



Metabolomics Amino Acid Mixtures

For Identification and Quantification



Amino acids play critical roles in biological functions as both building blocks of peptides/proteins and intermediates of various metabolic pathways (e.g., citric acid cycle, urea cycle). These compounds are also reported to influence the pathogenesis and propagation of metabolic disorders/disease. Other areas of research investigate amino acids in biomarker and drug-discovery studies.

To aid continued development and application, Cambridge Isotope Laboratories, Inc. (CIL) has formulated new mixtures of stable isotope-labeled amino acids. These include a mix of the canonical amino acids (MSK-CAA-1) and a mix of rare or unnatural noncanonical amino acids (MSK-NCAA-1). The mixes are well characterized for use in quality control and qualification/quantification studies using targeted or untargeted LC-MS methodologies.

MSK-CAA-1: Stable isotope-labeled canonical amino acid mix composition. Reconstitution with 1 mL solvent results in concentrations of 2.5 mM (exception L-cystine: 1.25 mM).

Compound	Abbrev.	Label and Enrichment
Glycine	Gly	¹³ C ₂ , 99%; ¹⁵ N, 99%
L-Alanine	Ala	¹³ C ₃ , 99%; ¹⁵ N, 99%
L-Arginine-HCl	Arg	¹³ C ₆ , 99%; ¹⁵ N ₄ , 99%
L-Asparagine-H ₂ O*	Asn	¹³ C ₄ , 99%; ¹⁵ N ₂ , 99%
L-Aspartic Acid	Asp	¹³ C ₄ , 99%; ¹⁵ N, 99%
L-Cystine	Cys-Cys	¹³ C ₆ , 99%; ¹⁵ N ₂ , 99%
L-Glutamic Acid	Glu	¹³ C ₅ , 99%; ¹⁵ N, 99%
L-Glutamine*	Gln	¹³ C ₅ , 99%; ¹⁵ N ₂ , 99%
L-Histidine-HCl·H ₂ O	His	¹³ C ₆ , 97-99%; ¹⁵ N ₃ , 97-99%
L-Isoleucine	Iso	¹³ C ₆ , 99%; ¹⁵ N, 99%
L-Leucine	Leu	¹³ C ₆ , 99%; ¹⁵ N, 99%
L-Lysine-2HCl	Lys	¹³ C ₆ , 99%; ¹⁵ N ₂ , 99%
L-Methionine	Met	¹³ C ₅ , 99%; ¹⁵ N, 99%
L-Phenylalanine	Phe	¹³ C ₉ , 99%; ¹⁵ N, 99%
L-Proline	Pro	¹³ C ₅ , 99%; ¹⁵ N, 99%
L-Serine	Ser	¹³ C ₃ , 99%; ¹⁵ N, 99%
L-Threonine	Thr	¹³ C ₄ , 97-99%; ¹⁵ N, 97-99%
L-Tryptophan*	Trp	¹³ C ₁₁ , 99%; ¹⁵ N ₂ , 99%
L-Tyrosine	Tyr	¹³ C ₉ , 99%; ¹⁵ N, 99%
L-Valine	Val	¹³ C ₅ , 99%; ¹⁵ N, 99%

*Compounds absent in MSK-A2-1.2. This amino acid mix comprises 17 compounds and is supplied as a 1.2 mL solution (in 0.1 M HCl).

MSK-NCAA-1: Stable isotope-labeled noncanonical amino acid mix composition. Reconstitution with 1 mL solvent results in concentrations of 2.5 mM.

Compound	Abbrev.	Label and Enrichment
β-Alanine	β-Ala	¹³ C ₃ , 98%; ¹⁵ N, 96-99%
L-Azidohomoalanine-HCl	hAHA	1,2,3,4- ¹³ C ₄ , 99%; 2,4- ¹⁵ N ₂ , 98%
L-Citrulline	Cit	1,2,3,4,5- ¹³ C ₅ , 98%
L-Dihydroxyphenylalanine	DOPA	1- ¹³ C, ring- ¹³ C ₆ , 99%
L-Homoarginine-HCl	Harg	¹³ C ₇ , 98%; ¹⁵ N ₄ , 98%
L-Ornithine-HCl	Orn	¹³ C ₅ , 98%
Sarcosine-HCl	Sar	¹³ C ₃ , 99%; ¹⁵ N, 98%

Catalog No.	Description
MSK-CAA-1	Canonical Amino Acid Mix
MSK-NCAA-1	Noncanonical Amino Acid Mix
MSK-A2-1.2	Metabolomics Amino Acid Mix

Unlabeled mixtures are also available. Please inquire.

References

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