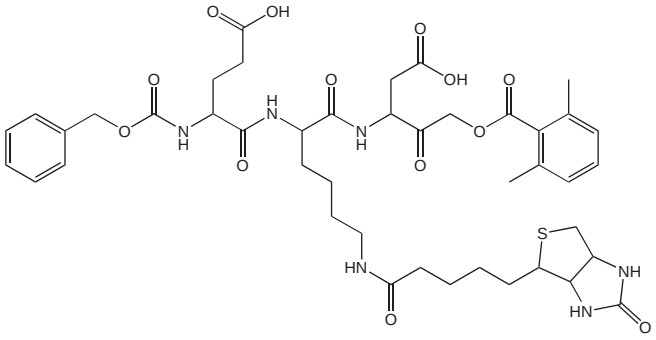
Code	Compound			Price:Yen
3174-v -20℃	**Z-Asp-CH_2-DCB** (Benzyloxycarbonyl-L-aspart-1-yl)[(2,6-dichlorobenzoyl)oxy]methane (M.W. 454.26) $C_{20}H_{17}NO_7Cl_2$ [153088-73-4] Synthetic Product	Vial	5 mg	15,000



Inhibitor for Caspases

1) R.E. Dolle, D. Hoyer, C.V. Prasad, S.J. Schmidt, C.T. Helaszek, R.E. Miller, and M.A. Ator, *J. Med. Chem.*, **37**, 563 (1994).
2) T. Mashima, M. Naito, S. Kataoka, H. Kawai, and T. Tsuruo, *Biochem. Biophys. Res. Commun.*, **209**, 907 (1995).

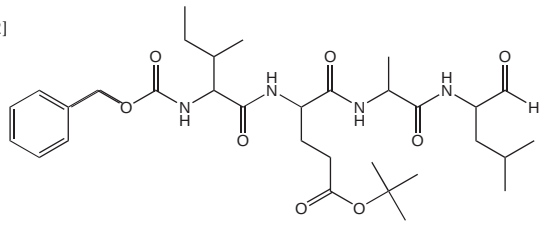
Code	Compound			Price:Yen
3189-v -20℃	**Z-Glu-Lys(Biotinyl)-Asp-CH_2-DMB** **[Z-EK(bio)D-aomk]** [Benzyloxycarbonyl-L-glutamyl-(N^{ε}-biotinyl-L-lysyl)-L-aspart-1-yl]-[(2,6-dimethylbenzoyl)oxy]methane (M.W. 897.00) $C_{43}H_{56}N_6O_{13}S$ Synthetic Product	Vial	1 mg	10,000



Affinity Ligand for Caspases

1) L.M. Martins, T. Kottke, P.W. Mesner, G.S. Basi, S. Shinha, N. Frigon, Jr., E. Tatar, J.S. Tung, K. Bryant, A. Takahashi, P.A. Svingen, B.J. Madden, D.J. McCormick, W.C. Earnshaw, and S.H. Kaufmann, *J. Biol. Chem.*, **272**, 7421 (1997).
2) L.M. Martins, P.W. Mesner, T.J. Kottke, G.S. Basi, S. Sinha, J.S. Tung, P.A. Svingen, B.J. Madden, A. Takahashi, D.J. McCormick, W.C. Earnshaw, and S.H. Kaufmann, *Blood*, **90**, 4283, (1997).

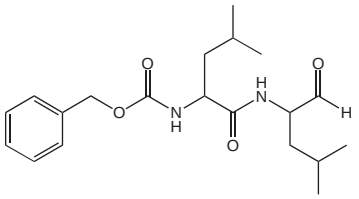
Code	Compound			Price:Yen
3169-v -20℃	**Z-Ile-Glu(OBu^t)-Ala-Leu-H (aldehyde)** **[PSI]** Benzyloxycarbonyl-L-isoleucyl-[(2*S*)-2-amino-4-(*t*-butyloxycarbonyl)butanoyl]-L-alanyl-L-leucinal (M.W. 618.76) $C_{32}H_{50}N_4O_8$ [158442-41-2] Synthetic Product	Vial	5 mg	6,000



Inhibitor for Proteasome

1) M.E. Figueiredo-Pereira, K.A. Berg, and S. Wilk, *J. Neurochem.*, **63**, 1578 (1994).
2) E.B.-M. Traenckner, S. Wilk, and P.A. Baeuerle, *EMBO J.*, **13**, 5433 (1994).
3) M.E. Figueiredo-Pereira, W-E. Chen, H-M. Yuan, and S. Wilk, *Arch. Biochem. Biophys.*, **317**, 69 (1995).

Code	Compound			Price:Yen
3178-v -20℃	**Z-Leu-Leu-H (aldehyde)** Benzyloxycarbonyl-L-leucyl-L-leucinal (M.W. 362.46) $C_{20}H_{30}N_2O_4$ Synthetic Product	Vial	5 mg	4,000

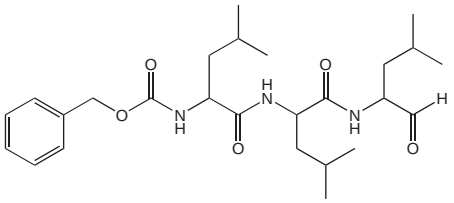


*Inhibitor for Calpain**

1) Y. Saito, S. Tsubuki, H. Ito, and S. Kawashima, *Neurosci. Lett.*, **120**, 1 (1990).
2) S. Tsubuki, Y. Saito, M. Tomioka, H. Ito, and S. Kawashima, *J. Biochem.*, **119**, 572 (1996).

* This compound does not inhibit Proteasome at the level of 10^{-6} M concentration.

Code	Compound			Price:Yen
3175-v -20℃	**Z-Leu-Leu-Leu-H (aldehyde)** **[MG-132]** Benzyloxycarbonyl-L-leucyl-L-leucyl-L-leucinal (M.W. 475.62) $C_{26}H_{41}N_3O_5$ [133407-82-6] Synthetic Product	Vial	5 mg	4,000



Inhibitor for Proteasome and Cathepsin K

1) Y. Saito, S. Tsubuki, H. Ito, and S. Kawashima, *Neurosci. Lett.*, **120**, 1 (1990).
2) T.J. Jensen, M.A. Loo, S. Pind, D.B. Williams, A.L. Goldberg, and J.R. Riordan, *Cell*, **83**, 129 (1995).
3) B.J. Votta, M.A. Levy, A. Badger, J. Bradbeer, R.A. Dodds, I.E. James, S. Thompson, M.J. Bossard, T. Carr, J.R. Conner, T.A. Tomaszek, L. Szewczuk, F.H. Drake, D.F. Veber, and M. Gowen, *J. Bone Miner. Res.*, **12**, 1396 (1997).

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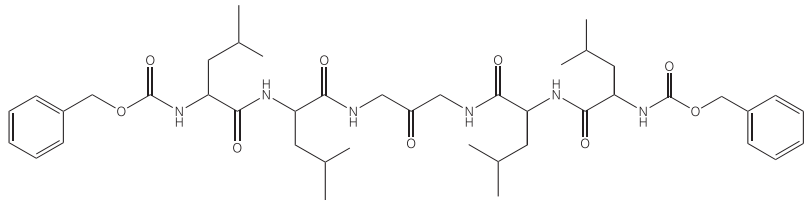
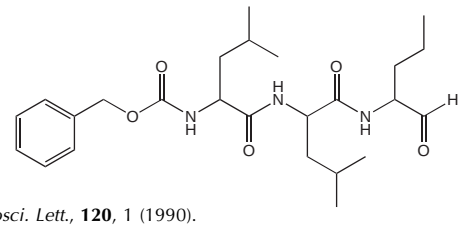
Code	Compound			Price:Yen
3218-v -20℃	**(Z-Leu-Leu-NHCH$_2$)$_2$CO** **[(Z-LL)$_2$ Ketone]** 1,3-Bis[(benzyloxycarbonyl-L-leucyl-L-leucyl)amino]acetone (M.W. 809.00) $C_{43}H_{64}N_6O_9$ [313664-40-3] Synthetic Product	Vial	5 mg	7,000



Inhibitor for Signal Peptide Peptidase

1) A. Weihofen, M.K. Lemberg, H.L. Ploegh, M. Bogyo, and B. Martoglio, *J. Biol. Chem.*, **275**, 30951 (2000). (*Original*)
2) A. Weihofen, K. Binns, M.K. Lemberg, K. Ashman, and B. Martoglio, *Science*, **296**, 2215 (2002). (*Signal Peptide Peptidase Inhibitor*)
3) A. Weihofen, M.K. Lemberg, E. Friedmann, H. Rueeger, A. Schmitz, P. Paganetti, G. Rovelli, and B. Martoglio, *J. Biol. Chem.*, **278**, 16528 (2003). (*Signal Peptide Peptidase Inhibitory Activity*)

Code	Compound			Price:Yen
3170-v -20℃	**Z-Leu-Leu-Nva-H (aldehyde)** **[MG-115]** Benzyloxycarbonyl-L-leucyl-L-leucyl-L-norvalinal (M.W. 461.59) $C_{25}H_{39}N_3O_5$ [133407-86-0] Synthetic Product	Vial	5 mg	4,000



Inhibitor for Proteasome

1) Y. Saito, S. Tsubuki, H. Ito, and S. Kawashima, *Neurosci. Lett.*, **120**, 1 (1990).
2) A. Vinitsky, C. Michaud, J.C. Powers, and M. Orlowski, *Biochemistry*, **31**, 9421 (1992).
3) K.L. Rock, C. Gramm, L. Rothstein, K. Clark, R. Stein, L. Dick, D. Hwang, and A.L. Goldberg, *Cell*, **78**, 761 (1994).
4) V.J. Palombella, O.J. Rando, A.L. Goldberg, and T. Maniatis, *Cell*, **78**, 773 (1994).

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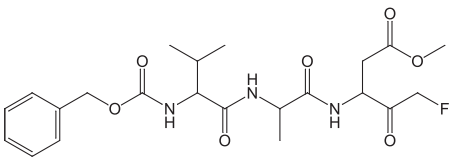
Code	Compound			Price:Yen
3188-v -20℃	**Z-Val-Ala-Asp(OMe)-CH$_2$F** **[Z-VAD-FMK]** {Benzyloxycarbonyl-L-valyl-L-alanyl-[(2*S*)-2-amino-3-(methoxycarbonyl)propionyl]}fluoromethane (M.W. 467.49) $C_{22}H_{30}N_3O_7F$ Synthetic Product	Vial	1 mg	10,000



Inhibitor for Caspases

1) E.A. Slee, H. Zhu, S.C. Chow, M. MacFarlane, D.W. Nicholson, and G.M. Cohen, *Biochem. J.*, **315**, 21 (1996).
2) H. Zhu, H.O. Fearnhead, and G.M. Cohen, *FEBS Lett.*, **374**, 303 (1995).