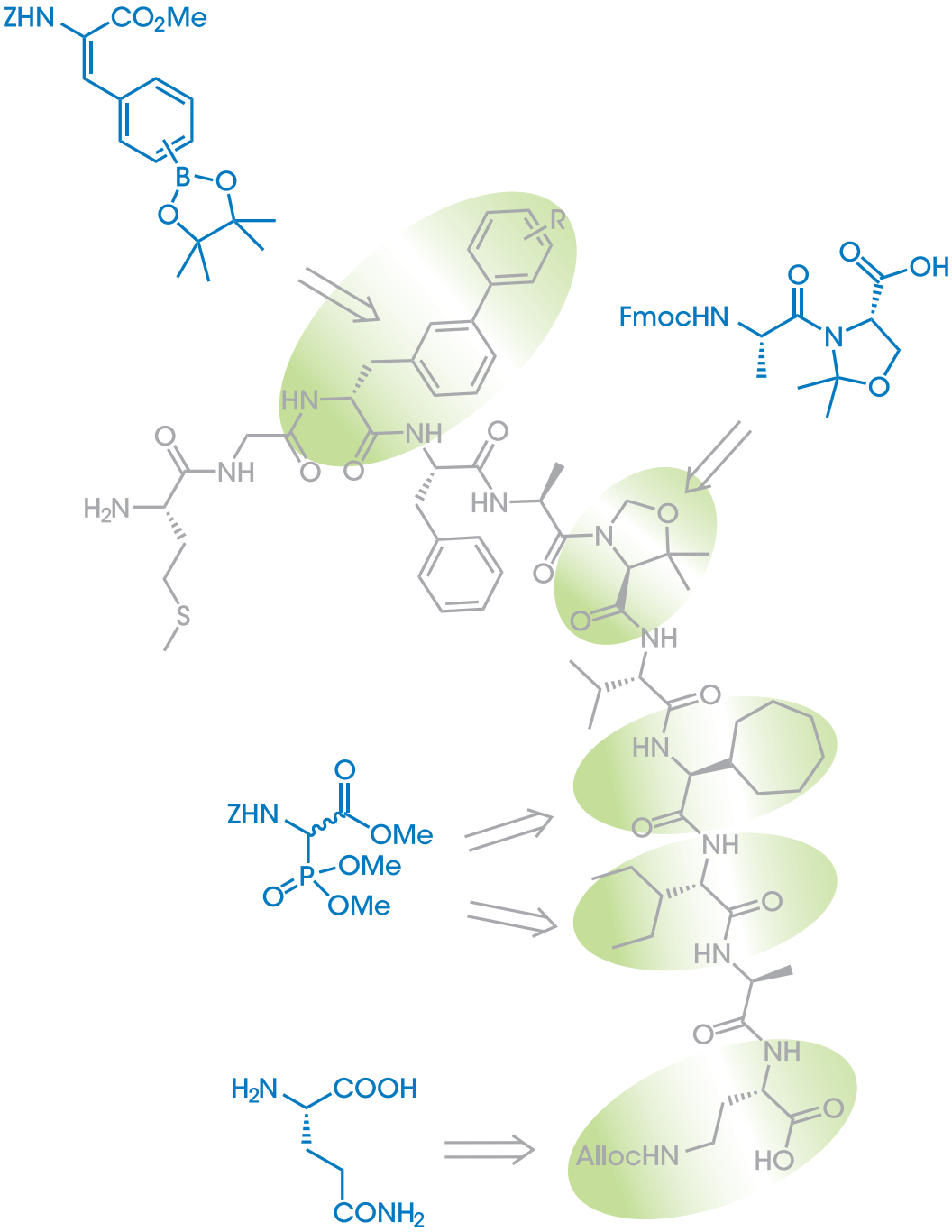
Corden Pharma Switzerland LLC

HIGH-VALUE AMINO ACID DERIVATIVES

FOR (GMP) PRODUCTION OF PEPTIDES AND PEPTIDOMIMETICS



CORDENPHARMA

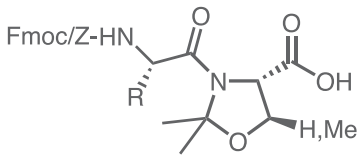
AMINO ACID DERIVATIVES AT CORDEN PHARMA SWITZERLAND

Corden Pharma Switzerland has extensive knowledge in developing scalable processes for the manufacture of amino acid derivatives (AADs) suitable for the GMP production of peptide or peptidomimetic APIs. Our manufacturing capacity is seamlessly integrated with supply chain management to allow for production volumes up to multi-ton quantities *per annum*. The combination of experience, technology, and supply management makes Corden Pharma Switzerland a reliable partner to a wide customer base in the biotechnology and pharmaceutical industries.

We are continuously extending our product offerings with special emphasis on high-value amino acid derivatives and peptidomimetic building blocks. For example, Corden Pharma Switzerland is the forerunner in the multi-kg batch production of pseudoproline dipeptides with consistent GMP quality.

Our technology-driven and service-oriented business approach is highly valued by our customers and ultimately ensures that our products meet all requirements for the successful GMP production of peptide and peptidomimetic APIs.

MAKING "INACCESSIBLE" PEPTIDE SEQUENCES ACCESSIBLE WITH PSEUDOPROLINE AND Dmb BUILDING BLOCKS



Fmoc/Z-Xxx- Ser ($\psi^{Me,Me}$pro)-OH
Fmoc/Z-Xxx- Thr ($\psi^{Me,Me}$pro)-OH

Pseudoprolines

Corden Pharma Switzerland is a leader in custom manufactured pseudoproline dipeptide building blocks of high quality and in multi-kg quantities suitable for the GMP manufacture of peptide APIs.

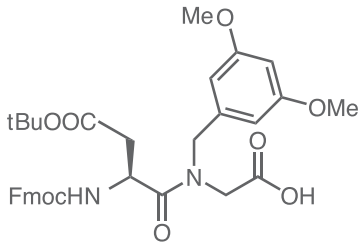
Pseudoprolines (ΨPro) used in GMP peptide manufacture are usually derived from L-serine or L-threonine. The 5-membered ΨPro ring system is acid labile and can be cleaved with standard TFA cleavage cocktails to restore the open side chains of Ser and Thr.

Pseudoprolines offer important advantages to the synthesis of long or difficult sequences. With their proline-like properties they disrupt secondary structure formation, improve peptide solvation and increase solubility of the growing peptide fragment.

L-serine and L-threonine derived pseudoprolines are introduced to peptide synthesis as Fmoc- or Z-protected dipeptides formed with the sequence preceding the amino acid. At Corden Pharma Switzerland we understand the importance of supplying pseudoprolines of the highest possible purity for peptide API producers.

Corden Pharma Switzerland developed scalable manufacturing processes for a number of combinations which are now available from stock. Other building blocks can be custom manufactured upon request. Each pseudoproline dipeptide is delivered with a certificate of analysis specifying possible impurities and a BSE/TSE statement.

Dmb Building Blocks



Fmoc-Asp(OtBu)-(Dmb)Gly-OH

Pseudoprolines are powerful tools for enhancing peptide synthesis efficiency. Their use has been shown to improve acylation and deprotection kinetics and ensure higher purities and yields of crude peptide products. Naturally, they can only be used for peptide sequences including Ser or Thr residues. Dmb building blocks offer similar temporary peptide backbone protection in a more sequence-independent manner.

The acid-labile Dmb protecting group is compatible with standard Fmoc-chemistry and peptide deprotection conditions. Similar to pseudoprolines, they are preferably introduced to peptide sequences as dipeptide building blocks.

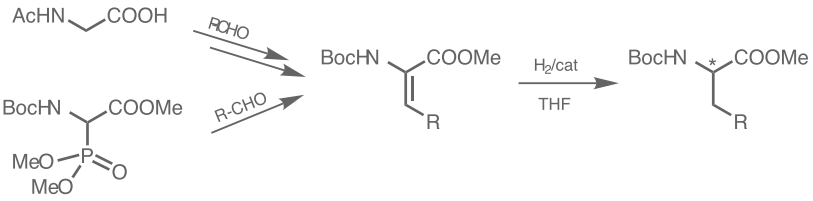
Fmoc-Asp(OtBu)-(Dmb)Gly-OH is of particular interest to peptide API producers. The Dmb backbone protection prevents aspartimide formation in Asp-Gly containing peptides. This well-known side reaction can lead to loss of epimeric purity in the final product or to impurities containing a β-peptide bond.

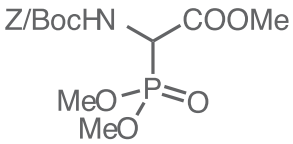
Corden Pharma Switzerland offers small-pack quantities of Fmoc-Asp(OtBu)-(Dmb)Gly-OH from stock. Larger quantities will be produced on request. We also offer Dmb amino acids as monomeric building blocks. (Dmb)Xxx amino acids require powerful acylating agents when introduced to peptide sequences as monomers.

UNUSUAL AMINO ACIDS FOR THE PRODUCTION OF PEPTIDOMIMETICS

Reaction Capabilities

Amino acids are produced at Corden Pharma Switzerland by the asymmetric catalytic hydrogenation of enamides which are prepared from glycine derivatives and corresponding aldehydes either by *Erlenmeyer* condensation or *Wittig-Horner* reaction. The phosphonoglycine trimethyl ester for the *Wittig-Horner* reaction is produced in hundreds of kilograms with Corden Pharma Switzerland's proprietary manufacturing process.

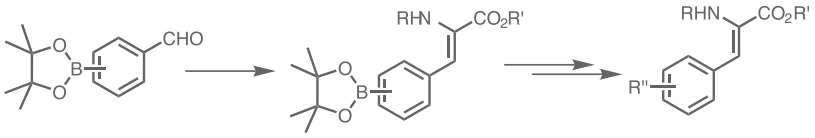




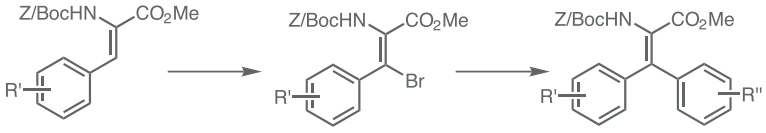
Produced and available at Corden Pharma Switzerland in multi-kg quantities

Corden Pharma Switzerland has developed efficient large-scale manufacturing processes for both Boc- and Z- protected phosphonoglycine derivatives and is a premier supplier for these critical amino acid synthons.

We also have special expertise in the scale-up production of aryl ring substituted phenylalanine derivatives using pinacolyl-boron chemistry. The *Wittig-Horner* resulting enamide can be asymmetrically hydrogenated and C-C coupled to deliver the corresponding *S or R* phenylalanine derivatives suitably protected for peptide synthesis.



The large-scale production of β,β-branched dehydroamino acids by a novel stereoselective approach is another one of our specialties. This technology involves high-yielding *Suzuki* cross-couplings of pre-prepared β-bromodehydro amino acids, followed by the stereoselective hydrogenation of the enamide function.



Z-Gly(PO(OMe)$_2$)-OMe

CAS # 88568-95-0; Genzyme Product Code: CB-05-102

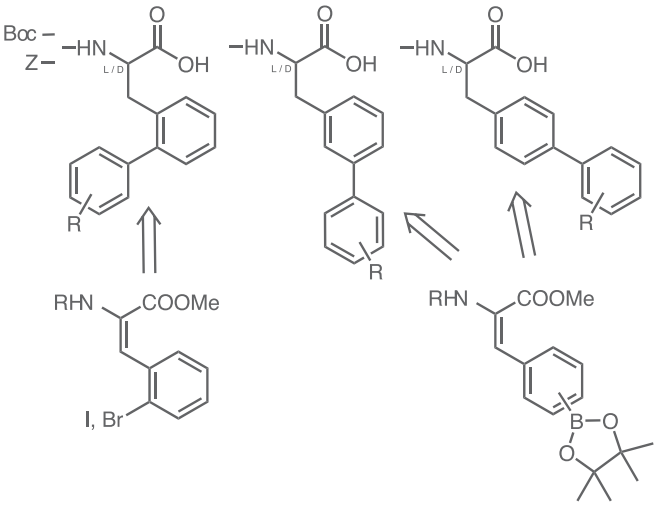
Boc-Gly(PO(OMe)$_2$)-OMe

CAS # 89524-98-1; Genzyme Product Code: BC-05-099

UNUSUAL PHENYLALANINE DERIVATIVES

For further information, see poster presented at 29th European Peptide Symposium, Gdansk, September 2006: A New Practical, Scalable Enantioselective Synthesis of Pinacolylborono-Phenylalanine Derivatives and their Use by Cross-Coupling Reactions; by V.M.F. Cardona, B. Roth, P. Rebmann & B. Oswald

Ortho, meta, para Substituted Phenylalanine Derivatives

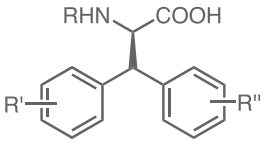


R = alkyl- or aryl

β,β-BRANCHED AMINO ACID DERIVATIVES

For further information, see poster presented at 30th European Peptide Sympoisum, Helsinki, September 2008: A Novel Scalable Stereoselective Approach for the Synthesis of β,β-Branched Dehydroamino Acids; by V.M.F. Cardona & B. Oswald

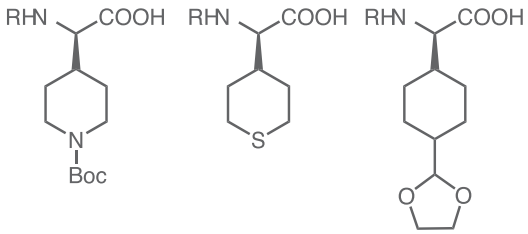
β,β-Diphenyl Derivatives



R = H-, Fmoc-, Boc- and Z-

- Both enantiomers available
- Unprotected and protected

Trifunctional Glycine Derivatives

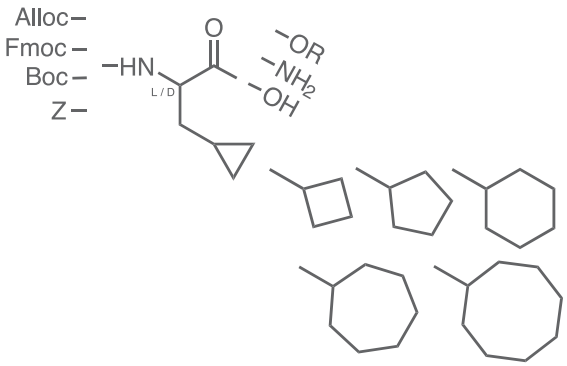


R = H-, Fmoc-, Boc- and Z-

- Both enantiomers available
- Unprotected and protected

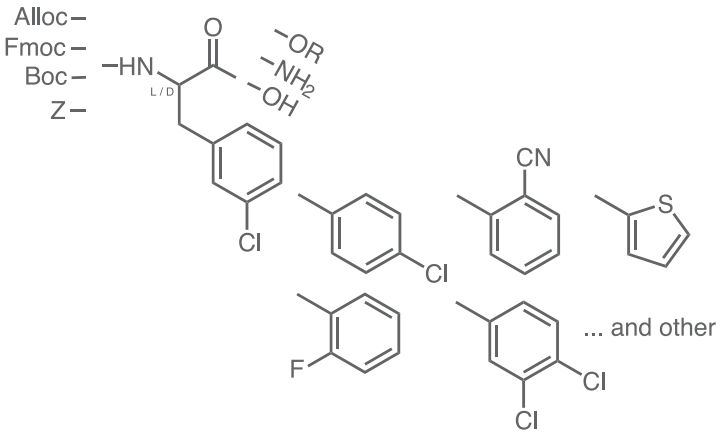
ALANINE DERIVATIVES

Cycloalkyl Alanine Derivatives



- L and D
- Unprotected and protected
- Esters and amides
- Amino alcohols/ethers

Arylated Alanine Derivatives

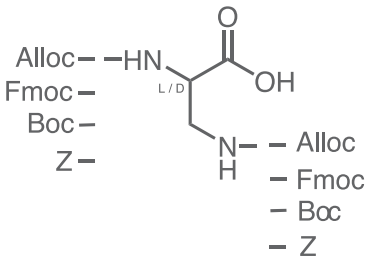


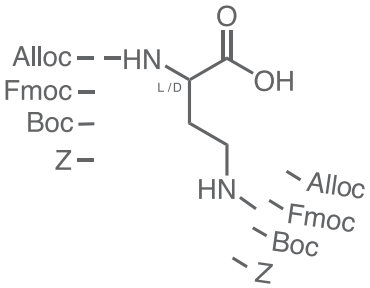
- L and D
- Unprotected and protected
- Esters and amides
- Amino alcohols/ethers

PLEASE CONTACT US TO DISCUSS YOUR SPECIFIC NEEDS.

DIAMINO ACID DERIVATIVES

Diamino Propionic and Butyric Acids



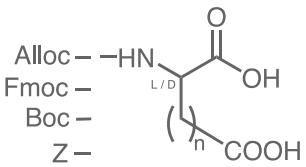


2,3-Diaminopropionic acid 2,4-Diaminobutyric acid

- Both enantiomers available
- Unprotected, monoprotected or diprotected

AMINO DICARBOXYLIC DERIVATIVES

α-Amino Dicarboxylic Acid Derivatives



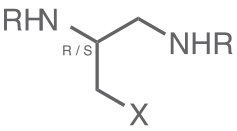
n = 1, 2, 3, 4, 5, etc

e.g.: α-Aminosuberic acid, n = 5

- Both enantiomers available
- Unprotected and protected

PEPTIDOMIMETIC BUILDING BLOCKS

Diamino Building Blocks

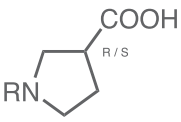


R = H-, Fmoc-, Boc-, Alloc- or Z-

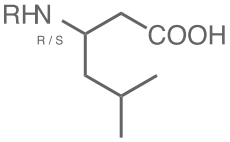
X = any amino acid side chains, natural or unusual

- Both enantiomers available
- Unprotected and protected
- Linear and cyclic derivatives available

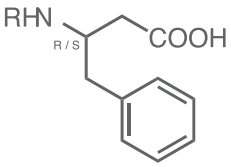
β-Amino Acid Derivatives



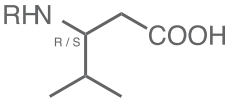
3-Pyrrolidinecarboxylic acid (β-Proline)



β³-Homoleucine



β³-Homophenylalanine



β³-Homovaline

R = H-, Fmoc-, Boc-, Alloc- or Z-

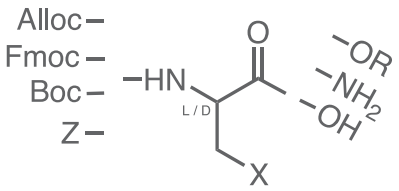
- Both enantiomers available

PLEASE INQUIRE FOR OTHER β-AMINO ACID DERIVATIVES.

Standard Amino Acid Derivatives (AADs)

Trifunctional L- and D-Amino Acid Derivatives

Corden Pharma Switzerland offers protected derivatives from trifunctional L- and D- amino acids in multi-kilogram quantities (standard AADs). These building blocks are suitable for solid-phase or solution peptide synthesis.



- L- and D
- Unprotected and protected
- Esters and amides

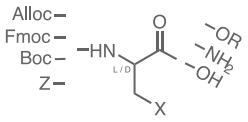
e.g.: Fmoc-Arg(Pbf)-OH, Z-D-Tyr(tBu)-OH

Custom Manufacture

Corden Pharma Switzerland offers pharmaceutical and biotechnology companies custom manufacturing of amino acid derivatives, peptides and other materials for use in pharmaceutical drug development.

PLEASE CALL FOR MORE INFORMATION.

STANDARD AMINO ACID DERIVATIVES



The following products can supplied from stock, or with short lead-times.

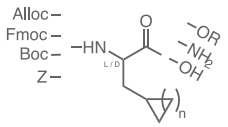
Product Name	CAS Number	Product Code
Fmoc-L-α-Amino Acids		
Fmoc-L-Arg(Pbf)-OH	154445-77-9	FC-01-053
Fmoc-L-Arg(Mtr)-OH	98930-01-9	FC-01-021
Fmoc-L-Asn(Trt)-OH **	132388-59-1	FC-01-048
Fmoc-L-Asp(OtBu)-OH	71989-14-5	FC-01-016
Fmoc-L-Asp(OAll)-OH	146982-24-3	FC-01-087
Fmoc-L-Gln(Trt)-OH **	132327-80-1	FC-01-050
Fmoc-L-Glu(OAll)-OH	133464-46-7	
Fmoc-L-Glu(OtBu)-OH x H_2O	71989-18-9	FC-01-027
Fmoc-L-Lys(Boc)-OH	71989-26-9	FC-01-033
Fmoc-L-Ser(tBu)-OH	71989-33-8	FC-01-011
Fmoc-L-Thr(tBu)-OH	71989-35-0	FC-01-013
Fmoc-L-Trp(Boc)-OH **	143824-78-6	FC-01-052
Fmoc-L-Tyr(tBu)-OH	71989-38-3	FC-01-036
	** Patented products, manufactured under license	
Fmoc-D-α-Amino Acids		
Fmoc-D-Arg(Pbf)-OH	187618-60-6	FC-02-057
Fmoc-D-Arg(Mtr)-OH	130752-32-8	FC-02-047
Fmoc-D-Asn(Trt)-OH **	180570-71-2	FC-02-060
Fmoc-D-Asp(OtBu)-OH	112883-39-3	FC-02-017
Fmoc-D-Ser(tBu)-OH	128107-47-1	FC-02-044
Fmoc-D-Thr(tBu)-OH	138797-71-4	FC-02-043
Fmoc-D-Trp(Boc)-OH **	163619-04-3	FC-02-066
Fmoc-D-Tyr(tBu)-OH	118488-18-9	FC-02-046
	** Patented products, manufactured under license	
Z-α-Amino Acids		
Z-L-Arg(Pbf)-OH x CHA	200190-89-2	CB-01-067
Z-L-Arg(Mtr)-OH x CHA	80745-09-1	CB-01-056
Z-L-Asn(Trt)-OH **	132388-57-9	CB-01-054
Z-L-Gln(Trt)-OH **	132388-60-4	CB-01-052
Z-L-Ser(tBu)-OH	1676-75-1	CB-01-037
Z-L-Thr(tBu)-OH x DCHA	16966-07-7	CB-01-032
Z-L-Trp-NH_2	20696-64-4	CB-01-084
Z-L-Trp(Boc)-OH x DCHA **	218938-57-9	CB-01-075
Z-L-Tyr(tBu)-OH	5545-54-0	CB-01-063
	** Patented products, manufactured under license	
Z-D-α-Amino Acids		
Z-D-Arg(Pbf)-OH x CHA	200191-00-0	CB-02-073
Z-D-Arg(Mtr)-OH x CHA		CB-02-058
Z-D-Ser(tBu)-OH	65806-90-8	CB-02-079
Z-D-Thr(tBu)-OH x DCHA	201275-65-2	CB-02-106
Z-D-Trp(Boc)-OH x DCHA **		CB-02-108
Z-D-Tyr(tBu)-OH	119894-37-0	CB-02-103
	** Patented products, manufactured under license	

Product Name	CAS Number	Product Code
Boc-α-Amino Acids		
Boc-L-Arg(Pbf)-OH x DCHA		BC-01-090
Boc-L-Thr(tBu)-OH	13734-40-2	BC-01-053
Boc-L-Trp-NH_2	62549-92-2	BC-01-096
Boc-L-Tyr(Bzl)-OH		BC-01-038
N-Non-Protected-α-Amino Acids		
H-L-Ala-OMe x HCl	2491-20-5	AA-01-074
H-L-Lys(Boc)-NH_2	24828-96-4	AA-01-109
H-D-Nle-OMe x HCl	60687-33-4	AA-02-112
H-L-Pro-NH_2 x HCl		AA-01-052
H-L-Pro-OBzl x HCl	16652-71-4	AA-01-105
H-L-Ser(tBu)-NH_2	323587-47-9	AA-01-108
H-L-Trp-NH_2 x HCl	5022-65-1	AA-01-082
H-D-Tyr-NH_2 x HCl	117888-79-6	AA-02-114
H-D-Tyr-OMe x HCl	3728-20-9	AA-02-115
H-L-Tyr(tBu)-NH_2	39894-77-4	AA-01-125
Pseudoprolines		
Fmoc-Gly-Ser($\psi^{Me,Me}$pro)-OH		DP-05-183
Fmoc-Leu-Ser($\psi^{Me,Me}$pro)-OH		DP-05-166
Fmoc-Ile-Ser($\psi^{Me,Me}$pro)-OH		DP-05-207
Fmoc-Ala-Ser($\psi^{Me,Me}$pro)-OH		DP-05-182
Fmoc-Gln(Trt)-Ser($\psi^{Me,Me}$pro)-OH		
Fmoc-Ser(tBu)-Ser($\psi^{Me,Me}$pro)-OH		DP-05-155
Fmoc-Gly-Thr($\psi^{Me,Me}$pro)-OH		DP-05-168
Fmoc-Ala-Thr($\psi^{Me,Me}$pro)-OH		DP-05-169
Fmoc-Ile-Thr($\psi^{Me,Me}$pro)-OH		DP-05-163
Fmoc-Val-Thr($\psi^{Me,Me}$pro)-OH		DP-05-170
Fmoc-Phe-Thr($\psi^{Me,Me}$pro)-OH		DP-05-158
Fmoc-Ser(tBu)-($\psi^{Me,Me}$pro)-OH		
Fmoc-Asp(OtBu)-Thr($\psi^{Me,Me}$pro)-OH		DP-05-162
Dmb Building Blocks		
Fmoc-Asp(OtBu)-(Dmb)Gly-OH		DP-05-193
Fmoc-(Dmb)Gly-OH		FC-05-101
Fmoc-(Dmb)Ala-OH		FC-01-102
Phosphonoglycine Derivatives		
Z-Gly(PO($OMe)_2$)-OMe	88568-95-0	CB-05-102
Boc-Gly(PO($OMe)_2$)-OMe	89524-98-1	BC-05-099
N-Ac-Gly(PO($OMe)_2$)-OMe	89524-99-2	BR-05-227
Fmoc-Gly(PO($OMe)_2$)-OMe	1182708-98-0	FC-05-104

NON-STANDARD AMINO ACID DERIVATIVES

Please inquire about the availability of the following products.

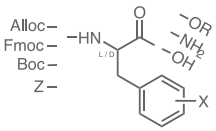
CYCLOALKYL ALANINE DERIVATIVES



Product Name	CAS Number	Product Code
3-Cyclopropylalanine		
Boc-, Fmoc- and Z-protected derivatives are in development		
3-Cyclobutylalanine		
Boc-, Fmoc- and Z-protected derivatives are in development		
3-Cyclopentylalanine		
Boc-, Fmoc- and Z-protected derivatives are in development		
3-Cyclohexylalanine		
Fmoc-3-cyclohexyl-L-Ala-OH (Fmoc-L-Cha-OH; Fmoc-L-cyclohexylalanine)	135673-97-1	FC-01-003
Boc-3-cyclohexyl-D-Ala-OH (Boc-D-Cha-OH; Boc-D-cyclohexylalanine)	127095-92-5	BC-02-041
Boc-3-cyclohexyl-L-Ala-OH (Boc-L-Cha-OH; Boc-L-cyclohexylalanine)	37736-82-6	
Boc-3-cyclohexyl-L-Ala-OH x DCHA (Boc-L-Cha-OH x DCHA; Boc-D-cyclohexylalanine x DCHA)	37462-62-7	BC-01-011
Boc-3-cyclohexyl-D-Ala-OH x H_2O (Boc-D-Cha-OH x H_2O; Boc-D-cyclohexylalanine x H_2O)	349551-33-3	
H-3-Cyclohexyl-D-Ala-OH	58717-02-5	AA-02-011
H-3-Cyclohexyl-L-Ala-OH	27527-05-5	AA-01-012
3-Cycloheptylalanine		
Fmoc-3-cycloheptyl-L-Ala-OH (Fmoc-L-cycloheptylalanine)		FC-01-081
Fmoc-3-cycloheptyl-D-Ala-OH (Fmoc-D-cycloheptylalanine)		FC-02-082
Z-3-cycloheptyl-L-Ala-OH x CHA (Z-L-cycloheptylalanine x CHA)		CB-01-115
Z-3-cycloheptyl-D-Ala-OH x CHA (Z-D-cycloheptylalanine x CHA)		CB-02-116
Boc-3-cycloheptyl-L-Ala-OH x DCHA (Boc-L-cycloheptylalanine x DCHA)		BC-01-124
Boc-3-cycloheptyl-L-Ala −OH x H_2O (Boc-L-cycloheptylalanine x H_2O)		BC-01-116
Boc-3-cycloheptyl-D-Ala −OH x H_2O (Boc-D-cycloheptylalanine x H_2O)		BC-02-117
3-Cyclooctylalanine		
Boc-3-cyclooctyl-L-Ala-OH x CHA (Boc-L-cyclooctylalanine x CHA)		BC-01-121
Fmoc- and Z-protected derivatives are in development		

Product Name	CAS Number	Product Code

ARYLATED ALANINE DERIVATIVES



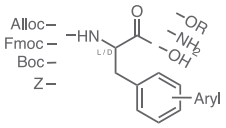
2-Bromophenylalanine		
Boc-D-Phe(2-Br)-OH (Boc-D-2-bromophenylalanine)	261360-76-3	
Boc-L-Phe(2-Br)-OH (Boc-L-2-bromophenylalanine)	261165-02-0	
3-Bromophenylalanine		
Boc-D-Phe(3-Br)-OH (Boc-D-3-bromophenylalanine)	261360-77-4	
Boc-L-Phe(3-Br)-OH (Boc-L-3-bromophenylalanine)	82278-73-7	
4-Bromophenylalanine		
Boc-D-Phe(4-Br)-OH (Boc-D-4-bromophenylalanine)	79561-82-3	
Boc-L-Phe(4-Br)-OH (Boc-L-4-bromophenylalanine)	62129-39-9	
3,4-Dichlorophenylalanine		
Boc-D-Phe(3,4-diChloro)-OH (Boc-D-3,4-dichlorophenylalanine; Boc-3-(3,4-dichlorophenyl)-D-Ala-OH)	114873-13-1	
Boc-L-Phe(3,4-diChloro)-OH (Boc-L-3,4-dichlorophenylalanine; Boc-3-(3,4-dichlorophenyl)-L-Ala-OH)	80741-39-5	
2-Cyanophenylalanine		
Boc-D-Phe(2-cyano)-OH (Boc-D-2-cyanophenylalanine)	261380-28-3	
Boc-L-Phe(2-cyano)-OH (Boc-L-2-cyanophenylalanine)	216312-53-7	
3-Cyanophenylalanine		
Boc-D-Phe(3-cyano)-OH (Boc-D-3-cyanophenylalanine)	205445-56-3	
Boc-L-Phe(3-cyano)-OH (Boc-L-3-cyanophenylalanine)	131980-30-8	
4-Cyanophenylalanine		
Boc-D-Phe(4-cyano)-OH (Boc-D-4-cyanophenylalanine)	146727-62-0	
Boc-L-Phe(4-cyano)-OH (Boc-L-4-cyanophenylalanine)	131724-45-3	
2-Fluorophenylalanine		
Boc-D-Phe(2-F)-OH (Boc-D-2-fluorophenylalanine; Boc-3-(2-fluorophenyl)-D-Ala-OH)	114873-10-8	
Boc-L-Phe(2-F)-OH (Boc-L-2-fluorophenylalanine; Boc-3-(2-fluorophenyl)-L-Ala-OH)	114873-00-6	
3-Fluorophenylalanine		
Boc-D-Phe(3-F)-OH (Boc-D-3-fluorophenylalanine; Boc-3-(3-fluorophenyl)-D-Ala-OH)	114873-11-9	
Boc-L-Phe(3-F)-OH (Boc-L-3-fluorophenylalanine; Boc-3-(3-fluorophenyl)-L-Ala-OH)	114873-01-7	

Product Name	CAS Number	Product Code
Arylated Alanine Derivatives *continued*		
4-Fluorophenylalanine		
Fmoc-D-Phe(4-F)-OH (Fmoc-D-4-fluorophenylalanine; Fmoc-3-(4-fluorophenyl)-D-Ala-OH)	177966-64-2	FC-02-073
Fmoc-L-Phe(4-F)-OH (Fmoc-L-4-fluorophenylalanine; Fmoc-3-(4-fluorophenyl)-L-Ala-OH)	169243-86-1	FC-01-072
Z-D-Phe(4-F)-OH (Z-D-4-fluorophenylalanine; Z-3-(4-fluorophenyl)-D-Ala-OH)	117467-73-9	
Z-L-Phe(4-F)-OH (Z-L-4-fluorophenylalanine; Z-3-(4-fluorophenyl)-L-Ala-OH)	17543-58-7	
Boc-D-Phe(4-F)-OH (Boc-D-4-fluorophenylalanine; Boc-3-(4-fluorophenyl)-D-Ala-OH)	57292-45-2	BC-02-109
Boc-L-Phe(4-F)-OH (Boc-L-4-fluorophenylalanine; Boc-3-(4-fluorophenyl)-L-Ala-OH)	41153-30-4	BC-01-108
H-D-Phe(4-F)-OH	18125-46-7	AA-02-120
H-L-Phe(4-F)-OH	1132-68-9	AA-01-118
3,4-Difluorophenylalanine		
Boc-D-3,4-difluorophenylalanine (Boc-3-(3,4-difluorophenyl)-D-Ala-OH)	205445-51-8	
Boc-L-3,4-difluorophenylalanine (Boc-3-(3,4-difluorophenyl)-L-Ala-OH)	198474-90-7	
3,5-Difluorophenylalanine		
Fmoc-D-3,5-difluorophenylalanine (Fmoc-3-(3,5-difluorophenyl)-D-Ala-OH)		FC-02-084
Fmoc-L-3,5-difluorophenylalanine (Fmoc-3-(3,5-difluorophenyl)-L-Ala-OH)	205526-24-5	FC-01-083
Boc-L-3,5-difluorophenylalanine (Boc-3-(3,5-difluorophenyl)-L-Ala-OH)		
3,4,5-Trifluorophenylalanine		
Boc-D-3,4,5-trifluorophenylalanine (Boc-3-(3,4,5-trifluorophenyl)-D-Ala-OH)	205445-55-2	
Boc-L-3,4,5-trifluorophenylalanine (Boc-3-(3,4,5-trifluorophenyl)-L-Ala-OH)	205445-54-1	
2,3,4,5,6-Pentafluorophenylalanine		
Boc-D-2,3,4,5,6-pentafluorophenylalanine (Boc-3-(2,3,4,5,6-pentafluorophenyl)-D-Ala-OH)	136207-26-6	
Boc-L-2,3,4,5,6-pentafluorophenylalanine (Boc-3-(2,3,4,5,6-pentafluorophenyl)-L-Ala-OH)	34702-60-8	
2-Hydroxyphenylalanine (Ortho-Tyrosine)		
Boc-D-Phe(2-OH)-OH x CHA (Boc-D-ortho-Tyr-OH x CHA)		
Boc-L-Phe(2-OH)-OH x CHA (Boc-L-ortho-Tyr-OH x CHA)		
3-Hydroxyphenylalanine (Meta-Tyrosine)		
Boc-D-Phe(3-OH)-OH x CHA (Boc-D-meta-Tyr-OH x CHA)		
Boc-L-Phe(3-OH)-OH x CHA (Boc-L-meta-Tyr-OH x CHA)		BC-01-126

Product Name	CAS Number	Product Code
Arylated Alanine Derivatives *continued*		
2-Iodophenylalanine		
Boc-D-Phe(2-I)-OH (Boc-D-2-iodophenylalanine)	478183-64-1	BC-02-133
Boc-L-Phe(2-I)-OH (Boc-L-2-iodophenylalanine)	273221-78-6	BC-01-131
Boc-D-Phe(2-I)-OBzl (Boc-D-2-iodophenylalanine benzyl ester)		BC-02-132
Boc-L-Phe(2-I)-OBzl (Boc-L-2-iodophenylalanine benzyl ester)		BC-01-130
4-Iodophenylalanine		
Boc-D-Phe(4-I)-OH (Boc-D-4-iodophenylalanine)	176199-35-2	
Boc-L-Phe(4-I)-OH (Boc-L-4-iodophenylalanine)	62129-44-6	
2-Methylphenylalanine		
Boc-D-Phe(2-Me)-OH (Boc-D-2-methylphenylalanine)	80102-29-0	
Boc-L-Phe(2-Me)-OH (Boc-L-2-methylphenylalanine)	114873-05-1	
3-Methylphenylalanine		
Boc-D-Phe(3-Me)-OH (Boc-D-3-methylphenylalanine)	114873-14-2	
Boc-L-Phe(3-Me)-OH (Boc-L-3-methylphenylalanine)	114873-06-2	
4-Methylphenylalanine		
Boc-D-Phe(4-Me)-OH (Boc-D-4-methylphenylalanine)	80102-27-8	
Boc-L-Phe(4-Me)-OH (Boc-L-4-methylphenylalanine)	80102-26-7	
4-Trifluoromethylphenylalanine		
Boc-L-Phe(4-trifluoromethyl)-OH (Boc-L-4-trifluoromethylphenylalanine)	114873-07-3	
Boc-D-Phe(4-trifluoromethyl)-OH (Boc-D-4-trifluoromethylphenylalanine)	82317-83-7	
1-Pyrenylalanine 3-(1-Pyrenyl)-alanine)		
Boc-(*S*)-1-pyrenylalanine	100442-89-5	
Boc-(*R*)-1-pyrenylalanine	126613-96-5	
Fmoc-(*S*)-1-pyrenylalanine	183071-07-0	
Fmoc-(*R*)-1-pyrenylalanine	406955-45-1	
3-(2-Thienyl)alanine		
Fmoc-3-(2-thienyl)-D-Ala-OH (Fmoc-D-2-Thi-OH; Fmoc-D-2-thienylalanine)	201532-42-5	FC-02-038
Fmoc-3-(2-thienyl)-L-Ala-OH (Fmoc-L-2-Thi-OH; Fmoc-L-2-thienylalanine)	130309-35-2	FC-01-012

Product Name	CAS Number	Product Code

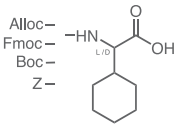
ARYLATED PHENYLALANINE DERIVATIVES new product line



4-Phenylphenylalanine (3-(4-Biphenyl)-alanine)

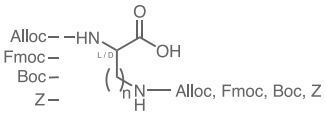
Boc-(*S*)-Phe(4-phenyl)-OH	147923-08-8	
Boc-(*R*)-Phe(4-phenyl)-OH	128779-47-5	

CYCLIC GLYCINE DERIVATIVES new product line



Boc-D-cyclohexylglycine x H_2O (Boc-D-Cgl-OH x H_2O)	349551-32-2	BC-02-088
Boc-L-cyclohexylglycine x H_2O (Boc-L-Cgl-OH x H_2O)	349551-31-1	BC-01-095
Boc-D-cyclohexylglycine (Boc-D-Cgl-OH)	70491-05-3	
Boc-L-cyclohexylglycine (Boc-L-Cgl-OH)	109183-71-3	
H-D-Cyclohexylglycine	14328-52-0	
H-L-Cyclohexylglycine	14328-51-9	
H-D-Cyclohexylglycine x HCl		AA-02-064
H-L-Cyclohexylglycine x HCl		

DIAMINO ACID DERIVATIVES



Diamino Propionic Acid

Fmoc-D-Dap(Boc)-OH (2-Fmoc-3-Boc-D-2,3-diaminopropionic acid)	198544-42-2	
Fmoc-L-Dap(Boc)-OH (2-Fmoc-3-Boc-L-2,3-diaminopropionic acid)	162558-25-0	
Z-D-Dap(Boc)-OH (2-Z-3-Boc-D-2,3-diaminopropionic acid)		
Z-L-Dap(Boc)-OH (2-Z-3-Boc-L-2,3-diaminopropionic acid)		
Z-D-Dap(Z)-OH (2-Z-3-Z-D-2,3-diaminopropionic acid)		
Z-L-Dap(Z)-OH (2-Z-3-Z-L-2,3-diaminopropionic acid)		
Boc-L-Dap(Boc)-OH x DCHA (2-Boc-3-Boc-L-2,3-diaminopropionic acid x DCHA)	201472-68-6	BC-01-129
Boc-D-Dap(Boc)-OH x DCHA		
Boc-D-Dap(Fmoc)-OH (2-Boc-3-Fmoc-D-2,3-diaminopropionic acid)		

Product Name	CAS Number	Product Code
Diamino Propionic Acid *continued*		
Boc-L-Dap(Fmoc)-OH (2-Boc-3-Fmoc-L-2,3-diaminopropionic acid)		
Boc-D-Dap(Z)-OH (2-Boc-3-Z-D-2,3-diaminopropionic acid)		
Boc-L-Dap(Z)-OH (2-Boc-3-Z-L-2,3-diaminopropionic acid)		
Diamino Butyric Acid		
Fmoc-D-Dab(Boc)-OH (2-Fmoc-4-Boc-D-2,4-diaminobutyric acid)	114360-56-4	
Fmoc-L-Dab(Boc)-OH (2-Fmoc-4-Boc-L-2,4-diaminobutyric acid)	125238-99-5	
Z-D-Dab(Boc)-OH (2-Z-4-Boc-D-2,4-diaminobutyric acid)		
Z-L-Dab(Boc)-OH (2-Z-4-Boc-L-2,4-diaminobutyric acid)		
Z-D-Dab(Z)-OH (2-Z-4-Z-D-2,4-diaminobutyric acid)		
Z-L-Dab(Z)-OH (2-Z-4-Z-L-2,4-diaminobutyric acid)		
Boc-D-Dab(Boc)-OH x DCHA (2-Boc-4-Boc-D-2,4-diaminobutyric acid x DCHA)		
Boc-L-Dab(Boc)-OH x DCHA (2-Boc-4-Boc-L-2,4-diaminobutyric acid x DCHA)	201472-66-4	BC-01-127
Boc-D-Dab(Fmoc)-OH (2-Boc-4-Fmoc-D-2,4-diaminobutyric acid)		
Boc-L-Dab(Fmoc)-OH (2-Boc-4-Fmoc-L-2,4-diaminobutyric acid)		
Boc-D-Dab(Z)-OH (2-Boc-4-Z-D-2,4-diaminobutyric acid)		
Boc-L-Dab(Z)-OH (2-Boc-4-Z-L-2,4-diaminobutyric acid)		

PEPTIDOMIMETIC BUILDING BLOCKS AND SPECIAL AMINO ACIDS

β-Amino Acids, Amino Alcohols		
Fmoc-L-β-Proline		
Fmoc-D-β-Proline		
Boc-L-β-Proline		
Boc-D-β-Proline		
Fmoc-(*R*)-β_3-Homoalanine (Fmoc-(*R*)-β_3-Homoalanine; Fmoc-(R)-3-aminobutanoic acid)	201864-71-3	FC-03-092
Fmoc-(*S*)-β_3-Homoalanine (Fmoc-(*S*)-β_3-Homoalanine; Fmoc-(S)-3-aminobutanoic acid)	193954-26-6	FC-04-093

Product Name	CAS Number	Product Code
β-Amino Acids, Amino Alcohols *continued*		
Fmoc-(*R*)-β_3-Homophenylalanine (Fmoc-(*R*)-β_3-Homophenylalanine)	209252-16-4	FC-03-094
Fmoc-(*S*)-β_3-Homophenylalanine (Fmoc-(*S*)-β_3-Homophenylalanine)	193954-28-8	FC-04-095
Amino Alcohols		
Boc-L-Hyp-ol (Boc-L-4-trans-hydroxyprolinol)	61478-26-0	BC-01-134
Z-L-β-Prolinol	124391-76-0	CB-01-120
Z-D-β-Prolinol	192214-05-4	CB-02-121
(H-L-Thr(tBu)-ol)$_2$-di-O-benzoyl-L-tartaric acid		AA-01-111
Unusual Amino Acids		
Fmoc-L-Hyp(tBu)-OH (Fmoc-O-tert.-butyl-L-trans-4-hydroxyproline)	122996-47-8	FC-01-032
Boc-L-trans-4-Hyp-OMe (Boc-L-trans-4-hydroxyproline methyl ester)	74844-91-0	BC-01-135
Fmoc-D-Nle-OH (Fmoc-D-norleucine; Fmoc-D-2-aminohexanoic acid)	112883-41-7	FC-02-090
Fmoc-L-Nle-OH (Fmoc-L-norleucine; Fmoc-L-2-aminohexanoic acid)	77284-32-3	FC-01-085
Boc-D-Nle-OH (oil) (Boc-D-norleucine; Boc-D-2-aminohexanoic acid)	55674-630	BC-02-125
Boc-L-Nle-OH (oil) (Boc-L-norleucine; Boc-L-2-aminohexanoic acid)		
Boc-L-Tpi-OH (Boc-L-1,2,3,4-tetrahydronorharman-3-carboxylic acid; Boc-L-tryptoline-3-carboxylic acid)	66863-43-2	BC-01-120
Boc-D-Tpi-OH (Boc-D-1,2,3,4-tetrahydronorharman-3-carboxylic acid; Boc-D-tryptoline-3-carboxylic acid)	123910-26-9	BC-02-118
Fmoc-L-Tyr(3-Cl)-OH (Fmoc-D-3-chlorotyrosine)	478183-58-3	FC-01-080

CONTACT CORDEN PHARMA SWITZERLAND FOR AMINO ACID DERIVATIVES

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