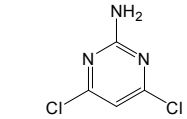
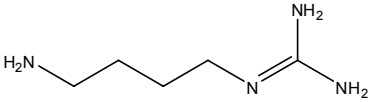
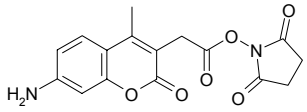
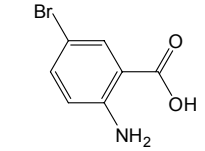
Reagents for Life Science Research

1. Amino Acids, Amines, Amino Alcohols and other Reagents
Enzyme Substrates, Diagnostic and Biochemistry Tools

RL-8600	**ADCP** CAS: 56-05-3 $C_4H_3Cl_2N_3$, 163,99g/mole	 2-Amino-4,6-dichloropyrimidine	25 g 100 g	150,- 375,-
HNN1040	**Agmatine sulfate** CAS: 2482-00-0 $C_5H_{14}N_4$,* H_2SO_4, 130,19*98,08 g/mole	 4-(Aminobutyl)guanidine sulfate	5 g 25 g	175,- 425,-

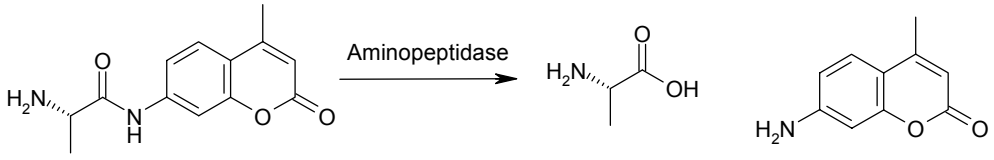
Putative endrogenous neurotransmitter at imidazoline receptors.

1. Li G., Regunathan S., Barrow C.J., Eshraghi J., Cooper R., Reis D.J., Agmatine: An endogenous clonidine-displacing substance in the brain. Science 1994, 263(5149), 966-9.
2. Reis D.J., Regunathan S., Is agmatine a novel neurotransmitter in brain? Trends Pharmacol. Sci. 2000, 21, 187 - 93.
3. Yang Y.C., Reis D.J., Agmatine selectively blocks the N-Methyl-D-aspartate subclass of glutamate receptor channels in rat hippocampal neurons. J. Pharmacol. Exp. Ther. 1999, 288, 544-9.

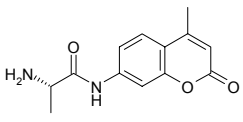
RL-1005	**AMCA-OSu** $C_{16}H_{14}N_2O_6$, 330,30 g/mole	 7-Amino-4-methyl-3-coumarinylacetyl succinimidyl ester	250 mg 1 g	200,- 600,-
HAA7590	**5-Bromoanthranilic acid** CAS: 5794-88-7 $C_7H_6BrNO_2$, 216,04 g/mole	 2-Amino-5-bromobenzoic acid	100 g 250 g	250,- 450,-

NEW for Clinical Microbiology:

AMC-Peptidase Substrates fluorescent on reacting with the right enzyme



Alanine-AMC — Alanine — AMC water soluble fluorescent blue

HAA1174	**H-L-Ala-AMC*TFA** CAS: 96594-10-4 $C_{13}H_{14}N_2O_3$*CF_3CO_2H 360,29 g/mole	 L-Alanine 7-amido-4-methylcoumarin trifluoroacetate	100 mg 250 mg 500 mg 1 g 5 g	125,- 175,- 250,- 300,- 1.200,-

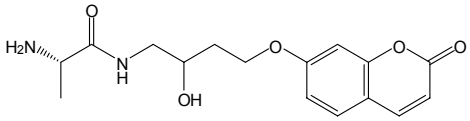
AMC Derivatives of many other Amino Acids available!

Prices in EUR, net, exw Germany

CAA1000

CLIPS-O™-L-Ala*HCl

$C_{16}H_{20}N_2O_5$*HCl
320,34*36,45 g/mole



7-((4'-L-Alaninamido)-rac-3'-hydroxybutyloxy) coumarin hydrochloride
rac-L-Alanylamido-4-(7-coumarinyloxy)-2-butanol hydrochloride

25 mg 200,-
100 mg 400,-

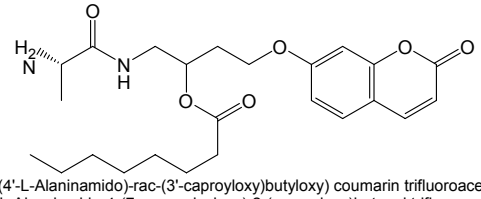
Fluorogenic substrate for L-alanine-aminopeptidase for use in a periodate-coupled assay. In the assay, the CLIPS-O substrate is hydrolysed by the aminopeptidase. The product of enzyme hydrolysis undergoes periodate oxidation followed by BSA-catalyzed beta-elimination to yield fluorescent umbelliferone. CLIPS-O substrates exhibit increased chemical stability and are less susceptible to non-enzymatic hydrolysis compared to other fluorogenic substrates. As a consequence, background fluorescence in the enzyme assay is substantially reduced and sensitivity is increased.

1. Badalassi F., Wahler D., Klein G., Crotti P., Reymond J.L., A Versatile Periodate-Coupled Fluorogenic Assay for Hydrolytic Enzymes. Angew. Chem. Int. Ed. Engl. 2000, 39, 4067-70.
2. Goddard J.-P., Reymond J.-L., . Current Biology, Philadelphia, 2004, 314 - 22.
3. Goddard J.-P., Reymond J.-L., . Elsevier, Cambridge, 2004, 363 - 70.
4. Reymond J.-L., Wahler D., Badalassi F., Nguyen H. K., Method for releasing a product comprising chemical oxidation, method for detecting said product and uses thereof. Patent WO0192563 (2001).

CAA1010

CLIPS-O™-L-Ala-caprylate TFA

$C_{24}H_{34}N_2O_6$*CF_3CO_2H
446,54*114,02 g/mole



7-((4'-L-Alaninamido)-rac-(3'-caproyloxy)butyloxy) coumarin trifluoroacetate
rac-L-Alanylamido-4-(7-coumarinyloxy)-2-(caproyloxy)butanol trifluoroacetate

25 mg 200,-
100 mg 400,-

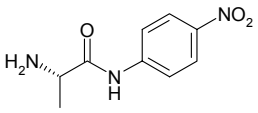
Fluorogenic substrate for simoultaneous detection of L-alanine-aminopeptidase and esterase for use in a periodate-coupled assay. In the assay, the CLIPS-O substrate is hydrolysed by the aminopeptidase and esterase. The product of enzyme hydrolysis undergoes periodate oxidation followed by BSA-catalyzed beta-elimination to yield fluorescent umbelliferone. CLIPS-O substrates exhibit increased chemical stability and are less susceptible to non-enzymatic hydrolysis compared to other fluorogenic substrates. As a consequence, background fluorescence in the enzyme assay is substantially reduced and sensitivity is increased.

1. Badalassi F., Wahler D., Klein G., Crotti P., Reymond J.L., A Versatile Periodate-Coupled Fluorogenic Assay for Hydrolytic Enzymes. Angew. Chem. Int. Ed. Engl. 2000, 39, 4067-70.
2. Goddard J.-P., Reymond J.-L., . Current Biology, Philadelphia, 2004, 314 - 22.
3. Goddard J.-P., Reymond J.-L., . Elsevier, Cambridge, 2004, 363 - 70.
4. Nyfeler E., Grognux J., Wahler D., Reymond J.L., A Sensitive and Selective High-Throughput Screening Fluorescence Assay for Lipases and Esterases. Helv. Chim. Acta 2003, 86, 2919-27.
5. Reymond J.-L., Wahler D., Badalassi F., Nguyen H. K., Method for releasing a product comprising chemical oxidation, method for detecting said product and uses thereof. Patent WO0192563 (2001).

HAA1175

H-L-Ala-pNA*HCl

CAS: 31796-55-1
$C_9H_{11}N_3O_3$*HCl, 245,66 g/mole



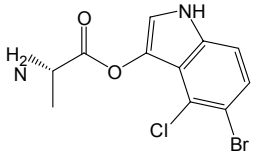
L-Alanine-p-nitroanilide hydrochloride

1 g 40,-
5 g 150,-
25 g 600,-

HAA7620

H-L-Ala-X*TFA

CAS: 207725-18-6
$C_{11}H_{10}BrClN_2O_2$*CF_3CO_2H
317,57*114,02 g/mole



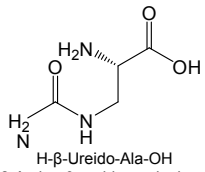
L-Alanine-5-bromo-4-chloro-3-indoxyl ester trifluoroacetate

50 mg 135,-
250 mg 400,-

HAA8150

L-Albizziine

CAS: 1483-07-4
$C_4H_9N_3O_3$, 147,13 g/mole



H-β-Ureido-Ala-OH
L-2-Amino-3-ureidopropionic acid

250 mg 150,-
1 g 375,-

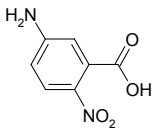
Albizziin acts as a competitive inhibitor of asparagine synthetase with respect to glutamine in mammalian cells. It acts also as an inhibitor of glutamate synthase in ectomycorrhizal fungal isolates and inhibitor of glutamine metabolism in microbes.

1. Andrulis I.L., Evans-Blackler S., Siminovitch L., Characterization of single step albizziin-resistant Chinese hamster ovary cell lines with elevated levels of asparagine synthetase activity. J. Biol. Chem. 1985, 260, 7523-7.
2. Dura M.A., Flores M., Toldra F., Purification and characterisation of a glutaminase from Debaryomyces spp. Int. J. Food Microbiol. 2002, 76, 117-26.
3. Schroeder D.D., Allison A.J., Buchanan J.M., Biosynthesis of the purines. XXXII. Effect of albizziin and other reagents on the activity of formylglycinamide ribonucleotide amidotransferase. J. Biol. Chem. 1969, 244, 5856-65.

RL-1104

ANBA

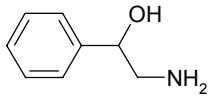
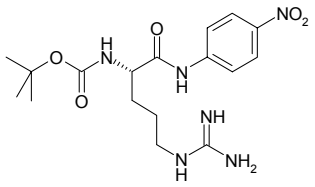
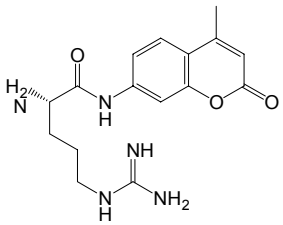
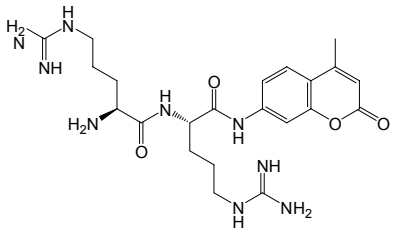
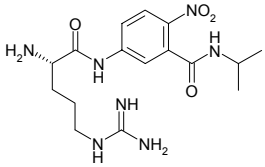
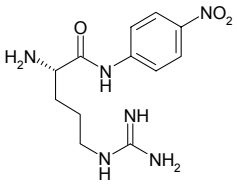
CAS: 13280-60-9
$C_7H_6N_2O_4$, 182,14 g/mole



5-Amino-2-nitro-benzoic acid

1 g 125,-
5 g 250,-

Prices in EUR, net, exw Germany

HAL1080	**2-Amino-1-phenylethanol** CAS: 7568-93-6 $C_8H_{11}NO$, 137,18 g/mole		25 g 100 g	125,- 300,-
BAA5360	**Boc-L-Arg-pNA*HCl** CAS: 99306-64-6 $C_{17}H_{26}N_6O_5$*HCl 394,43*36,45 g/mole	 Nα-t-Butyloxycarbonyl-L-arginine p-nitroanilide hydrochloride	5 g 25 g	55,- 145,-
HAA7630	**H-L-Arg-AMC*2HCl** CAS: 113712-08-6 $C_{16}H_{21}N_5O_3$*2HCl, 331,37*72,90 g/mole Excellent sensitive fluorogenic substrate for the quantitative determination of cathepsin H activity. Also useful as a substrate for aminopeptidase B, aminopeptidase in common, pepN, pepC, Trypsin. Yields a blue fluorescent solution upon cleavage.	 L-Arginine 7-amido-4-methylcoumarin dihydrochloride	250 mg 1 g	135,- 300,-
HAA7640	**H-Arg-Arg-AMC*3HCl** CAS: 201847-69-0 $C_{22}H_{33}N_9O_4$*3HCl 487,56*109,36 g/mole Fluorogenic substrate for cathepsin B or aminopeptidase III. Yields a blue fluorescent solution upon cleavage.	 L-Arginyl-L-arginine 7-amido-4-methylcoumarin trihydrochloride	25 mg 100 mg	125,- 250,-
HAA1176	**H-L-Arg-ANBAiPr*2HCl** $C_{16}H_{25}N_7O_4$*2HCl 379,42*72,90 g/mole	 Arginine-5-amino-2-nitrobenzoic acid isopropylamide dihydrochloride	1 g 5 g	300,- 1.200,-
HAA1177	**H-L-Arg-pNA*2HBr** CAS: 6154-84-3 $C_{12}H_{18}N_6O_3$*2HBr, 456,20 g/mole	 Arginine p-Nitroanilide	1 g 5 g 25 g	90,- 350,- 1.400,-
HAA1178	**H-L-Arg-pNA*2HCl** CAS: 40127-11-5 $C_{12}H_{18}N_6O_3$*2HCl, 367,22 g/mole		1 g 5 g 25 g	90,- 350,- 1.400,-

1. Barrett A.J., Fluorimetric assays for cathepsin B and cathepsin H with methylcoumarylamide substrates. Biochem. J. 1980, 187, 909-12.
2. Barrett A.J., Kirschke H., Cathepsin B, Cathepsin H, and Cathepsin L. Methods Enzymol. 1981, 80, 535-61.
3. Sanz Y., Toldrá F., Purification and Characterization of an Arginine Aminopeptidase from Lactobacillus sakei. Appl. Env. Microbiol. 2002, 68, 1980-7.
4. Schwartz W.N., Barrett A.J., Human Cathepsin H. Biochem. J. 1980, 191, 487-97.

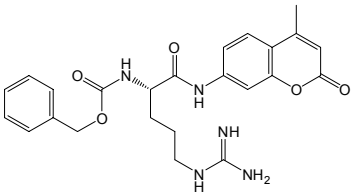
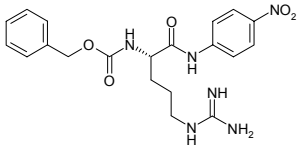
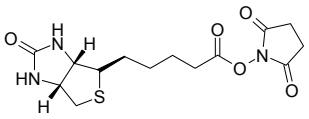
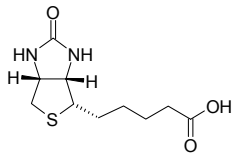
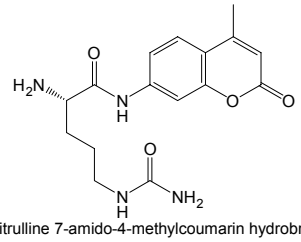
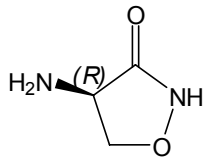
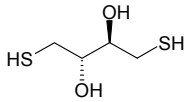
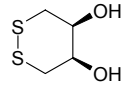
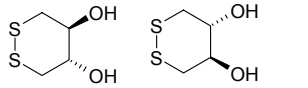
1. Barrett A.J., Kirschke H., Cathepsin B, Cathepsin H, and Cathepsin L. Methods Enzymol. 1981, 80, 535-61.
2. Mantle D., Hardy M.F., Lauffart B., McDermott J.R., Smith A.I., Pennington R.J., Purification and characterization of the major aminopeptidase from human skeletal muscle. Biochem. J. 1983, 211, 567-73.

NEW for Clinical Microbiology:

AMC-Peptidase Substrates fluorescent on reacting with the right enzyme.

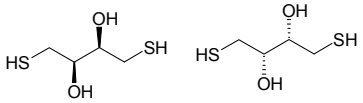
AMC Derivatives of many other Amino Acids available!

Prices in EUR, net, exw Germany

ZAA1262	**Z-L-Arg-AMC*HCl** CAS: 70375-22-3 $C_{24}H_{27}N_5O_5$*HCl, 465,50*36,45 g/mole Fluorogenic substrate for trypsin and papain yielding a blue fluorescent solution upon cleavage.	 Nα-Benzyloxycarbonyl-L-arginine 7-amido-4-methylcoumarin hydrochloride	250 mg 1 g	180,- 450,-
ZAA1040	**Z-L-Arg-pNA*HCl** CAS: 59188-53-3 $C_{20}H_{24}N_6O_5$ *HCl, 464,90 g/mole	 Nα-Benzyloxycarbonyl-L-arginine-p-nitroanilide hydrochloride	5 g 25 g	250,- 990,-
RL-1006	**Biotin-OSu** CAS: 35013-72-0 $C_{14}H_{19}N_3O_5S$, 341,39 g/mole	 N-Hydroxysuccinimidobiotin	1 g 5 g	125,- 500,-
LS-1070	**D-Biotin, Vitamin H** CAS: 58-85-5 $C_{10}H_{16}N_2O_3S$, 244,31 g/mole	 Hexahydro-2-oxo-1H-thieno[3,4-d]imidazole-4-pentanoic acid	5 g 25 g 100 g	35,- 125,- 400,-
HAA7650	**H-L-Cit-AMC*HBr** CAS: 123314-39-6 $C_{16}H_{20}N_4O_4$*HBr, 332,35*80,91 g/mole Sensitive fluorogenic substrate for citrulline ureidase. Yields a blue fluorescent solution upon cleavage. Gray C.J., Sullivan S.M., Synthesis of 7-Amino-4-methylcoumarin (AMC) derivatives and their hydrolysis by plant cysteine proteinases. J. Chem. Tech. Biotech. 1989, 46, 11.	 L-Citrulline 7-amido-4-methylcoumarin hydrobromide	25 mg 100 mg	135,- 350,-
HAA7560	**D-CycloSerine** CAS: 68-41-7, $C_3H_6N_2O_2$, 102,09 g/mole Antibiotic against Gram-negative bacteria that acts by inhibiting the synthesis of bacterial cell walls. Additive for TSC-agar for the detection of Clostridium perfringens, cycloserine inhibits the accompanying bacterial flora and causes the colonies, which develop, to remain smaller.	 (R)-4-Amino-3-isoxazolidinone	Please inquire!	
RL-1019	**DTE – Dithioerythritol** CAS: 6892-68-8 $C_4H_{10}O_2S_2$ 154,25 g/mole	 erythro-1,4-Dimercapto-2,3-butandiol	10 g 25 g 50 g 100 g	110,- 150,- 225,- 375,-
RL-1011	**cyclo-DTE – (S,R)-cyclo-Dithioerythritol** $C_4H_8O_2S_2$ 152,25 g/mole	 (S,R) 1,2-Dithia-4,5-dihydroxy-cyclohexane	Please Inquire!	
RL-1012	**cyclo-DTT – (S,S;R,R)-cyclo-Dithiothreitol** $C_4H_8O_2S_2$, 152,25 g/mole	 (S,S; R,R) 1,2-Dithia-4,5-dihydroxy-cyclohexane	Please Inquire!	

Cleland's Reagent

Also known as **DL-Dithiothreitol** or **DTT** is a water soluble protective reagent for sulfhydryl groups.
It reduces disulfide linkages to free sulfhydryl groups in proteins and enzymes.
It is a component of buffers used in protocols for the isolation and purification of proteins.

RL-1020	**Cleland's Reagent** **DTT (racemic) – DL-Dithiothreitol** (2S,3S;2R,3R)-threo-1,4-Dimercapto-2,3-butandiol CAS: 3483-12-3	 L D threo-1,4-Dimercapto-2,3-butandiol $C_4H_{10}O_2S_2$ 154,25 g/mole	25 g 100 g 250 g	125,- 300,- 450,-
RL-1167	**DTT (D-Isomer) – D-Dithiothreitol** (2S,3S)-threo-1,4-Dimercapto-2,3-butandiol CAS: 27565-41-9		Please inquire.	
RL-1103	**DTT (L-Isomer) – L-Dithiothreitol** (2R,3R)-threo-1,4-Dimercapto-2,3-butandiol CAS: 16096-97-2		Please inquire.	

We supply DTT in Multi-Ton Lots

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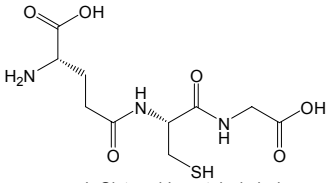
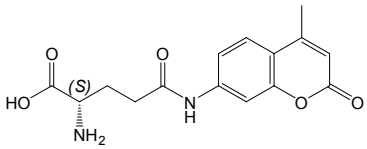
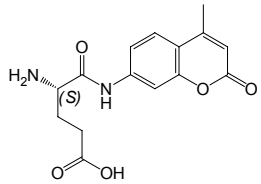
HAA7940	**Glutathione reduced** CAS: 70-18-8 $C_{10}H_{17}N_3O_6S$ 307,32 g/mole	 γ-L-Glutamyl-L-cysteinyl-glycine	25 g 100 g 250 g	125,- 250,- 500,-

Glutathione is a tripeptide made up of the amino acids glutamic acid, cysteine, and glycine. The primary biological function of glutathione is to act as a non-enzymatic reducing agent to help keep cysteine thiol side chains in a reduced state on the surface of proteins. Glutathione is also used to prevent oxidative stress in most cells and helps to trap free radicals that can damage DNA and RNA. Affinity chromatography using glutathione-agarose permits rapid, mild, non-denaturing and highly selective purification of proteins containing glutathione binding sequences, such as glutathione S-transferase (GST), glutathione peroxidase and glyoxalase I.

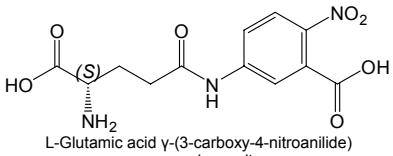
1. Simons P.C., Vander Jagt D.L., Purification of glutathione S-transferases from human liver by glutathione-affinity chromatography. Anal. Biochem. 1977, 82, 334.
2. Simons P.C., Vander Jagt D.L., Purification of glutathione S-transferases by glutathione-affinity chromatography. Methods Enzymol. 1981, 77, 235.
3. Toribio F., Methods for purification of glutathione peroxidase and related enzymes. J. Chromatogr. 1996, 684, 77.
4. Wu G., Fang Y.Z., Yang S., Lupton J.R., Turner N.D., Glutathione metabolism and its implications for health. J. Nutr. 2004, 134, 489-92.

HAA7660	**H-L-Glu(AMC)-OH** CAS: 72669-53-5 $C_{15}H_{16}N_2O_5$, 304,31 g/mole	 L-Glutamic acid γ-(7-amido-4-methylcoumarin)	100 mg 500 mg	125,- 325,-

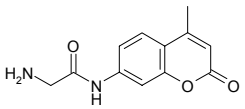
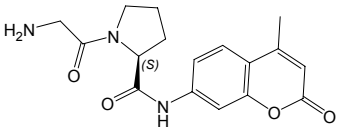
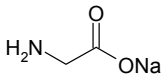
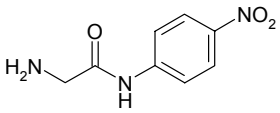
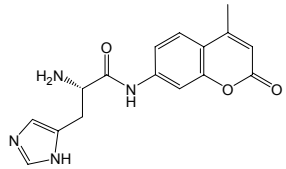
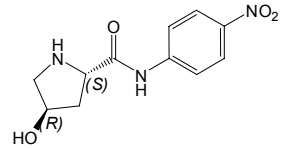
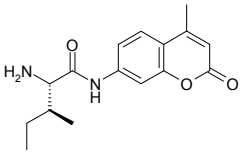
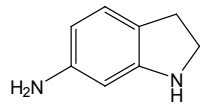
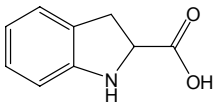
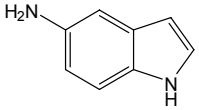
Substrate for aminopeptidase a or the assay of gamma-glutamyl transferase yielding a blue fluorescent solution upon cleavage.
Martin M.N., Slovin J.P., Purified gamma -Glutamyl Trans-peptidases from Tomato Exhibit High Affinity for Glutathione and Glutathione S-Conjugates. Plant Physiol. 2000, 122, 1417-26.

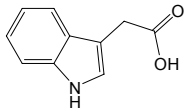
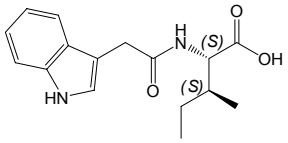
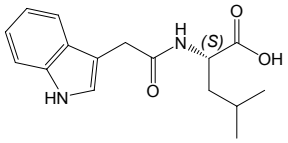
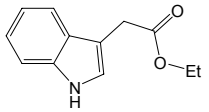
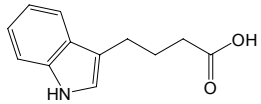
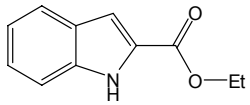
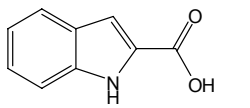
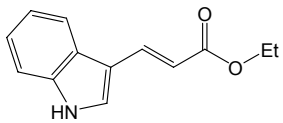
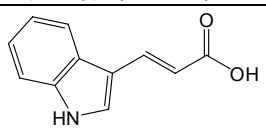
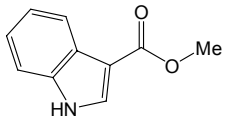
HAA7670	**H-L-Glu-AMC** CAS: 98516-76-8 $C_{15}H_{16}N_2O_5$, 304,31 g/mole	 L-Glutamic acid α-(7-amido-4-methylcoumarin)	100 mg 500 mg	200,- 650,-

Fluorogenic substrate for aminopeptidase a yielding a blue fluorescent solution upon cleavage.

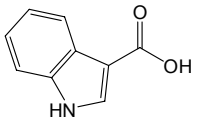
HAA7890	**H-L-Glu(3CNA)-OH*NH_3** CAS: 63699-78-5 $C_{12}H_{13}N_3O_7$*NH_3, 311,25*17,03 g/mole	 L-Glutamic acid γ-(3-carboxy-4-nitroanilide) ammonium salt	250 mg 1 g	100,- 700,-

Chromogenic substrate for the assay of γ-glutamyl transferase.
Shaw L.M., London J.W., Fetterolf D., Garfinkel D., Gamma-Glutamyltransferase: kinetic properties and assay conditions when gamma-glutamyl-4-nitroanilide and its 3-carboxy derivative are used as donor substrates. Clin. Chem. 1977, 23, 79-85.

HAA7970	**H-Gly-AMC*HBr** CAS: 113728-13-5 $C_{12}H_{12}N_2O_3$*HBr, 232,24*80,91 g/mole	 Glycine 7-amido-4-methylcoumarin hydrobromide	250 mg 1 g	180,- 450,-
HAA7980	**H-Gly-L-Pro-AMC*HBr** CAS: 115035-46-6 $C_{17}H_{19}N_3O_4$*HBr, 329,35*80,91 g/mole Fluorogenic substrate for dipeptidyl-aminpeptidase IV and prolyl endopeptidase. Yields a blue fluorescent solution upon cleavage. Kato T., Nagatsu T., Kimura T., Sakakibara S., Fluorescence assay of x-prolyl dipeptidyl-aminopeptidase activity with a new fluorogenic substrate. Biochem. Med. 1978, 19, 351-9.	 Glycyl-L-proline 7-amido-4-methylcoumarin hydrobromide	50 mg 250 mg	200,- 600,-
HAA7990	**H-Gly-ONa** CAS: 6000-44-8, $C_2H_4NO_2Na$, 97,05 g/mole Inhibitory neurotransmitter in spinal cord, allosteric regulator of NMDA receptors.	 Glycine, sodium salt	250 g 1 kg	100,- 225,-
HAA6620	**H-Gly-pNA*HCl** CAS: 1205-88-5 $C_8H_9N_3O_3$*HCl, 195,18*36,45 g/mole	 Glycine p-nitroanilide hydrochloride	1 g 5 g	45,- 90,-
HAA7680	**H-L-His-AMC** CAS: 191723-64-5 $C_{16}H_{16}N_4O_3$, 312,33 g/mole	 L-Histidine 7-amido-4-methylcoumarin	25 mg 100 mg	135,- 325,-
HAA1180	**H-L-Hyp-pNA*HCl** $C_{11}H_{13}N_3O_4$*HCl, 251,24*36,45 g/mole	 trans-L-Hydroxyproline p-nitroanilide hydrochloride	5 g 25 g	250,- 1000,-
HAA7690	**H-L-Ile-AMC*TFA** CAS: 191723-68-9 $C_{16}H_{20}N_2O_3$*CF_3CO_2H 402,37 g/mole	 L-Isoleucine 7-amido-4-methylcoumarin, trifluoroacetate	100 mg 500 mg	125,- 350,-
HNN1050	**6-Aminoindoline*2HCl** CAS: 28228-73-1 $C_8H_{10}N_2$*2HCl, 134,18*72,90 g/mole	 6-Amino-2,3-dihydroindole dihydrochloride	250 mg 500 mg 1 g	175,- 275,- 425,-
HAA7840	**(SR)-Indoline-2-carboxylic acid** CAS: 78348-24-0 $C_9H_9NO_2$*2HCl, 163,18 g/mole	 (SR)-2,3-Dihydroindole-2-carboxylic acid	Please inquire.	
HNN1060	**5-Aminoindole** CAS: 5192-03-0 $C_8H_8N_2$, 132,17 g/mole	 1H-Indole-5-amine	1 g 5 g 10 g	125,- 350,- 600,-

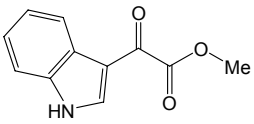
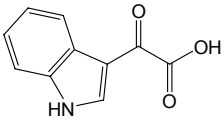
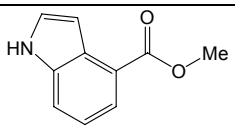
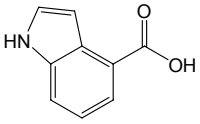
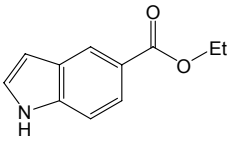
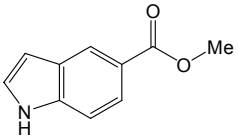
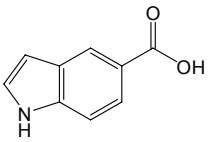
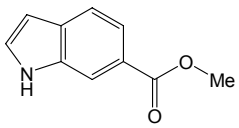
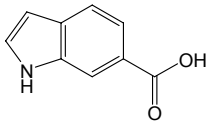
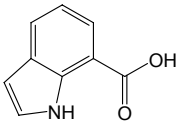
HAA8130	**IAA - Indole-3-acetic acid** CAS: 87-51-4 $C_{10}H_9NO_2$, 175,19 g/mole Plant growth hormone. Regulates cell membrane electron transport and proton flux, plays important roles in a number of plant activities, including: development of the embryo, leaf formation, phototropism, gravitropism, apical dominance, fruit development, abscission, root initiation.	 Indole-3-acetic acid horticultural grade	100 g 500 g	125,- 325,-
IAA1000	**IAA-L-Ile** CAS: 57105-45-0 $C_{16}H_{20}N_2O_3$, 288,35 g/mole Conjugate of indole-3-acetic acid (IAA), an important auxin in plants.	 N-(3-Indolylacetyl)-L-isoleucine, Indole-3-acetyl-L-isoleucine		Please inquire.
IAA1010	**IAA-L-Leu** CAS: 36838-63-8 $C_{16}H_{20}N_2O_3$, 288,35 g/mole	 N-(3-Indolylacetyl)-L-leucine, Indole-3-acetyl-L-leucine		Please inquire.
IAA1020	**IAA-OEt** CAS: 778-82-5 $C_{12}H_{13}NO_2$, 203,24 g/mole	 Indole-3-acetic acid ethyl ester	25 g 100 g	200,- 600,-
HAA8140	**IBA - Indole-3-butyric acid** CAS: 133-32-4 $C_{12}H_{13}NO_2$, 203,24 g/mole	 4-(3-Indolyl)butyric acid, horticultural grade	100 g 500 g	125,- 375,-
XAA1210	**Indole-2-carboxylic acid ethyl ester** CAS: 3770-50-1 $C_{11}H_{11}NO_2I$, 189,22 g/mole			Please inquire.
HAA8350	**Indole-2-carboxylic acid** CAS: 1477-50-5 $C_9H_7NO_2$, 161,16 g/mole Substrate for decarboxylase. The formation of indole can be detected by monitoring absorbance. Was used as chromogenic substrate for cloning genes encoding dioxygenases that act on aromatic acids. The p-cumate-degrading strain Pseudomonas putida F1 and the m- and p -toluate-degrading strain P. putida mt-2 transform indole-2-carboxylate and indole-2-carboxylate to colored products identified as indigo, indirubin, and isatin. Dioxygenase is thought to catalyse the first step in this reaction. It is also a competitive antagonist of potentiation by glycine at the NMDA receptor. 1. Eaton R.W., Chapman P.J., Formation of indigo and related compounds from indolecarboxylic acids by aromatic acid-degrading bacteria: chromogenic reactions for cloning genes encoding dioxygenases that act on aromatic acids. J. Bacteriol. 1995, 177, 6983-8. 2. Huettner J.E., Indole-2-carboxylic acid: a competitive antagonist of potentiation by glycine at the NMDA receptor. Science 1989, 243, 1611-3. 3. Smith D.H., Okiyama K., Thomas M.J., McIntosh T.K., Effects of the excitatory amino acid receptor antagonists kynurenate and indole-2-carboxylic acid on behavioral and neurochemical outcome following experimental brain injury. J. Neurosci. 1993, 13, 5383-92.			Please inquire.
XAA1220	**Indole-3-acrylic acid ethyl ester** CAS: 15181-86-9 $C_{13}H_{13}NO_2$, 215,25 g/mole	 3-(3-Indolyl)acrylic acid ethyl ester	5 g 25 g	135,- 400,-
HAA8360	**Indole-3-acrylic acid ultra pure** CAS: 29953-71-7 $C_{11}H_9NO_2$, 187,20 g/mole	 3-(3-Indolyl)acrylic acid, trans-β-Indoleacrylic acid	5 g 25 g 100 g	125,- 310,- 975,-
XAA1230	**Indole-3-carboxylic acid methyl ester** CAS: 942-24-5 $C_{10}H_9NO_2$, 175,19 g/mole		100 g 500 g 1 kg	90,- 225,- 375,-

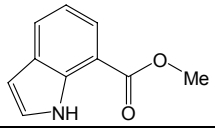
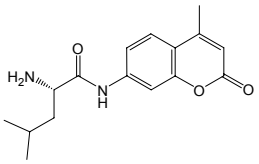
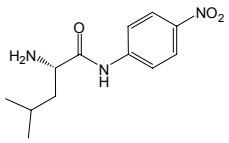
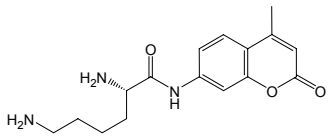
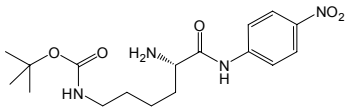
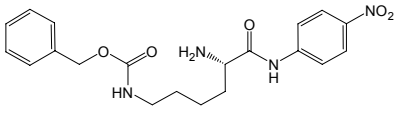
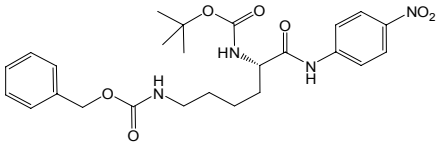
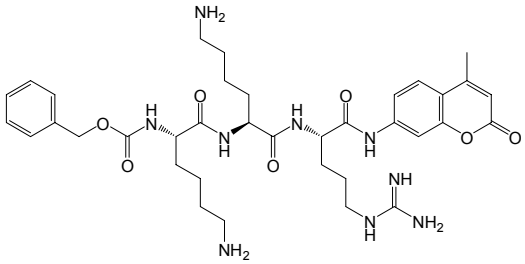
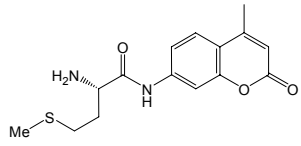
Prices in EUR, net, exw Germany

HAA8370	**Indole-3-carboxylic acid** CAS: 771-50-6 $C_9H_7NO_2$, 161,16 g/mole		Please inquire.	

Substrate for decarboxylase. The formation of indole can be detected by monitoring absorbance. Was used as chromogenic substrate for cloning genes encoding dioxygenases that act on aromatic acids. The p-cumate-degrading strain Pseudomonas putida F1 and the m- and p -toluate-degrading strain P. putida mt-2 transform indole-2-carboxylate and indole-3-carboxylate to colored products identified as indigo, indirubin, and isatin. Dioxygenase is thought to catalyse the first step in this reaction.

1. Eaton R.W., Chapman P.J., Formation of indigo and related compounds from indolecarboxylic acids by aromatic acid-degrading bacteria: chromogenic reactions for cloning genes encoding dioxygenases that act on aromatic acids. J. Bacteriol. 1995, 177, 6983-8.
2. Yoshida T., Fujita K., Nagasawa T., Novel reversible indole-3-carboxylate decarboxylase catalyzing nonoxidative decarboxylation. Biosci. Biotechnol. Biochem. 2002, 66, 2388-94.

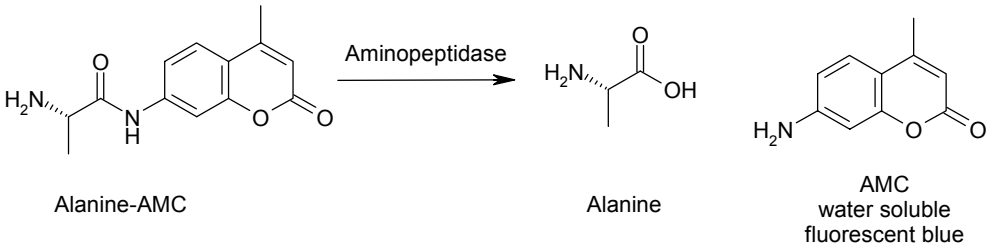
XAA1240	**Indole-3-glyoxylic acid methyl ester** CAS: 18372-22-0 $C_{11}H_9NO_3$, 203,20 g/mole		Please inquire.	
HAA8380	**Indole-3-glyoxylic acid** CAS: 1477-49-2 $C_{10}H_7NO_3$, 189,17 g/mole		5 g 25 g	140,- 425,-
XAA1250	**Indole-4-carboxylic acid methyl ester** CAS: 39830-66-5 $C_{10}H_9NO_2$, 175,19 g/mole		25 g 100 g	210,- 600,-
HAA8390	**Indole-4-carboxylic acid** CAS: 2124-55-2 $C_9H_7NO_2$, 161,16 g/mole		5 g 25 g	140,- 400,-
XAA1260	**Indole-5-carboxylic acid ethyl ester** CAS: 32996-16-0 $C_{11}H_{11}NO_2$, 189,22 g/mole		5 g 25 g	125,- 350,-
XAA1270	**Indole-5-carboxylic acid methyl ester** CAS: 1011-65-0 $C_{10}H_9NO_2$, 175,19 g/mole		5 g 25 g	110,- 310,-
HAA8400	**Indole-5-carboxylic acid** CAS: 1670-81-1 $C_9H_7NO_2$, 161,16 g/mole		Please inquire.	
XAA1280	**Indole-6-carboxylic acid methyl ester** CAS: 50820-65-0 $C_{10}H_9NO_2$, 175,19 g/mole		5 g 25 g 100 g	110,- 275,- 825,-
HAA8410	**Indole-6-carboxylic acid** CAS: 1670-82-2 $C_9H_7NO_2$, 161,16 g/mole		5 g 25 g	125,- 350,-
HAA8420	**Indole-7-carboxylic acid** CAS: 1670-83-3 $C_9H_7NO_2$, 161,16 g/mole		Please inquire.	

XAA1290	**Indole-7-carboxylic acid methyl ester** CAS: 93247-78-0 $C_{10}H_9NO_2$, 175,19 g/mole		5 g 25 g	150,- 500,-
HAA1181	**H-L-Leu-AMC*HCl** CAS: 62480-44-8 $C_{16}H_{20}N_2O_3$*HCl, 324,80 g/mole	 L-Leucine 7-amido-4-methylcoumarin hydrochloride	100 mg 250 mg 500 mg 1 g 5 g	125,- 175,- 250,- 300,- 1200,-
HAA1182	**H-L-Leu-pNA** CAS: 4178-93-2 $C_{12}H_{17}N_3O_3$, 251,29 g/mole	 L-Leucine p-nitroanilide	5 g 25 g	65,- 225,-
HAA7700	**H-L-Lys-AMC*AcOH** CAS: 201853-23-8 $C_{16}H_{21}N_3O_3$*CH_3CO_2H, 303,36*60,05 g/mole Substrate for aminopeptidase b yielding a blue fluorescent solution upon cleavage.	 L-Lysine 7-amido-4-methylcoumarin acetate	250 mg 1 g	175,- 400,-
HAA1183	**H-L-Lys(Boc)-pNA** CAS: 172422-76-3 $C_{17}H_{26}N_4O_5$, 366,42 g/mole	 Nε-t-Butyloxycyrbonyl-L-lysin-p-nitroanilide	1 g 5 g 25 g	90,- 250,- 1000,-
HAA6900	**H-L-Lys(Z)-pNA** $C_{20}H_{24}N_4O_5$ 400,46 g/mole	 Nε-t-Benzyloxycarbonyl-L-lysin-p-nitroanilide	1 g 5 g	95,- 350,-
BAA1208	**Boc-L-Lys(Z)-pNA** CAS: 51078-31-0 $C_{25}H_{32}N_4O_7$ 500,56 g/mole	 Nα-t-Butyloxycarbonyl-Nε-t-benzyloxycarbonyl-L-lysin-p-nitroanilide	5 g 25 g	55,- 150,-
ZAA1264	**Z-Lys-Lys-Arg-AMC *3AcOH** $C_{36}H_{51}N_9O_7$*3CH_3CO_2H 721,85*180,15 g/mole	 N-Benzyloxycarbonyl-L-lysyl-L-lysyl-L-arginine 7-amido-4-methylcoumarin triacetate	5 mg 25 mg 100 mg	100,- 190,- 275,-
HAA7710	**H-L-Met-AMC*TFA** CAS: 94367-35-8 $C_{15}H_{18}N_2O_3S$*CF_3CO_2H, 420,41 g/mole	 L-Methionine 7-amido-4-methylcoumarin trifluoroacetate	50 mg 250 mg	110,- 300,-

Prices in EUR, net, exw Germany

NEW for Clinical Microbiology:

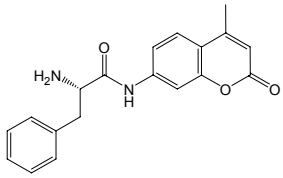
AMC-Peptidase Substrates fluorescent on reacting with the right enzyme



Alanine-AMC | Alanine | AMC water soluble fluorescent blue

H-L-Phe-AMC*TFA

HAA7720 CAS: 108321-84-2
$C_{19}H_{18}N_2O_3*CF_3CO_2H$
436,39 g/mole



L-Phenylalanine 7-amido-4-methylcoumarin trifluoroacetate

250 mg 160,-
1 g 350,-

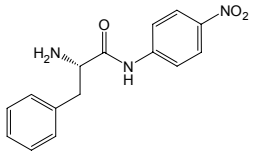
Fluorogenic substrate for phenylalanine peptidase yielding a blue fluorescent solution upon cleavage.
In particular for characterization of an aminopeptidase M-like enzyme from human skeletal muscle.

1. Ishiura S., Yamamoto T., Yamamoto M., Nojima M., Aoyagi T., Sugita H., Human skeletal muscle contains two major aminopeptidases: an anion activated aminopeptidase B and an aminopeptidase M-like enzyme. J. Biochem. 1987, 102, 1023-31.
2. O'Donnell-Tormey J., Quigley J.P., Detection and partial characterization of a chymostatin-sensitive endopeptidase in transformed fibroblasts. Proc. Natl. Acad. Sci. U.S.A. 1983, 80, 344-8.

H-L-Phe-pNA*HCl

HAA1184

CAS: 2360-97-6
$C_{15}H_{15}N_3O_3*HCl$, 285,31*36,45 g/mole



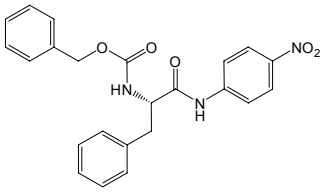
L-Phenylalnine-p-nitroanilide hydrochloride

1 g 60,-
5 g 200,-
25 g 800,-

Z-L-Phe-pNA

ZAA1266

CAS: 19647-71-3
$C_{23}H_{21}N_3O_5$, 419,41 g/mole

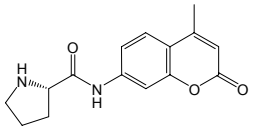


N-alpha-Benzyloxycarbonyl-L-Phenylalnine-p-nitroanilide

5 g 75,-
25 g 280,-
100 g 800,-

H-L-Pro-AMC*HBr

HAA7730 CAS: 115388-93-7
$C_{15}H_{16}N_2O_3*HBr$
272,30*80,91 g/mole



L-Proline 7-amido-4-methylcoumarin hydrobromide

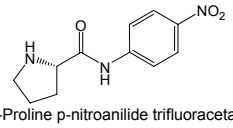
250 mg 200,-
1 g 375,-

Fluorogenic substrate for detection of L-proline aminopeptidase. Yields a blue fluorescent solution upon cleavage. e.g. for differentiation within Candida species, Enterobacteriaceae and pathogenic Neisseriaceae species.

1. D'Amato R.F., Eriquez L.A., Tomfohrde K.M., Singerman E., Rapid identification of Neisseria gonorrhoeae and Neisseria meningitidis by using enzymatic profiles. J. Clin. Microbiol. 1978, 7, 77-81.
2. Fanhänel S., Reisbrodt R., Giesecke H., L-prolineaminopeptidase activity as a tool for identification and differentiation of Serratia marcescens, Serratia liquefaciens and Hafnia alvei strains. Zbl. Bakt. 1991, 275, 11-5.
3. Godsey J.H., Matteo M.R., Shen D., Tolman G., Gohlke J.R., Rapid identification of Enterobacteriaceae with microbial enzyme activity profiles. J. Clin. Microbiol. 1981, 13, 483-90.

H-L-Pro-pNA*TFA

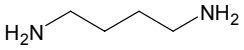
HAA7180 CAS: 7369-91-7net
$C_{11}H_{13}N_3O_3*CF_3CO_2H$
235,23*114,02 g/mole



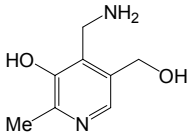
L-Proline p-nitroanilide trifluoracetate

1 g 120,-
5 g 450,-

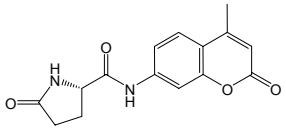
Prices in EUR, net, exw Germany

HNN1070	**Putrescine** CAS: 110-60-1, $C_4H_{12}N_2$, 88,15 g/mole	 1,4-Diaminobutane Tetramethylenediamine, free base	250 g 1 kg	175,- 250,-
HNN1080	**Putrescine*2HCl** CAS: 333-93-7, $C_4H_{12}N_2$*2HCl, 88,15*72,90 g/mole		100 g 250 g 500 g	175,- 275,- 425,-

Putrescine is a polyamine plant growth regulator affecting the synthesis of macromolecules. Promotes adventitious root formation. Precursor of spermidine.

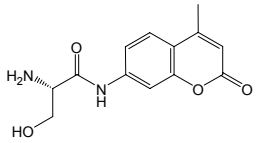
HAL1095	**Pyridoxamine*2HCl** CAS: 524-36-7 $C_8H_{12}N_2O_2$*2HCl 88,15*72,90 g/mole	 4-(Aminomethyl)-5-(hydroxymethyl)-2-methylpyridin-3-ol	5 g 25 g	110,- 300,-

Pyridoxamine is a vitamin added to cell culture medium (vitamin B6). Inhibitor of formation of advanced glycation end products and lipoxidation end products.

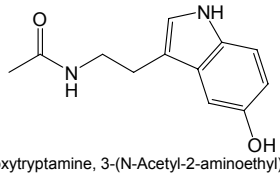
HAA7740	**H-L-Pyr-AMC** CAS: 66642-36-2 $C_{15}H_{14}N_2O_4$, 286,29 g/mole	 L-Pyroglutamic acid 7-amido-4-methylcoumarin	250 mg 1 g	260,- 700,-

Fluorogenic substrate for proglutamyl peptidase 1 yiedling a blue fluorescent solution upon cleavage. Used in identification of Enterococcus spp. and group A streptococci (Streptococcus pyogenes).

1. Fujiwara K., Tsuru D., New chromogenic and fluorogenic substrates for pyrrolidonyl peptidase. J. Biochem. (Tokyo) 1978, 83, 1145-9.
2. Manafi M., Sommer R., Rapid identification of Enterococci with a new fluorogenic-chromogenic assay. Water Sci. Technol. 1993, 27, 271-74.

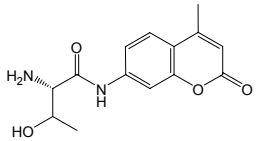
HAA7750	**H-L-Ser-AMC*HCl** CAS: 115918-60-0 $C_{13}H_{14}N_2O_4$*HCl, 298,72 g/mole	 L-Serine 7-amido-4-methylcoumarin hydrochloride	25 mg 250 mg 1 g	150,- 325,- 875,-

Huston A.L., Methe B., Deming J.W., Purification, Characterization, and Sequencing of an Extracellular Cold-Active Amino-peptidase Produced by Marine Psychrophile Colwellia psychrerythraea Strain 34H. Appl. Environ. Microbiol. 2004, 70, 3321–8.

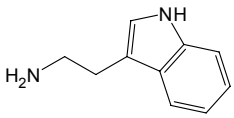
HAL1090	**N-Acetyl-serotonin** CAS: 1210-83-9 $C_{12}H_{14}N_2O_2$, 218,26 g/mole	 N-Acetyl-5-hydroxytryptamine, 3-(N-Acetyl-2-aminoethyl)-5-hydroxyindole	250 mg 1 g	150,- 375,-

Immediate precursor of melatonin. Weak agonist at melatonin receptors, moderate effects on G-protein stimulation and inhibition of cAMP accumulation.

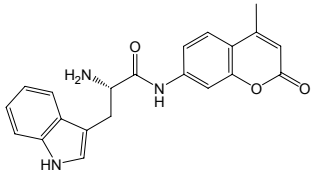
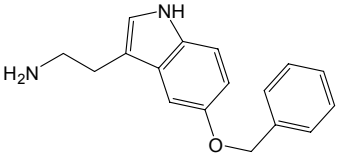
This is a controlled substances. This compound is sold only under the respective of all individual country's regulations only. Companies that are not registered to buy these compounds and that place a request for quotation have to be reported.

HAA7760	**H-L-Thr-AMC** CAS: 191723-66-7 $C_{14}H_{16}N_2O_4$, 276,29 g/mole	 L-Threonine 7-amido-4-methylcoumarin	100 mg 250 mg 1 g	225,- 350,- 1000,-

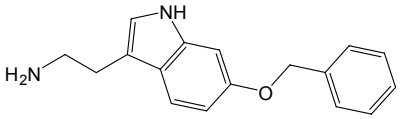
AMC Derivatives of many other Amino Acids available!

HNN1020	**Tryptamine, free base, 98%** CAS: 61-54-1, $C_{10}H_{12}N_2$, 160,22 g/mole	 3-(2-Aminoethyl)indole	25 g 100 g 250 g 500 g	125,- 225,- 375,- 650,-
HNN1030	**Tryptamine, free base, ultrapure, > 99%** CAS: 61-54-1, $C_{10}H_{12}N_2$, 160,22 g/mole		5 g 25 g 100 g	130,- 350,- 950,-
HNN1010	**Tryptamine*HCl, 98%** CAS: 343-94-2, $C_{10}H_{12}N_2$*HCl, 160,22*36,45 g/mole		10 g 50 g 100 g 250 g	125,- 250,- 375,- 750,-

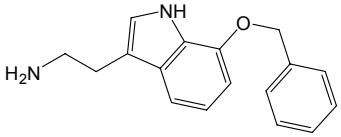
This is a controlled substances. This compound is sold only under the respective of all individual country's regulations only.
Companies that are not registered to buy these compounds and that place a request for quotation have to be reported.

HAA7770	**H-L-Trp-AMC*HCl** CAS: 201860-49-3 $C_{21}H_{19}N_3O_3$*HCl, g/mole	 L-Tryptophan 7-amido-4-methylcoumarin hydrochloride	100 mg 500 mg	200,- 625,-
BNN1054	**5-Benzyloxytryptamine, free base** CAS: 20776-45-8 $C_{17}H_{18}N_2O$, 266,35 g/mole	 3-(2-Aminoethyl)-5-benzyloxyindole	250 mg 500 mg 1 g	110,- 150,- 200,-
BNN1053	**5-Benzyloxytryptamine*HCl** CAS: 52055-23-9 $C_{17}H_{18}N_2O$*HCl, 266,35*36,45 g/mole		250 mg 500 mg 1 g	110,- 150,- 200,-

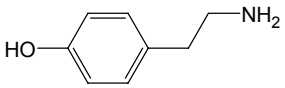
This is a controlled substances. This compound is sold only under the respective of all individual country's regulations only.
Companies that are not registered to buy these compounds and that place a request for quotation have to be reported.

BNN1055	**6-Benzyloxytryptamine** CAS: 31677-74-4 $C_{17}H_{18}N_2O$, 266,35 g/mole	 3-(2-Aminoethyl)-6-benzyloxyindole	50 mg 100 mg 250 mg 500 mg	110,- 150,- 250,- 400,-

This is a controlled substances. This compound is sold only under the respective of all individual country's regulations only.
Companies that are not registered to buy these compounds and that place a request for quotation have to be reported.

BNN1056	**7-Benzyloxytryptamine** CAS: 31677-75-5 $C_{17}H_{18}N_2O$, 266,35 g/mole	 3-(2-Aminoethyl)-7-benzyloxyindole	100 mg	175,-

This is a controlled substances. This compound is sold only under the respective of all individual country's regulations only.
Companies that are not registered to buy these compounds and that place a request for quotation have to be reported.

HAL1085	**Tyramine*HCl** CAS: 60-19-5 $C_8H_{11}NO$*HCl, 266,35 g/mole	 4-(2-Aminoethyl)phenol hydrochloride 4-Hydroxyphenylethylamine hydrochloride Tyrosamine hydrochloride	100 g 250 g 1 kg	175,- 350,- 1100,-