CARBOXYMETHYL

Amino Acid Derivatives

→ **Boost your Peptide's Functionality**

Maximize the potential of your peptide with carboxymethyl modified amino acid building blocks.

page 1

Phosphotyrosine mimetics & amino adipic acid analogues.

page 1

Quality control biomarkers for food products.

page 1

*Simple chemical introduction via SPPS.*

page 1

Overview

In recent years, the application of peptides as therapeutic agents has experienced a significant upswing, driven by advancements in peptide manufacturing. Notable commercial successes, such as of the type 2 diabetes drugs Dulaglutide, Liraglutide and Semaglutide, have fueled the exploration and development of peptides as therapeutic agents, leading to large-scale synthesis of peptide APIs ushering in a new era in peptide drug development. The combination of chemical and biological methods for peptide production and modification, alongside novel design and delivery strategies, has mitigated inherent drawbacks and fostered advancements in various therapeutic areas.

In this context, we are pleased to present carboxymethyl amino acids as building blocks. These modified amino acids are reported for various applications including the incorporation in biological active substances. Due to the attached Boc/Fmoc-groups, they are suitable for incorporation into peptides via any standard peptide synthesis protocols.
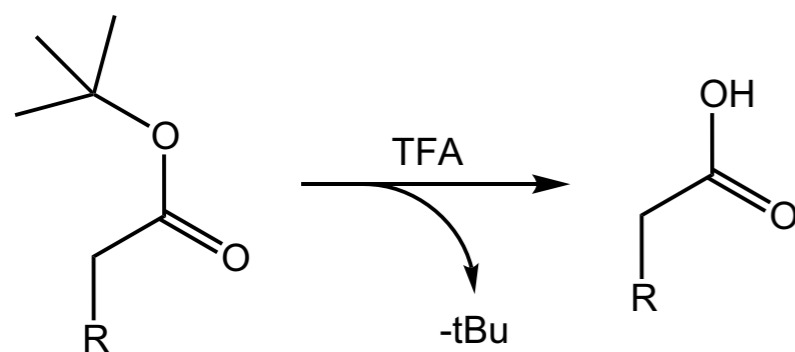
Easy incorporation and tBu deprotection during SPPS.

Serving as an effective phosphotyrosine mimetic or amino adipic acid analogue, these building blocks have already played a crucial role in the synthesis of macrocyclic inhibitors, particularly those blocking PD-L1 interactions.

Additionally, we offer carboxymethyl modified Lysine (CML) derivatives. These Maillard Reaction Products (MRPs) can be used for the synthesis of peptides containing major advanced glycation end products (AGEs) or serve as biomarkers for food analysis. As the most used quality control marker, CMLs can serve as indicators for the heat treatment of food or even determine the thermal history of processed food.
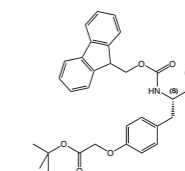
Iris Biotech presents a diverse range of carboxymethyl amino acids, ideal for enhancing your projects.

Product details

FAA5270 Fmoc-L-Tyr(AcOtBu)-OH

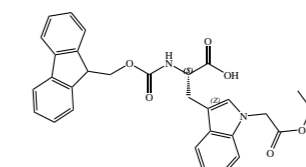N-alpha-(9-Fluorenylmethyloxycarbonyl)-O-(t-butoxy-carbonylmethyl)-L-tyrosine

CAS-No.	181951-92-8
Formula	$C_{30}H_{31}NO_7$
Mol. weight	517,57 g/mol

FAA9265 Fmoc-L-Trp(AcOtBu)-OH

N-alpha-(((9H-fluoren-9-yl)methoxy)carbonyl)-1-(2-(tert-butoxy)-2-oxoethyl)-L-tryptophan
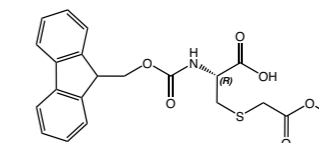
CAS-No.	1629658-33-8
Formula	$C_{32}H_{32}N_2O_6$
Mol. weight	540,62 g/mol

FAA4751 Fmoc-L-Cys(Ac-OtBu)-OH*DCHA

N-alpha-(9-Fluorenylmethyloxycarbonyl)-S-(t-butoxy-carbonylmethyl)-L-cysteine dicyclohexylamine
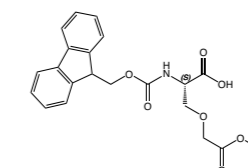
CAS-No.	269730-62-3 net
Formula	$C_{24}H_{27}NO_6S*C_{12}H_{23}N$
Mol. weight	457,54*181,32 g/mol

FAA9240 Fmoc-L-Ser(AcOtBu)-OH

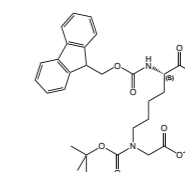N-(((9H-fluoren-9-yl)methoxy)carbonyl)-O-(2-(tert-butoxy)-2-oxoethyl)-L-serine

CAS-No.	1903597-74-9
Formula	$C_{24}H_{27}NO_7$
Mol. weight	441,48 g/mol

FAA3620 Fmoc-L-CML(OtBu)(Boc)-OH

N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-t-butyloxycarbonyl-N-epsilon-(t-butoxycarbonyl-methyl)-L-lysine

CAS-No.	866602-35-9
Formula	$C_{32}H_{42}N_2O_8$
Mol. weight	582,68 g/mol

FAA3630 Fmoc-L-CEL(OtBu)(Boc)-OH

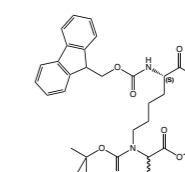N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-t-butyloxycarbonyl-N-epsilon-(t-butoxycarbony-leth-1-yl)-L-lysine

CAS-No.	866602-36-0
Formula	$C_{33}H_{44}N_2O_8$
Mol. weight	596,71 g/mol

Carboxymethyl

References:

→ *Enantioselective synthesis of nonphosphorus-containing phosphotyrosyl mimetics and their use in the preparation of tyrosine phosphatase inhibitory peptides; T. R. Burke Jr, Z. J. Yao, G. W. Milne, L. Wu, Z. Y. Zhang, J. H. Voigt;* **Tetrahedron** *1998;* **54(34)***: 9981-9994. https://doi.org/10.1016/S0040-4020(98)00590-0*

→ *Monocarboxylic-based phosphotyrosyl mimetics in the design of GRB2 SH2 domain inhibitors; T. R. Burke Jr, J. Lou, Z. J. Yao, Y. Gao, H. Zhao, G. W. Milne, R. Guo, J. H. Voigt, C. R. King, D. Yang;* **Bioorg. Med. Chem. Lett.** *1999;* **9(3)***: 347-52. https://doi.org/10.1016/s0960-894x(98)00740-9*

→ *Structural and biological characterization of pAC65, a macrocyclic peptide that blocks PD-L1 with equivalent potency to the FDA-approved antibodies; I. Rodriguez, J. Kocik-Krol, L. Skalniak, B. Musielak, A. Wisniewska, A. Ciesiołkiewicz, Ł. Berlicki, J. Plewka, P. Grudnik, M. Stec, M. Siedlar, T. A. Holak, K. Magiera-Mularz;* **Mol. Cancer.** *2023;* **22***: 150. https://doi.org/10.1186/s12943-023-01853-4*

→ *Peptide Tethering: Pocket-Directed Fragment Screening for Peptidomimetic Inhibitor Discovery; A. E. Modell, F. Marrone III, N. R. Panigrahi, Y. Zhang, P. S. Arora;* **J. Am. Chem. Soc.** *2022;* **133(3)***: 1198-1204. https://doi.org/10.1021/jacs.1c09666*

→ *Incorporation of thioether building blocks into an αvβ3-specific RGD peptide: Synthesis and biological activity; A. Kellerman, R. Mattern, M. D. Pierschbacher, M. Goodman;* **Pept. Sci.** *2004;* **71(6)***: 686-695. https://doi.org/10.1002/bip.10586*

→ *A quantitative model of the generation of N(epsilon)-(carboxymethyl)lysine in the Maillard reaction between collagen and glucose; A. E. N. Ferreira, A. M. J. Ponces Freire, E. O. Voit;* **Biochem J.** *2003;* **376(Pt 1)***: 109-21. https://doi.org/10.1042/bj20030496*

→ *N(ε)-Carboxymethyllysine (CML), a Maillard reaction product, stimulates serotonin release and activates the receptor for advanced glycation end products (RAGE) in SH-SY5Y cells; A. Holik, B. Rohm, M. M. Somoza, V. Somoza;* **Food Funct.** *2013;* **4(7)***: 1111-20. https://doi.org/10.1039/c3fo60097a*

→ *Chemoselective synthesis of peptides containing major advanced glycation end-products of lysine and arginine; P. Gruber, T. Hofmann;* **J. Pept. Res.** *2005;* **66(3)***: 111-24. https://doi.org/10.1111/j.1399-3011.2005.00279.x*

→ **For more information about MRPs, see our flyer „Maillard and Amadori Reaction Products"!**