



CIL

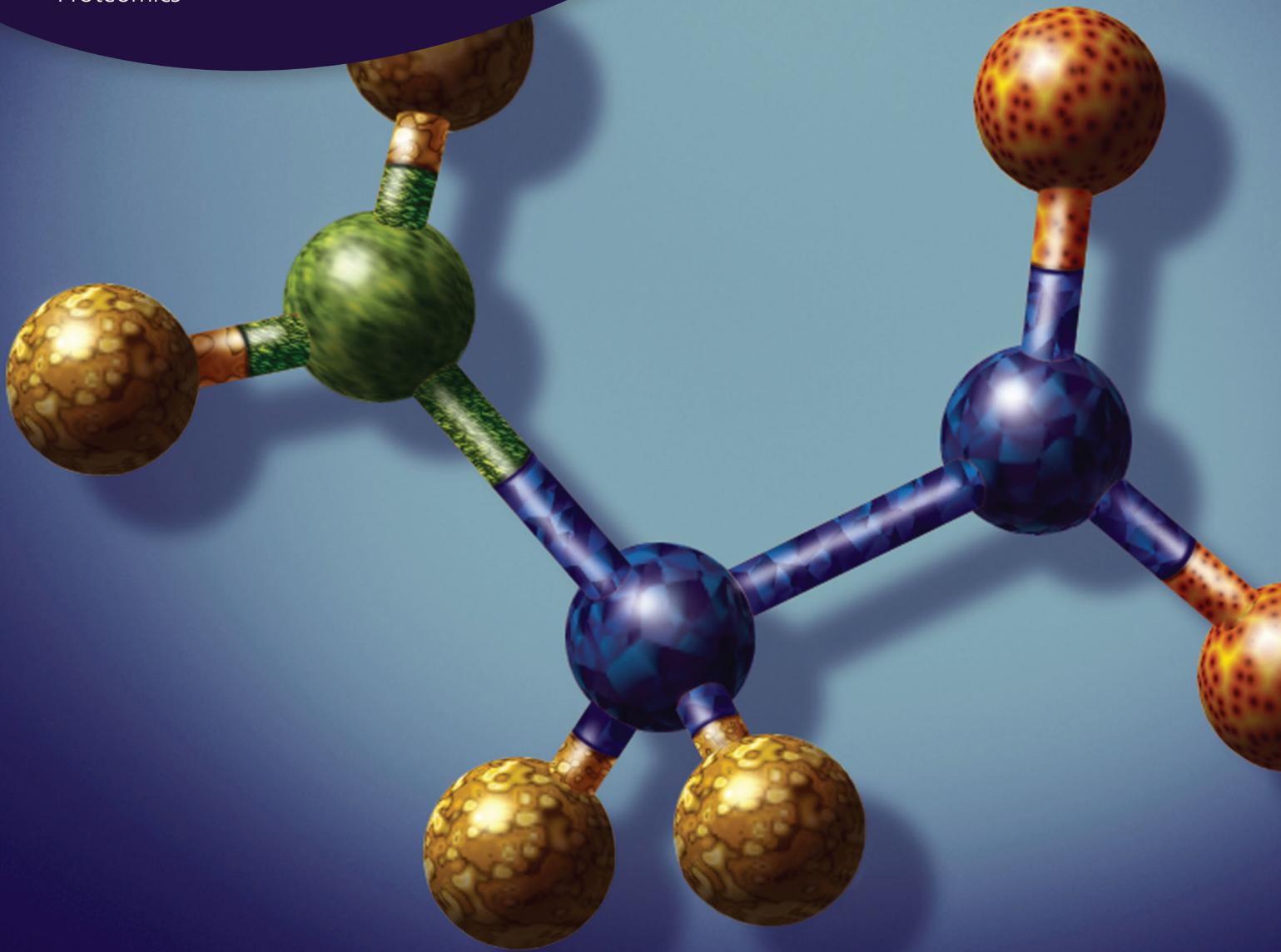
Cambridge Isotope Laboratories, Inc.
www.isotope.com

RESEARCH PRODUCTS

Stable Isotope-Labeled Protected Amino Acids

Build Your Dream Peptide!

- NMR
- Peptide Synthesis
- Proteomics



Build your dream peptide using CIL protected amino acids!

CIL is proud to offer almost 200 different isotope-enriched protected amino acids that can be used for the production of labeled peptides for peptide-based NMR and proteomics research. Each product has undergone extensive QC analyses to confirm chemical identity and a chemical purity (CP) of at least 98%, unless otherwise noted. The type and level of enrichment meets or exceeds the specifications stated below. Please contact your local sales Representative or distributor for prices and available packaged sizes.

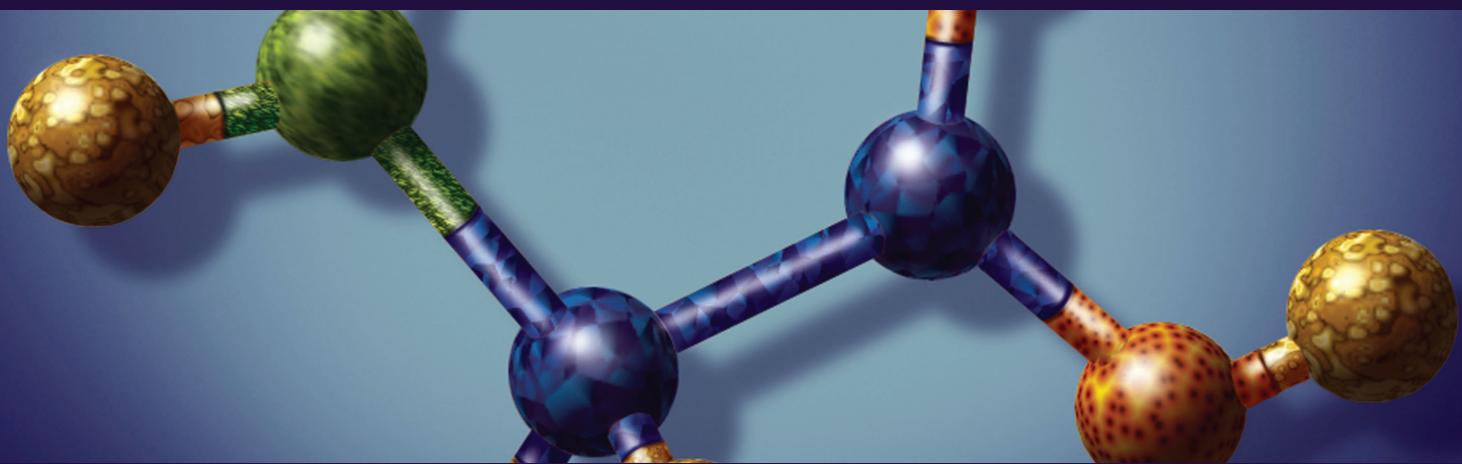
If you don't see your desired labeling pattern or protecting group in this listing, CIL will be able to make it for you in our custom synthesis facilities. Please contact your sales representative or distributor for a quote.

PROTECTED AMINO ACIDS		
Catalog #	Description	Position of Label
ALANINE		
CLM-818	L-Alanine-N-FMOC	(1- ¹³ C, 99%)
CLM-3638	L-Alanine-N-FMOC	(2- ¹³ C, 99%)
CLM-1142	L-Alanine-N-FMOC	(3- ¹³ C, 99%)
CLM-7785	L-Alanine-N-FMOC	(¹³ C ₃ , 97-99%)
CNLM-4355	L-Alanine-N-FMOC	(U- ¹³ C ₃ , 97-99%; ¹⁵ N, 97-99%)
CDNL-7852	L-Alanine-N-FMOC	(U- ¹³ C ₃ , 97-99%; U-D ₄ , 97-99%; ¹⁵ N, 97-99%)
DLM-7316	L-Alanine-N-FMOC	(3,3,3-D ₃ , 98%)
DLM-8168	L-Alanine-N-FMOC	(2,3,3,3-D ₄ , 98%)
NLM-614	L-Alanine-N-FMOC	(¹⁵ N, 98%)
CLM-2150	L-Alanine-N-t-BOC	(1- ¹³ C, 99%)
CLM-2011	L-Alanine-N-t-BOC	(2- ¹³ C, 98-99%)
CLM-2151	L-Alanine-N-t-BOC	(3- ¹³ C, 99%)
CLM-3589	L-Alanine-N-t-BOC	(U- ¹³ C ₃ , 97-99%)
CNLM-6014	L-Alanine-N-t-BOC	(2- ¹³ C, 99%; ¹⁵ N, 96-99%)
CNLM-2394	L-Alanine-N-t-BOC	(U- ¹³ C ₃ , 97-99%; ¹⁵ N, 97-99%)
DLM-649	L-Alanine-N-t-BOC	(2-D ₁ , 98%)
DLM-2793	L-Alanine-N-t-BOC	(3,3,3-D ₃ , 99%)
NLM-1903	L-Alanine-N-t-BOC	(¹⁵ N, 98%)
NLM-2168	D-Alanine-N-t-BOC	(¹⁵ N, 98%)
ARGININE		
CNLM-8402	L-Arginine-N-FMOC, Mtr	(U- ¹³ C ₆ , 97-99%; U- ¹⁵ N ₄ , 97-99%)
CLM-8475	L-Arginine-N-FMOC, Pbf	(U- ¹³ C ₆ , 99%) (contains ethyl acetate) CP 90-95%
CNLM-8474	L-Arginine-N-FMOC, Pbf	(U- ¹³ C ₆ , 99%; U- ¹⁵ N ₄ , 99%) (contains ethyl acetate) CP 90-95%
CLM-7792	L-Arginine-N-FMOC, Pmc	(U- ¹³ C ₆ , 97-99%) (CP ≥ 94%)
CNLM-4226	L-Arginine-N-FMOC, Pmc	(U- ¹³ C ₆ , 97-99%; U- ¹⁵ N ₄ , 97-99%) CP ≥ 94%
NLM-1264	L-Arginine-N-FMOC, Pmc	(U- ¹⁵ N ₄ , 98%) (CP ≥ 94%)
ASPARAGINE		
CNLM-4354	L-Asparagine-N-FMOC	(U- ¹³ C ₄ , 97-99%; U- ¹⁵ N ₂ , 97-99%)
CNLM-6193	L-Asparagine-N-FMOC, N-β-Trityl	(U- ¹³ C ₄ , 97-99%; U- ¹⁵ N ₂ , 97-99%)
NLM-4204	L-Asparagine-N-FMOC, N-β-Trityl	(¹⁵ N ₂ , 98%)
NLM-2164	L-Asparagine-N-t-BOC	(α- ¹⁵ N, 98%)
ASPARTIC ACID		
CNLM-4788	L-Aspartic Acid-N-FMOC	(U- ¹³ C ₄ , 97-99%; ¹⁵ N, 97-99%)
CNLM-4789	L-Aspartic Acid-N-FMOC, α-O-t-Butyl Ester	(U- ¹³ C ₄ , 97-99%; ¹⁵ N, 97-99%)
CNLM-4752	L-Aspartic Acid-N-FMOC, β-O-t-Butyl Ester	(¹³ C ₄ , 97-99%; ¹⁵ N, 97-99%)
NLM-647	L-Aspartic Acid-N-FMOC, β-O-t-Butyl Ester	(¹⁵ N, 98%)
NLM-3493	L-Aspartic Acid-N-t-BOC	(¹⁵ N, 98%)
CNLM-2392	L-Aspartic Acid-N-t-BOC, β-Benzyl Ester	(U- ¹³ C ₄ , 97-99%; ¹⁵ N, 97-99%)
NLM-1908	L-Aspartic Acid-N-t-BOC, β-Benzyl Ester	(¹⁵ N, 98%)

Catalog #	Description	Position of Label
CYSTEINE		
CNLM-7579	L-Cysteine, N-Acetyl	(Cysteine- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%) CP \geq 95%
CLM-2182	L-Cysteine, S-Benzyl	(β - ^{13}C , 99%)
DLM-1964	L-Cysteine, S-Benzyl	($2,3,3\text{-D}_{\beta}$, 98%)
NLM-368	L-Cysteine, S-Benzyl	(^{15}N , 98%)
NLM-3914	L-Cysteine, S-P-Mebz	(^{15}N , 98%)
CNLM-7112	L-Cysteine, S-Trityl	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%)
DLM-4532	L-Cysteine, S-Trityl	($3,3\text{-D}_2$, 98%)
CLM-2403	L-Cysteine-N-FMOC, S-Benzyl	($3\text{-}^{13}\text{C}$, 98%)
CNLM-4722	L-Cysteine-N-FMOC, S-Trityl	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%)
DLM-4721	L-Cysteine-N-FMOC, S-Trityl	($3,3\text{-D}_2$, 98%)
CLM-1901	L-Cysteine-N-t-BOC, S-Benzyl	($3\text{-}^{13}\text{C}$, 99%)
DLM-2700	L-Cysteine-N-t-BOC, S-P-Mebz	($3,3\text{-D}_2$, 98%)
NLM-3874	L-Cysteine-N-t-BOC, S-P-Mebz	(^{15}N , 98%)
GLUTAMIC ACID		
CNLM-6769	L-Glutamic Acid, α -t-Butyl Ester	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%)
CLM-6664	L-Glutamic Acid, N-Acetyl	(Glutamate- $^{13}\text{C}_{\beta}$, 97-99%)
CNLM-4753	L-Glutamic Acid-N-FMOC, γ -t-Butyl Ester	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%) CP \geq 96%
NLM-1907	L-Glutamic Acid-N-t-BOC, γ -Benzyl Ester	(^{15}N , 98%)
CLM-2008	L-Glutamic Acid-N-t-BOC, γ -Benzyl-Ester	(1,2- $^{13}\text{C}_2$, 99%)
GLUTAMINE		
DLM-3090	L-Glutamine, N ₂ -Phenylacetyl	(D ₇ , 98%)
DLM-3182	L-Glutamine, N ₂ -Phenylacetyl	(Phenylacetyl-2,2-D ₂ , 98%)
CNLM-4356	L-Glutamine-N-FMOC	(U- $^{13}\text{C}_{\beta}$, 97-99%; U- $^{15}\text{N}_{\alpha}$, 97-99%)
CNLM-7252	L-Glutamine-N-FMOC, N- γ -Trityl	(U- $^{13}\text{C}_{\beta}$, 97-99%; U- $^{15}\text{N}_{\alpha}$, 97-99%)
CLM-1902	L-Glutamine-N-t-BOC	(1,2- $^{13}\text{C}_2$, 99%)
NLM-3419	L-Glutamine-N-t-BOC	(α - ^{15}N , 98%+)
GLYCINE		
CLM-3777	Glycine, N-Acetyl	(2- ^{13}C , 99%)
CNLM-4524	Glycine, N-Acetyl	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%)
NLM-4464	Glycine, N-Acetyl	(^{15}N , 98%)
NLM-2377	Glycine, N-Benzoyl (Hippuric Acid)	(^{15}N , 98%)
CLM-3639	Glycine-N-FMOC	(1- ^{13}C , 99%)
CLM-2387	Glycine-N-FMOC	(2- ^{13}C , 99%)
CLM-7547	Glycine-N-FMOC	($^{13}\text{C}_{\beta}$, 97-99%)
CNLM-7697	Glycine-N-FMOC	(1- ^{13}C , 99%; ^{15}N , 98%)
CNLM-7698	Glycine-N-FMOC	(2- ^{13}C , 99%; ^{15}N , 98%)
CNLM-4357	Glycine-N-FMOC	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%)
CDNLM-7853	Glycine-N-FMOC	(U- $^{13}\text{C}_{\beta}$, 97-99%; 2,2-D ₂ , 97-99%; ^{15}N , 97-99%)
DLM-7339	Glycine-N-FMOC	(2,2-D ₂ , 98%)
NLM-694	Glycine-N-FMOC	(^{15}N , 98%)
CLM-2152	Glycine-N-t-BOC	(1- ^{13}C , 99%)
CLM-1900	Glycine-N-t-BOC	(2- ^{13}C , 99%)
CNLM-2412	Glycine-N-t-BOC	(U- $^{13}\text{C}_{\beta}$, 97-99%; ^{15}N , 97-99%)
DLM-2153	Glycine-N-t-BOC	(2,2-D ₂ , 98%)
NLM-2109	Glycine-N-t-BOC	(^{15}N , 98%)

Catalog #	Description	Position of Label
HISTIDINE		
NLM-2328	L-Histidine, Ring-Pi-Bz-Oxyme, α-N-t-BOC	(α - ¹⁵ N, 98%)
NLM-8010	L-Histidine-N-FMOC, N-IM-Trityl	(¹⁵ N ₃ , 98%)
ISOLEUCINE		
CLM-7794	L-Isoleucine-N-FMOC	(U- ¹³ C ₆ , 97-99%)
CLM-8043	L-Isoleucine-N-FMOC	(1- ¹³ C, 99%)
CNLM-4346	L-Isoleucine-N-FMOC	(U- ¹³ C ₆ , 97-99%; ¹⁵ N, 97-99%)
NLM-391	L-Isoleucine-N-FMOC	(¹⁵ N, 98%)
NLM-2167	L-Isoleucine-N-t-BOC	(¹⁵ N, 98%)
LEUCINE		
CLM-3691	L-Leucine-N-FMOC	(1- ¹³ C, 99%)
CLM-7546	L-Leucine-N-FMOC	(1,2- ¹³ C ₂ , 99%)
CLM-3683	L-Leucine-N-FMOC	(U- ¹³ C ₆ , 97-99%)
CNLM-4345	L-Leucine-N-FMOC	(U- ¹³ C ₆ , 97-99%; ¹⁵ N, 97-99%)
CDNL-7854	L-Leucine-N-FMOC	(U- ¹³ C ₆ , 97-99%; U-D ₁₀ , 97-99%; ¹⁵ N, 97-99%)
DLM-7202	L-Leucine-N-FMOC	(5,5,5-D ₃ , 98%)
DLM-7575	L-Leucine-N-FMOC	(D ₁₀ , 98%)
NLM-2397	L-Leucine-N-FMOC	(¹⁵ N, 98%)
CLM-2155	L-Leucine-N-t-BOC:H₂O	(1- ¹³ C, 99%)
CLM-2010	L-Leucine-N-t-BOC:H₂O	(2- ¹³ C, 99%)
CNLM-2396	L-Leucine-N-t-BOC:H₂O	(U- ¹³ C ₆ , 97-99%; ¹⁵ N, 97-99%)
DLM-2736	L-Leucine-N-t-BOC:H₂O	(5,5,5-D ₃ , 98%)
DLM-3650	L-Leucine-N-t-BOC:H₂O	(D ₁₀ , 98%)
NLM-1904	L-Leucine-N-t-BOC:H₂O	(¹⁵ N, 98%)
LYSINE		
NLM-2335	L-Lysine, ϵ-Benzoyl	(α - ¹⁵ N, 95-99%)
CLM-6194	L-Lysine-α-N-FMOC, ϵ-N-t-BOC	(1- ¹³ C, 99%)
CLM-7865	L-Lysine-α-N-FMOC, ϵ-N-t-BOC	(U- ¹³ C ₆ , 99%)
CNLM-4754	L-Lysine-α-N-FMOC, ϵ-N-t-BOC	(U- ¹³ C ₆ , 99%; U- ¹⁵ N ₂ , 99%)
NLM-4631 (NEW)	L-Lysine-α-N-FMOC, ϵ-N-t-BOC	(¹⁵ N ₂ , 96-98%)
CLM-343	L-Lysine-α-N-t-BOC	(6- ¹³ C, 99%)
METHIONINE		
CLM-1141	L-Methionine-N-FMOC	(Methyl- ¹³ C, 99%)
CLM-8166	L-Methionine-N-FMOC	(1- ¹³ C, 99%)
CNLM-4358	L-Methionine-N-FMOC	(U- ¹³ C ₅ , 97-99%; ¹⁵ N, 97-99%)
NLM-4632 (NEW)	L-Methionine-N-FMOC	(¹⁵ N, 98%) (CP \geq 95%)
CLM-2156	L-Methionine-N-t-BOC	(Methyl- ¹³ C, 98%)
PHENYLALANINE		
CLM-7381	DL-Phenylalanine: HCl, Ethyl Ester	(1- ¹³ C, 99%)
CLM-4248	L-Phenylalanine, Methyl Ester: HCl	(U- ¹³ C ₁₀ , 97-99%)
CLM-3684	L-Phenylalanine-N-FMOC	(Ring- ¹³ C ₆ , 99%)
CLM-4824	L-Phenylalanine-N-FMOC	(1- ¹³ C, 99%)
CNLM-4362	L-Phenylalanine-N-FMOC	(U- ¹³ C ₉ , 97-99%; ¹⁵ N, 97-99%)
DLM-7786	L-Phenylalanine-N-FMOC	(Ring-D ₅ , 98%)
DLM-8752	L-Phenylalanine-N-FMOC	(D ₈ , 98%)
NLM-1265	L-Phenylalanine-N-FMOC	(¹⁵ N, 98%)
CLM-2009	L-Phenylalanine-N-t-BOC	(2- ¹³ C, 99%)
CLM-2061	L-Phenylalanine-N-t-BOC	(Ring- ¹³ C ₆ , 99%)
CLM-2170	L-Phenylalanine-N-t-BOC	(1- ¹³ C, 99%)
CLM-7859	L-Phenylalanine-N-t-BOC	(U- ¹³ C ₉ , 97-99%)

Catalog #	Description	Position of Label
PHENYLALANINE		
CNLM-2393	L-Phenylalanine-N-t-BOC	(U- ¹³ C ₉ , 97-99%; ¹⁵ N, 97-99%)
DLM-2157	L-Phenylalanine-N-t-BOC	(Ring-D ₅ , 98%)
NLM-1905	L-Phenylalanine-N-t-BOC	(¹⁵ N, 98%)
PROLINE		
CLM-8044	L-Proline-N-FMOC	(1- ¹³ C, 99%)
CNLM-4347	L-Proline-N-FMOC	(U- ¹³ C ₅ , 97-99%; ¹⁵ N, 97-99%)
NLM-3906	L-Proline-N-FMOC	(¹⁵ N, 98%)
NLM-2329	L-Proline-N-t-BOC	(¹⁵ N, 98%)
SERINE		
CNLM-8403	L-Serine-N-FMOC	(U- ¹³ C ₃ , 97-99%; ¹⁵ N, 97-99%)
CLM-8167 (NEW)	L-Serine-N-FMOC, O-Tert-Butyl Ether	(1- ¹³ C, 99%)
CNLM-4755	L-Serine-N-FMOC, O-Tert-Butyl Ether	(U- ¹³ C ₃ , 97-99%; ¹⁵ N, 97-99%) 3% D Isomer
NLM-4630 (NEW)	L-Serine-N-FMOC, O-Tert-Butyl Ether	(¹⁵ N, 98%)
CLM-2007	L-Serine-N-t-BOC, O-Bz Ether	(2- ¹³ C, 99%)
CLM-756	L-Serine-N-t-BOC, O-Bz Ether	(3- ¹³ C, 99%)
NLM-2025	L-Serine-N-t-BOC, O-Bz Ether	(¹⁵ N, 98%)
THREONINE		
CNLM-7615	L-Threonine-N-FMOC, O-T-Butyl Ether	(U- ¹³ C ₄ , 97-99%; ¹⁵ N, 97-99%)
NLM-8170 (NEW)	L-Threonine-N-FMOC, O-T-Butyl Ether	(¹⁵ N, 98%)
NLM-3681	L-Threonine-N-t-BOC, O-Benzyl Ether	(¹⁵ N, 98%)
TRYPTOPHAN		
CNLM-6077	L-Tryptophan-N-FMOC	(U- ¹³ C ₁₁ , 97-99%; U- ¹⁵ N ₂ , 97-99%)
DLM-6113	L-Tryptophan-N-FMOC	(Indole-D ₅ , 98%)
NLM-3423	L-Tryptophan-N-FMOC	(α - ¹⁵ N, 98%+)
CLM-2194	L-Tryptophan-N-t-BOC	(1- ¹³ C, 99%)
TYROSINE		
CNLM-4349	L-Tyrosine-N-FMOC, O-Tert-Butyl Ether	(U- ¹³ C ₉ , 97-99%; ¹⁵ N, 97-99%)
NLM-8169 (NEW)	L-Tyrosine-N-FMOC, O-Tert-Butyl Ether	(¹⁵ N, 98%)
CLM-2092	L-Tyrosine-N-t-BOC, O-Bz Ether	(Ring- ¹³ C ₆ , 99%)
DLM-2303	L-Tyrosine-N-t-BOC, O-Bz Ether	(Ring-D ₄ , 98%)
NLM-1906	L-Tyrosine-N-t-BOC, O-Bz Ether	(¹⁵ N, 98%)
VALINE		
NLM-7888	L-Valine, N-Acetyl	(¹⁵ N, 98%)
CLM-3640	L-Valine-N-FMOC	(1- ¹³ C, 99%)
CLM-7793	L-Valine-N-FMOC	(U- ¹³ C ₅ , 97-99%)
CNLM-4348	L-Valine-N-FMOC	(U- ¹³ C ₅ , 97-99%; ¹⁵ N, 97-99%)
DLM-7784	L-Valine-N-FMOC	(D ₈ , 98%)
NLM-4243	L-Valine-N-FMOC	(¹⁵ N, 98%)
CLM-2450	D-Valine, N-Acetyl	(2- ¹³ C, 99%)
CLM-2158	L-Valine-N-t-BOC	(1- ¹³ C, 99%)
CNLM-2395	L-Valine-N-t-BOC	(U- ¹³ C ₅ , 97-99%; ¹⁵ N, 97-99%)
DLM-3651	L-Valine-N-t-BOC	(D ₈ , 98%)
NLM-2060	L-Valine-N-t-BOC	(¹⁵ N, 98%)



Research products are distributed and sold worldwide via our extensive network.

To request a quotation or place an order, please contact CIL Sales at
email: cilsales@isotope.com
telephone: 1.978.749.8000
1.800.322.1174 (North America only)

For our international customers

Please contact CIL International Sales at
email: intlsales@isotope.com
telephone: +1.978.749.8000
CIL's distributor listing is available at: www.isotope.com



Cambridge Isotope Laboratories, Inc., 3 Highwood Drive, Tewksbury, MA 01876 USA

tel: +1.978.749.8000 | fax: +1.978.749.2768 | 1.800.322.1174 (North America) | www.isotope.com

PL_RSCH_PAA
1/14 Supersedes all previously published literature