



# ChemFiles

## Unnatural Amino Acids:

Tools for Drug Discovery

非天然アミノ酸類

**Vol. 4 No. 5**

3-Amino-3-Aryl-Propionic Acids

3-Amino-4-Aryl-Butyric Acids

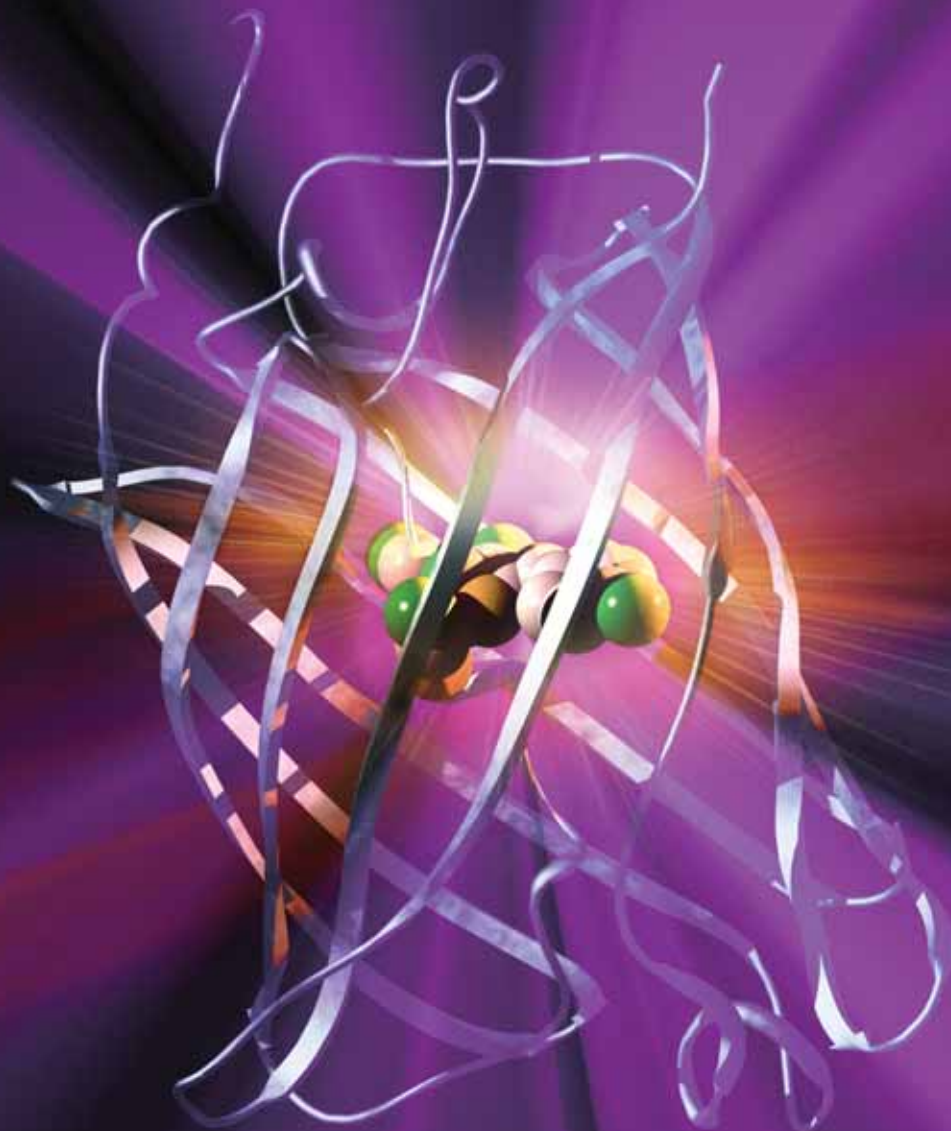
$\beta^3$ -Homo-Amino Acids

Ring-Substituted Phenylalanine Derivatives

$\alpha$ -Phenylglycine Derivatives

Alicyclic Amino Acids

Amino Acids with Aromatic Spacers



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## Introduction

Unnatural amino acids are utilized as building blocks, conformational constraints, molecular scaffolds, and pharmacologically active products. They represent a nearly infinite array of diverse structural elements for the development of new therapeutic drugs. Small-molecule combinatorial libraries containing unnatural amino acid residues already show remarkable impact on drug discovery processes. Novel short-chain peptide ligand mimetics with both enhanced biological activity and proteolytic resistance are drug candidates in today's R&D pipelines

of pharmaceutical companies. Optimized and fine-tuned analogues of peptidic substrates, inhibitors, or effectors are also excellent analytical tools for investigating signal transduction pathways or gene regulation.

Sigma-Aldrich is a leading supplier of products for Peptide and Peptidomimetic Synthesis. Due to the increasing relevance of the design of peptidomimetics and peptide analogues in the pharmaceutical industry, we are pleased to offer a unique and broad range of more than 700 unnatural amino acids.

## What is New?

Sigma-Aldrich is pleased to introduce 120 new additions to the portfolio of unnatural amino acids in this *ChemFile*. New structural classes, offering simultaneous main-chain and side-chain

modifications such as ring-substituted  $\beta$ -phenylalanines and  $\beta$ -homophenylalanines, are highlighted.

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Sigma-Aldrich is committed to being your preferred supplier of building blocks and tools for Drug Discovery. Our wide range of high-quality products, superior distribution facilities, user friendly ordering systems, and vast chemical knowledge make us the ideal source for all of your research and development needs in this area. A strong example of our commitment is the introduction of hundreds of new products

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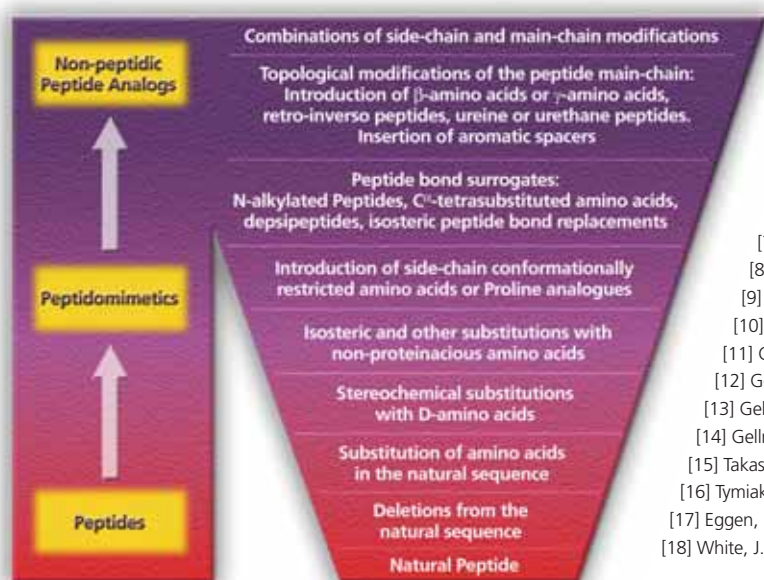
## Synthesis of Peptidomimetics

The discovery of a multitude of naturally occurring bioactive peptides has revealed a wealth of pharmacophores, which are used by medicinal chemists in their effort to develop new therapeutic drugs. After binding to an enzyme or a membrane receptor, peptide-based inhibitors, neurotransmitters, immunomodulators, and hormones influence cell-to-cell communication and control a variety of vital functions such as metabolism, immune-defense, digestion, respiration, sensitivity to pain, reproduction, and behaviour. Although naturally occurring peptides based on proteinaceous, coded amino acids find wide applications as drugs,<sup>[1]</sup> major drawbacks such as rapid metabolism by proteolysis and interactions at multiple receptors limit their use as therapeutic agents. As a result, peptidomimetics have found increasing recognition as advantageous surrogates offering improved in-vivo stability, enhanced potency, better oral adsorption, improved tissue distribution, increased selectivity of biological response, and finally a more simple synthesis compared with the natural peptide.<sup>[2,3]</sup> They form the basis of important families of enzyme inhibitors and they act as receptor agonists and antagonists. The transition from pure short chain peptide to non-peptide analogues is rather seamless in many launched and developmental drugs (Scheme 1).

The design of peptidomimetic drugs requires the utilization and combination of computer-assisted molecular modeling, modern spectroscopic and NMR-techniques, and X-ray diffraction analysis. It is evident that the development of new, promising peptidomimetics is based primarily on the knowledge of the complementary conformation as well as the topochemical and electronic properties of both the native bioactive peptide and the target. Several structural factors have to be taken into particular account:

- The favorable fit (tertiary structure) with respect to the corresponding complementary spatial situation at the active site (target)
- Functional groups, polar and hydrophobic regions, in well-defined positions enabling the required interactions (e.g., hydrogen bonding, electrostatic or hydrophobic interactions)
- The conformational flexibility of most peptides and the relationship between the conformation in solution and the receptor-bound conformation

The incorporation of  $\beta$ -amino acids into peptides as main-chain modification has become an area of increasing interest<sup>[4]</sup> and the synthesis of pure  $\beta$ -peptides, e.g., an  $\beta^3$ -eicosapeptide containing homologues of the 20 proteinaceous amino acids,<sup>[5]</sup> has recently been published.  $\beta$ -Peptides turned out to be stable to common peptidases for at least two days.<sup>[6]</sup> Recently, a cyclic  $\beta$ -tetrapeptide was synthesized with biological activity similar to somatostatin, an important endogenous neurotransmitter and inhibitor of hormone secretion.<sup>[7]</sup> Systematic replacement of an  $\alpha$ -amino acid by a  $\beta$ -amino acid residue resulted in a hybrid oligopeptide, which binds to major histocompatibility complex (MHC) proteins, while showing enhanced stability towards proteolysis.<sup>[8,9]</sup> Another important aspect of  $\beta$ -peptide oligomers is their ability to fold into well-defined and stable helical-, turn- and pleated sheet-conformations in solution.<sup>[10-13]</sup> A  $\beta$ -peptide forming a two-stranded  $\beta$ -pleated sheet connected by a hairpin turn was created and analysed by NMR in solution by Seebach and co-workers. This sheet-and-turn structure complements the similar structure described by Gellman et al.<sup>[14]</sup> by revealing the opposite orientation of the net dipole. Further remarkable applications of  $\beta$ -amino acids are their use as protease inhibitors,<sup>[15]</sup> precursors for antibiotics,<sup>[16]</sup> and building blocks in cryptophycins.<sup>[17,18]</sup>



Scheme 1

### References:

- [1] Loffet, A. *J. Pep. Sci.* **2002**, *8*, 1.
- [2] Kazmierski, W. M. *Methods in Molecular Medicine: Peptidomimetic protocols*; Humana: Totowa, NJ, 1999.
- [3] Abel, A. *Advances in Amino Acid Mimetics and Peptidomimetics*. JAI: Stamford, 1999; Vol. 2.
- [4] Borman, S. *Chem. Eng. News* **1999**, *77* (10), 27.
- [5] Kimmerlin, T.; Seebach, D. *Helv. Chim. Acta* **2003**, *86*, 2098.
- [6] Seebach, D.; Matthews, J. L. *Chem. Comm.* **1997**, 2015.
- [7] Seebach, D.; et al. *Angew. Chem. Int. Ed.* **1999**, *38*, 1223.
- [8] Rognan, D.; et al. *J. Med. Chem.* **1999**, *42*, 2318.
- [9] Rognan, D.; et al. *J. Biol. Chem.* **2001**, *27*, 24525.
- [10] Seebach, D.; et al. *Angew. Chem. Int. Ed.* **1999**, *38*, 1595.
- [11] Gademann, K.; et al. *Helv. Chim. Acta* **1999**, *82*, 1.
- [12] Gellman, S. H.; et al. *J. Am. Chem. Soc.* **1999**, *121*, 6206.
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- [14] Gellman, S. H.; et al. *J. Am. Chem. Soc.* **1998**, *120*, 10555.
- [15] Takashiro et al. *Bioorg. & Med. Chem.* **1999**, *7*, 2063.
- [16] Tymiak, A. A.; et al. *J. Org. Chem.* **1989**, *54*, 1149.
- [17] Eggen, M.; et al. *Org. Lett.* **2001**, *12*, 1813.
- [18] White, J. D. *J. Org. Chem.* **1999**, *64*, 6206.



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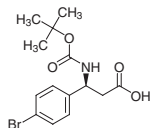
ファインケミカル事業部 TEL:03-5796-7340 FAX:03-5796-7345 E-mail:sialjpcf@sial.com

# 1. β-Amino Acids

## 1.1 3-Amino-3-Aryl-Propionic Acid Derivatives—Ring-Substituted β-Phenylalanines

### (S)-Boc-4-bromo-β-Phe-OH, ≥98.0% HPLC

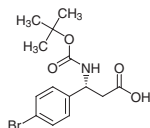
(S)-3-(Boc-amino)-3-(4-bromophenyl)propionic acid,  
Boc-4-bromo-D-β-Phe-OH  
**93123** **NEW**  
C<sub>14</sub>H<sub>18</sub>BrNO<sub>4</sub>  
[261165-06-4]  
Mw 344.20



500 mg ¥42,700

### (R)-Boc-4-bromo-β-Phe-OH, ≥98.0% HPLC

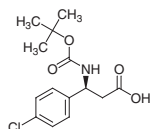
(R)-3-(Boc-amino)-3-(4-bromophenyl)propionic acid,  
Boc-4-bromo-L-β-Phe-OH  
**74037** **NEW**  
C<sub>14</sub>H<sub>18</sub>BrNO<sub>4</sub>  
Mw 344.20  
[261380-20-5]



500 mg ¥42,700

### (S)-Boc-4-chlor-β-Phe-OH, ≥98.0% HPLC

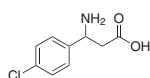
(S)-3-(Boc-amino)-3-(4-chlorophenyl)propionic acid,  
Boc-4-chloro-D-β-Phe-OH  
**19343** **NEW**  
C<sub>14</sub>H<sub>18</sub>ClNO<sub>4</sub>  
Mw 299.75  
[479064-90-9]



500 mg ¥42,700

### 3-Amino-3-(4-chlorophenyl)propionic acid, 97.0%

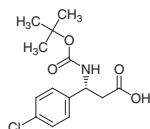
H-2-chloro-DL-β-Phe-OH  
**57,335-3** **NEW**  
C<sub>9</sub>H<sub>10</sub>ClNO<sub>2</sub>  
Mw 199.63  
[19947-39-8]



1 g ¥7,200  
5 g ¥27,400

### (R)-Boc-4-chloro-β-Phe-OH, ≥98.0% HPLC

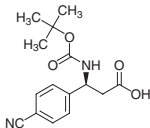
(R)-3-(Boc-amino)-3-(4-chlorophenyl)propionic acid,  
Boc-4-chloro-L-β-Phe-OH  
**61902** **NEW**  
C<sub>14</sub>H<sub>18</sub>ClNO<sub>4</sub>  
Mw 299.75  
[479064-93-2]



500 mg ¥42,700

### (S)-Boc-4-cyano-β-Phe-OH, ≥98.0% HPLC

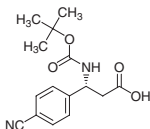
(S)-3-(Boc-amino)-3-(4-cyanophenyl)propionic acid,  
Boc-4-cyano-D-β-Phe-OH  
**44376** **NEW**  
C<sub>15</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub> (Available Soon!)  
Mw 290.31  
[500770-82-1]



500 mg ¥42,700

### (R)-Boc-4-cyano-β-Phe-OH, ≥98.0% HPLC

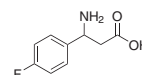
(R)-3-(Boc-amino)-3-(4-cyanophenyl)propionic acid,  
Boc-4-cyano-L-β-Phe-OH  
**12339** **NEW**  
C<sub>15</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub> (Available Soon!)  
Mw 290.31  
[501015-22-1]



500 mg ¥42,700

### 3-Amino-3-(4-fluorophenyl)propionic acid, 97.0%

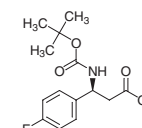
H-4-fluoro-DL-β-Phe-OH  
**57,341-8** **NEW**  
C<sub>9</sub>H<sub>10</sub>FNO<sub>2</sub>  
Mw 183.18  
[325-89-3]



1 g ¥19,600

### (S)-Boc-4-fluoro-β-Phe-OH, ≥98.0% HPLC

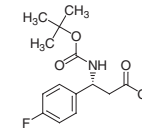
(S)-3-(Boc-amino)-3-(4-fluorophenyl)propionic acid,  
Boc-4-fluoro-D-β-Phe-OH  
**05102** **NEW**  
C<sub>14</sub>H<sub>18</sub>FNO<sub>4</sub>  
Mw 283.30  
[479064-88-5]



500 mg ¥44,000

### (R)-Boc-4-fluoro-β-Phe-OH, ≥98.0% HPLC

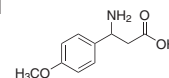
(R)-3-(Boc-amino)-3-(4-fluorophenyl)propionic acid,  
Boc-4-fluoro-L-β-Phe-OH  
**51006** **NEW**  
C<sub>14</sub>H<sub>18</sub>FNO<sub>4</sub>  
Mw 283.30  
[479064-94-3]



500 mg ¥44,000

### 3-Amino-3-(4-methoxyphenyl)propionic acid, 97.0%

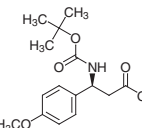
H-4-methoxy-DL-β-Phe-OH  
**57,338-8** **NEW**  
C<sub>10</sub>H<sub>13</sub>NO<sub>3</sub>  
Mw 195.22  
[5678-45-5]



1 g ¥17,100

### (S)-Boc-4-methoxy-β-Phe-OH, ≥98.0% HPLC

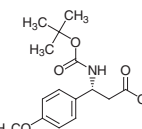
(S)-3-(Boc-amino)-3-(4-methoxyphenyl)propionic acid,  
Boc-D-β-Tyr(Me)-OH  
**69456** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>5</sub>  
Mw 295.33  
[159990-12-2]



500 mg ¥42,700

### (R)-Boc-4-methoxy-β-Phe-OH, ≥98.0% HPLC

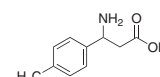
(R)-3-(Boc-amino)-3-(4-methoxyphenyl)propionic acid,  
Boc-β-Tyr(Me)-OH  
**56999** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>5</sub>  
Mw 295.33  
[500788-87-4]



500 mg ¥42,700

### 3-Amino-3-(4-methylphenyl)propionic acid, 97.0%

H-4-methyl-DL-β-Phe-OH  
**57,334-5** **NEW**  
C<sub>10</sub>H<sub>13</sub>NO<sub>2</sub>  
Mw 179.22  
[68208-18-4]



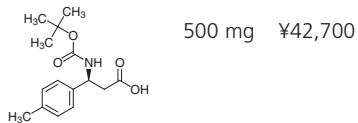
1 g ¥7,900  
5 g ¥30,000

## 1.1 3-Amino-3-Aryl-Propionic Acid Derivatives—Ring-Substituted $\beta$ -Phenylalanines (continued)

### (S)-Boc-4-methyl- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-3-(4-methylphenyl)propionic acid,  
Boc-4-methyl-D- $\beta$ -Phe-OH

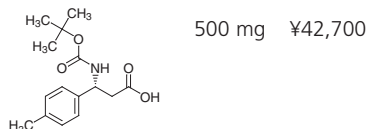
**90298** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.33  
[479064-96-5]



### (R)-Boc-4-methyl- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Boc-amino)-3-(4-methylphenyl)propionic acid,  
Boc-4-methyl-L- $\beta$ -Phe-OH

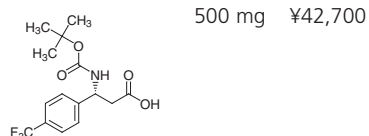
**90297** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.33  
[479064-97-6]



### (R)-Boc-4-(trifluoromethyl)- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Boc-amino)-3-[4-(trifluoromethyl)phenyl]propionic acid,  
Boc-4-(trifluoromethyl)-L- $\beta$ -Phe-OH

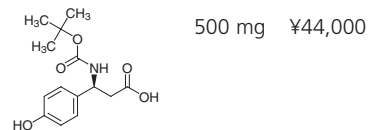
**73999** **NEW**  
C<sub>15</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 333.30  
[501015-19-6]



### (S)-Boc- $\beta$ -Tyr-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-3-(4-hydroxyphenyl)propionic acid,  
Boc-D- $\beta$ -tyrosine

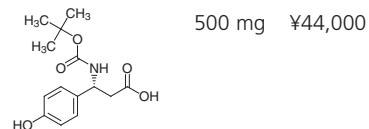
**56996** **NEW**  
C<sub>14</sub>H<sub>19</sub>NO<sub>5</sub>  
Mw 281.30  
[499995-80-1]



### (R)-Boc- $\beta$ -Tyr-OH, $\geq 97.0\%$ HPLC

(R)-3-(Boc-amino)-3-(4-hydroxyphenyl)propionic acid,  
Boc-L- $\beta$ -tyrosine

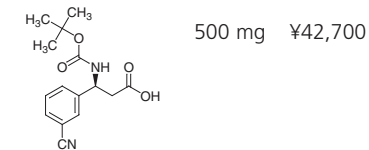
**89090** **NEW**  
C<sub>14</sub>H<sub>19</sub>NO<sub>5</sub>  
Mw 281.30  
[329013-12-9]



### (S)-Boc-3-cyano- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-3-(3-cyanophenyl)propionic acid,  
Boc-3-cyano-D- $\beta$ -Phe-OH

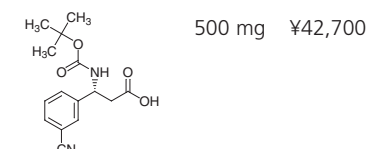
**56998** **NEW**  
C<sub>15</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 290.31  
[500770-81-0] **(Available Soon!)**



### (R)-Boc-3-cyano- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Boc-amino)-3-(3-cyanophenyl)propionic acid,  
Boc-3-cyano-L- $\beta$ -Phe-OH

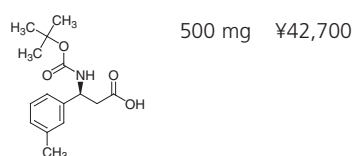
**89178** **NEW**  
C<sub>15</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 290.31  
[501015-21-0] **(Available Soon!)**



### (S)-Boc-3-methyl- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-3-(3-methylphenyl)propionic acid,  
Boc-3-methyl-D- $\beta$ -Phe-OH

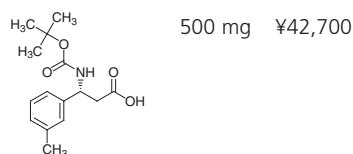
**59967** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.33  
[499995-75-4]



### (R)-Boc-3-methyl- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Boc-amino)-3-(3-methylphenyl)propionic acid,  
Boc-3-methyl-L- $\beta$ -Phe-OH

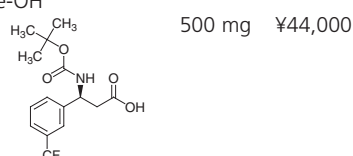
**42722** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.33  
[464930-76-5]



### (S)-Boc-3-(trifluoromethyl)- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-3-[3-(trifluoromethyl)phenyl]propionic acid,  
Boc-3-(trifluoromethyl)-D- $\beta$ -Phe-OH

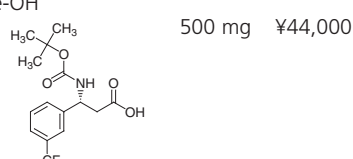
**69418** **NEW**  
C<sub>15</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 333.30  
[500770-78-5]



### (R)-Boc-3-(trifluoromethyl)- $\beta$ -Phe-OH, $\geq 95.0\%$ HPLC

(R)-3-(Boc-amino)-3-[3-(trifluoromethyl)phenyl]propionic acid,  
Boc-3-(trifluoromethyl)-L- $\beta$ -Phe-OH

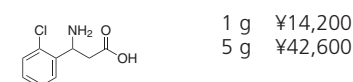
**18328** **NEW**  
C<sub>15</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 333.30  
[501015-18-5]



### 3-Amino-3-(2-chlorophenyl)propionic acid, 97.0%

H-2-chloro-DL- $\beta$ -Phe-OH

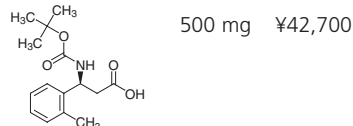
**57,336-1** **NEW**  
C<sub>9</sub>H<sub>10</sub>ClNO<sub>2</sub>  
Mw 199.63  
[68208-20-8]



### (S)-Boc-2-methyl- $\beta$ -Phe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-3-(2-methylphenyl)propionic acid,  
Boc-2-methyl-D- $\beta$ -Phe-OH

**06939** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.33  
[499995-74-3]



バルク供給/スケールアップのご相談は...

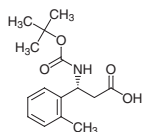
ファインケミカル事業部 TEL:03-5796-7340 FAX:03-5796-7345 E-mail:sialjpcf@sial.com

## 1.1 3-Amino-3-Aryl-Propionic Acid Derivatives—Ring-Substituted β-Phenylalanines (continued)

### (R)-Boc-2-methyl-β-Phe-OH, ≥98.0% HPLC

(R)-3-(Boc-amino)-3-(2-methylphenyl)propionic acid,  
Boc-2-methyl-L-β-Phe-OH

**06731** **NEW**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.33  
[500770-86-5]

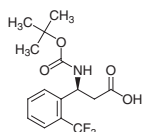


500 mg ¥42,700

### (S)-Boc-2-(trifluoromethyl)-β-Phe-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-3-[2-(trifluoromethyl)phenyl]propionic acid,  
Boc-2-(trifluoromethyl)-D-β-Phe-OH

**55685** **NEW**  
C<sub>15</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 333.30  
[500770-77-4]

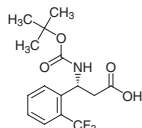


500 mg ¥44,000

### (R)-Boc-2-(trifluoromethyl)-β-Phe-OH, ≥98.0% HPLC

(R)-3-(Boc-amino)-3-[2-(trifluoromethyl)phenyl]propionic acid,  
Boc-2-(trifluoromethyl)-L-β-Phe-OH

**14670** **NEW**  
C<sub>15</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 333.30  
[501015-17-4]

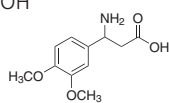


500 mg ¥44,000

### 3-Amino-3-(3,4-dimethoxyphenyl)propionic acid, 97.0%

H-3,4-dimethoxy-DL-β-Phe-OH

**57,342-6** **NEW**  
C<sub>11</sub>H<sub>15</sub>NO<sub>4</sub>  
Mw 225.24  
[34841-09-3]

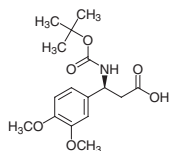


1 g ¥19,600

### (S)-Boc-3,4-dimethoxy-β-Phe-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-3-(3,4-dimethoxyphenyl)propionic acid,  
Boc-3,4-dimethoxy-D-β-Phe-OH

**04542** **NEW**  
C<sub>16</sub>H<sub>23</sub>NO<sub>6</sub>  
Mw 325.36  
[499995-84-5]

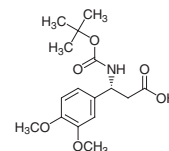


500 mg ¥44,000

### (R)-Boc-3,4-dimethoxy-β-Phe-OH, ≥98.0% HPLC

(R)-3-(Boc-amino)-3-(3,4-dimethoxyphenyl)propionic acid,  
Boc-3,4-dimethoxy-L-β-Phe-OH

**08009** **NEW**  
C<sub>16</sub>H<sub>23</sub>NO<sub>6</sub>  
Mw 325.36  
[500788-93-2]

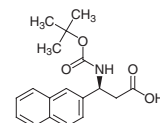


500 mg ¥44,000

### (S)-Boc-3-(2-naphthyl)-β-Ala-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-3-(2-naphthyl)propionic acid,  
D-Boc-3-(2-naphthyl)-D-β-Ala-OH

**66947** **NEW**  
C<sub>18</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 315.36  
[500770-69-4]

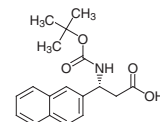


500 mg ¥42,700

### (R)-Boc-3-(2-naphthyl)-β-Ala-OH, ≥98.0% HPLC

(R)-3-(Boc-amino)-3-(2-naphthyl)propionic acid,  
Boc-3-(2-naphthyl)-L-β-Ala-OH

**78664** **NEW**  
C<sub>18</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 315.36  
[500789-01-5]

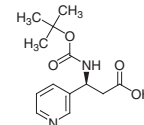


500 mg ¥42,700

### (S)-Boc-3-(3-pyridyl)-β-Ala-OH, ≥97.0% HPLC

(S)-3-(Boc-amino)-3-(3-pyridyl)propionic acid,  
Boc-3-(3-pyridyl)-D-β-Ala-OH

**44025** **NEW**  
C<sub>13</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 266.29  
[297773-45-6]

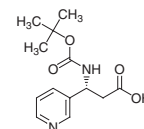


500 mg ¥71,900

### (R)-Boc-3-(3-pyridyl)-β-Ala-OH, ≥96.0% HPLC

(R)-3-(Boc-amino)-3-(3-pyridyl)propionic acid,  
Boc-3-(3-pyridyl)-L-β-Ala-OH

**72722** **NEW**  
C<sub>13</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 266.29  
[500788-96-5]



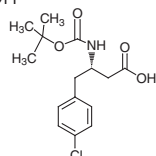
500 mg ¥71,900

## 1.2 3-Amino-4-Aryl-Butyric Acid Derivatives—Ring-Substituted β-Homophenylalanines

### (S)-Boc-4-chloro-β-Homophe-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-4-(4-chlorophenyl)butyric acid,  
Boc-4-chloro-L-β-Homophe-OH

**81771** **NEW**  
C<sub>15</sub>H<sub>20</sub>ClNO<sub>4</sub>  
Mw 313.78  
[270596-42-4]

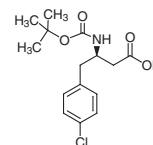


500 mg ¥36,000

### (R)-Boc-4-chloro-β-Homophe-OH, ≥98.0% HPLC

(R)-3-(Boc-amino)-4-(4-chlorophenyl)butyric acid,  
Boc-4-chloro-D-β-Homophe-OH

**73086** **NEW**  
C<sub>15</sub>H<sub>20</sub>ClNO<sub>4</sub>  
Mw 313.78  
[218608-96-9]



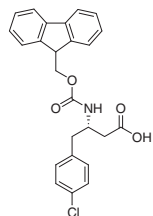
500 mg ¥36,000

## 1.2 3-Amino-4-Aryl-Butyric Acid Derivatives—Ring-Substituted $\beta$ -Homophenylalanines (continued)

### (S)-Fmoc-4-chloro- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Fmoc-amino)-4-(4-chlorophenyl)butyric acid  
Fmoc-4-chloro-L- $\beta$ -Homophe-OH

**94492** **NEW**  
C<sub>25</sub>H<sub>22</sub>ClNO<sub>4</sub>  
Mw 435.90

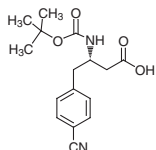


500 mg ¥38,700

### (S)-Boc-4-cyano- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-4-(4-cyanophenyl)butyric acid,  
Boc-4-cyano-L- $\beta$ -Homophe-OH

**81834** **NEW** (Available Soon!)  
C<sub>16</sub>H<sub>20</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 304.34  
[270065-89-9]

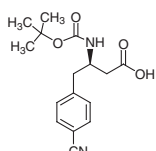


500 mg ¥53,300

### (R)-Boc-4-cyano- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Boc-amino)-4-(4-cyanophenyl)butyric acid,  
Boc-4-cyano-D- $\beta$ -Homophe-OH

**90368** **NEW** (Available Soon!)  
C<sub>16</sub>H<sub>20</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 304.34  
[269726-86-5]

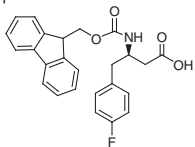


500 mg ¥53,300

### (R)-Fmoc-4-fluoro- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Fmoc-amino)-4-(4-fluorophenyl)butyric acid,  
Fmoc-4-fluoro-D- $\beta$ -Homophe-OH

**87084** **NEW**  
C<sub>25</sub>H<sub>23</sub>FNO<sub>4</sub>  
Mw 419.44  
[331763-70-3]

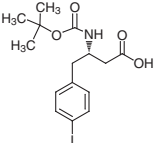


500 mg ¥44,000

### (S)-Boc-4-iodo- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-4-(4-iodophenyl)butyric acid,  
Boc-4-iodo-L- $\beta$ -Homophe-OH

**86251** **NEW**  
C<sub>15</sub>H<sub>20</sub>INO<sub>4</sub>  
Mw 405.23  
[270065-71-9]

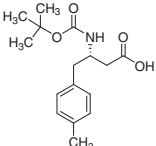


500 mg ¥36,000

### (S)-Boc-4-methyl- $\beta$ -Homophe-OH, $\geq 97.0\%$ HPLC

(S)-3-(Boc-amino)-4-(4-methylphenyl)butyric acid,  
Boc-4-methyl-L- $\beta$ -Homophe-OH

**94557** **NEW**  
C<sub>16</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 293.36

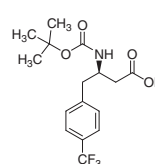


500 mg ¥36,000

### (R)-Boc-4-trifluoromethyl- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(R)-3-(Boc-amino)-4-[4-(trifluoromethyl)phenyl]butyric acid,  
Boc-4-(trifluoromethyl)-D- $\beta$ -Homophe-OH

**94592** **NEW**  
C<sub>16</sub>H<sub>20</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 347.33

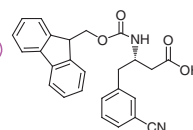


500 mg ¥53,300

### (S)-Fmoc-3-cyano- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Fmoc-amino)-4-(3-cyanophenyl)butyric acid,  
Fmoc-3-cyano-L- $\beta$ -Homophe-OH

**81791** **NEW** (Available Soon!)  
C<sub>26</sub>H<sub>22</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 426.46  
[270065-87-7]

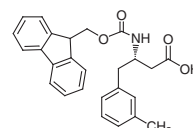


500 mg ¥53,300

### (S)-Fmoc-3-methyl- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Fmoc-amino)-4-(3-methylphenyl)butyric acid,  
Fmoc-3-methyl-L- $\beta$ -Homophe-OH

**80587** **NEW**  
C<sub>26</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 415.48  
[270062-94-7]

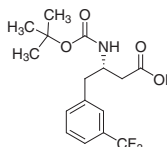


500 mg ¥44,000

### (S)-Boc-3-trifluoromethyl- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-4-[3-(trifluoromethyl)phenyl]butyric acid,  
Boc-3-(trifluoromethyl)-L- $\beta$ -Homophe-OH

**94603** **NEW**  
C<sub>26</sub>H<sub>22</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 469.45

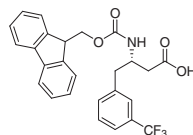


500 mg ¥53,300

### (S)-Fmoc-3-trifluoromethyl- $\beta$ -Homophe-OH, $\geq 97.0\%$ HPLC

(S)-3-(Fmoc-amino)-4-[3-(trifluoromethyl)phenyl]butyric acid,  
Fmoc-3-(trifluoromethyl)-L- $\beta$ -Homophe-OH

**94591** **NEW**  
C<sub>26</sub>H<sub>22</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 469.45

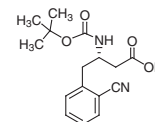


500 mg ¥53,300

### (S)-Boc-2-cyano- $\beta$ -Homophe-OH, $\geq 98.0\%$ HPLC

(S)-3-(Boc-amino)-4-(2-cyanophenyl)butyric acid,  
Boc-2-cyano-L- $\beta$ -Homophe-OH

**91919** **NEW** (Available Soon!)  
C<sub>16</sub>H<sub>20</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 304.34  
[270065-83-3]



500 mg ¥53,300



バルク供給/スケールアップのご相談は...

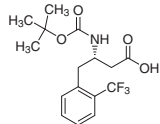
ファインケミカル事業部 TEL:03-5796-7340 FAX:03-5796-7345 E-mail:sialjpcf@sial.com

## 1.2 3-Amino-4-Aryl-Butyric Acid Derivatives—Ring-Substituted β-Homophenylalanines (continued)

### (S)-Boc-2-trifluoromethyl-β-Homophe-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-4-[2-(trifluoromethyl)phenyl]butyric acid,  
Boc-2-(trifluoromethyl)-L-β-Homophe-OH

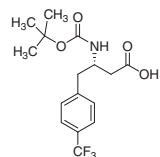
**81998** NEW 500 mg ¥53,300  
C<sub>16</sub>H<sub>20</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 347.33  
[270065-74-2]



### (S)-Boc-4-trifluoromethyl-β-Homophe-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-4-[4-(trifluoromethyl)phenyl]butyric acid,  
Boc-4-(trifluoromethyl)-L-β-Homophe-OH

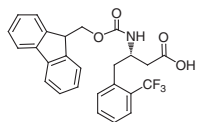
**87943** NEW 500 mg ¥53,300  
C<sub>16</sub>H<sub>20</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 347.33  
[270065-80-0]



### (S)-Fmoc-2-trifluoromethyl-β-Homophe-OH, ≥98.0% HPLC

(S)-3-(Fmoc-amino)-4-[2-(trifluoromethyl)phenyl]butyric acid,  
Fmoc-2-(trifluoromethyl)-L-β-Homophe-OH

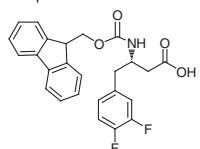
**73801** NEW 500 mg ¥53,300  
C<sub>26</sub>H<sub>22</sub>F<sub>3</sub>NO<sub>4</sub>  
Mw 469.45  
[270065-75-3]



### (S)-Fmoc-3,4-difluoro-β-Homophe-OH, ≥98.0% HPLC

(S)-3-(Fmoc-amino)-4-(3,4-difluorophenyl)butyric acid,  
Fmoc-3,4-difluoro-L-β-Homophe-OH

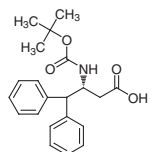
**88574** NEW 500 mg ¥52,900  
C<sub>25</sub>H<sub>21</sub>F<sub>2</sub>NO<sub>4</sub>  
Mw 437.44  
[270063-55-3]



### (S)-Boc-4,4-diphenyl-β-Homoala-OH, ≥98.0% HPLC

(S)-3-(Boc-amino)-4,4-diphenylbutyric acid  
Fmoc-4,4-diphenyl-L-β-Homoala-OH

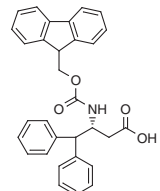
**82007** NEW 500 mg ¥79,900  
C<sub>21</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 355.43  
[190190-50-2]



### (S)-Fmoc-4,4-diphenyl-β-Homoala-OH, ≥98.0% HPLC

(S)-3-(Fmoc-amino)-4,4-diphenylbutyric acid,  
Fmoc-4,4-diphenyl-D-β-Homoala-OH

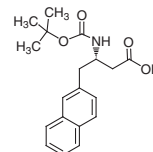
**89846** NEW 500 mg ¥79,900  
C<sub>31</sub>H<sub>27</sub>NO<sub>4</sub>  
Mw 477.55  
[332062-08-5]



### (S)-3-(Boc-amino)-4-(2-naphthyl)butyric acid, ≥98.0% HPLC

Boc-4-(2-naphthyl)-L-β-homoalanine, Boc-β-2-Homonal-OH

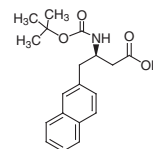
**88927** NEW 500 mg ¥36,000  
C<sub>19</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 329.39  
[219297-11-7]



### (R)-3-(Boc-amino)-4-(2-naphthyl)butyric acid, ≥98.0% HPLC

Boc-4-(2-naphthyl)-D-β-Homoala-OH, Boc-D-β-2-Homonal-OH

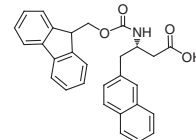
**73300** NEW 500 mg ¥36,000  
C<sub>19</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 329.39  
[219297-10-6]



### (S)-3-(Fmoc-amino)-4-(2-naphthyl)butyric acid, ≥97.0% HPLC

Fmoc-4-(2-naphthyl)-L-β-Homoala-OH, Fmoc-β-2-Homonal-OH

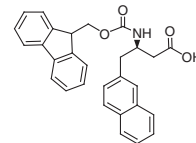
**72829** NEW 500 mg ¥44,000  
C<sub>29</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 451.51  
[270063-40-6]



### (R)-3-(Fmoc-amino)-4-(2-naphthyl)butyric acid, ≥95.0% HPLC

Fmoc-4-(2-naphthyl)-D-β-Homoala-OH, Fmoc-D-β-2-Homonal-OH

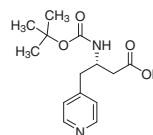
**70796** NEW 500 mg ¥44,000  
C<sub>29</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 451.51  
[269398-91-6]



### (S)-Boc-4-(4-pyridyl)-β-Homoala-OH, ≥97.0% HPLC

(S)-3-(Boc-amino)-4-(4-pyridyl)butyric acid,  
Boc-4-(4-pyridyl)-L-β-Homoala-OH

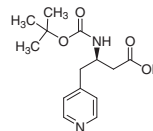
**93647** NEW 500 mg ¥79,900  
C<sub>14</sub>H<sub>20</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 280.32  
[219297-13-9]



### (R)-Boc-4-(4-pyridyl)-β-Homoala-OH, ≥98.0% HPLC

(R)-3-(Boc-amino)-4-(4-pyridyl)butyric acid,  
Boc-4-(4-pyridyl)-D-β-Homoala-OH

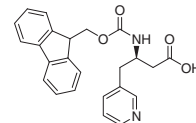
**95336** NEW 500 mg ¥79,900  
C<sub>14</sub>H<sub>20</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 280.32  
[269396-68-1]



### (R)-Fmoc-4-(3-pyridyl)-β-Homoala-OH, ≥98.0% HPLC

(R)-3-(Fmoc-amino)-4-(3-pyridyl)butyric acid,  
Fmoc-4-(3-pyridyl)-D-β-Homoala-OH

**73309** NEW 500 mg ¥79,900  
C<sub>24</sub>H<sub>22</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 402.44  
[269396-66-9]

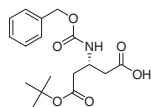


## 1.3 Other $\beta$ -Amino Acids Building Blocks

### Z- $\beta$ -Glu(OtBu)-OH, $\geq 94\%$ HPLC

Z-D- $\beta$ -glutamic acid 5-tert.-butyl ester,  
Z-L- $\beta$ -homospartic acid 5-tert.-butyl ester

**94064** **NEW**  
C<sub>17</sub>H<sub>23</sub>NO<sub>6</sub>  
Mw 337.37  
[118247-88-4]

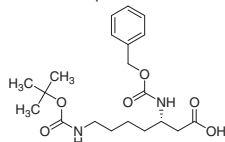


500 mg ¥36,300

### Z- $\beta$ -Homolys(Boc)-OH, $\geq 98.0\%$ TLC

(S)-7-(Boc-amino)-3-(Z-amino)heptanoic acid

**89848** **NEW**  
C<sub>20</sub>H<sub>30</sub>N<sub>2</sub>O<sub>6</sub>  
Mw 394.46

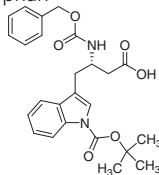


500 mg ¥32,000

### Z- $\beta$ -Homotr(p)(Boc)-OH, $\geq 97.0\%$ HPLC

N<sup>in</sup>-Boc-N <sup>$\beta$</sup> -Z-L- $\beta$ -homotryptophan

**76024** **NEW**  
C<sub>25</sub>H<sub>28</sub>N<sub>2</sub>O<sub>6</sub>  
Mw 452.50

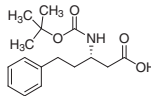


500 mg ¥41,100

### (S)-3-(Boc-amino)-5-phenyl-pentanoic acid, $\geq 97.0\%$ C

Boc-5-phenyl-L- $\beta$ -norvaline

**76144** **NEW**  
C<sub>16</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 293.36  
[218608-84-5]

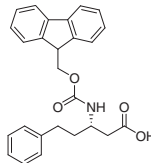


500 mg ¥36,000

### (S)-3-(Fmoc-amino)-5-phenyl-pentanoic acid, $\geq 95.0\%$ HPLC

Fmoc-5-phenyl-L- $\beta$ -norvaline

**94493** **NEW**  
C<sub>26</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 415.48  
[219967-74-5]

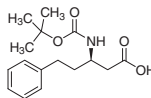


500 mg ¥42,300

### (R)-3-(Boc-amino)-5-phenyl-pentanoic acid, $\geq 97.0\%$ GC

Boc-5-phenyl-D- $\beta$ -norvaline

**78018** **NEW**  
C<sub>16</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 293.36  
[218608-83-4]

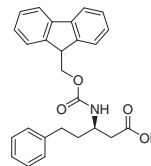


500 mg ¥36,000

### (R)-3-(Fmoc-amino)-5-phenyl-pentanoic acid, $\geq 95.0\%$ HPLC

Fmoc-5-phenyl-D- $\beta$ -norvaline

**92282** **NEW**  
C<sub>26</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 415.48  
[269398-87-0]

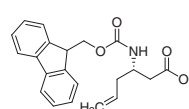


500 mg ¥44,000

### (S)-3-(Fmoc-amino)-5-hexenoic acid, $\geq 95.0\%$ HPLC

Fmoc-4-vinyl-L- $\beta$ -Homoala-OH

**75561** **NEW**  
C<sub>21</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 351.40  
[270263-04-2]

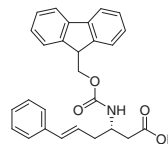


500 mg ¥53,300

### (S)-3-(Fmoc-amino)-6-phenyl-5-hexenoic acid, $\geq 97.0\%$ HPLC

Fmoc-4-styryl-L- $\beta$ -homoalanine

**87901** **NEW**  
C<sub>27</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 427.49

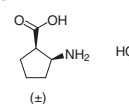


500 mg ¥53,300

### cis-2-Amino-1-cyclopentanecarboxylic acid hydrochloride, $\geq 95.0\%$ AT

cis- $\beta$ -Cycloleucine hydrochloride

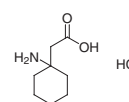
**30249** **NEW**  
C<sub>6</sub>H<sub>11</sub>NO<sub>2</sub> · HCl  
Mw 165.62  
[18414-30-7]



1 g ¥36,500

### 2-(1-Aminocyclohexyl)acetic acid hydrochloride, $\geq 95.0\%$ AT

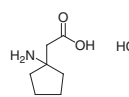
**93860** **NEW**  
C<sub>8</sub>H<sub>15</sub>NO<sub>2</sub> · HCl  
Mw 193.67  
[37631-99-5]



1 g ¥51,700

### 2-(1-Aminocyclopentyl)acetic acid hydrochloride, $\geq 95.0\%$ AT

**38965** **NEW**  
C<sub>7</sub>H<sub>13</sub>NO<sub>2</sub> · HCl  
Mw 179.64



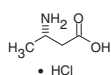
1 g ¥51,700



1.4 β<sup>3</sup>-Homologues of Proteinaceous Amino Acids

## L-β-Homoala-OH · HCl, ≥98.0%

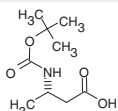
**03766**  
C<sub>4</sub>H<sub>9</sub>NO<sub>2</sub> · HCl  
Mw 139.58  
[58610-41-6]



250 mg ¥32,500  
1 g ¥105,500

## Boc-β-Homoala-OH, ≥98.0%

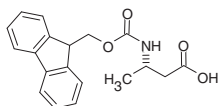
**14974**  
C<sub>9</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 203.24  
[158851-30-0]



250 mg ¥19,100  
1 g ¥52,900

## Fmoc-β-Homoala-OH, ≥98.0%

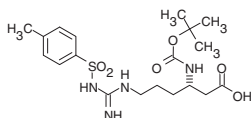
**47935**  
C<sub>19</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 325.36  
[193954-26-6]



1 g ¥60,100

## Boc-β-Homoarg(Tos)-OH, ≥98.0%

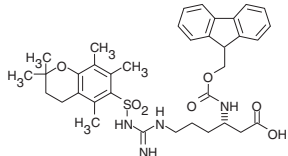
**03674**  
C<sub>19</sub>H<sub>30</sub>N<sub>4</sub>O<sub>6</sub>S  
Mw 442.52  
[136271-81-3]



250 mg ¥24,700  
1 g ¥68,600

## Fmoc-β-Homoarg(Pmc)-OH, ~97%

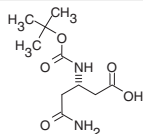
**03673**  
C<sub>36</sub>H<sub>42</sub>N<sub>4</sub>O<sub>7</sub>S  
Mw 674.81



100 mg ¥16,700  
500 mg ¥66,200

## Boc-β-Gln-OH, ≥98.0%

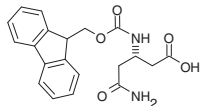
**03651**  
C<sub>10</sub>H<sub>18</sub>N<sub>2</sub>O<sub>5</sub>  
Mw 246.26



250 mg ¥23,300  
1 g ¥64,700

## Fmoc-β-Gln-OH, ≥98.0%

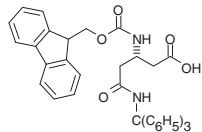
**03652**  
C<sub>20</sub>H<sub>20</sub>N<sub>2</sub>O<sub>5</sub>  
Mw 368.39



250 mg ¥25,100  
1 g ¥69,600

## Fmoc-β-Gln(Trt)-OH, ≥97.0%

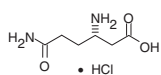
**18505**  
C<sub>39</sub>H<sub>34</sub>N<sub>2</sub>O<sub>5</sub>  
Mw 610.70  
[283160-20-3]



250 mg ¥25,200  
1 g ¥85,000

## H-β-Homogln-OH · HCl, ≥98.0%

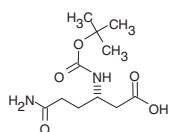
**03663**  
C<sub>6</sub>H<sub>12</sub>N<sub>2</sub>O<sub>3</sub> · HCl  
Mw 196.63



1 g ¥105,500

## Boc-β-Homogln-OH, ≥98.0%

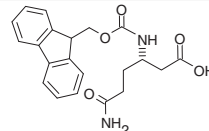
**03667**  
C<sub>11</sub>H<sub>20</sub>N<sub>2</sub>O<sub>5</sub>  
Mw 260.29



1 g ¥64,700

## Fmoc-β-Homogln-OH, ≥98.0%

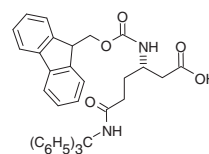
**03666**  
C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>5</sub>  
Mw 382.42  
[283160-17-8]



250 mg ¥25,100  
1 g ¥69,600

## Fmoc-β-Homogln(Trt)-OH, ≥97.0%

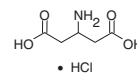
**64179**  
C<sub>40</sub>H<sub>36</sub>N<sub>2</sub>O<sub>5</sub>  
Mw 624.72



250 mg ¥25,200  
1 g ¥85,000

## H-β-Glu-OH · HCl, ≥98.0%

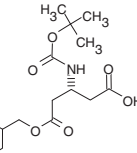
**03688**  
C<sub>5</sub>H<sub>9</sub>NO<sub>4</sub> · HCl  
Mw 183.59



100 mg ¥17,100  
500 mg ¥67,500

## Boc-β-Glu(OBzl)-OH, ≥98.0%

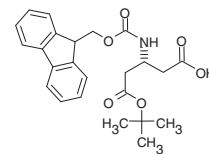
**03691**  
C<sub>17</sub>H<sub>23</sub>NO<sub>6</sub>  
Mw 337.37



250 mg ¥24,800  
1 g ¥68,800

## Fmoc-β-Glu(OtBu)-OH, ≥98.0%

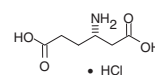
**03689**  
C<sub>24</sub>H<sub>27</sub>NO<sub>6</sub>  
Mw 425.48



250 mg ¥29,600  
1 g ¥82,100

## H-β-Homoglu-OH · HCl, ≥98.0%

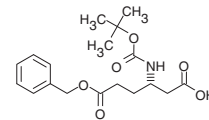
**03765**  
C<sub>6</sub>H<sub>11</sub>NO<sub>4</sub> · HCl  
Mw 197.62  
[61884-74-0]



100 mg ¥17,700  
500 mg ¥69,600

## Boc-β-Homoglu(OBzl)-OH, ≥98.0%

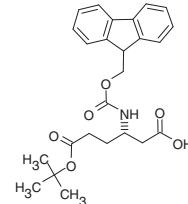
**14977**  
C<sub>18</sub>H<sub>25</sub>NO<sub>6</sub>  
Mw 351.4  
[61884-74-0]



1 g ¥60,400

## Fmoc-β-Homoglu(OtBu)-OH, ≥98.0%

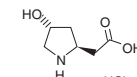
**47837**  
C<sub>25</sub>H<sub>29</sub>NO<sub>6</sub>  
Mw 439.51  
[203854-49-3]



1 g ¥68,800

## H-β-Homohyp-OH · HCl, ≥98.0%

**03698**  
C<sub>6</sub>H<sub>11</sub>NO<sub>3</sub> · HCl  
Mw 181.62

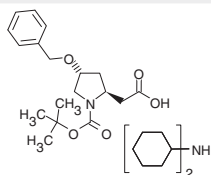


100 mg ¥18,700  
500 mg ¥70,400

## 1.4 β<sup>3</sup>-Homologues of Proteinacious Amino Acids (continued)

### Boc-β-Homohyp(Bzl)-OH · DCHA, ≥85.0%

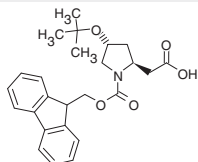
**03683**  
C<sub>18</sub>H<sub>25</sub>NO<sub>5</sub> · C<sub>12</sub>H<sub>23</sub>N  
Mw 516.71



250 mg ¥24,800  
1 g ¥68,800

### Fmoc-β-Homohyp(tBu)-OH, ≥98.0%

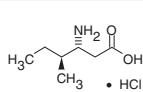
**03751**  
C<sub>25</sub>H<sub>29</sub>NO<sub>5</sub>  
Mw 423.51



100 mg ¥16,200  
500 mg ¥63,900

### H-β-Homoile-OH · HCl, ≥98.0%

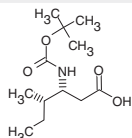
**03669**  
C<sub>7</sub>H<sub>15</sub>NO<sub>2</sub> · HCl  
Mw 181.66  
[219310-10-8]



250 mg ¥32,500

### Boc-β-Homoile-OH, ≥98.0%

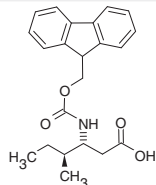
**03654**  
C<sub>12</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 245.32



250 mg ¥18,000  
1 g ¥58,300

### Fmoc-β-Homoile-OH, ≥98.0%

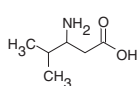
**03671**  
C<sub>22</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 367.45  
[193954-27-7]



250 mg ¥24,800  
1 g ¥68,800

### H-DL-β-Leu-OH, ≥98.0%

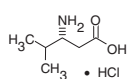
**17988**  
C<sub>6</sub>H<sub>13</sub>NO<sub>2</sub>  
Mw 131.17  
[5699-54-7]



1 g ¥10,000  
5 g ¥33,600

### H-β-Leu-OH · HCl, ≥98.0%

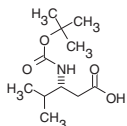
**03675**  
C<sub>6</sub>H<sub>13</sub>NO<sub>2</sub> · HCl  
Mw 167.63  
[219310-09-5]



250 mg ¥32,500  
1 g ¥105,500

### Boc-β-Leu-OH, ≥98.0%

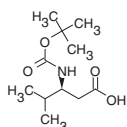
**03678**  
C<sub>11</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 231.29  
[183990-64-9]



250 mg ¥23,500  
1 g ¥64,700

### Boc-D-β-Leu-OH, ≥98.0%

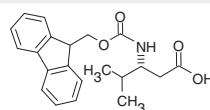
**80674**  
C<sub>11</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 231.29  
[179412-79-4]



250 mg ¥23,700  
1 g ¥76,900

### Fmoc-β-Leu-OH, ≥98.0%

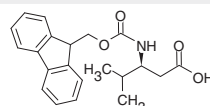
**03676**  
C<sub>21</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 353.42  
[172695-33-9]



250 mg ¥24,800  
1 g ¥68,800

### Fmoc-D-β-Leu-OH, ≥98.0%

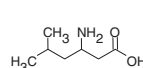
**73278**  
C<sub>21</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 353.24



250 mg ¥24,600  
1 g ¥80,000

### H-DL-β-Homoleu-OH, ≥99.0%

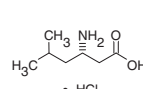
**21625**  
C<sub>7</sub>H<sub>15</sub>NO<sub>2</sub>  
Mw 145.20  
[3653-34-7]



1 g ¥13,400  
5 g ¥52,900

### H-β-Homoleu-OH · HCl, ≥98.0%

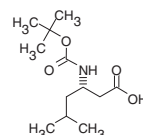
**03764**  
C<sub>7</sub>H<sub>15</sub>NO<sub>2</sub> · HCl  
Mw 181.66  
[96386-92-4]



250 mg ¥32,500  
1 g ¥105,500

### Boc-β-Homoleu-OH, ≥98.0%

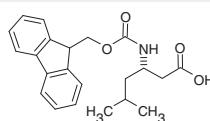
**14975**  
C<sub>12</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 245.32  
[132549-43-0]



250 mg ¥19,800  
1 g ¥54,900

### Fmoc-β-Homoleu-OH, ~98%

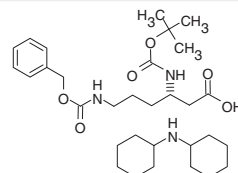
**47946**  
C<sub>22</sub>H<sub>25</sub>NO<sub>4</sub>  
Mw 367.45  
[193887-44-4]



250 mg ¥22,600  
1 g ¥61,100

### Boc-β-Lys(Z)-OH, DCHA, ≥98.0%

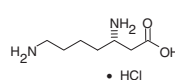
**52136**  
C<sub>19</sub>H<sub>28</sub>N<sub>2</sub>O<sub>6</sub> · C<sub>12</sub>H<sub>23</sub>N  
Mw 561.76



1 g ¥58,400

### H-β-Homolys-OH, · 2HCl, ≥98.0%

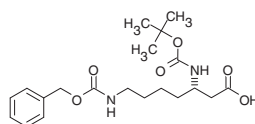
**03759**  
C<sub>7</sub>H<sub>16</sub>N<sub>2</sub>O<sub>2</sub> · 2HCl  
Mw 233.14



100 mg ¥17,100  
500 mg ¥67,500

### Boc-β-Homolys(Z)-OH, ≥98.0%

**14978**  
C<sub>20</sub>H<sub>30</sub>N<sub>2</sub>O<sub>6</sub>  
Mw 394.47



250 mg ¥21,700  
1 g ¥60,100



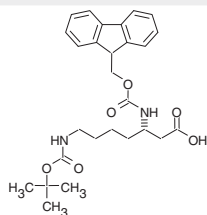
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1.4 β<sup>3</sup>-Homologues of Proteinaceous Amino Acids (continued)

## Fmoc-β-Homolys(Boc)-OH, ~97%

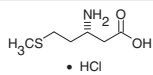
**47874**  
C<sub>27</sub>H<sub>34</sub>N<sub>2</sub>O<sub>6</sub>  
Mw 482.58  
[203854-47-1]



250 mg ¥25,000  
1 g ¥68,700

## H-β-Homomet-OH · HCl, ≥98.0%

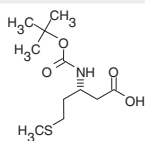
**03681**  
C<sub>6</sub>H<sub>13</sub>NO<sub>2</sub>S · HCl  
Mw 199.70



250 mg ¥32,500  
1 g ¥105,500

## Boc-β-Homomet-OH, ≥98.0%

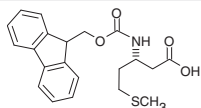
**03661**  
C<sub>11</sub>H<sub>21</sub>NO<sub>4</sub>S  
Mw 263.35



1 g ¥64,700

## Fmoc-β-Homomet-OH, ≥98.0%

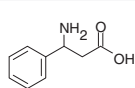
**03658**  
C<sub>21</sub>H<sub>23</sub>NO<sub>4</sub>S  
Mw 385.48



250 mg ¥25,100  
1 g ¥69,600

## H-DL-β-Phe-OH, ~99%

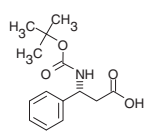
**71552**  
C<sub>9</sub>H<sub>11</sub>NO<sub>2</sub>  
Mw 165.19  
[614-19-7]



1 g ¥9,600  
5 g ¥37,800

## Boc-β-Phe-OH, ~98%

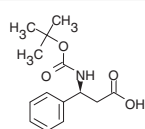
**09794**  
C<sub>14</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 265.31  
[161024-80-2]



250 mg ¥21,100  
1 g ¥67,000

## Boc-D-β-Phe-OH, ≥98.0%

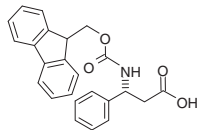
**09793**  
C<sub>14</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 265.31  
[103365-86-2]



250 mg ¥21,100  
1 g ¥68,500

## Fmoc-β-Phe-OH, ≥98.0%

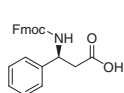
**09795**  
C<sub>24</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 387.44  
[220498-02-2]



100 mg ¥12,100  
500 mg ¥48,100

## Fmoc-D-β-Phe-OH, ≥98.0%

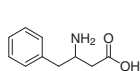
**00396**  
C<sub>24</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 387.44  
[209252-15-3]



100 mg ¥12,100  
500 mg ¥48,100

## H-DL-β-Homophe-OH, ≥98.0%

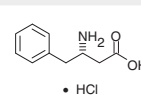
**28217**  
C<sub>10</sub>H<sub>13</sub>NO<sub>2</sub>  
Mw 179.22  
[15099-85-1]



1 g ¥15,600  
5 g ¥62,100

## H-β-Homophe-OH · HCl, ≥98.0%

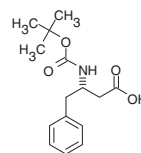
**03769**  
C<sub>10</sub>H<sub>13</sub>NO<sub>2</sub> · HCl  
Mw 215.68  
[138165-77-2]



250 mg ¥32,500

## Boc-β-Homophe-OH, ≥98.0%

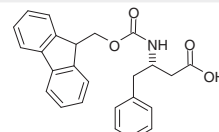
**14979**  
C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.34  
[51871-62-6]



250 mg ¥19,100  
1 g ¥52,900

## Fmoc-β-Homophe-OH, ~97%

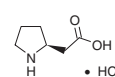
**47878**  
C<sub>25</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 401.46  
[193954-28-8]



250 mg ¥21,700  
1 g ¥60,200

## H-L-β-Homopro-OH · HCl, ≥98.0%

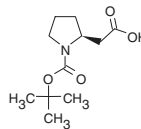
**03768**  
C<sub>6</sub>H<sub>11</sub>NO<sub>2</sub> · HCl  
Mw 165.62  
[53912-85-9]



250 mg ¥25,400  
1 g ¥64,700

## Boc-β-Homopro-OH, ≥98.0%

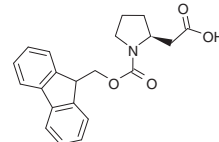
**14982**  
C<sub>11</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 229.28  
[56502-01-3]



250 mg ¥19,300  
1 g ¥52,900

## Fmoc-β-Homopro-OH, ≥98.0%

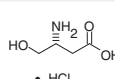
**47912**  
C<sub>21</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 351.4  
[193693-60-6]



250 mg ¥22,000  
1 g ¥61,100

## H-β-Homoser-OH, ≥98.0%

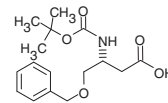
**03694**  
C<sub>4</sub>H<sub>9</sub>NO<sub>3</sub>  
Mw 119.12  
[6504-56-6]



100 mg ¥17,100  
500 mg ¥67,500

## Boc-β-Homoser(Bzl)-OH, ≥98.0%

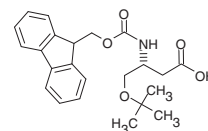
**03697**  
C<sub>16</sub>H<sub>23</sub>NO<sub>5</sub>  
Mw 309.36



250 mg ¥25,100  
1 g ¥69,600

## Fmoc-β-Homoser(tBu)-OH, ≥98.0%

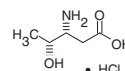
**03696**  
C<sub>23</sub>H<sub>27</sub>NO<sub>5</sub>  
Mw 397.47  
[203854-51-7]



250 mg ¥29,900  
1 g ¥83,100

## H-β-Homothr-OH · HCl, ≥98.0%

**03767**  
C<sub>5</sub>H<sub>11</sub>NO<sub>3</sub> · HCl  
Mw 169.61

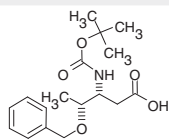


100 mg ¥17,100  
500 mg ¥67,500

## 1.4 β<sup>3</sup>-Homologues of Proteinacious Amino Acids (continued)

### Boc-β-Homotr(Bzl)-OH, ≥98.0%

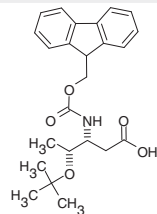
**14976**  
C<sub>17</sub>H<sub>25</sub>NO<sub>5</sub>  
Mw 323.39



250 mg ¥21,800  
1 g ¥60,400

### Fmoc-β-Homotr(tBu)-OH, ~98%

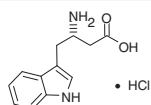
**47911**  
C<sub>24</sub>H<sub>29</sub>NO<sub>5</sub>  
Mw 411.5



250 mg ¥25,100  
1 g ¥69,700

### H-β-Homotr(OH) · HCl, ≥98.0%

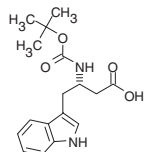
**03790**  
C<sub>12</sub>H<sub>14</sub>N<sub>2</sub>O<sub>2</sub> · HCl  
Mw 254.71



100 mg ¥17,100  
500 mg ¥67,500

### Boc-β-Homotr(OH), ≥98.0%

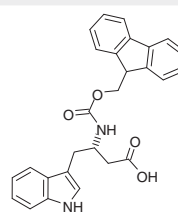
**14981**  
C<sub>17</sub>H<sub>22</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 318.37



250 mg ¥20,500  
1 g ¥57,000

### Fmoc-β-Homotr(OH), ~98%

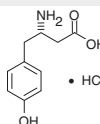
**47901**  
C<sub>27</sub>H<sub>24</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 440.5



250 mg ¥25,100  
1 g ¥69,700

### H-β-Homotyr(OH) · HCl, ≥97.0

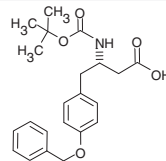
**03758**  
C<sub>10</sub>H<sub>13</sub>NO<sub>3</sub> · HCl  
Mw 231.68



100 mg ¥17,100  
500 mg ¥67,500

### Boc-β-Homotyr(Bzl)-OH, ≥98.0%

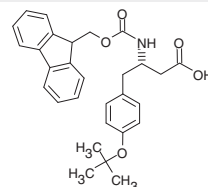
**03693**  
C<sub>22</sub>H<sub>27</sub>NO<sub>5</sub>  
Mw 385.46  
[126825-16-9]



250 mg ¥25,100  
1 g ¥69,600

### Fmoc-β-Homotyr(tBu)-OH, ≥98.0%

**03692**  
C<sub>29</sub>H<sub>31</sub>NO<sub>5</sub>  
Mw 473.57  
[219967-69-8]

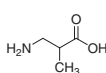


250 mg ¥29,900  
1 g ¥83,100

## 1.5 β<sup>2</sup>-Amino Acids

### H-DL-β<sup>2</sup>-Homoala-OH, ≥99.0%

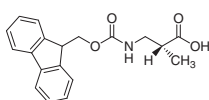
**08290**  
C<sub>4</sub>H<sub>9</sub>NO<sub>2</sub>  
Mw 103.12  
[144-90-1]



1 g ¥6,500  
5 g ¥24,900  
25 g ¥98,400

### (R)-Fmoc-β<sup>2</sup>-Homoala-OH, ≥95.0%

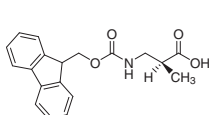
**30975**  
C<sub>19</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 325.36  
[211682-15-4]



500 mg ¥52,000

### (S)-Fmoc-β<sup>2</sup>-Homoala-OH, ≥95.0%

**38811**  
C<sub>19</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 325.36  
[203854-58-4]



500 mg ¥52,000

### (S)-Boc-β<sup>2</sup>-Homoala-OH, ≥98.0%

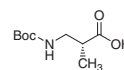
**40195**  
C<sub>9</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 203.24  
[190897-47-3]



500 mg ¥95,000

### (R)-Boc-β<sup>2</sup>-Homoala-OH, ≥98.0%

**78953**  
C<sub>9</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 203.24  
[132696-45-8]



500 mg ¥95,000



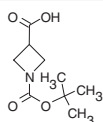
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## 1.6 Cyclic β-Amino Acids

### 1-Boc-azetidine-3-carboxylic acid, ≥98.0%

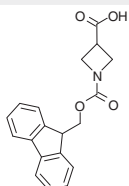
**09928**  
 $C_9H_{15}NO_4$   
 Mw 201.22  
 [142253-55-2]



100 mg ¥22,400  
 500 mg ¥84,600

### 1-Fmoc-azetidine-3-carboxylic acid, ≥98.0%

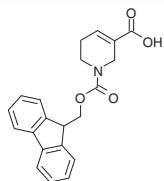
**00398**  
 $C_{19}H_{17}NO_4$   
 Mw 323.35  
 [193693-64-0]



500 mg ¥97,400

### N-Fmoc-guvacine, ~98%

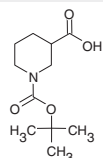
**93925**  
 $C_{21}H_{19}NO_4$   
 Mw 349.39



100 mg ¥10,500  
 500 mg ¥41,600

### (±)-Boc-Nip-OH, ≥98.0%

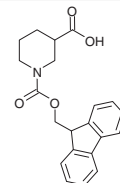
**85405**  
 $C_{11}H_{19}NO_4$   
 Mw 229.28  
 [88495-54-9]



1 g ¥4,700  
 5 g ¥18,400

### (±)-Fmoc-Nip-OH, ≥99.0%

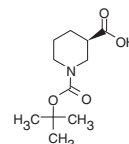
**90233**  
 $C_{21}H_{21}NO_4$   
 Mw 351.4  
 [193693-68-4]



1 g ¥7,300  
 5 g ¥73,900

### (R)-Boc-Nip-OH, ≥97.0%

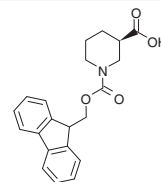
**89763**  
 $C_{11}H_{19}NO_4$   
 Mw 229.28  
 [88495-54-9]



1 g ¥32,000  
 5 g ¥127,800

### (R)-Fmoc-Nip-OH, ≥99.0%

**84222**  
 $C_{21}H_{21}NO_4$   
 Mw 351.4  
 [193693-68-4]



1 g ¥9,900  
 5 g ¥38,700

**SIGMA**  
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**DIRECTED DRUG DISCOVERY™**

ハイスループットスクリーニング、アッセイバリデーション用ライブラリー

**New** LOPAC<sup>1280TM</sup>

製品番号: LO3300 価格: ¥4,174,500

《薬理作用性化合物でアッセイを確認してドラッグ探索をスピードアップしましょう!》

これまでの LOPAC<sup>640TM</sup> と同様に、LOPAC<sup>1280TM</sup> には薬理作用の確認されている高純度低分子リガンドが充填されているので、信頼できるスクリーニングが可能です。新規追加化合物は、アポトーシスやリン酸化など細胞内シグナル伝達・神経科学研究分野のホットなテーマのもので、更に広範囲な目的に LOPAC<sup>1280TM</sup> をお使い頂けます。

- ・スクリーニングにおいて不要リードのスクリーニングが減少。
- ・大規模・多種ライブラリーの2次スクリーニングの指標に。
- ・薬理作用の確認されているリガンドです。オフターゲットのリガンドスクリーニングに。

#### 【製品内容】

16枚の96ウェルのラックそれぞれに約80化合物を充填しました。(10mM DMSO溶液250μL入り)  
 化合物数: 1266

#### 細胞シグナリング・神経科学分野の最新薬理作用化合物

- |              |           |       |
|--------------|-----------|-------|
| ○抗生物質        | ○転写翻訳制御   | ○多剤耐性 |
| ○アポトーシス      | ○イオンチャンネル | ○神経伝達 |
| ○カルシウムシグナリング | ○脂質シグナリング | ○リン酸化 |

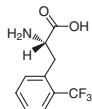
テクニカルサポート TEL:03-5796-7330 FAX:03-5796-7335 E-mail:sialjpts@sial.com

## 2. Phenylalanine Derivatives

### 2.1 Ring-Substituted Phenylalanines and 3-Aryl-Substituted Alanines

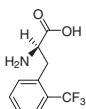
#### H-2-(trifluoromethyl)-L-Phe-OH, ≥98.0% TLC

(S)-2-Amino-3-[2-(trifluoromethyl)phenyl]propionic acid  
**93077** **NEW** 1 g ¥42,300  
 $C_{10}H_{10}F_3NO_2$   
 Mw 233.19  
 [119009-47-1]



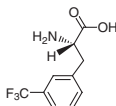
#### H-2-(trifluoromethyl)-D-Phe-OH, ≥98.0% TLC

(R)-2-Amino-3-[2-(trifluoromethyl)phenyl]propionic acid  
**87028** **NEW** 1 g ¥46,700  
 $C_{10}H_{10}F_3NO_2$   
 Mw 233.19  
 [130930-49-3]



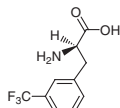
#### H-3-(trifluoromethyl)-L-Phe-OH, ≥96.0% HPLC

(S)-2-Amino-3-[3-(trifluoromethyl)phenyl]propionic acid  
**77092** **NEW** 1 g ¥46,700  
 $C_{10}H_{10}F_3NO_2$   
 Mw 233.19  
 [14464-68-7]



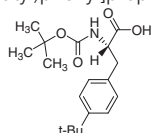
#### H-3-(trifluoromethyl)-D-Phe-OH, ≥96.0% HPLC

(R)-2-Amino-3-[3-(trifluoromethyl)phenyl]propionic acid  
**76029** **NEW** 1 g ¥46,700  
 $C_{10}H_{10}F_3NO_2$   
 Mw 233.19  
 [14464-67-6]



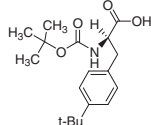
#### Boc-4-tert-butyl-Phe-OH, ≥98.0% HPLC

(S)-2-(Boc-amino)-3-[4-(tert-butyl)phenyl]propionic acid  
**68184** **NEW** 1 g ¥46,700  
 $C_{18}H_{27}NO_4$   
 Mw 321.41  
 [143415-62-7]



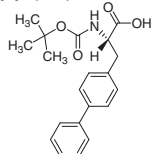
#### Boc-4-tert-butyl-D-Phe-OH, ≥98.0% HPLC

(R)-2-(Boc-amino)-3-[4-(tert-butyl)phenyl]propionic acid  
**05839** **NEW** 1 g ¥46,700  
 $C_{18}H_{27}NO_4$   
 Mw 321.41  
 [250611-12-2]



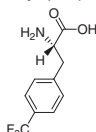
#### Boc-4-phenyl-Phe-OH, ≥98.0% HPLC

(S)-2-(Boc-amino)-3-(4-biphenyl)propionic acid, Boc-Bip-OH  
**39072** **NEW** 1 g ¥49,000  
 $C_{20}H_{23}NO_4$   
 Mw 341.40  
 [147923-08-8]



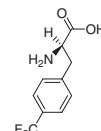
#### H-4-(trifluoromethyl)-L-Phe-OH, ≥99.0% HPLC

(S)-2-Amino-3-[4-(trifluoromethyl)phenyl]propionic acid  
**93031** **NEW** 1 g ¥46,700  
 $C_{10}H_{10}F_3NO_2$   
 Mw 233.19  
 [114926-38-4]



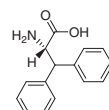
#### H-4-(trifluoromethyl)-D-Phe-OH, ≥99.0% HPLC

(R)-2-Amino-3-[4-(trifluoromethyl)phenyl]propionic acid  
**93956** **NEW** 1 g ¥46,700  
 $C_{10}H_{10}F_3NO_2$   
 Mw 233.19  
 [114872-99-0]



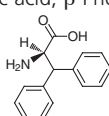
#### 3,3-Diphenyl-L-alanine, ≥98.0% HPLC

(S)-2-Amino-3,3-diphenylpropionic acid, β-Phenyl-L-Phe-OH  
**86998** **NEW** 1 g ¥46,700  
 $C_{15}H_{15}NO_2$   
 Mw 241.29



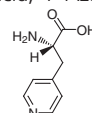
#### 3,3-Diphenyl-D-alanine, ≥98.0% HPLC

(R)-2-Amino-3,3-diphenylpropionic acid, β-Phenyl-D-Phe-OH  
**89351** **NEW** 1 g ¥46,700  
 $C_{15}H_{15}NO_2$   
 Mw 241.29  
 [149597-91-1]



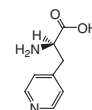
#### H-3-(4-pyridyl)-L-Ala-OH, ≥98.0% TLC

(S)-2-Amino-3-(4-pyridyl)propionic acid, 4'-Aza-L-Phe-OH  
**81956** **NEW** 1 g ¥40,000  
 $C_8H_{10}N_2O_2$   
 Mw 166.18  
 [37535-49-2]



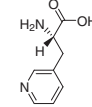
#### H-3-(4-pyridyl)-D-Ala-OH, ≥98.0% TLC

(R)-2-Amino-3-(4-pyridyl)propionic acid, 4'-Aza-D-Phe-OH  
**70214** **NEW** 1 g ¥40,000  
 $C_8H_{10}N_2O_2$   
 Mw 166.18  
 [37535-50-5]



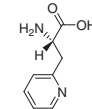
#### H-3-(3-pyridyl)-L-Ala-OH, ≥98.0% HPLC

(S)-2-Amino-3-(3-pyridyl)propionic acid, 3'-Aza-L-Phe-OH  
**94814** **NEW** 1 g ¥40,000  
 $C_8H_{10}N_2O_2$   
 Mw 166.18  
 [64090-98-8]



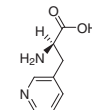
#### H-3-(2-pyridyl)-L-Ala-OH, ≥98.0% TLC

(S)-2-Amino-3-(2-pyridyl)propionic acid, 2'-Aza-L-Phe-OH  
**71836** **NEW** 1 g ¥40,000  
 $C_8H_{10}N_2O_2$   
 Mw 166.18  
 [37535-51-6]



#### H-3-(2-pyridyl)-D-Ala-OH, ≥98.0% TLC

(R)-2-Amino-3-(2-pyridyl)propionic acid, 2'-Aza-D-Phe-OH  
**95718** **NEW** 1 g ¥40,000  
 $C_8H_{10}N_2O_2$   
 Mw 166.18  
 [37535-52-7]



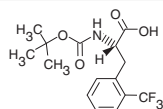
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## 2.2 Ortho-Substituted Phenylalanines

**Boc-Phe(2-CF<sub>3</sub>)-OH, ≥98.0%**

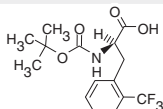
**15011**  
 $C_{15}H_{18}F_3NO_4$   
 Mw 333.31  
 [167993-21-7]



1 g ¥37,200  
 5 g ¥147,100

**Boc-D-Phe(2-CF<sub>3</sub>)-OH, ≥98.0%**

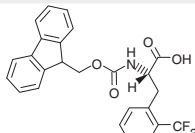
**15009**  
 $C_{15}H_{18}F_3NO_4$   
 Mw 333.31



1 g ¥37,800  
 5 g ¥149,700

**Fmoc-Phe(2-CF<sub>3</sub>)-OH, ≥98.0%**

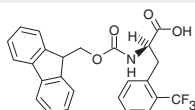
**47826**  
 $C_{25}H_{20}F_3NO_4$   
 Mw 455.43



1 g ¥61,800  
 5 g ¥244,600

**Fmoc-D-Phe(2-CF<sub>3</sub>)-OH, ≥98.0%**

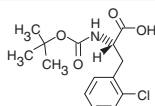
**47824**  
 $C_{25}H_{20}F_3NO_4$   
 Mw 455.43



1 g ¥61,800  
 5 g ¥244,600

**Boc-Phe(2-Cl)-OH, ≥98.0%**

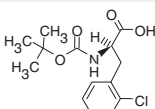
**15021**  
 $C_{14}H_{18}ClNO_4$   
 Mw 299.75  
 [114873-02-8]



1 g ¥10,100  
 5 g ¥40,100

**Boc-D-Phe(2-Cl)-OH, ≥98.0%**

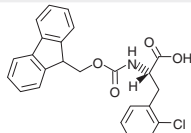
**15018**  
 $C_{14}H_{18}ClNO_4$   
 Mw 299.75  
 [80102-23-4]



1 g ¥10,100  
 5 g ¥40,100

**Fmoc-Phe(2-Cl)-OH, ≥98.0%**

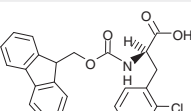
**47766**  
 $C_{24}H_{20}ClNO_4$   
 Mw 421.88  
 [198560-41-7]



1 g ¥23,500  
 5 g ¥92,900

**Fmoc-D-Phe(2-Cl)-OH, ≥97.0%**

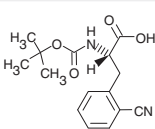
**47765**  
 $C_{24}H_{20}ClNO_4$   
 Mw 421.88  
 [205526-22-3]



1 g ¥23,500  
 5 g ¥92,900

**Boc-Phe(2-CN)-OH, ≥98.0%**

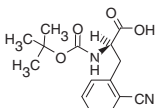
**14984**  
 $C_{15}H_{18}N_2O_4$   
 Mw 290.32  
 [216312-53-7]



1 g ¥37,400  
 5 g ¥147,800

**Boc-D-Phe(2-CN)-OH, ≥98.0%**

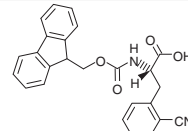
**14983**  
 $C_{15}H_{18}N_2O_4$   
 Mw 290.32



1 g ¥37,800  
 5 g ¥149,700

**Fmoc-Phe(2-CN)-OH, ≥98.0%**

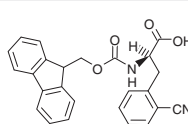
**47803**  
 $C_{25}H_{20}N_2O_4$   
 Mw 412.44



1 g ¥60,900  
 5 g ¥241,200

**Fmoc-D-Phe(2-CN)-OH, ≥98.0%**

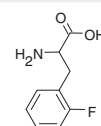
**47802**  
 $C_{25}H_{20}N_2O_4$   
 Mw 412.44



1 g ¥60,900  
 5 g ¥241,200

**H-2-Fluoro-DL-Phe-OH, ≥98.0%**

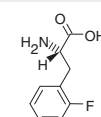
**47300**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [2629-55-2]



1 g ¥4,900  
 5 g ¥23,600

**H-2-Fluoro-L-Phe-OH, ≥99.0%**

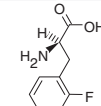
**47296**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [19883-78-4]



1 g ¥29,000

**H-2-Fluoro-D-Phe-OH, ≥99.0%**

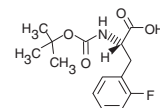
**47298**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [97731-02-7]



1 g ¥29,000

**Boc-Phe(2-F)-OH, ≥98.0%**

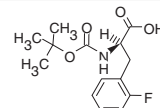
**15024**  
 $C_{14}H_{18}FNO_4$   
 Mw 283.30  
 [114873-00-6]



1 g ¥10,100  
 5 g ¥39,600

**Boc-D-Phe(2-F)-OH, ≥98.0%**

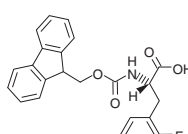
**15023**  
 $C_{14}H_{18}FNO_4$   
 Mw 283.30  
 [114873-10-8]



1 g ¥10,100  
 5 g ¥40,100

**Fmoc-Phe(2-F)-OH, ~98.0%**

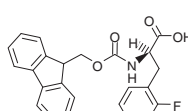
**47769**  
 $C_{24}H_{20}FNO_4$   
 Mw 405.43  
 [205526-26-7]



1 g ¥23,800  
 5 g ¥94,200

**Fmoc-D-Phe(2-F)-OH, ≥98.0%**

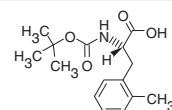
**47767**  
 $C_{24}H_{20}FNO_4$   
 Mw 405.43  
 [198545-45-9]



1 g ¥23,800  
 5 g ¥94,200

**Boc-Phe(2-Me)-OH, ≥98.0%**

**14998**  
 $C_{15}H_{21}NO_4$   
 Mw 279.34  
 [114873-05-1]

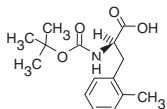


1 g ¥13,400  
 5 g ¥53,200

## 2.2 Ortho-Substituted Phenylalanines (continued)

### Boc-D-Phe(2-Me)-OH, ≥98.0%

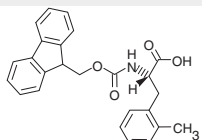
**14997**  
 $C_{15}H_{21}NO_4$   
 Mw 279.34  
 [80102-29-0]



1 g ¥13,300  
 5 g ¥52,500

### Fmoc-Phe(2-Me)-OH, ≥98.0%

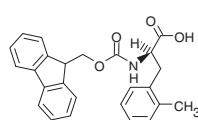
**47817**  
 $C_{25}H_{23}NO_4$   
 Mw 401.46  
 [211637-75-1]



1 g ¥25,000  
 5 g ¥99,100

### Fmoc-D-Phe(2-Me)-OH, ≥98.0%

**47816**  
 $C_{25}H_{23}NO_4$   
 Mw 401.46

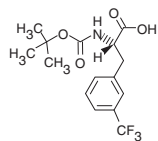


1 g ¥25,000  
 5 g ¥99,100

## 2.3 Meta-Substituted Phenylalanines

### Boc-Phe(3-CF<sub>3</sub>)-OH, ≥98.0%

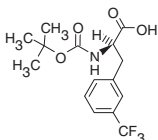
**15013**  
 $C_{15}H_{18}F_3NO_4$   
 Mw 333.31  
 [142995-31-1]



1 g ¥37,400  
 5 g ¥147,800

### Boc-D-Phe(3-CF<sub>3</sub>)-OH, ≥98.0%

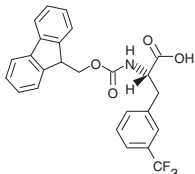
**15012**  
 $C_{15}H_{18}F_3NO_4$   
 Mw 333.31  
 [82317-82-6]



1 g ¥37,200  
 5 g ¥147,100

### Fmoc-Phe(3-CF<sub>3</sub>)-OH, ≥98.0%

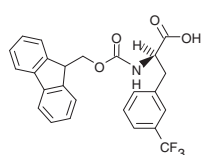
**47833**  
 $C_{25}H_{20}F_3NO_4$   
 Mw 455.43  
 [205526-27-8]



1 g ¥61,800  
 5 g ¥244,600

### Fmoc-D-Phe(3-CF<sub>3</sub>)-OH, ≥98.0%

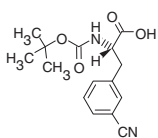
**47832**  
 $C_{25}H_{20}F_3NO_4$   
 Mw 455.43  
 [205526-28-9]



1 g ¥61,800  
 5 g ¥244,600

### Boc-Phe(3-CN)-OH, ≥98.0%

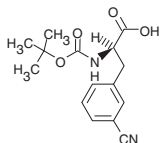
**14986**  
 $C_{15}H_{18}N_2O_4$   
 Mw 290.32  
 [131980-30-8]



1 g ¥37,800  
 5 g ¥149,700

### Boc-D-Phe(3-CN)-OH, ≥98.0%

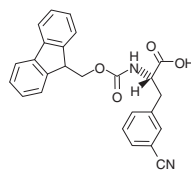
**14985**  
 $C_{15}H_{18}N_2O_4$   
 Mw 290.32  
 [205445-56-3]



1 g ¥37,800  
 5 g ¥149,700

### Fmoc-Phe(3-CN)-OH, ≥98.0%

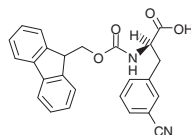
**47805**  
 $C_{25}H_{20}N_2O_4$   
 Mw 412.44  
 [205526-36-9]



1 g ¥61,100  
 5 g ¥241,500

### Fmoc-D-Phe(3-CN)-OH, ≥98.0%

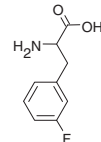
**47804**  
 $C_{25}H_{20}N_2O_4$   
 Mw 412.44  
 [205526-37-0]



1 g ¥61,800  
 5 g ¥244,600

### H-3-Fluoro-DL-Phe-OH, ≥98.0%

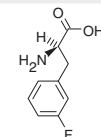
**47310**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [456-88-2]



1 g ¥6,100

### H-3-Fluoro-D-Phe-OH, ≥99.0%

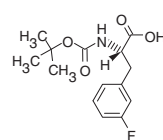
**47308**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [110117-84-5]



250 mg ¥24,300  
 1 g ¥78,800

### Boc-Phe(3-F)-OH, ≥98.0%

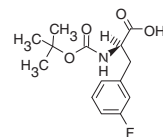
**14996**  
 $C_{14}H_{18}FNO_4$   
 Mw 283.3  
 [114873-01-7]



1 g ¥13,400  
 5 g ¥53,200

### Boc-D-Phe(3-F)-OH, ≥98.0%

**14995**  
 $C_{14}H_{18}FNO_4$   
 Mw 283.3  
 [114873-11-9]



1 g ¥13,400  
 5 g ¥53,200



バルク供給/スケールアップのご相談は…

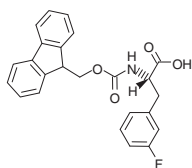
ファインケミカル事業部 TEL:03-5796-7340 FAX:03-5796-7345 E-mail:sialjpcf@sial.com

## 2.3 Meta-Substituted Phenylalanines (continued)

## Fmoc-Phe(3-F)-OH, ≥98.0%

47815

C<sub>24</sub>H<sub>20</sub>FNO<sub>4</sub>  
Mw 405.43  
[198560-68-8]

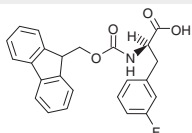


1 g ¥25,000  
5 g ¥99,100

## Fmoc-D-Phe(3-F)-OH, ~98.0%

47814

C<sub>24</sub>H<sub>20</sub>FNO<sub>4</sub>  
Mw 405.43  
[198545-72-1]

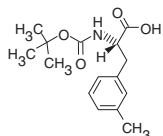


1 g ¥25,000

## Boc-Phe(3-Me)-OH, ≥98.0%

15002

C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.34  
[114873-06-2]

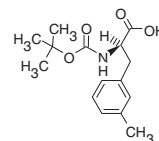


1 g ¥13,400  
5 g ¥53,200

## Boc-D-Phe(3-Me)-OH, ≥98.0%

14999

C<sub>15</sub>H<sub>21</sub>NO<sub>4</sub>  
Mw 279.34  
[114873-14-2]

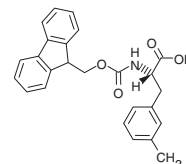


1 g ¥13,400  
5 g ¥53,200

## Fmoc-Phe(3-Me)-OH, ≥98.0%

47819

C<sub>25</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 401.46  
[211637-74-0]

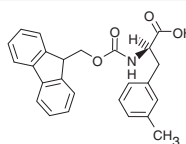


1 g ¥24,800  
5 g ¥97,900

## Fmoc-D-Phe(3-Me)-OH, ≥98.0%

47818

C<sub>25</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 401.46



1 g ¥25,000  
5 g ¥99,100

# PEPscreen™

## ハイスループットカスタムペプチド

### ¥11,000/Peptide

96-well フォーマットによる多品種の  
受託合成ペプチドをスピーディーにお届けします。

## 製品仕様

- 収 量：0.5~2mg
- 鎖 長：6-20 アミノ酸
- 精 製：未精製、平均純度 70% 程度(15A.A. の場合)
- 品質管理：全ペプチドを TOF-MASS による品質管理  
※48 本/オーダーから承ります。

【PEPscreen は以下の修飾が可能です】

- N 末端アセチル化
- N 末端 FLC 化<sup>※1</sup>
- ダンシル化
- C 末端アミド化
- リン酸化<sup>※2</sup>
- フルオレセイン
- N 末端ピログルタミン化
- D- アミノ酸導入
- TAMRA
- N 末端ピオチン化
- 特殊アミノ酸

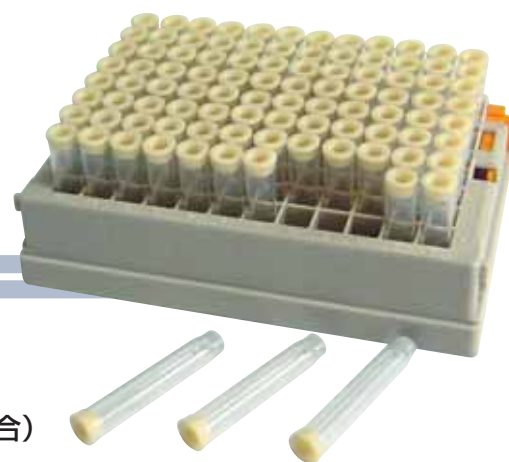
※1 N 末端 FLC 化は通常のペプチドサービスと同様に、mixed isomer のみのサービスとなります。

※2 N 末端および C 末端へのリン酸化は不可です。

※追加料金・納期についてはお問い合わせください。

## シグマ アルドリッチ ジャパン株式会社

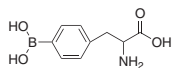
PEPscreen に関するお問い合わせは… ジェノシス事業部 CSD グループ  
TEL : 0120-730-830/0133-75-7311 E-mail : genosys@genosys.jp



## 2.4 Para-Substituted Phenylalanines (continued)

### 4-Borono-DL-Phe-OH, 95%

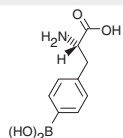
**51,268-0**  
 $C_9H_{12}BNO_4$   
 Mw 209.01  
 [90580-64-6]



1 g ¥21,800

### 4-Borono-L-Phe-OH, ~97.0%

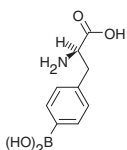
**17755**  
 $C_9H_{12}BNO_4$   
 Mw 209.01  
 [76410-58-7]



250 mg ¥47,800

### 4-Borono-D-Phe-OH, ≥98.0%

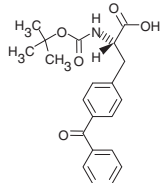
**68047**  
 $C_9H_{12}BNO_4$   
 Mw 209.01  
 [111821-49-9]



250 mg ¥40,400

### Boc-Bpa-OH, ~98%

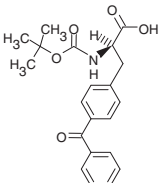
Boc-4-benzoyl-Phe-OH  
**09775**  
 $C_{21}H_{23}NO_5$   
 Mw 369.42  
 [104504-43-0]



250 mg ¥20,900  
 1 g ¥67,700

### Boc-D-Bpa-OH, ~98%

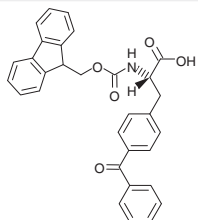
Boc-4-benzoyl-D-Phe-OH  
**09776**  
 $C_{21}H_{23}NO_5$   
 Mw 369.42  
 [117666-94-1]



250 mg ¥15,000  
 1 g ¥29,500

### Fmoc-Bpa-OH, ≥98.0%

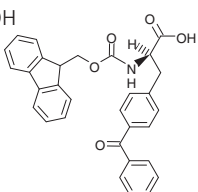
Fmoc-4-benzoyl-Phe-OH  
**09774**  
 $C_{31}H_{25}NO_5$   
 Mw 491.54  
 [117666-96-3]



250 mg ¥15,400  
 1 g ¥30,000

### Fmoc-D-Bpa-OH, ≥98.0%

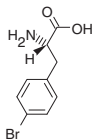
Fmoc-4-benzoyl-D-Phe-OH  
**09773**  
 $C_{31}H_{25}NO_5$   
 Mw 491.54  
 [117666-97-4]



250 mg ¥19,700  
 1 g ¥64,000

### H-4-Bromo-L-Phe-OH, ≥98.0%

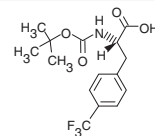
**18055**  
 $C_9H_{10}BrNO_2$   
 Mw 244.09  
 [24250-84-8]



100 mg ¥9,700  
 500 mg ¥25,000

### Boc-Phe(4-CF<sub>3</sub>)-OH, ≥98.0%

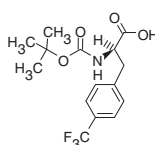
**15017**  
 $C_{15}H_{18}F_3NO_4$   
 Mw 333.31  
 [114873-07-3]



1 g ¥37,800  
 5 g ¥149,700

### Boc-D-Phe(4-CF<sub>3</sub>)-OH, ≥98.0%

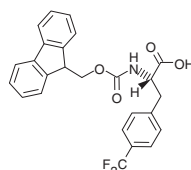
**15016**  
 $C_{15}H_{18}F_3NO_4$   
 Mw 333.31  
 [82317-83-7]



1 g ¥37,400  
 5 g ¥147,800

### Fmoc-Phe(4-CF<sub>3</sub>)-OH, ≥98.0%

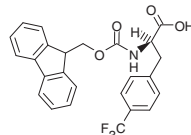
**47835**  
 $C_{25}H_{20}F_3NO_4$   
 Mw 455.43



1 g ¥61,800  
 5 g ¥244,600

### Fmoc-D-Phe(4-CF<sub>3</sub>)-OH, ≥98.0%

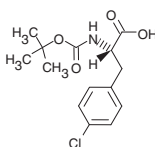
**47834**  
 $C_{25}H_{20}F_3NO_4$   
 Mw 455.43



1 g ¥61,800  
 5 g ¥244,600

### Boc-Phe(4-Cl)-OH, ~98%

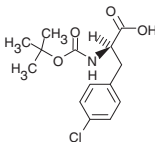
**15472**  
 $C_{14}H_{18}ClNO_4$   
 Mw 299.75  
 [68090-88-0]



1 g ¥13,900  
 5 g ¥54,800

### Boc-D-Phe(4-Cl)-OH, ~98%

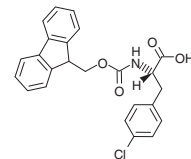
**15471**  
 $C_{14}H_{18}ClNO_4$   
 Mw 299.75  
 [57292-44-1]



1 g ¥12,500  
 5 g ¥48,500

### Fmoc-Phe(4-Cl)-OH, ≥98.0%

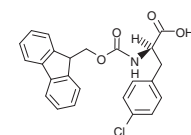
**47424**  
 $C_{24}H_{20}ClNO_4$   
 Mw 421.88  
 [175453-08-4]



5 g ¥84,400

### Fmoc-D-Phe(4-Cl)-OH, ≥98.0%

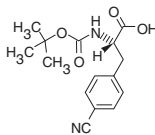
**47420**  
 $C_{24}H_{20}ClNO_4$   
 Mw 421.88  
 [142994-19-2]



5 g ¥103,400

### Boc-Phe(4-CN)-OH, ≥98.0%

**14988**  
 $C_{15}H_{18}N_2O_4$   
 Mw 290.32  
 [131724-45-3]



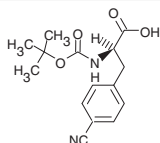
1 g ¥19,000  
 5 g ¥149,700



## 2.4 Para-Substituted Phenylalanines (continued)

**Boc-D-Phe(4-CN)-OH, ≥97.0%**

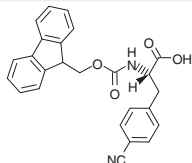
**14987**  
 $C_{15}H_{18}N_2O_4$   
 Mw 290.32  
 [146727-62-0]



1 g ¥37,400  
 5 g ¥147,800

**Fmoc-Phe(4-CN)-OH, ≥98.0%**

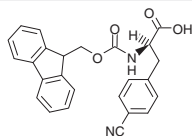
**47807**  
 $C_{25}H_{20}N_2O_4$   
 Mw 412.44  
 [173963-93-4]



1 g ¥61,800  
 5 g ¥244,600

**Fmoc-D-Phe(4-CN)-OH, ≥98.0%**

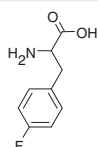
**47806**  
 $C_{25}H_{20}N_2O_4$   
 Mw 412.44  
 [205526-34-7]



1 g ¥61,800  
 5 g ¥244,600

**H-4-Fluoro-DL-Phe-OH, ≥99.0%**

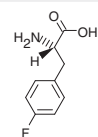
**47320**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [51-65-0]



1 g ¥5,500

**H-4-Fluoro-L-Phe-OH, ≥99.0%**

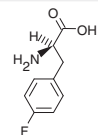
**47290**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [1132-68-9]



500 mg ¥19,500  
 2.5 g ¥77,300

**H-4-Fluoro-D-Phe-OH, ≥99.0%**

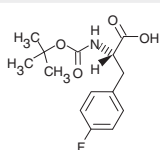
**47318**  
 $C_9H_{10}FNO_2$   
 Mw 183.18  
 [18125-46-7]



250 mg ¥25,100  
 1 g ¥81,300

**Boc-Phe(4-F)-OH, ≥99.0%**

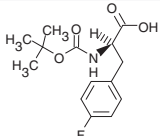
**15352**  
 $C_{14}H_{18}FNO_4$   
 Mw 283.3  
 [41153-30-4]



1 g ¥15,500  
 5 g ¥61,000

**Boc-D-Phe(4-F)-OH, ≥99.0%**

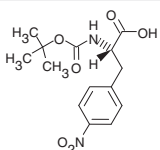
**15351**  
 $C_{14}H_{18}FNO_4$   
 Mw 283.3  
 [57292-45-2]



1 g ¥17,400  
 5 g ¥68,900

**Boc-Phe(4-NO<sub>2</sub>)-OH, ~99%**

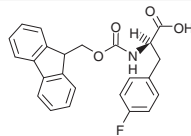
**15348**  
 $C_{14}H_{18}N_2O_6$   
 Mw 310.31  
 [33305-77-0]



1 g ¥5,000  
 5 g ¥20,000

**Fmoc-D-Phe(4-F)-OH, ≥98.0%**

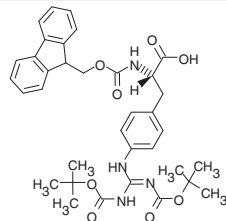
**47427**  
 $C_{24}H_{20}FNO_4$   
 Mw 405.43  
 [177966-64-2]



1 g ¥30,000  
 5 g ¥118,800

**Fmoc-(4-Boc<sub>2</sub>-guanidino)-Phe-OH, ≥90%**

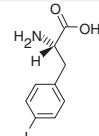
**22669**  
 $C_{35}H_{40}N_4O_8$   
 Mw 644.71  
 [187283-25-6]



500 mg ¥26,300

**H-4-Iodo-L-Phe-OH, ≥96.0**

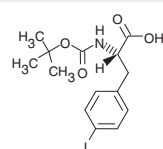
**58032**  
 $C_9H_{10}INO_2$   
 Mw 291.09  
 [24250-85-9]



1 g ¥13,400

**Boc-Phe(4-I)-OH, ≥99.0%**

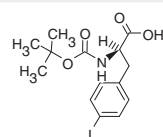
**15346**  
 $C_{14}H_{18}INO_4$   
 Mw 391.21  
 [62129-44-6]



1 g ¥14,600  
 5 g ¥53,600

**Boc-D-Phe(4-I)-OH, ≥98.0%**

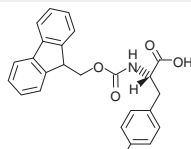
**15044**  
 $C_{14}H_{18}INO_4$   
 Mw 391.21  
 [176199-35-2]



1 g ¥18,000  
 5 g ¥80,000

**Fmoc-Phe(4-I)-OH, ≥98.0%**

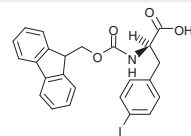
**47431**  
 $C_{24}H_{20}INO_4$   
 Mw 513.33  
 [82565-68-2]



1 g ¥21,500  
 5 g ¥85,100

**Fmoc-D-Phe(4-I)-OH, ~98.0%**

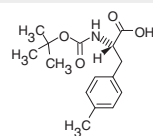
**47770**  
 $C_{24}H_{20}INO_4$   
 Mw 513.33



1 g ¥29,400  
 5 g ¥116,400

**Boc-Phe(4-Me)-OH, ≥98.0%**

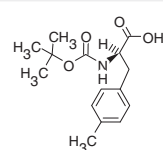
**15006**  
 $C_{15}H_{21}NO_4$   
 Mw 279.34  
 [80102-26-7]



1 g ¥13,300  
 5 g ¥52,500

**Boc-D-Phe(4-Me)-OH, ≥98.0%**

**15003**  
 $C_{15}H_{21}NO_4$   
 Mw 279.34  
 [80102-27-8]



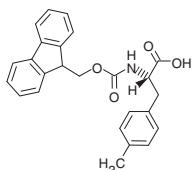
1 g ¥13,300  
 5 g ¥52,500

## 2.4 Para-Substituted Phenylalanines (continued)

### Fmoc-Phe(4-Me)-OH, ≥98.0%

**47823**

C<sub>25</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 401.46  
[199006-54-7]

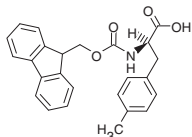


1 g ¥25,000  
5 g ¥99,100

### Fmoc-D-Phe(4-Me)-OH, ≥98.0%

**47821**

C<sub>25</sub>H<sub>23</sub>NO<sub>4</sub>  
Mw 401.46  
[204260-38-8]

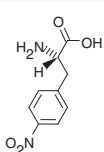


1 g ¥25,000  
5 g ¥99,100

### H-L-Phe(4-NO<sub>2</sub>)-OH · H<sub>2</sub>O, ≥98.0%

**73615**

C<sub>9</sub>H<sub>10</sub>N<sub>2</sub>O<sub>4</sub> · H<sub>2</sub>O  
Mw 228.20  
[207591-86-4]

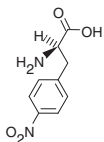


1 g ¥5,700  
5 g ¥22,300

### H-D-Phe(4-NO<sub>2</sub>)-OH, hydrate, ≥99.0%

**73611**

C<sub>9</sub>H<sub>10</sub>N<sub>2</sub>O<sub>4</sub>  
Mw 210.19  
[56613-61-7]

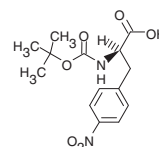


1 g ¥6,800  
5 g ¥26,800

### Boc-D-Phe(4-NO<sub>2</sub>)-OH, ≥98.0%

**15174**

C<sub>14</sub>H<sub>18</sub>N<sub>2</sub>O<sub>6</sub>  
Mw 310.31  
[61280-75-9]

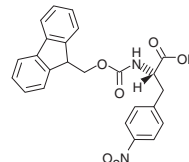


1 g ¥8,400  
5 g ¥33,100  
25 g ¥130,800

### Fmoc-Phe(4-NO<sub>2</sub>)-OH, ~98%

**47472**

C<sub>24</sub>H<sub>20</sub>N<sub>2</sub>O<sub>6</sub>  
Mw 432.43  
[95753-55-2]

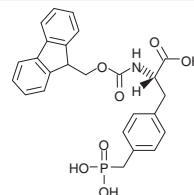


1 g ¥6,000  
5 g ¥20,000

### Fmoc-4-(phosphonomethyl)-Phe-OH, ≥98.0%

**09768**

C<sub>25</sub>H<sub>24</sub>NO<sub>7</sub>P  
Mw 481.43  
[229180-64-7]



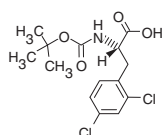
50 mg ¥22,900  
250 mg ¥90,500

## 2.5 Di-Substituted Phenylalanines

### Boc-Phe(2,4-Cl<sub>2</sub>)-OH, ≥98.0%

**14992**

C<sub>14</sub>H<sub>17</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 334.2  
[114873-04-0]

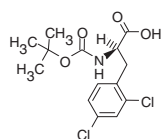


1 g ¥22,400  
5 g ¥88,600

### Boc-D-Phe(2,4-Cl<sub>2</sub>)-OH, ≥98.0%

**14991**

C<sub>14</sub>H<sub>17</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 334.2  
[114873-12-0]

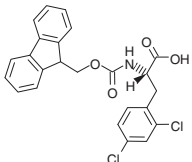


1 g ¥22,400  
5 g ¥88,600

### Fmoc-Phe(2,4-Cl<sub>2</sub>)-OH, ≥98.0%

**47809**

C<sub>24</sub>H<sub>19</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 456.33

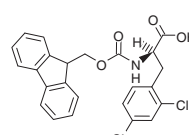


1 g ¥50,400

### Fmoc-D-Phe(2,4-Cl<sub>2</sub>)-OH, ≥98.0%

**47808**

C<sub>24</sub>H<sub>19</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 456.33

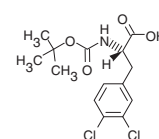


1 g ¥50,400  
5 g ¥199,600

### Boc-Phe(3,4-Cl<sub>2</sub>)-OH, ≥98.0%

**15042**

C<sub>14</sub>H<sub>17</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 334.2  
[80741-39-5]

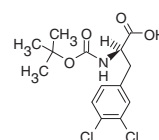


5 g ¥88,600

### Boc-D-Phe(3,4-Cl<sub>2</sub>)-OH, ≥98.0%

**15041**

C<sub>14</sub>H<sub>17</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 334.2  
[114873-13-1]



1 g ¥22,400  
5 g ¥88,600



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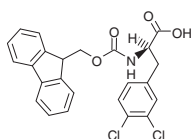
ファインケミカル事業部 TEL:03-5796-7340 FAX:03-5796-7345 E-mail:sialjpcf@sial.com

## 2.5 Di-Substituted Phenylalanines (continued)

### Fmoc-D-Phe(3,4-Cl<sub>2</sub>)-OH, ~98%

47425

C<sub>24</sub>H<sub>19</sub>Cl<sub>2</sub>NO<sub>4</sub>  
Mw 456.33  
[177966-58-4]

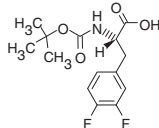


1 g ¥52,900  
5 g ¥209,500

### Boc-Phe(3,4-F<sub>2</sub>)-OH, ≥98.0%

14994

C<sub>14</sub>H<sub>17</sub>F<sub>2</sub>NO<sub>4</sub>  
Mw 301.29  
[198474-90-7]

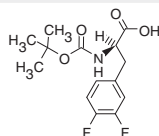


1 g ¥22,200  
5 g ¥87,500

### Boc-D-Phe(3,4-F<sub>2</sub>)-OH, ≥98.0%

14993

C<sub>14</sub>H<sub>17</sub>F<sub>2</sub>NO<sub>4</sub>  
Mw 301.29  
[205445-51-8]

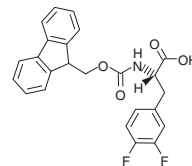


1 g ¥22,400  
5 g ¥88,600

### Fmoc-Phe(3,4-F<sub>2</sub>)-OH, ≥98.0%

47813

C<sub>24</sub>H<sub>19</sub>F<sub>2</sub>NO<sub>4</sub>  
Mw 423.42  
[198560-43-9]

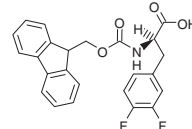


1 g ¥49,800  
5 g ¥197,100

### Fmoc-D-Phe(3,4-F<sub>2</sub>)-OH, ≥98.0%

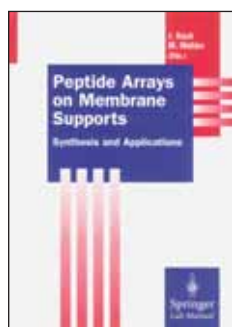
47812

C<sub>24</sub>H<sub>19</sub>F<sub>2</sub>NO<sub>4</sub>  
Mw 423.42  
[198545-59-4]



1 g ¥56,400  
5 g ¥223,200

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Z23,337-4

High-Performance Liquid Chromatography of Peptides: Separation, Analysis and Conformation

Mant, C.T. CRC Press: Boca Raton, FL, 1991. 960pp. Hardcover.

Z24,341-8

Introduction to Peptide Chemistry

Bailey, P.D. John Wiley & Sons: New York, 1992. 240pp. Soft cover.

Z26,967-0

Biologically Active Peptides: Design, Synthesis and Utilization

Williams, W. and D. Weiner, Eds. CRC Press: Boca Raton, FL, 1993. 360pp. Hardcover.

Z28,816-0

Combinatorial Peptide and Nonpeptide Libraries: A Handbook

Jung, G. John Wiley & Sons: New York, 1997. 545pp. Hardcover.

Z35,034-6

Practical Guide to Protein and Peptide Purification for Microsequencing

Matsudaira, P., Ed. Academic Press: New York, 1993. 184pp. Softcover.

Z36,931-4

New Methods in Peptide Mapping for the Characterization of Proteins

Hancock, W.S., Ed. CRC Press: Boca Raton, FL, 1996. 246pp. Hardcover.

Z42,426-9

Fmoc Solid Phase Peptide Synthesis: A Practical Approach

Chan, W. and P. White, Eds. Oxford University Press: New York, 2000. 376pp. Softcover.

Z70,021-5

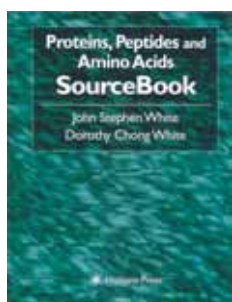
Peptide Arrays on Membrane Supports: Synthesis and Applications

Koch, J. and M. Mahler, Eds. Springer-Verlag: New York, 2002. 220pp. Softcover.

P0868

Proteins, Peptides and Amino Acids SourceBook

White, J.S. and D.C. White. Humana Press: Totowa, NJ, 2002. 1080pp. Hardcover.

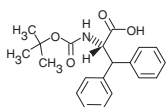


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## 2.6 Other Phenylalanine-Derived Building Blocks

### Boc-3,3-diphenyl-Ala-OH, ≥98.0%

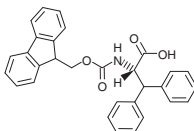
**09896**  
 $C_{20}H_{23}NO_4$   
 Mw 341.41  
 [138662-63-2]



250 mg ¥15,000  
 1 g ¥57,800

### Fmoc-3,3-diphenyl-Ala-OH, ≥98.0%

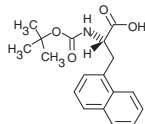
**09895**  
 $C_{30}H_{25}NO_4$   
 Mw 463.53  
 [201484-50-6]



250 mg ¥29,700  
 1 g ¥82,400

### Boc-1-Nal-OH, ≥97.0%

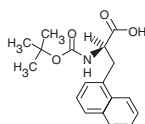
**15347**  
 $C_{18}H_{21}NO_4$   
 Mw 315.37  
 [55447-00-2]



1 g ¥30,000  
 5 g ¥118,100

### Boc-D-1-Nal-OH, ≥98.0%

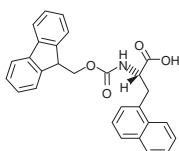
**15045**  
 $C_{18}H_{21}NO_4$   
 Mw 315.37  
 [76932-48-4]



1 g ¥29,800

### Fmoc-1-Nal-OH, ≥98.0%

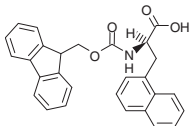
**47433**  
 $C_{28}H_{23}NO_4$   
 Mw 437.5  
 [96402-49-2]



1 g ¥32,900  
 5 g ¥130,100

### Fmoc-D-1-Nal-OH, ≥98.0%

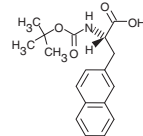
**47432**  
 $C_{28}H_{23}NO_4$   
 Mw 437.5  
 [138774-93-3]



1 g ¥32,900  
 5 g ¥130,100

### Boc-2-Nal-OH, ≥97.0%

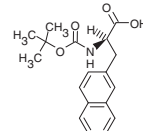
**15483**  
 $C_{18}H_{21}NO_4$   
 Mw 315.37  
 [58438-04-3]



1 g ¥18,000  
 5 g ¥70,000

### Boc-D-2-Nal-OH, ≥97.0%

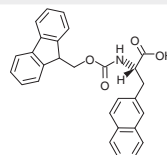
**15478**  
 $C_{18}H_{21}NO_4$   
 Mw 315.37  
 [76985-10-9]



1 g ¥15,500  
 5 g ¥61,100

### Fmoc-2-Nal-OH, ≥98.0%

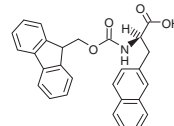
**47772**  
 $C_{28}H_{23}NO_4$   
 Mw 437.5  
 [112883-43-9]



1 g ¥27,200  
 5 g ¥108,600

### Fmoc-D-2-Nal-OH, ≥98.0%

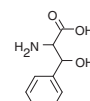
**47471**  
 $C_{28}H_{23}NO_4$   
 Mw 437.5  
 [138774-94-4]



1 g ¥25,900  
 5 g ¥102,300

### 3-Phenylserine · H<sub>2</sub>O, ≥98.0%

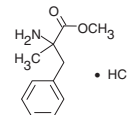
**17,160-3**  
 $C_9H_{11}NO_3 \cdot H_2O$   
 Mw 199.20  
 [69-96-5]



5 g ¥3,700  
 25 g ¥9,000  
 100 g ¥26,500

### α-Methyl-DL-Phe-OMe · HCl, ≥98.0%

**68628**  
 $C_{11}H_{15}NO_2 \cdot HCl$   
 Mw 229.70  
 [64665-60-7]

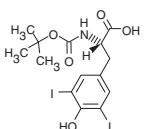


1 g ¥15,200

## 2.7 Ring-Substituted Tyrosines

### Boc-Tyr(3,5-I<sub>2</sub>)-OH, >98.0%

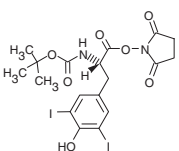
**15092**  
 $C_{14}H_{17}I_2NO_5$   
 Mw 533.1  
 [62129-53-7]



1 g ¥9,600  
 5 g ¥38,000

### Boc-Tyr(3,5-I<sub>2</sub>)-OSu, ≥97.0%

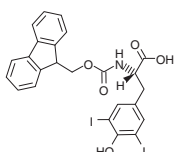
**15093**  
 $C_{18}H_{20}I_2N_2O_7$   
 Mw 630.17  
 [163679-35-4]



1 g ¥29,100  
 5 g ¥115,300

### Fmoc-Tyr(3,5-I<sub>2</sub>)-OH, >98.0%

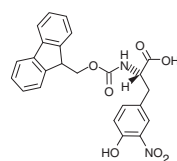
**47457**  
 $C_{24}H_{19}I_2NO_5$   
 Mw 655.23  
 [103213-31-6]



1 g ¥17,400  
 5 g ¥70,000

### Fmoc-Tyr(3-NO<sub>2</sub>)-OH, ≥98.0%

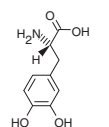
**47780**  
 $C_{24}H_{20}N_2O_7$   
 Mw 448.43  
 [136590-09-5]



1 g ¥12,000  
 5 g ¥40,100

### H-3,4-Dihydroxy-L-Phe-OH, ≥99.0%

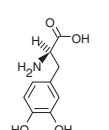
L-DOPA  
**37830**  
 $C_9H_{11}NO_4$   
 Mw 197.19  
 [59-92-7]



5 g ¥4,500  
 25 g ¥17,800  
 100 g ¥61,000

### H-3,4-Dihydroxy-D-Phe-OH, ≥98.0%

D-DOPA  
**37840**  
 $C_9H_{11}NO_4$   
 Mw 197.19  
 [5796-17-8]

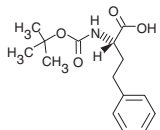


250 mg ¥11,300  
 1 g ¥31,200

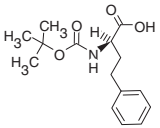


## 2.8 Homophenylalanines

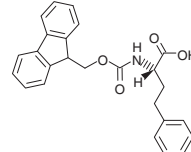
### Boc-Homophe-OH, ≥98.0%

<b>15469</b>		1 g ¥12,000
C <sub>15</sub> H <sub>21</sub> NO <sub>4</sub>		5 g ¥50,000
Mw 279.34		
[100564-78-1]		

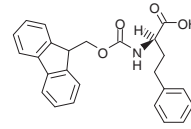
### Boc-D-Homophe-OH, ≥98.0%

<b>15043</b>		1 g ¥18,000
C <sub>15</sub> H <sub>21</sub> NO <sub>4</sub>		5 g ¥71,000
Mw 279.34		
[82732-07-8]		

### Fmoc-Homophe-OH, ≥98.0%

<b>47430</b>		1 g ¥21,200
C <sub>25</sub> H <sub>23</sub> NO <sub>4</sub>		5 g ¥81,500
Mw 401.46		
[132684-59-4]		

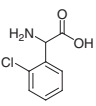
### Fmoc-D-Homophe-OH, ≥98.0%

<b>47429</b>		1 g ¥21,200
C <sub>25</sub> H <sub>23</sub> NO <sub>4</sub>		5 g ¥83,000
Mw 401.46		
[135944-09-1]		


## 3. α-Phenylglycines

### 3.1 α-Phenylglycines

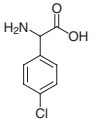
#### (±)-2-Chlorophenylglycine, ≥98.0% TLC

<b>73187</b> <b>NEW</b>		25 g ¥16,000
C <sub>8</sub> H <sub>8</sub> ClNO <sub>2</sub>		100 g ¥56,000
Mw 185.61		
[88744-36-9]		


#### L-(+)-2-Chlorophenylglycine, ≥95.0%

<b>63,894-3</b> <b>NEW</b>		1 g ¥8,000
C <sub>8</sub> H <sub>8</sub> ClNO <sub>2</sub>		5 g ¥31,900
Mw 185.61		
[141315-50-6]		

#### (±)-4-Chlorophenylglycine, ≥98.0% TLC

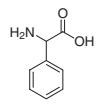
<b>69171</b> <b>NEW</b>		25 g ¥16,000
C <sub>8</sub> H <sub>8</sub> ClNO <sub>2</sub>		100 g ¥56,000
Mw 185.61		
[6212-33-5]		

#### (±)-2-(Trifluoromethyl)phenylglycine, ≥98.0% HPLC

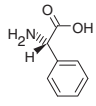
<b>68648</b> <b>NEW</b>		1 g ¥23,000
C <sub>9</sub> H <sub>8</sub> F <sub>3</sub> NO <sub>2</sub>		
Mw 219.16		
[240490-00-0]		

### 3.2 α-Phenylglycine Derivatives

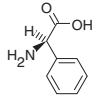
#### H-DL-Phg-OH, ≥98.0%

<b>78580</b>		100 g ¥5,400
C <sub>8</sub> H <sub>9</sub> NO <sub>2</sub>		500 g ¥21,200
Mw 151.16		
[2835-06-5]		

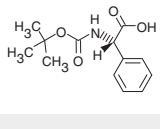
#### H-L-Phg-OH, ≥99.0%

<b>78565</b>		25 g ¥5,000
C <sub>8</sub> H <sub>9</sub> NO <sub>2</sub>		100 g ¥16,200
Mw 151.16		
[2935-35-5]		

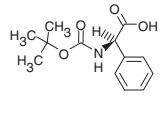
#### H-D-Phg-OH, ≥99.0%

<b>78570</b>		25 g ¥3,000
C <sub>8</sub> H <sub>9</sub> NO <sub>2</sub>		100 g ¥10,200
Mw 151.16		
[875-74-1]		

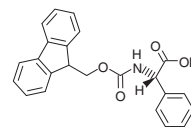
#### Boc-Phg-OH, ≥99.0%

<b>15488</b>		1 g ¥6,800
C <sub>13</sub> H <sub>17</sub> NO <sub>4</sub>		5 g ¥26,900
Mw 251.28		
[2900-27-8]		

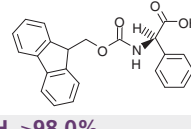
#### Boc-D-Phg-OH, ≥99.0%

<b>15487</b>		1 g ¥6,900
C <sub>13</sub> H <sub>17</sub> NO <sub>4</sub>		5 g ¥27,500
Mw 251.29		
[33125-05-2]		

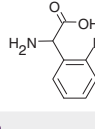
#### Fmoc-Phg-OH, ≥98.0%

<b>47531</b>		1 g ¥7,500
C <sub>23</sub> H <sub>19</sub> NO <sub>4</sub>		5 g ¥29,500
Mw 373.41		
[102410-65-1]		

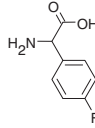
#### Fmoc-D-Phg-OH, ≥98.0%

<b>00211</b>		1 g ¥7,500
C <sub>23</sub> H <sub>19</sub> NO <sub>4</sub>		5 g ¥29,500
Mw 373.41		
[111524-95-9]		

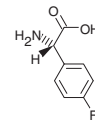
#### H-2-Fluoro-DL-Phg-OH, ≥98.0%

<b>47353</b>		5 g ¥11,600
C <sub>8</sub> H <sub>8</sub> FNO <sub>2</sub>		
Mw 169.15		
[84145-28-8]		

#### H-4-Fluoro-DL-Phg-OH, ≥98.0%

<b>47358</b>		5 g ¥12,000
C <sub>8</sub> H <sub>8</sub> FNO <sub>2</sub>		
Mw 169.15		
[7292-73-1]		

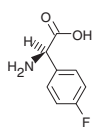
#### H-4-Fluoro-L-Phg-OH, ≥99.0%

<b>47352</b>		1 g ¥47,800
C <sub>8</sub> H <sub>8</sub> FNO <sub>2</sub>		
Mw 169.15		
[19883-57-9]		

## 3.2 $\alpha$ -Phenylglycine Derivatives (continued)

### H-4-Fluoro-D-Phg-OH, $\geq 99.0\%$

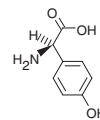
**47355**  
 $C_8H_8FNO_2$   
 Mw 169.15  
 [93939-74-3]



100 mg ¥17,200  
 1 g ¥94,600

### H-4-Hydroxy-D-Phg-OH, $\geq 98.0\%$

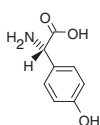
**56155**  
 $C_8H_9NO_3$   
 Mw 167.16  
 [22818-40-2]



25 g ¥6,500  
 100 g ¥16,400

### H-4-Hydroxy-L-Phg-OH, $\geq 99.0\%$

**56160**  
 $C_8H_9NO_3$   
 Mw 167.16  
 [32462-30-9]

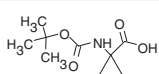


10 g ¥14,600  
 50 g ¥56,400

## 4. Selected Alicyclic $\alpha$ -Amino Acids

### 1-(Boc-amino)cyclopropane carboxylic acid, $\geq 98.0\%$

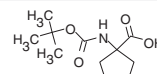
**39977**  
 $C_9H_{15}NO_4$   
 Mw 201.22  
 [88950-64-5]



250 mg ¥18,600  
 1 g ¥58,700

### 1-(Boc-amino)cyclopentane carboxylic acid, $\geq 98.0\%$

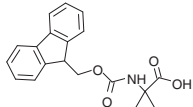
**03583**  
 $C_{11}H_{19}NO_4$   
 Mw 229.28  
 [35264-09-6]



1 g ¥10,200  
 5 g ¥39,800

### 1-(Fmoc-amino)cyclopropane carboxylic acid, $\sim 97\%$

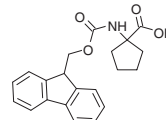
**68822**  
 $C_{19}H_{17}NO_4$   
 Mw 323.35  
 [126705-22-4]



250 mg ¥18,600  
 1 g ¥58,700

### 1-(Fmoc-amino)cyclopentane carboxylic acid, $\geq 98.0\%$

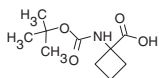
**47512**  
 $C_{21}H_{21}NO_4$   
 Mw 351.4  
 [117322-30-2]



1 g ¥14,900

### 1-(Boc-amino)cyclobutane carboxylic acid, $\geq 98.0\%$

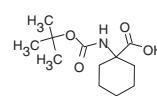
**68823**  
 $C_{10}H_{17}NO_4$   
 Mw 215.25  
 [120728-10-1]



500 mg ¥36,200

### 1-(Boc-amino)cyclohexanecarboxylic acid, $\geq 98.0\%$

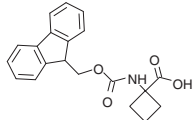
**03582**  
 $C_{12}H_{21}NO_4$   
 Mw 243.3  
 [115951-16-1]



1 g ¥47,800

### 1-(Fmoc-amino)cyclobutane carboxylic acid, $\sim 97\%$

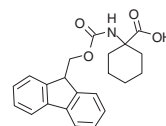
**39978**  
 $C_{20}H_{19}NO_4$   
 Mw 337.38



100 mg ¥14,000  
 500 mg ¥54,100

### 1-(Fmoc-amino)cyclohexanecarboxylic acid, $\geq 98.0\%$

**04061**  
 $C_{22}H_{23}NO_4$   
 Mw 365.4  
 [162648-54-6]



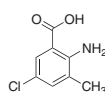
1 g ¥13,500  
 5 g ¥53,400

## 5. Amino Acids with Aromatic Spacers

### 5.1 Aromatic Amino Acids

#### 2-Amino-5-chloro-3-methylbenzoic acid, 97.0%

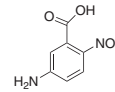
**64,351-3** **NEW**  
 $C_8H_8ClNO_2$   
 Mw 185.61  
 [20776-67-4]



5 g ¥7,800  
 25 g ¥28,000

#### 5-Amino-2-nitrobenzoic acid, 97.0%

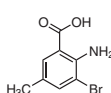
**56,461-3** **NEW**  
 $C_7H_6N_2O_4$   
 Mw 182.13  
 [13280-60-9]



1 g ¥4,300  
 5 g ¥11,700

#### 2-Amino-3-bromo-5-methylbenzoic acid, 97.0%

**63,153-1** **NEW**  
 $C_8H_8BrNO_2$   
 Mw 230.06  
 [13091-43-5]



1 g ¥3,800  
 5 g ¥12,900

#### 4-Amino-3-nitrobenzoic acid, 97.0%

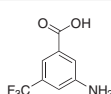
**24,811-8** **NEW**  
 $C_7H_6N_2O_4$   
 Mw 182.13  
 [1588-83-6]



5 g ¥1,500  
 25 g ¥4,800

#### 3-Amino-5-(trifluoromethyl) benzoic acid, 97.0%

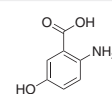
**57,951-3** **NEW**  
 $C_8H_6F_3NO_2$   
 Mw 205.13  
 [328-68-7]



1 g ¥17,100

#### 2-Amino-5-hydroxybenzoic acid, 99.0%

5-Hydroxyanthranilic acid  
**27,899-8** **NEW**  
 $C_7H_7NO_3$   
 Mw 153.14  
 [394-31-0]



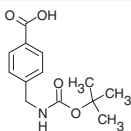
1 g ¥1,400  
 5 g ¥4,800



## 5.2 Aminobenzoic Acids (Abz) and (Aminomethyl)benzoic Acids (Amb)

### 4-(Boc-aminomethyl)benzoic acid, ≥98.0%

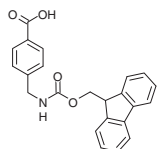
**04060**  
C<sub>13</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 251.27  
[33233-67-9]



1 g ¥10,300  
5 g ¥40,800

### 4-(Fmoc-aminomethyl) benzoic acid, ≥98.0%

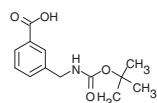
**04062**  
C<sub>23</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 373.41  
[164470-64-8]



1 g ¥13,800  
5 g ¥54,500

### 3-(Boc-aminomethyl)benzoic acid, ~98%

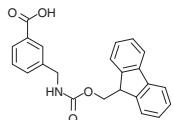
**14971**  
C<sub>13</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 251.28  
[117445-22-4]



1 g ¥28,500  
5 g ¥112,800

### 3-(Fmoc-aminomethyl) benzoic acid, ≥98.0%

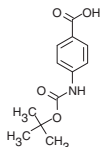
**47974**  
C<sub>23</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 373.41  
[155369-11-2]



1 g ¥17,400  
5 g ¥68,900

### Boc-4-Abz-OH, ≥98.0%

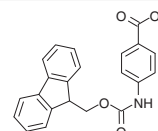
**15299**  
C<sub>12</sub>H<sub>15</sub>NO<sub>4</sub>  
Mw 237.26  
[66493-39-8]



1 g ¥5,500  
5 g ¥13,100  
50 g ¥93,100

### Fmoc-4-Abz-OH, ~98%

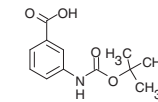
**47307**  
C<sub>22</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 359.38  
[185116-43-2]



1 g ¥14,700  
5 g ¥58,100

### Boc-3-Abz-OH, ≥97.0%

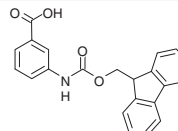
**15298**  
C<sub>12</sub>H<sub>15</sub>NO<sub>4</sub>  
Mw 237.26  
[111331-82-9]



10 g ¥22,000  
50 g ¥86,800

### Fmoc-3-Abz-OH, ≥98.0%

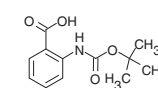
**47952**  
C<sub>22</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 359.38  
[185116-42-1]



500 mg ¥9,800  
2.5 g ¥38,700

### Boc-2-Abz-OH, ≥98.0%

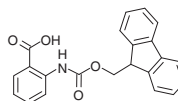
**15297**  
C<sub>12</sub>H<sub>15</sub>NO<sub>4</sub>  
Mw 237.26  
[68790-38-5]



10 g ¥17,300  
50 g ¥67,900

### Fmoc-2-Abz-OH, ≥98.0%

**47996**  
C<sub>22</sub>H<sub>17</sub>NO<sub>4</sub>  
Mw 359.38  
[150256-42-1]



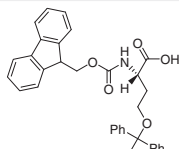
1 g ¥11,000  
5 g ¥43,600

## 6. Other Building Blocks

### 6.1 Unnatural Amino Acids

#### Fmoc-Homoser(Trt)-OH, ≥98.0% HPLC

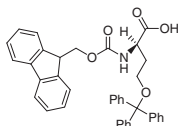
**96744** **NEW**  
C<sub>38</sub>H<sub>33</sub>NO<sub>5</sub>  
Mw 583.67  
[111061-55-3]



1 g ¥20,000  
5 g ¥79,900

#### Fmoc-D-Homoser(Trt)-OH, ≥98.0% HPLC

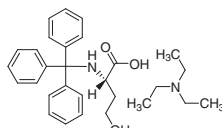
**95727** **NEW**  
C<sub>38</sub>H<sub>33</sub>NO<sub>5</sub>  
Mw 583.67  
[257886-01-4]



1 g ¥19,600  
5 g ¥78,200

#### N-Trityl-L-homoserine triethylamine salt, ≥98.0% TLC

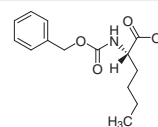
(S)-4-Hydroxy-2-(tritylamino)butyric acid triethylamine salt  
**73828** **NEW**  
C<sub>23</sub>H<sub>23</sub>NO<sub>3</sub> · C<sub>6</sub>H<sub>15</sub>N  
Mw 462.62  
[102056-97-3]



1 g ¥16,000  
5 g ¥63,900

#### Z-Nle-OH, ≥98.0% HPLC

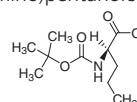
Z-L-norleucine  
**04527** **NEW**  
C<sub>14</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 265.30  
[39608-30-5]



1 g ¥4,800  
5 g ¥18,000

#### Boc-D-Nva-OH, ≥98.0% TLC

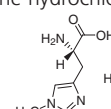
Boc-D-norvaline, (R)-2-(Boc-amino)pentanoic acid  
**12688** **NEW**  
C<sub>10</sub>H<sub>19</sub>NO<sub>4</sub>  
Mw 217.26  
[57521-85-4]



1 g ¥13,400  
5 g ¥53,300

#### N<sup>ε</sup>-Methyl-L-histidine hydrochloride, ≥98.0% TLC

3-(1-Methylimidazol-4-yl)-L-alanine hydrochloride  
**87932** **NEW**  
C<sub>7</sub>H<sub>11</sub>N<sub>3</sub>O<sub>2</sub> · HCl  
Mw 205.64  
[200926-96-1]



500 mg ¥25,900

#### α-Azidoisobutyric acid, solution, purum, ~15% in n-heptane (T)

2-Azido-2-methylpropionic acid  
**52916** **NEW**  
C<sub>4</sub>H<sub>7</sub>N<sub>3</sub>O<sub>2</sub>  
Mw 129.12  
[2654-97-9]

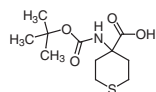


10 mL ¥14,700  
50 mL ¥58,600

## 6.1 Unnatural Amino Acids (continued)

### 4-(Boc-amino)tetrahydrothiopyran-4-carboxylic acid, ≥95.0% C

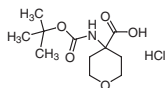
**66381** **NEW**  
 $C_{11}H_{19}NO_4S$   
 Mw 261.34  
 [108329-81-3]



1 g ¥41,300

### 4-(Boc-amino)tetrahydropyran-4-carboxylic acid hydrochloride, > 95.0% HPLC

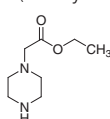
**68039** **NEW**  
 $C_{11}H_{19}NO_5 \cdot HCl$   
 Mw 281.73



500 mg ¥33,300

### Ethyl piperazinoacetate, ≥95.0% GC

N-(Carboethoxymethyl)-piperazine, 1-(Ethoxycarbonylmethyl)piperazine  
**61897** **NEW**  
 $C_8H_{16}N_2O_2$   
 Mw 172.22  
 [40004-08-8]

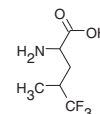


5 g ¥10,700

25 g ¥42,700

### 5,5,5-Trifluoro-DL-leucine, ≥98.0% (HPLC, Sum of Isomers)

(±)2-Amino-4-(trifluoromethyl)pentanoic acid  
**91917** **NEW**  
 $C_6H_{10}F_3NO_2$   
 Mw 185.14



500 mg ¥51,900

### 2-Amino-2-phenylbutyric acid, 96.0%

**53,025-5** **NEW**  
 $C_{10}H_{13}NO_2$   
 Mw 179.22  
 [5438-07-3]

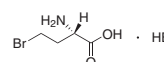


1 g ¥2,800

5 g ¥8,100

### (S)-(+)-2-Amino-4-bromobutyric acid hydrobromide, 97.0%

**47,698-6** **NEW**  
 $C_4H_8BrNO_2 \cdot HBr$   
 Mw 262.93  
 [15159-65-6]

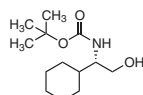


1 g ¥14,200

## 6.2 Amino Alcohols

### N-Boc-L-cyclohexylglycinol, 98.0%

**63,754-8** **NEW**  
 $C_{13}H_{25}NO_3$   
 Mw 243.34  
 [107202-39-1]

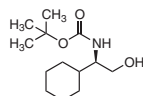


1 g ¥10,400

5 g ¥46,600

### N-Boc-D-cyclohexylglycinol, 98.0%

**63,755-6** **NEW**  
 $C_{13}H_{25}NO_3$   
 Mw 243.34  
 [188348-00-7]

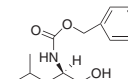


1 g ¥10,400

5 g ¥46,600

### N-Z-D-Leucinol, 97.0%

**55,429-4** **NEW**  
 $C_{14}H_{21}NO_3$   
 Mw 251.32  
 [166735-51-9]



1 g ¥8,500

5 g ¥27,700



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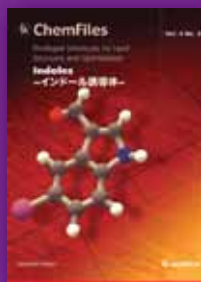
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