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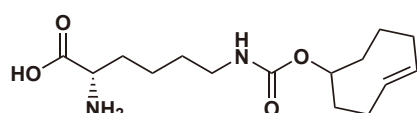
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Non-Canonical Amino Acids for Protein Site-specific Modification by Genetic Code Expansion

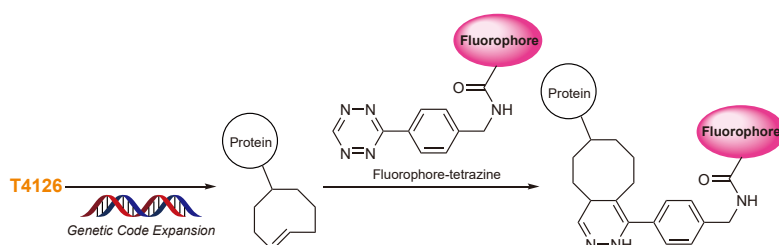
Cell-specific and protein site-specific modifications are possible using non-canonical amino acids (ncAA) and RNA/tRNA synthase pairs (tRNA/RS) introduced by Genetic Code Expansion (GCE).¹⁾ By using a fluorescent label depending on the functional group contained, it is possible to detect the specific modification.

trans-Cyclooctenyl (TCO) Group-containing Amino Acid

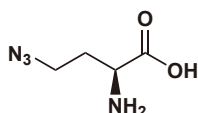


***N*-(4*E*)-TCO-L-lysine**
25mg [T4126]

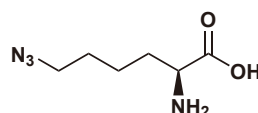
Example of the detection of T4126 site-specifically incorporated by GCE²⁾



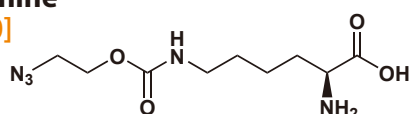
Azido Group-containing Amino Acids



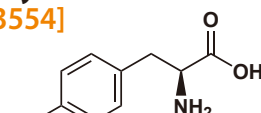
L-Azidohomoalanine
100mg [A3550]



L-Azidonorleucine Hydrochloride
250mg [A3554]



N⁶-[(2-Azidoethoxy)carbonyl]-L-lysine
50mg [A3566]



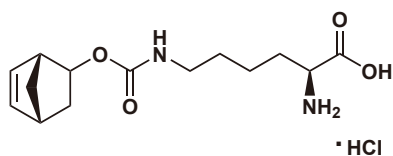
4-Azido-L-phenylalanine
250mg [A3582]

Related Products

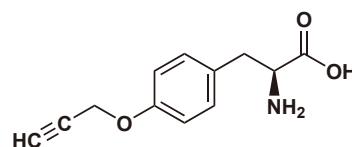
5-FAM-Alkyne
Biotin-PEG4-Alkyne
DBCO-S-S-PEG3-Biotin

25mg [F1222]
50mg [B6511]
25mg [D5552]

Alkynyl/Alkenyl Group-containing Amino Acids



N⁶-5-Norbornene-2-yloxycarbonyl-L-lysine Hydrochloride (*endo*- and *exo*- mixture)
25mg [B6476]



O-Propargyl-L-tyrosine
250mg [P3021]

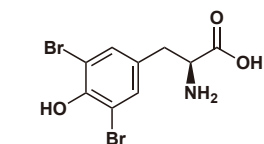
Related Products

6-FAM-PEG3-Azide
Biotin-PEG4-Azide

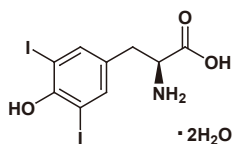
5mg / 25mg [F1243]
100mg [B5546]

Non-Canonical Amino Acids for Protein Site-specific Modification by Genetic Code Expansion

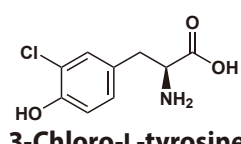
Halogenated Amino Acids



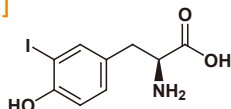
3,5-Dibromo-L-tyrosine
1g / 5g [D0213]



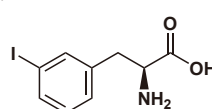
3,5-Diiodo-L-tyrosine Dihydrate
5g / 25g [D0612]



3-Chloro-L-tyrosine
1g / 5g [C3770]

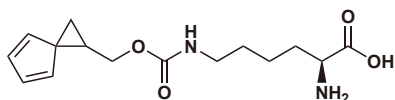


3-Iodo-L-tyrosine
1g / 5g [I0075]



3-Iodo-L-phenylalanine
250mg [I1211]

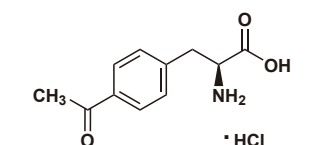
Spiroheptadienyl Group-containing Amino Acids



N⁶-[(spiro[2.4]hepta-4,6-dien-1-ylmethoxy)carbonyl]-L-lysine
100mg / 500mg [H1840]

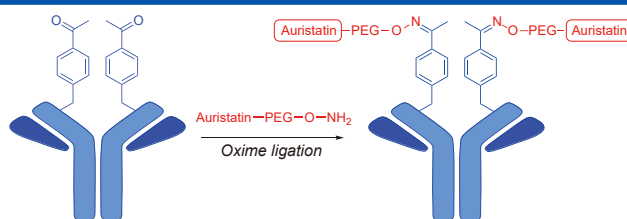
Spiroheptadiene (SCp) forms a covalent bond with maleimide through the Diels-Alder (DA) reaction. In the production of antibody-drug conjugate (ADC), it is possible to create ADCs with site-specific modifications by reacting an antibody incorporating SCp as a non-canonical amino acid with a drug that has a maleimide group.³⁾

Ketone Moiety-containing Amino Acid



4-Acetyl-L-phenylalanine Hydrochloride
500mg [A3623]

Example of preparation of site-specifically modified ADC using T4126⁴⁾



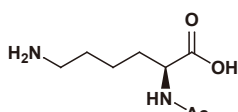
Oxime ligation through ketone moieties and alkoxyamines has enabled the preparation of homogeneous ADCs with optimized properties.

Related Products

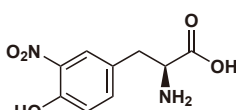
Hydrazide-PEG4-Desthiobiotin
Biotin-PEG4-Hydrazide
Rhodamine B Hydrazide

25mg [H1667]
10mg / 50mg [B5578]
200mg / 1g [R0260]

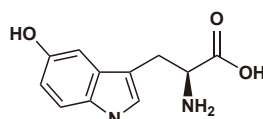
Other Non-Canonical Amino Acids



N^ε-Acetyl-L-lysine
1g / 5g [A2171]



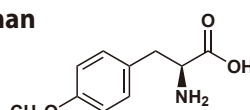
3-Nitro-L-tyrosine
5g / 25g [N0905]



5-Hydroxy-L-tryptophan
1g / 5g [H0531]



L-Norleucine
100mg [N0303]



O-Methyl-L-tyrosine
1g [M2276]

References

- 1) C. H. Kim, J. Y. Axup, P. G. Schultz, *Curr. Opin. Chem. Biol.* **2013**, 3, 412. <https://doi.org/10.1016/j.cbpa.2013.04.017>
- 2) T. Plass, C. Schultz, E. A. Lemke, et al., *Angew. Chem. Int. Ed.* **2012**, 51, 4166. <https://doi.org/10.1002/anie.201108231>
- 3) A. H. St Amant, R. J. Christie, et al., *Bioconjug. Chem.* **2019**, 30, 2340. <https://doi.org/10.1021/acs.bioconjchem.9b00436>
- 4) J. Y. Axup, P. G. Schultz, et al., *Proc. Natl. Acad. Sci. USA* **2012**, 109, 16101. <https://doi.org/10.1073/pnas.1211023109>

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