Cambridge Isotope Laboratories, Inc.
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SILAC Reagents

Stable Isotope Labeling with Amino Acids in Cell Culture

Stable isotope incorporation into protein has proven to be a powerful technology for quantitatively comparing the proteomes of multiple samples. Although isotopes can be incorporated metabolically or chemically, the SILAC method (utilizes metabolic incorporation) has emerged as one of the most powerful techniques for MS-based quantitative applications (see references on reverse).

Cambridge Isotope Laboratories, Inc. (CIL) is pleased to offer the following products for SILAC-based, quantitative proteomic studies.

Applications

- Peptide/protein identification
- Protein expression profiling (i.e., normal vs. disease cells)
- Signaling pathway evaluation
- Relative protein quantification

Amino Acids

L-Arginine (L-Arg)

Catalog No.	Description	Shift from Unlabeled
CLM-2265-H*	L-Arginine·HCl ($^{13}C_6$, 99%)	+6 Da
CNLM-539-H*	L-Arginine·HCl ($^{13}C_6$, 99%; $^{15}N_4$, 99%)	+10 Da
ULM-8347	L-Arginine·HCl (unlabeled)	N/A

L-Lysine (L-Lys)

Catalog No.	Description	Shift from Unlabeled
CLM-2247-H*	L-Lysine·2HCl ($^{13}C_6$, 99%)	+6 Da
DLM-2640	L-Lysine·2HCl (4,4,5,5-D_4, 96-98%)	+4 Da
DLM-2641	L-Lysine·2HCl (3,3,4,4,5,5,6,6-D_8, 98%)	+8 Da
CNLM-291-H*	L-Lysine·2HCl ($^{13}C_6$, 99%; $^{15}N_2$, 99%)	+8 Da
ULM-8766	L-Lysine·2HCl (unlabeled)	N/A

*H denotes highly enriched amino acid (i.e., 99%, as revealed by GC-MS).

Tabulated below are typical compounds used in 3-plex (triple) SILAC-MS experiments. Only the light and heavy reagents would be employed in 2-plex (double) SILAC experiments.

Type	Typical Compounds and Catalog Numbers
Light (L)	Unlabeled L-Arg (ULM-8347) and Unlabeled L-Lys (ULM-8766)
Medium (M)	$^{13}C_6$ L-Arg (CLM-2265) and D_4 L-Lys (DLM-2640)
Heavy (H)	$^{13}C_6$,$^{15}N_4$ L-Arg (CNLM-539-H) and $^{13}C_6$,$^{15}N_2$ L-Lys (CNLM-291-H)

L-Leucine (L-Leu)

Catalog No.	Description	Shift from Unlabeled
CLM-2262-H*	L-Leucine ($^{13}C_6$, 99%)	+6 Da
DLM-1259	L-Leucine (5,5,5-D_3, 99%)	+3 Da
CNLM-281-H*	L-Leucine ($^{13}C_6$, 99%; ^{15}N, 99%)	+7 Da
ULM-8203	L-Leucine (unlabeled)	N/A

L-Phenylalanine (L-Phe)

Catalog No.	Description	Shift from Unlabeled
DLM-372	L-Phenylalanine (D_8, 98%)	+8 Da
CNLM-575-H*	L-Phenylalanine ($^{13}C_9$, 99%; ^{15}N, 99%)	+10 Da
ULM-8205	L-Phenylalanine (unlabeled)	N/A

L-Valine (L-Val)

Catalog No.	Description	Shift from Unlabeled
CLM-2249-H*	L-Valine ($^{13}C_5$, 99%)	+5 Da
DLM-488	L-Valine (D_8, 98%)	+8 Da
ULM-8202	L-Valine (unlabeled)	N/A

*H denotes highly enriched amino acid (i.e., 99%, as revealed by GC-MS).

Visit isotope.com for additional amino acids.

Chemical purity (CP) is 98% or greater, unless otherwise indicated.

Please see other side for additional products of interest ➤

Other Products of Interest

Methionine (Met) Surrogates

L-Azidohomoalanine·HCl (light, AHA; heavy, hAHA) and L-azidonorleucine·HCl (ANL) can be used to evaluate the synthesis and turnover of newly synthesized proteins *in vivo* through targeted or untargeted MS analysis (e.g., Yates JR et al. JPR 2015). CIL is pleased to offer AHA, hAHA, and ANL for use in SILAC applications. Please inquire for pricing.

Catalog No.	Description
CNLM-9461	L-Azidohomoalanine·HCl (1,2,3,4-$^{13}C_4$, 99%; 2,4-$^{15}N_2$, 98%)
ULM-9460	L-Azidohomoalanine·HCl (unlabeled)
ULM-10989	L-Azidonorleucine·HCl (unlabeled) CP 97%

Chemical purity (CP) is 98% or greater, unless otherwise specified.

Please visit isotope.com/applications → Proteomics → Metabolic Labeling → SILAC for more information.

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