



Stable Isotope Products for Metabolic Research

CIL offers the largest selection of stable isotope labeled compounds for metabolic studies.

For many years, CIL has worked closely with leading scientific groups in the fields of metabolism research, nutritional studies, molecular biology, proteomics, drug discovery and protein structural analysis to solve their most demanding experimental challenges. CIL offers a wide array of stable isotope labeled carbohydrates, amino acids, fatty acids, triglycerides and their biosynthetic precursors or metabolites, many of which are available as **metabolic grade or sterility and pyrogenicity tested material.**

As the market leader for stable isotopes, CIL continually adds new and innovative products to meet the needs of our customers. The following is a comprehensive list of the various metabolic substrates and labeling patterns available from CIL.

New

Acetic Acid (1-¹³C) (2-¹³C)

β-Alanine (¹⁵N) (U-¹³C₃; ¹⁵N)

New

D-Alanine (1-¹³C) (2-¹³C) (2,3-¹³C₂)

DL-Alanine (1-¹³C) (2-¹³C) (3-¹³C) (2,3-¹³C₂) (U-¹³C₃) (3,3,3-D₃) (2,3,3,3-D₄) (1-¹³C; ¹⁵N)

L-Alanine (1-¹³C) (2-¹³C) (3-¹³C) (2,3-¹³C₂) (U-¹³C₃) (2-D) (3,3,3-D₃) (2,3,3,3-D₄) (D₇)

(¹⁵N) (1-¹³C; ¹⁵N) (U-¹³C₃; ¹⁵N) (¹⁸O₂)

Algal Lipid Mixture (U-¹³C)

New

α-Ketobutyric Acid, sodium salt (U-¹³C₄) (¹³C₄; 3,3-D₂)

Aminopyrine (N,N-Dimethyl-¹³C₂)

D-Arabinose (1-¹³C) (2-¹³C)

Arachidic Acid (methyl-D₂) (D₃₀)

Arachidonic Acid (5,6,8,9,11,12,14,15-D₈) (in solution)

L-Arginine•HCl (guanido-¹³C) (1, 2-¹³C₂) (U-¹³C₆) (D₇) (guanido-¹⁵N₂) (U-¹⁵N₄) (U-¹³C₆; U-¹⁵N₄)

L-Asparagine•H₂O (2,3,3-D₃) (amide-¹⁵N) (¹⁵N₂) (U-¹³C₄; U-¹⁵N₂)

DL-Aspartic Acid (2-¹³C) (3-¹³C) (4-¹³C) (2,3,3-D₃)

L-Aspartic Acid (1-¹³C) (2-¹³C) (3-¹³C) (4-¹³C) (1,4-¹³C₂) (U-¹³C₄) (2,3,3-D₃) (¹⁵N) (U-¹³C₄; ¹⁵N)

Cadmium Chloride (various isotopes)

Calcium Carbonate (various isotopes)

Caffeine (3-methyl-¹³C) (trimethyl-¹³C₃) (2-¹³C; 1,3-¹⁵N₂)

New

Chenodeoxycholic Acid (2,2,4,4-D₄)

Cholesterol (4-¹³C) (3,4-¹³C₂) (2,2,3,4,4,6-D₆) (25,26,26,26,27,27-D₇)

New

Cholic Acid (24-¹³C) (2,2,4,4-D₄)

New Citric Acid (2,4- ¹³ C ₂) (1,5- ¹³ C ₂) (2,2,4,4-D ₄)	L-Histidine•HCl•H ₂ O (ring-2- ¹³ C) (U- ¹³ C ₆) (α- ¹⁵ N) (ring-π- ¹⁵ N) (ring- ¹⁵ N ₃)
New L-Citrulline (ureido- ¹⁵ N) (5- ¹³ C; 4,4,5,5-D ₄)	(U- ¹⁵ N ₃) (U- ¹³ C ₆ ; U- ¹⁵ N ₃)
Cortisol (9,11,12-D ₃) (9,11,12,12-D ₄)	DL-Homocystine (3,3,3',3',4,4,4',4'-D ₈)
DL-Cysteine (3- ¹³ C) (3,3-D ₂) (¹⁵ N)	L-Homoserine (¹⁵ N)
L-Cysteine (1- ¹³ C) (3- ¹³ C) (U- ¹³ C ₃) (3,3'-D ₂) (¹⁵ N) (U- ¹³ C ₃ ; ¹⁵ N)	Iron Metal (various isotopes)
DL-Cystine (3,3,3',3'-D ₄)	Iron Oxide (various isotopes)
L-Cystine (3,3'- ¹³ C ₂) (¹⁵ N ₂)	L- <i>allo</i> -Isoleucine (D ₁₀)
Decanoic Acid (1- ¹³ C) (methyl-D ₃) (D ₁₉)	L-Isoleucine (1- ¹³ C) (U- ¹³ C ₆) (¹⁵ N) (U- ¹³ C ₆ ; ¹⁵ N)
New Deoxycholic Acid (2,2,4,4-D ₄)	α-Ketoisocaproic Acid, Sodium Salt (1- ¹³ C) (methyl-D ₃) (isopropyl-D ₇) (D ₈)
2-Deoxy-D-Glucose (1- ¹³ C) (6- ¹³ C)	Labeled Amino Acid Standards
Deuterium Oxide (D) (sterile available)	Labeled Carnitine Standards
Diethylstilbestrol (ring-3,3',5,5'-diethyl-1,1,1',1'-D ₈)	Lactose Ureide•H ₂ O (ureide- ¹³ C)
Elaidic Acid (methyl- ¹³ C)	Lauric Acid (1- ¹³ C) (D ₂₃)
Estradiol (3,4- ¹³ C ₂) (2,4,16,16-D ₄)	DL-Leucine (1- ¹³ C) (2- ¹³ C) (¹⁵ N)
New Ethanol (1- ¹³ C) (2- ¹³ C)	L-Leucine (1- ¹³ C) (2- ¹³ C) (4- ¹³ C) (1,2- ¹³ C ₂) (3,4- ¹³ C ₂) (U- ¹³ C ₆) (5,5,5-D ₃) (isopropyl-D ₇)
New Ethanolamine (¹³ C ₂)	(D ₁₀) (¹⁵ N) (¹⁸ O ₂) (1- ¹³ C; ¹⁵ N) (2- ¹³ C; ¹⁵ N) (U- ¹³ C ₆ ; ¹⁵ N) (D ₁₀ ; ¹⁵ N)
New Ethyl Acetoacetate (1,3- ¹³ C ₂)	New Linoleic Acid (U- ¹³ C ₁₈)
D-Fructose (1- ¹³ C) (2- ¹³ C) (6- ¹³ C) (1,6- ¹³ C ₂) (U- ¹³ C ₆) (6,6-D ₂)	Linoleic Acid, Ethyl Ester (linoleate-U- ¹³ C ₁₈) (9,10,12,13-D ₄)
New L-Fucose (1'- ¹³ C)	Linolenic Acid, Ethyl Ester (18- ¹³ C) (linolenate-U- ¹³ C ₁₈) (17,17,18,18,18-D ₅)
Fumaric Acid (¹³ C ₄) (2,3-D ₂) (D ₄)	DL-Lysine•2HCl (1- ¹³ C) (ε- ¹⁵ N) (2- ¹³ C; ε- ¹⁵ N)
D-Galactose (1- ¹³ C) (2- ¹³ C) (U- ¹³ C ₆) (1-D)	DL-Lysine•HCl•H ₂ O (α- ¹⁵ N) (1- ¹³ C; ε- ¹⁵ N)
D-Glucose (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (4- ¹³ C) (5- ¹³ C) (6- ¹³ C) (1,2- ¹³ C ₂) (1,6- ¹³ C ₂) (U- ¹³ C ₆)	L-Lysine•2HCl (1- ¹³ C) (6- ¹³ C) (U- ¹³ C ₆) (4,4,5,5-D ₄) (α- ¹⁵ N) (ε- ¹⁵ N) (¹⁵ N ₂) (U- ¹³ C ₆ ; U- ¹⁵ N ₂)
(1-D) (2-D) (3-D) (6,6-D ₂) (1,2,3,4,5,6,6-D ₇) (1- ¹³ C; 2-D) (U- ¹³ C ₆ ; 1,2,3,4,5,6,6-D ₇)	D-Mannitol (1- ¹³ C) (2- ¹³ C) (U- ¹³ C ₆)
DL-Glutamic Acid (1- ¹³ C) (5- ¹³ C) (2,4,4-D ₃) (2,3,3,4,4-D ₅)	D-Mannose (1- ¹³ C) (2- ¹³ C) (2- ¹³ C) (U- ¹³ C ₆)
L-Glutamic Acid (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (4- ¹³ C) (5- ¹³ C) (1,2- ¹³ C ₂) (U- ¹³ C ₅) (2,4,4-D ₃)	Methacetin (methoxy- ¹³ C)
(2,3,3,4,4-D ₅) (¹⁵ N) (U- ¹³ C ₅ ; ¹⁵ N)	New DL-Methionine (methyl- ¹³ C) (1- ¹³ C)
L-Glutamine (1- ¹³ C) (2- ¹³ C) (5- ¹³ C) (1,2- ¹³ C ₂) (U- ¹³ C ₅) (2,3,3,4,4-D ₅) (α- ¹⁵ N)	L-Methionine (1- ¹³ C) (methyl- ¹³ C) (U- ¹³ C ₅) (methyl-D ₃) (¹⁵ N) (U- ¹³ C ₅ ; ¹⁵ N)
(amide- ¹⁵ N) (¹⁵ N ₂) (U- ¹³ C ₅ ; U- ¹⁵ N ₂)	New 3-Methyl-L-Histidine (methyl-D ₃)
Glycerol (2- ¹³ C) (1,3- ¹³ C ₂) (¹³ C ₃) (OD ₃) (1,1,2,3,3-D ₅) (D ₈)	Myristic Acid (1- ¹³ C) (1,2,3- ¹³ C ₃) (methyl-D ₃) (D ₂₇)
Glycine (1- ¹³ C) (2- ¹³ C) (¹³ C ₂) (2,2-D ₂) (D ₅) (¹⁵ N) (1- ¹³ C; ¹⁵ N) (2- ¹³ C; ¹⁵ N) (U- ¹³ C ₂ ; ¹⁵ N)	New DL-Norepinephrine: HCl (α,α,β-D ₃)
Heptadecanoic Acid (methyl-D ₃)	Norethindrone (ethynyl- ¹³ C ₂)
Hexanoic Acid (methyl-D ₃) (D ₁₁) (2,2-D ₂)	19-Nortestosterone (16,16,17-D ₃)
DL-Histidine•2HCl (α- ¹⁵ N)	Octanoic Acid (1- ¹³ C) (1,2- ¹³ C ₂) (1,2,3,4- ¹³ C ₄) (¹³ C ₈) (D ₁₅)

Great quality, delivery and pricing from CIL.

New	Octanoyl-1,3-Diolein (octanoyl-1,2- ¹³ C ₂)
New	Octanoyl-1,3-Distearin (octanoyl-1,2- ¹³ C ₂)
	2-Octanoyl-1,3-Distearin (octanoic-1- ¹³ C)
	Oleic Acid (1- ¹³ C) (methyl- ¹³ C) (9,10-D ₂)
	Oleic Acid, Potassium Salt (1- ¹³ C)
	L-Ornithine•2HCl (5,5-D ₂)
	L-Ornithine•HCl (U- ¹³ C ₅) (3,3,4,4,5,5-D ₆) (D ₇) (¹⁵ N ₂)
	Palmitic Acid (1- ¹³ C) (2- ¹³ C) (1,2- ¹³ C ₂) (U- ¹³ C ₁₆) (2,2-D ₂) (methyl-D ₃) (7,7,8,8-D ₄) (9,9, ...16,16,16-D ₁₇) (D ₃₁)
	Pentadecanoic Acid (methyl-D ₃)
	Phenacetin (ethoxy-1- ¹³ C)
	DL-Phenylalanine (1- ¹³ C) (ring-D ₃)
	L-Phenylalanine (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (ring- ¹³ C ₆) (U- ¹³ C ₉) (ring-D ₃) (D ₈) (¹⁵ N) (2,3- ¹³ C ₂ ; ¹⁵ N) (U- ¹³ C ₉ ; ¹⁵ N)
	Potassium Palmitate (1- ¹³ C) (1,2,3,4- ¹³ C ₄) (U- ¹³ C ₁₆) (2,2-D ₂) (7,7,8,8-D ₄)
	Potassium Phosphoenol Pyruvate (2- ¹³ C) (2,3- ¹³ C ₂)
	5α-Pregnan-3α-ol-20-one (17,21,21,21-D ₄)
New	5β-Pregnan-3α-ol-20-one (17,21,21,21-D ₄)
	5α-Pregnane-3,20-dione (1,2,4,5,6,7-D ₆)
	5α-Pregnane-3α,21-diol-20-one (17,21,21-D ₃)
New	DL-Proline (1- ¹³ C) (2,3,3,4,4,5,5-D ₇)
	L-Proline (1- ¹³ C) (U- ¹³ C ₅) (D ₇) (¹⁵ N) (U- ¹³ C ₅ ; ¹⁵ N)
New	Propionic Acid (1- ¹³ C) (3- ¹³ C)
	D-Ribose (1- ¹³ C) (2- ¹³ C) (5- ¹³ C) (1,2- ¹³ C ₂) (2,3,4,5- ¹³ C ₄) (U- ¹³ C ₅) (1-D) (2-D)
	DL-Serine (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (2,3,3-D ₃) (¹⁵ N)
	L-Serine (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (U- ¹³ C ₃) (2,3,3-D ₃) (¹⁵ N) (U- ¹³ C ₃ ; ¹⁵ N)
	Sodium Acetate (1- ¹³ C) (2- ¹³ C) (¹³ C ₂) (D ₃) (¹³ C ₂ ; D ₃) (1- ¹³ C; D ₃) (2- ¹³ C; D ₃) (¹⁸ O ₂)
	Sodium Bicarbonate (¹³ C)

In addition to the metabolic substrates listed above, CIL also has an extensive listing of environmental products available to the metabolic community. Below are several environmental product categories available from CIL.

- Dioxins & Furans
- Polychlorinated Biphenyls (PCBs)
- Brominated Flame Retardants (BFRs)
- Polybrominated Diphenyl Ethers (BDEs)
- Polyaromatic Hydrocarbons (PAHs)
- Endocrine Disruptor Compounds (EDCs)
- Pesticides
- Chemical Weapons
- Chemical Weapons Metabolites

E-mail us at envsales@isotope.com for a complete list of environmental standards from CIL.

Watch our website for information about new products at www.isotope.com.

New	Sodium Butyrate (1- ¹³ C)
	Sodium D-3 Hydroxybutyrate (2,4- ¹³ C ₂)
	Sodium L-Lactate (1- ¹³ C) (3- ¹³ C) (¹³ C ₃)
	Sodium Octanoate (1- ¹³ C) (2,4,6,8- ¹³ C ₄)
	Sodium Palmitate (1- ¹³ C)
New	Sodium Propionate (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (2,3- ¹³ C ₂)
	Sodium Pyruvate (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (2,3- ¹³ C ₂) (¹³ C ₃)
New	D-Sorbitol (1- ¹³ C)
	Starch (¹³ C ₆)
	Stearic Acid (1- ¹³ C) (methyl- ¹³ C) (U- ¹³ C ₁₈) (methyl-D ₃) (17,17,18,18,18-D ₅) (D ₃₅)
New	Succinic Acid (¹³ C ₄)
New	Taurine (¹⁵ N)
	Testosterone (3,4- ¹³ C ₂) (1,2-D ₂) (controlled substance)
	L-Threonine (1- ¹³ C) (U- ¹³ C ₄) (¹⁵ N) (U- ¹³ C ₄ ; ¹⁵ N)
	Trioctanoin (1,1,1- ¹³ C ₃)
	Triolein (1,1,1- ¹³ C ₃)
	Tripalmitin (1,1,1- ¹³ C ₃) (2,2,2- ¹³ C ₃)
	L-Tryptophan (1- ¹³ C) (indole-2- ¹³ C) (indole-3- ¹³ C) (indole-4- ¹³ C) (indole-D ₃) (D ₈) (¹⁵ N ₂) (α- ¹⁵ N) (U- ¹³ C ₁₁ ; U- ¹⁵ N ₂) (D ₈ ; ¹⁵ N ₂)
	L-Tyrosine (1- ¹³ C) (2- ¹³ C) (3- ¹³ C) (phenol-4- ¹³ C) (phenol-3,5- ¹³ C ₂) (ring- ¹³ C ₆) (U- ¹³ C ₉) (3,3-D ₂) (ring-3,5-D ₂) (ring-D ₄) (¹⁵ N) (phenol- ¹⁷ O) (ring- ¹³ C ₆ ; 3,3-D ₂) (2,3- ¹³ C ₂ ; ¹⁵ N) (U- ¹³ C ₉ ; ¹⁵ N)
	Urea (¹³ C) (¹⁵ N ₂) (¹⁸ O) (D ₄) (¹³ C; ¹⁵ N ₂) (¹³ C; ¹⁸ O)
	DL-Valine (1- ¹³ C) (D ₈)
	L-Valine (1- ¹³ C) (2- ¹³ C) (U- ¹³ C ₅) (D ₈) (¹⁵ N) (U- ¹³ C ₅ ; ¹⁵ N) (D ₈ ; ¹⁵ N)
	Water (¹⁷ O) (¹⁸ O)
	D-Xylose (1- ¹³ C) (2- ¹³ C) (5- ¹³ C) (1,2- ¹³ C ₂)
	Zinc Metal (various isotopes)
	Zinc Oxide (various isotopes)

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