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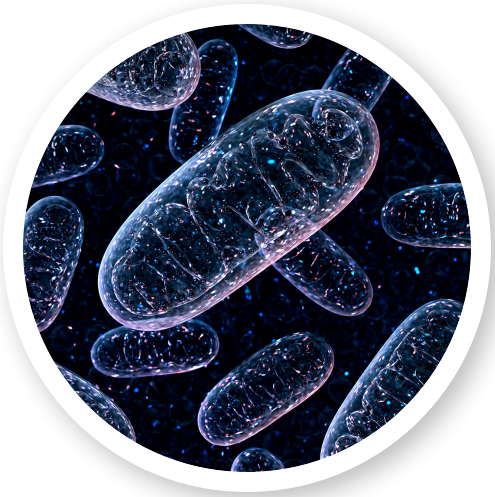
# Metabolomics Amino Acid Mixtures

## 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·$H_2O$* | 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·$H_2O$ | 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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