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RESEARCH PRODUCTS

Stable Isotope-Labeled Products For Metabolic Research



Cambridge Isotope Laboratories, Inc.

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Ordering Information

The CIL Customer Service Department is open from 8:00 a.m. to 5:00 p.m. Eastern Time.
Orders may be placed by fax, email, or via our website 24 hours a day.

Phone: **1.800.322.1174** (North America)
+1.978.749.8000

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Website: **isotope.com**

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You can find all of the information presented in this catalog on isotope.com. Visitors to our website can immediately access updated product information, availability, pricing, and documentation, such as a certificates of analysis (CoA) and safety data sheets (SDS). Visit isotope.com to learn more.



Cambridge Isotope Laboratories, Inc. (CIL) is the world leader in the separation and manufacture of stable isotopes and stable isotope-labeled compounds. Isotope separation is performed at CIL Isotope Separations (CIS) in Xenia, Ohio – home of the world's largest ^{13}C isotope separation facility, one of the world's largest ^{18}O isotope-separation facilities, and the world's only commercial large-capacity D_2O enrichment columns. For over 40 years, CIL has remained the premier supplier of stable isotope standards for MS, NMR, and MRS/MRI research applications. Examples of metabolic research products include bile acids, drugs and their metabolites, fatty acids and lipids, metabolomic and MS/MS screening mixes and kits, steroids and hormones, and vitamins and their metabolites. Our products have been specifically designed and tested with the most discerning mass spectrometrists in mind. CIL actively supports the MS community through meeting sponsorships and customer collaborations.

Ordering and Contact Information

Placing an Order

Phone: 1-800-322-1174 (North America) or
+1-978-749-8000 (International)
Office hours are 8:00 a.m. to 5:00 p.m.
Eastern Time (ET)

Fax: +1-978-749-2768

Email: cilsales@isotope.com (North America)
intlsales@isotope.com (International)

E-commerce: Visit <https://shop.isotope.com> to request a quote,
place orders, obtain product information, or submit
technical questions.

CIL products are constantly updated on the website so be sure
to visit <https://shop.isotope.com> for current information.

Please help us to expedite the shipment of your order by including
the following information:

- Your name, phone number, and email address
- End user name, phone number and email address
(if different)
- Shipping address, including street
- Billing address
- Purchase order number or credit card information
- CIL catalog number and product name
- Quantity: mg (milligrams), g (grams), kg (kilograms),
mL (milliliters), L (liters), etc., as applicable, including
number of units
- Catalog price or CIL quotation number
- Special instructions for packaging or shipping
- Preferred mode of shipping (e.g. FedEx or UPS)

Please note that there is a \$50 minimum-order requirement.
We do not require written confirmation of phone orders for
established customers.

First-Time Orders

If ordering for the first time, please email or fax the following
information on company letterhead to establish a line of credit
with a copy of your order:

- A federal tax identification number
- Three credit/banking references

Also include your shipping address, billing address, phone, fax,
email and URL address.

*To expedite delivery of your first order, prepayment should be
made by credit card or wire transfer in US funds.*

**Please call 1-800-322-1174 to contact your regional sales
manager with any inquiries or to request a quotation.**

Pricing Information and Terms of Sale

North American Orders

- All prices are in US dollars. Any importation costs for
international orders are not included. Please consult our
Customer Service Department for pricing information or
packaging options.
- When stock is available and subdivision is possible, we will
accept orders for smaller than catalog amounts. Please request
a quotation as a quantity discount may apply.
- Please note that prices are subject to change without notice.
Occasionally the inventory of some products listed may become
depleted. Replacement of stock may be subject to a minimum
order quantity.
- You may check stock and confirm prices by visiting [isotope.com](https://shop.isotope.com),
contacting the CIL Customer Service Department at 1-800-322-
1174 (North America only), or emailing cilsales@isotope.com.
- CIL will be pleased to assist customers with firm written
quotations. Most quotes are valid for 30-60 days. Longer
terms may be granted by CIL upon request.
- Net 30 days from invoice date with prior credit approval.
Past-due invoices will be subject to a 1.5% per month service
charge; 18% per annum. We reserve the right to request
payment in advance or COD terms on initial orders with CIL.
- We accept VISA, MasterCard, American Express, and university
purchasing card orders.
- Shipping terms are FCA Andover, MA USA, unless otherwise
indicated. Any damage to the package or product in transit is
the buyer's responsibility to adjust with the carrier.
- Domestic shipping charges will be added to invoices (unless
collect shipment is requested).

International Orders

- CIL has an extensive international sales network. For a complete
distributor listing, please visit [isotope.com](https://shop.isotope.com).
- For international orders or quotations, please contact
CIL International Sales at intlsales@isotope.com or
+1-978-749-8000.
- Our representatives and agents are available to assist you with
your requirements for our products. Please consult your local
CIL representative for appropriate pricing and payment terms.
Shipping charges and any applicable import duties and taxes
will be added to orders placed with distributors.
- For direct orders, CIL generally requires prepayment in US dollars
by an international bank check or bank wire transfer.
We will be pleased to provide pro forma invoices upon request.
Shipping charges will be added to direct orders. Any applicable
import duties and taxes will be charged to the purchaser by the
shipping company or customs agent.
- Shipping terms are FCA Andover, MA USA, unless otherwise
indicated. Any damage to the package or product in transit is
the buyer's responsibility to adjust with the carrier.

Shipping Information

USA

- Shipments within the United States will be sent via UPS, FedEx, or truck.
- Orders within the United States for in-stock items placed before 2:00 p.m. (ET) can ship the same day via FedEx or on the next working day via UPS.

Canada

- Canadian shipments will be sent via FedEx or truck.
- Please include the name of your customs broker.
- Orders to Canada for in-stock items will ship one to two working days after receipt of purchase order.

International

- International shipments will be sent via FedEx or best method.
- CIL tries to be as cost effective as possible, but the carrier may assess additional charges.

We will accommodate your shipping instructions whenever it is feasible to do so. CIL reserves the right to change the method of transportation, if required, to comply with transportation regulations. Such a change would not alter your responsibility for payment of shipping charges. Additional shipping charges may apply.

Return Shipment Policy

Returns may be made within 30 days of shipment with prior approval from CIL. We reserve the right to impose restocking charges when a return is at the sole option of the buyer. The buyer is responsible for approving the quality and quantity of any product within the 30-day period stated above. If an error by CIL results in an incorrect or duplicate shipment, a replacement will be sent or the appropriate credit allowed. We typically request return of the original product. Product returns must reference the original purchase order number, CIL order number (e.g. DB-A1000), Returned Goods Authorization (RGA) number, and the date CIL authorized the return. Under no circumstances will credit or replacement be given for products without prior authorization by CIL.

Product Information

Documentation

A Certificate of Analysis (CoA) and a Safety Data Sheet (SDS) are supplied with every shipment. Additional product information may be available upon request.

The chemical purity (CP) of CIL products is 98% unless otherwise specified.

Limited Warranty

CIL represents that the products are, as of the date of shipment, as described on the CoA. CIL makes no other warranty, express or implied, with respect to its products, including any warranty of merchantability or fitness for any particular purpose. CIL's maximum liability for any reason shall be to replace any nonconforming product or refund the applicable purchase price.

Research Use Statement

CIL research products are labeled "For research use only. Not for use in diagnostic procedures." Persons intending to use CIL products in applications involving humans are responsible for complying with all applicable laws and regulations, including, but not limited to, the US Federal Drug Association (FDA), other local regulatory authorities and institutional review boards concerning their specific application or desired use.

It may be necessary to obtain approval for using these research products in humans from the US FDA or the comparable governmental agency in the country of use. CIL will provide supporting information, such as lot-specific analytical data and test method protocols, to assist medical research groups in obtaining approval for the desired use.

Additional Information

24-Hour Emergency Response

CIL and its direct subsidiary CIL Isotope Separations, LLC, are registered with Emergency Response CHEMTREC®. In the event of a chemical-transportation emergency, CHEMTREC provides immediate advice for those at the scene of emergencies, then promptly contacts the shipper of the chemicals for more detailed assistance and appropriate follow-up. CHEMTREC operates 24 hours a day, seven days a week to receive emergency calls. In the case of chemical-transportation emergencies, call one of the following numbers:

Continental United States: 1-800-424-9300	Outside of Continental USA: 1-703-527-3887 (this number may be called collect)
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Stable Isotopes in Metabolomics and Metabolism

*Researcher
Perspective*

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Recent advances in mass spectrometry (MS) and nuclear magnetic resonance (NMR) technologies have greatly enhanced metabolite analysis. Hundreds to thousands of metabolites can now be measured simultaneously with unprecedented accuracy from exceedingly small amounts of biological material. These technical developments have given rise to the field of metabolomics, which generally aims to assess metabolic regulation as a function of health and disease. During the last decade, it has become relatively routine to perform metabolomics analysis on most biological samples. Interpretation of the acquired data, however, remains a considerable challenge. Stable isotopes are providing experimental strategies that overcome some of these barriers. One obstacle in performing metabolomics is that many of the signals or peaks detected by MS do not correspond to unique metabolites of biological relevance. Rather, it has been demonstrated that hundreds to thousands of MS peaks arise from contaminants and artifacts. Given that many endogenous metabolites are derived from a nutrient precursor, isotopic labeling is being used to distinguish biologically derived metabolites from experimental noise. Additionally, because the incorporation of stable isotopes generally does not affect the retention time or ionization efficiency of metabolites, isotopically labeled compounds are the gold standard for quantifying the concentration of endogenous metabolites within a complex biological matrix.

Beyond their role in improving the analytical accuracy of metabolomics, isotopes can also be used as tracers in metabolic analyses. When metabolomics is performed without stable isotopic tracers, only metabolite concentrations can be determined. When metabolomics is performed with stable isotopic tracers, in contrast, both metabolite concentrations and pathway activities (i.e., metabolic fluxes) can be assessed. The latter provides a much richer understanding of metabolism.

While measuring metabolite concentrations without isotopes can certainly be insightful, such measurements reveal only part of the story. They provide a mere snapshot of metabolism that cannot be translated into a dynamic map of metabolite traffic on biochemical

routes. When comparing two sample groups, an elevated metabolite level may indicate increased or decreased pathway flux. This is because metabolites can accumulate not only due to increased production, but also due to decreased consumption. Yet, the difference between increased production and decreased consumption may yield entirely different experimental interpretations. In a biomedical context, for example, increased production of a metabolite may suggest pharmacological inhibition of the pathway as a therapeutic strategy. Thus, to understand pathway regulation and metabolic mechanisms of disease, the application of isotopic tracers is required.

In addition to enabling assessment of metabolic fluxes, isotopic tracers also add biochemical resolution to metabolomics analyses. Most metabolites lie at the intersection of multiple metabolic pathways. Without isotopic labeling, only a single metabolite pool is measured. It is not possible to distinguish the amount of this pool that is associated with one metabolic pathway relative to another. By using isotopic tracers, on the other hand, the fraction of the metabolic pool associated with a specific pathway can be delineated with labeling. As an example, palmitate can be synthesized from numerous metabolic substrates such as glucose, glutamine, acetate, etc. Stable isotopic tracers enable the fraction of palmitate produced from each precursor to be quantified.

Importantly, most modern MS and NMR instrumentation is well suited for the analysis of stable isotopes. Although processing of the data can be complicated, there are an increasing number of user-friendly software platforms (some commercial and some freely available). Moreover, when the appropriate isotopic tracer is selected, simple qualitative analyses of the data is often sufficient to yield important insight into metabolic pathway activities. Finally, it is worth noting that isotopic tracing experiments are not limited to micro-organisms that can be grown in defined media. To the contrary, some of the most widely used applications of isotope labeling have been in mammalian cell culture, plant and animal models, and in human patients.

Products

Amino Acids and Their Derivatives

Amino acids play critical roles in biological functions as building blocks of peptides and proteins, as well as 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, with clinically designed biomarker research aimed to detect disease at the earliest stage.

To aid qualitative and quantitative metabolic research, CIL offers an array of unlabeled and stable isotope-labeled free amino acids. These can be used as internal standards or NMR probes in MS- and NMR-based research studies. The amino acids are canonical (e.g., arginine, lysine, phenylalanine) and noncanonical (e.g., beta-alanine, citrulline, ornithine). These are available in their uniform or specifically labeled (with ^{13}C , ^{15}N , D, and/or ^{18}O) forms, in research or MPT grade.

Catalog No.	Description	Unit Size
CLM-8906	S-Adenosyl-L-homocysteine (SAH) (adenosine- $^{13}\text{C}_{10}$, 98%) CP 95%	0.1 mg
CLM-11193	S-Adenosyl-L-methionine (SAM), sulfate salt (ribose- $^{13}\text{C}_5$, 98%) CP 95%	Please inquire
DLM-7476	ADMA·HCl·XH ₂ O (2,3,3,4,4,5,5-D ₇ , 98%) CP 98% (asymmetric dimethylarginine) may be hydrate	5 mg
CLM-8755	β -Alanine (3- ^{13}C , 99%)	Please inquire
CLM-8756	β -Alanine ($^{13}\text{C}_3$, 99%)	Please inquire
NLM-1656	β -Alanine (^{15}N , 98%)	0.25 g
CNLM-3440	β -Alanine (3- ^{13}C , 99%; ^{15}N , 98%)	Please inquire
CNLM-8457	β -Alanine (1,2- $^{13}\text{C}_2$, 99%; ^{15}N , 98%)	Please inquire
CNLM-3946	β -Alanine ($^{13}\text{C}_3$, 98%; ^{15}N , 96%)	0.25 g
CLM-1655	D-Alanine (1- ^{13}C , 99%)	Please inquire
CLM-2495	D-Alanine (3- ^{13}C , 99%)	Please inquire
CLM-10963	D-Alanine ($^{13}\text{C}_3$, 99%)	Please inquire
DLM-7326	D-Alanine (D ₇ , 98%) <5% L	Please inquire
NLM-6762	D-Alanine (^{15}N , 98%)	Please inquire
NLM-3289	D-Alanine, N-acetyl (^{15}N , 98%)	Please inquire
CLM-705	DL-Alanine (1- ^{13}C , 99%)	1 g
CLM-115	DL-Alanine (2- ^{13}C , 99%)	0.25 g, 0.5 g
CLM-707	DL-Alanine (3- ^{13}C , 99%)	0.5 g, 1 g
CLM-4514	DL-Alanine ($^{13}\text{C}_3$, 98%)	Please inquire
DLM-2760	DL-Alanine (2-D, 98%)	Please inquire
DLM-176	DL-Alanine (3,3,3-D ₃ , 98%)	1 g
DLM-1276	DL-Alanine (2,3,3,3-D ₄ , 97%)	1 g
NLM-706	DL-Alanine (^{15}N , 98%)	1 g
CDLM-8650	DL-Alanine (3- ^{13}C , 99%; 2-D, 96%)	Please inquire
CLM-116	L-Alanine (1- ^{13}C , 99%)	0.5 g, 1 g
CLM-2016	L-Alanine (2- ^{13}C , 99%)	0.1 g, 0.25 g, 0.5 g
CLM-117	L-Alanine (3- ^{13}C , 99%)	0.5 g, 1 g
CLM-2734	L-Alanine (2,3- $^{13}\text{C}_2$, 99%)	0.25 g, 0.5 g
CLM-2184-H	L-Alanine ($^{13}\text{C}_3$, 99%)	0.1 g, 0.25 g, 0.5 g
DLM-3101	L-Alanine (2-D, 96%)	Please inquire
DLM-248	L-Alanine (3,3,3-D ₃ , 99%)	1 g
DLM-250	L-Alanine (2,3,3,3-D ₄ , 98%)	0.1 g, 1 g
DLM-251	L-Alanine (D ₇ , 98%)	1 g
NLM-454	L-Alanine (^{15}N , 98%)	0.5 g, 1 g
OLM-7460	L-Alanine ($^{18}\text{O}_2$, 90%)	Please inquire
CDLM-8649	L-Alanine (3- ^{13}C , 99%; 2-D, 96%)	1 g
CDLM-11504	L-Alanine (3- ^{13}C , 99%; 2,3,3-D ₃ , 96%)	Please inquire
CDLM-3439	L-Alanine (3- ^{13}C , 99%; 3,3,3-D ₃ , 98%)	Please inquire
CNLM-6993	L-Alanine (1- ^{13}C , 99%; ^{15}N , 98%)	0.25 g
CNLM-3594	L-Alanine (2- ^{13}C , 99%; ^{15}N , 98%)	0.25 g
CNLM-534-H	L-Alanine ($^{13}\text{C}_3$, 99%; ^{15}N , 99%)	0.1 g, 0.25 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
DNLM-7178	L-Alanine (2,3,3,3-D ₄ , 98%; ¹⁵ N, 98%)	0.25 g, 0.5 g
CDNLM-6800	L-Alanine (¹³ C ₃ , 97%; D ₄ , 97%; ¹⁵ N, 97%)	0.25 g
DLM-9799	DL-2-Aminoadipic acid (2,5,5-D ₃ , 98%)	0.1 g, 0.25 g
CLM-1541	4-Aminobenzoic acid (PABA) (ring- ¹³ C ₆ , 99%)	Please inquire
DLM-9802	DL-2-Aminobutyric acid (D ₆ , 98%)	Please inquire
CLM-8666	γ-Aminobutyric acid (GABA) (¹³ C ₄ , 97%)	0.05 g, 0.1 g
DLM-7760	γ-Aminobutyric acid (GABA) (2,2,3,3,4,4-D ₆ , 98%)	Please inquire
CLM-535	5-Aminolevulinic acid·HCl (4- ¹³ C, 99%)	0.05 g
CLM-1371	5-Aminolevulinic acid·HCl (5- ¹³ C, 99%) CP 96%	0.05 g, 0.1 g
CLM-701	Anthranilic acid (ring- ¹³ C ₆ , 99%)	0.1 g, 0.25 g
NLM-3294	Anthranilic acid (¹⁵ N, 98%)	0.5 g
CLM-2070	L-Arginine·HCl (guanido- ¹³ C, 99%)	0.5 g
CLM-1268	L-Arginine·HCl (1- ¹³ C, 99%)	0.1 g
CLM-2051	L-Arginine·HCl (1,2- ¹³ C ₂ , 99%)	0.1 g
CLM-2265-H	L-Arginine·HCl (¹³ C ₆ , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-6038	L-Arginine·HCl (4,4,5,5-D ₄ , 94%) <5% D	Please inquire
DLM-541	L-Arginine·HCl (D ₇ , 98%)	0.1 g
NLM-1267	L-Arginine·HCl (α- ¹⁵ N, 98%)	Please inquire
NLM-395	L-Arginine·HCl (guanido- ¹⁵ N ₂ , 98%)	0.5 g, 1 g
NLM-396	L-Arginine·HCl (¹⁵ N ₄ , 98%)	0.1 g
CNLM-7819	L-Arginine·HCl (1- ¹³ C, 99%; α- ¹⁵ N, 98%)	Please inquire
CNLM-11110	L-Arginine·HCl (1,2,3,4,5- ¹³ C ₅ , 99%; α,ε- ¹⁵ N ₂ , 98%)	Please inquire
CNLM-539-H	L-Arginine·HCl (¹³ C ₆ , 99%; ¹⁵ N ₄ , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DNLM-7543	L-Arginine·HCl (D ₇ , 98%; ¹⁵ N ₄ , 98%)	0.25 g
CDNLM-6801	L-Arginine·HCl (¹³ C ₆ , 97%; D ₇ , 97%; ¹⁵ N ₄ , 97%)	0.25 g
ULM-8347	L-Arginine·HCl (unlabeled)	0.05 g, 0.1 g
CNLM-9007-CA	Argininosuccinic acid (ASA), barium salt·2H ₂ O (arginine- ¹³ C ₆ , 99%; ¹⁵ N ₄ , 99%) CP 90%	0.1 mg, 0.5 mg
ULM-9008-CA	Argininosuccinic acid (ASA), barium salt·3H ₂ O (unlabeled) CP 90%	0.1 mg
CLM-8699-H	L-Asparagine·H ₂ O (¹³ C ₄ , 99%)	0.05 g
DLM-6844	L-Asparagine·H ₂ O (2,3,3-D ₃ , 94%)	0.1 g
NLM-120	L-Asparagine·H ₂ O (amide- ¹⁵ N, 98%)	0.25 g, 0.5 g
NLM-3286	L-Asparagine·H ₂ O (¹⁵ N ₂ , 98%)	0.25 g, 0.5 g
CNLM-7818	L-Asparagine·H ₂ O (1,4- ¹³ C ₂ , 99%; α- ¹⁵ N, 98%)	0.25 g
CNLM-3819-H	L-Asparagine·H ₂ O (¹³ C ₄ , 99%; ¹⁵ N ₂ , 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-6932	L-Asparagine·H ₂ O (2,3,3-D ₃ , 98%; ¹⁵ N ₂ , 98%)	0.25 g
CDNLM-6802	L-Asparagine·H ₂ O (¹³ C ₄ , 97%; D ₃ , 97%; ¹⁵ N ₂ , 97%)	0.25 g
CLM-865	DL-Aspartic acid (3- ¹³ C, 99%)	Please inquire
CLM-518	DL-Aspartic acid (4- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
DLM-832	DL-Aspartic acid (2,3,3-D ₃ , 98%)	1 g
DLM-8599	DL-Aspartic acid, N-acetyl (aspartate-2,3,3-D ₃ , 97%)	Please inquire
CLM-3616	L-Aspartic acid (1- ¹³ C, 99%)	Please inquire
CLM-3617	L-Aspartic acid (2- ¹³ C, 99%)	Please inquire
CLM-627	L-Aspartic acid (3- ¹³ C, 98%)	0.05 g, 0.1 g, 0.25 g
CLM-519	L-Aspartic acid (4- ¹³ C, 99%)	Please inquire
CLM-4455	L-Aspartic acid (1,4- ¹³ C ₂ , 99%)	0.5 g
CLM-1801-H	L-Aspartic acid (¹³ C ₄ , 99%)	0.1 mg, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-546	L-Aspartic acid (2,3,3-D ₃ , 98%)	0.1 g, 0.25 g
NLM-718	L-Aspartic acid (¹⁵ N, 98%)	0.5 g, 1 g
CNLM-7817	L-Aspartic acid (1,4- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	0.25 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Unit Size
CNLM-544-H	L-Aspartic acid ($^{13}\text{C}_4$, 99%; ^{15}N , 99%)	0.25 g, 0.5 g, 1 g
DNLM-6931	L-Aspartic acid (2,3,3- D_3 , 98%; ^{15}N , 98%)	0.25 g, 0.5 g
CDNLM-6803	L-Aspartic acid ($^{13}\text{C}_4$, 97%; D_3 , 97%; ^{15}N , 97%)	0.25 g
ULM-8676	L-Aspartic acid (unlabeled)	0.1 mg, 0.1 g
CNLM-9461	L-Azidohomoalanine-HCl (1,2,3,4- $^{13}\text{C}_4$; 2,4- $^{15}\text{N}_2$, 98%)	0.05 g, 0.1 g
ULM-9460	L-Azidohomoalanine-HCl (unlabeled)	0.05 g, 0.1 g
CLM-9097	3-Bromo-L-tyrosine (ring- $^{13}\text{C}_6$, 99%)	0.01 g
CLM-6574	1,4-Butanediamine (putrescine) ($^{13}\text{C}_4$, 98%)	0.1 g
DLM-6573	1,4-Butanediamine (putrescine) (1,1,2,2,3,3,4,4- D_8 , 98%)	0.1 g
CLM-7103	3-Chloro-L-tyrosine (ring- $^{13}\text{C}_6$, 99%) CP 95%	0.01 g
CNLM-10625	3-Chlorotyrosine-HCl ($^{13}\text{C}_9$, 98%; ^{15}N , 98%) CP 95%	1 mg
CLM-4899	L-Citrulline (ureido- ^{13}C , 99%)	0.1 g
CLM-8653	L-Citrulline (1,2,3,4,5- $^{13}\text{C}_5$, 98%)	Please inquire
DLM-3860	L-Citrulline (5,5- D_2 , 98%)	Please inquire
DLM-6039	L-Citrulline (4,4,5,5- D_4 , 95%)	0.01 g, 5 mg
DLM-10776	L-Citrulline (2,3,3,4,4,5,5- D_7 , 98%)	Please inquire
NLM-6850	L-Citrulline (ureido- ^{15}N , 98%)	Please inquire
CDLM-7879	L-Citrulline (ureido- ^{13}C , 99%; 5,5- D_2 , 98%)	Please inquire
CDLM-8808	L-Citrulline (ureido- ^{13}C , 99%; 3,3,4- D_3 , 98%)	Please inquire
CDLM-7139	L-Citrulline (5- ^{13}C , 99%; 4,4,5,5- D_4 , 95%)	Please inquire
DLM-3653	Creatinine (N-methyl- D_3 , 98%)	0.1 mg, 0.1 g
ULM-10966	Creatinine (unlabeled)	0.1 mg
CDLM-4211	Cycloleucine (carboxyl- ^{13}C , 99%; 2,2,5,5- D_4 , 96%)	0.25 g
DLM-6108	DL-Cystathionine (3,3,4,4- D_4 , 98%)	0.01 g, 0.05 g
CLM-3790	DL-Cysteine (1- ^{13}C , 99%)	Please inquire
DLM-899	DL-Cysteine (3,3- D_2 , 98%)	0.5 g
CLM-404	DL-Cysteine, S-benzyl (1- ^{13}C , 99%)	0.25 g
CLM-3852	L-Cysteine (1- ^{13}C , 99%)	0.5 g
CLM-1868	L-Cysteine (3- ^{13}C , 99%)	0.25 g
CLM-4320-H	L-Cysteine ($^{13}\text{C}_3$, 99%)	0.1 g
DLM-769	L-Cysteine (3,3- D_2 , 98%)	0.1 g
DLM-6901	L-Cysteine (2,3,3- D_3 , 98%)	0.1 g
NLM-2295	L-Cysteine (^{15}N , 98%)	0.25 g
CNLM-7815	L-Cysteine (1- ^{13}C , 99%; ^{15}N , 98%)	Please inquire
CNLM-3871-H	L-Cysteine ($^{13}\text{C}_3$, 99%; ^{15}N , 99%)	0.1 g, 0.25 g
CSLM-11349	L-Cystine ($^{13}\text{C}_6$, 99%; $^{34}\text{S}_2$, 99%)	Please inquire
DNLM-6902	L-Cysteine (2,3,3- D_3 , 98%; ^{15}N , 98%)	0.25 g
CDNLM-6809	L-Cysteine ($^{13}\text{C}_3$, 97%; D_3 , 97%; ^{15}N , 97%)	0.25 g
CNLM-7579	L-Cysteine, N-acetyl (cysteine- $^{13}\text{C}_3$, 97%; ^{15}N , 97%) CP 95%	Please inquire
CLM-2182	L-Cysteine, S-benzyl (3- ^{13}C , 99%)	0.1 g
DLM-2942	L-Cysteine, S-methyl (S-methyl- D_3 , 98%) CP 97%	0.25 g
NLM-3914	L-Cysteine, S-P-mebz (^{15}N , 98%)	0.1 g
DLM-1000	DL-Cystine (3,3,3',3'- D_4 , 98%)	1 g
NLM-1668	DL-Cystine ($^{15}\text{N}_2$, 95%) CP 97%	Please inquire
CLM-520	L-Cystine (3,3'- $^{13}\text{C}_2$, 99%)	0.25 g
DLM-9812	L-Cystine (3,3,3',3'- D_4 , 98%)	0.5 g
NLM-3818	L-Cystine ($^{15}\text{N}_2$, 98%)	0.25 g
CNLM-4244-H	L-Cystine ($^{13}\text{C}_6$, 99%; $^{15}\text{N}_2$, 99%)	Please inquire
CDNLM-8659	L-Cystine ($^{13}\text{C}_6$, 98%; D_6 , 98%; $^{15}\text{N}_2$, 98%) CP 95%	Please inquire
CLM-7401	L-Dihydroxyphenylalanine (DOPA) (1- ^{13}C , 99%)	0.1 g
CLM-1007	L-Dihydroxyphenylalanine (DOPA) (ring- $^{13}\text{C}_6$, 99%)	0.1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
CLM-7824	L-Dihydroxyphenylalanine (DOPA) (1- ¹³ C, ring- ¹³ C ₆ , 99%)	0.05 g
DLM-2084	L-Dihydroxyphenylalanine (DOPA) (ring-D ₃ , 98%)	0.25 g, 1 g
DLM-8516	<i>N,N</i> -Dimethylglycine·HCl (D ₆ , 99%)	Please inquire
CLM-7254	<i>O,O'</i> -Dityrosine (ring- ¹³ C ₁₂ , 99%)	0.1 mg
CDLM-11657	4-Fluoro-L-phenylalanine·HCl (ring-4- ¹³ C, 98%; 3,5-D ₂ , 98%) CP 95%	50 mg
CNLM-10516	D-Glutamic acid (¹³ C ₅ , 99%; ¹⁵ N, 98%)	Please inquire
CLM-3632	DL-Glutamic acid (3- ¹³ C, 99%)	Please inquire
DLM-335	DL-Glutamic acid (2,4,4-D ₃ , 98%)	1 g
DLM-357	DL-Glutamic acid (2,3,3,4,4-D ₅ , 97%)	0.25 g
CLM-3721	DL-Glutamic acid·H ₂ O (1- ¹³ C, 99%)	1 g
CLM-674	L-Glutamic acid (1- ¹³ C, 99%)	1 g
CLM-2474	L-Glutamic acid (2- ¹³ C, 99%)	Please inquire
CLM-4742	L-Glutamic acid (3- ¹³ C, 99%)	Please inquire
CLM-2431	L-Glutamic acid (4- ¹³ C, 98%)	Please inquire
CLM-613	L-Glutamic acid (5- ¹³ C, 99%)	0.1 g
CLM-2024	L-Glutamic acid (1,2- ¹³ C ₂ , 99%)	0.25 g
CLM-3646	L-Glutamic acid (3,4- ¹³ C ₂ , 99%)	0.25 g
CLM-1800-H	L-Glutamic acid (¹³ C ₅ , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-3725	L-Glutamic acid (2,4,4-D ₃ , 97%)	0.5 g
DLM-556	L-Glutamic acid (2,3,3,4,4-D ₅ , 97%)	0.05 g, 0.1 g
NLM-135	L-Glutamic acid (¹⁵ N, 98%)	0.5 g, 1 g
CNLM-7812	L-Glutamic acid (1- ¹³ C, 99%; ¹⁵ N, 98%)	0.25 g
CNLM-554-H	L-Glutamic acid (¹³ C ₅ , 99%; ¹⁵ N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-6996	L-Glutamic acid (2,3,3,4,4-D ₅ , 98%; ¹⁵ N, 98%)	0.25 g, 0.5 g
CDNLM-6804	L-Glutamic acid (¹³ C ₅ , 97%; D ₅ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8675	L-Glutamic acid (unlabeled)	0.1 mg
CLM-6664	L-Glutamic acid, <i>N</i> -acetyl (glutamate- ¹³ C ₅ , 97%)	Please inquire
OLM-8028	L-Glutamic acid·HCl (¹⁷ O ₄ , ~30%)	Please inquire
CLM-3612	L-Glutamine (1- ¹³ C, 99%)	1 g
CLM-3613	L-Glutamine (2- ¹³ C, 99%)	Please inquire
CLM-770	L-Glutamine (4- ¹³ C, 99%)	Please inquire
CLM-1166	L-Glutamine (5- ¹³ C, 99%)	0.25 g
CLM-2001	L-Glutamine (1,2- ¹³ C ₂ , 99%)	0.1 g
CLM-3641	L-Glutamine (3,4- ¹³ C ₂ , 99%)	Please inquire
CLM-1822-H	L-Glutamine (¹³ C ₅ , 99%)	0.1 mg, 0.01 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-1826	L-Glutamine (2,3,3,4,4-D ₅ , 97%)	0.1 g
NLM-1016	L-Glutamine (α- ¹⁵ N, 98%)	0.1 g, 1 g
NLM-557	L-Glutamine (amide- ¹⁵ N, 98%)	0.5 g, 1 g
NLM-1328	L-Glutamine (¹⁵ N ₂ , 98%)	0.25 g
CNLM-7813	L-Glutamine (1- ¹³ C, 99%; α- ¹⁵ N, 98%)	Please inquire
CNLM-1275-H	L-Glutamine (¹³ C ₅ , 99%; ¹⁵ N ₂ , 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-6997	L-Glutamine (2,3,3,4,4-D ₅ , 97%; ¹⁵ N ₂ , 97%)	0.25 g
CDNLM-6805	L-Glutamine (¹³ C ₅ , 97%; D ₅ , 97%; ¹⁵ N ₂ , 97%)	0.25 g
CLM-422	Glycine (1- ¹³ C, 99%)	1 g, 5 g
CLM-136	Glycine (2- ¹³ C, 99%)	0.5 g, 1 g, 5 g
CLM-1017	Glycine (¹³ C ₂ , 97%)	0.5 g, 1 g, 5 g
DLM-1674	Glycine (2,2-D ₂ , 98%)	5 g
DLM-280	Glycine (D ₅ , 98%)	5 g
DLM-280-80	Glycine (D ₅ , 80%)	5 g
NLM-202	Glycine (¹⁵ N, 98%)	1 g, 5 g
CNLM-507	Glycine (1- ¹³ C, 99%; ¹⁵ N, 98%)	1 g

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Catalog No.	Description	Unit Size
CNLM-508	Glycine (2- ¹³ C, 99%; ¹⁵ N, 98%)	0.5 g, 1 g
CNLM-1673-H	Glycine (¹³ C ₂ , 99%; ¹⁵ N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-6862	Glycine (2,2-D ₂ , 98%; ¹⁵ N, 98%)	0.25 g, 0.5 g
CDNLM-6799	Glycine (¹³ C ₂ , 97%; 2,2-D ₂ , 97%; ¹⁵ N, 97%)	0.25 g
CLM-3777	Glycine, N-acetyl (2- ¹³ C, 99%)	1 g
CLM-10468	Glycine, N-benzoyl (hippuric acid) (ring- ¹³ C ₆ , 99%)	0.01 g
DLM-7703	Glycine, N-benzoyl (hippuric acid) (benzoyl-D ₅ , 98%)	0.1 g, 0.25 g
NLM-2377	Glycine, N-benzoyl (hippuric acid) (¹⁵ N, 98%)	0.1 g
DLM-7248	Glycine, N-hexanoyl (2,2-D ₂ , 98%)	Please inquire
CNLM-844	Glycine, N-hexanoyl (¹³ C ₂ , 97%; ¹⁵ N, 97%) CP 95%	Please inquire
DLM-10483	Glycine, N-isovaleryl (isovaleryl-D ₉ , 98%)	Please inquire
CNLM-9291	Glycine, N-isovaleryl (glycine- ¹³ C ₂ , 99%; ¹⁵ N, 99%)	Please inquire
DLM-10822	Glycine, N-octanoyl (2,2-D ₂ , 98%)	Please inquire
DLM-9677	Glycine, N-propionyl (2,2-D ₂ , 98%)	Please inquire
CNLM-9292	Glycine, N-propionyl (glycine- ¹³ C ₂ , 99%; ¹⁵ N, 99%)	Please inquire
CNLM-7175	Glycine-HCl, ethyl ester (¹³ C ₂ , 98%; ¹⁵ N, 98%)	Please inquire
DLM-9998	Guanidinoacetic acid (2,2-D ₂ , 97%)	Please inquire
CNLM-8300	Guanidinoacetic acid (1,2- ¹³ C ₂ , 97%; 3- ¹⁵ N, 97%) CP 97%	0.1 mg
CLM-2636	DL-Histidine (ring-2- ¹³ C, 99%)	Please inquire
NLM-10595	DL-Histidine (α- ¹⁵ N, 98%)	Please inquire
NLM-4649	L-Histidine (ring-ε- ¹⁵ N, 98%) (<5% D)	Please inquire
NLM-4457	L-Histidine (ring-π- ¹⁵ N, 98%) (<5% D)	Please inquire
NLM-9585	L-Histidine (ring- ¹⁵ N ₂ , 98%)	Please inquire
CLM-1512	L-Histidine-HCl-H ₂ O (ring-2- ¹³ C, 99%)	0.1 g
CLM-2264	L-Histidine-HCl-H ₂ O (¹³ C ₆ , 97%) (<5% D)	0.05 g, 0.1 g, 0.25 g
DLM-7855	L-Histidine-HCl-H ₂ O (ring-2,4-D ₂ ; α,β,β-D ₃ , 98%)	0.25 g
NLM-2245	L-Histidine-HCl-H ₂ O (α- ¹⁵ N, 98%)	0.25 g
NLM-846	L-Histidine-HCl-H ₂ O (ring-π- ¹⁵ N, 98%) (<5% D)	Please inquire
NLM-1513	L-Histidine-HCl-H ₂ O (¹⁵ N ₃ , 98%) (<5% D)	0.25 g
CNLM-758	L-Histidine-HCl-H ₂ O (¹³ C ₆ , 97%; ¹⁵ N ₃ , 97%) (<5% D)	0.05 g, 0.1 g, 0.25 g
DNLM-7366	L-Histidine-HCl-H ₂ O (D ₅ , 98%; ¹⁵ N ₃ , 98%)	0.25 g
CDNLM-6806	L-Histidine-HCl-H ₂ O (¹³ C ₆ , 97%; D ₅ , 97%; ¹⁵ N ₃ , 97%) CP 95%	0.25 g
CNLM-4645	L-Homoarginine-HCl (¹³ C ₇ , 98%; ¹⁵ N ₄ , 98%)	10 mg
DLM-11621	Homocitrulline (2,6,6-D ₃ , 98%)	1 mg
DLM-8259	DL-Homocysteine (3,3,4,4-D ₄ , 98%)	0.1 g
DLM-3619	DL-Homocystine (3,3,3',3',4,4,4',4'-D ₈ , 98%)	0.1 g, 0.5 g, 1 g
NLM-2466	L-Homoserine (¹⁵ N, 95%) CP 97%	0.5 g
DLM-9778	<i>trans</i> -4-Hydroxy-L-proline (4-Hyp) (2,5,5-D ₃ , 98%) CP 97%	Please inquire
DLM-10579	<i>trans</i> -4-Hydroxy-L-proline (4-Hyp) (3,3,4,5,6,-D ₅ , 96%) (contains up to 5% <i>cis</i>)	Please inquire
CLM-10524	3-Iodo-L-tyrosine (¹³ C ₆ , 99%)	0.01 g
CLM-1026	L-Isoleucine (1- ¹³ C, 99%)	0.5 g, 1 g
CLM-2248-H	L-Isoleucine (¹³ C ₆ , 99%)	0.05 g, 0.1 g, 0.25 g
DLM-141	L-Isoleucine (D ₁₀ , 98%)	0.1 g, 0.25 g
NLM-292	L-Isoleucine (¹⁵ N, 98%)	0.25 g, 1 g
CNLM-7810	L-Isoleucine (1- ¹³ C, 99%; ¹⁵ N, 98%)	Please inquire
CNLM-561-H	L-Isoleucine (¹³ C ₆ , 99%; ¹⁵ N, 99%)	0.05 g, 0.1 g, 0.25 g
DNLM-7325	L-Isoleucine (D ₁₀ , 98%; ¹⁵ N, 98%)	0.25 g
CDNLM-6807	L-Isoleucine (¹³ C ₆ , 97%; D ₁₀ , 97%; ¹⁵ N, 97%)	0.25 g
CLM-8742	L-allo-Isoleucine (¹³ C ₆ , 97%)	Please inquire
DLM-1505	L-allo-Isoleucine (D ₁₀ , 98%)	0.1 g
CNLM-8670	L-allo-Isoleucine (¹³ C ₆ , 97%; ¹⁵ N, 97%)	Please inquire
CDNLM-8911	L-allo-Isoleucine (¹³ C ₆ , 97%; D ₁₀ , 97%; ¹⁵ N, 97%)	Please inquire
DLM-7374	Kynurenic acid (ring-D ₅ , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
DLM-7842	L-Kynurenine sulfate (ring-D ₄ , 3,3-D ₂ , 97%) CP 95%	5 mg, 10 mg
CLM-9884	L-Kynurenine sulfate·½H ₂ O (¹³ C ₁₀ , 99%)	0.1 mg
CLM-204	DL-Leucine (1- ¹³ C, 99%)	1 g
CLM-207	DL-Leucine (2- ¹³ C, 99%)	Please inquire
DLM-9423	DL-Leucine (D ₁₀ , 98%)	0.25 g
NLM-355	DL-Leucine (¹⁵ N, 98%)	Please inquire
CNLM-8679	DL-Leucine (2- ¹³ C, 99%; ¹⁵ N, 98%)	Please inquire
CLM-468	L-Leucine (1- ¹³ C, 99%)	1 g, 5 g
CLM-2014	L-Leucine (2- ¹³ C, 99%)	0.5 g, 1 g
CLM-3524	L-Leucine (1,2- ¹³ C ₂ , 99%)	0.25 g
CLM-2262-H	L-Leucine (¹³ C ₆ , 99%)	0.05 g, 0.1 g, 0.25 g
DLM-1259	L-Leucine (5,5,5-D ₃ , 99%)	1 g, 5 g
DLM-4212	L-Leucine (isopropyl-D ₇ , 98%)	1 g
DLM-567	L-Leucine (D ₁₀ , 98%)	0.25 g
NLM-142	L-Leucine (¹⁵ N, 98%)	0.5 g, 1 g
OLM-2041	L-Leucine (¹⁸ O ₂ , 94%)	0.25 g
CNLM-615	L-Leucine (1- ¹³ C, 99%; ¹⁵ N, 98%)	1 g
CNLM-615-95	L-Leucine (1- ¹³ C, 99%; ¹⁵ N, 93%)	1 g
CNLM-3450	L-Leucine (2- ¹³ C, 99%; ¹⁵ N, 98%)	0.5 g
CNLM-281-H	L-Leucine (¹³ C ₆ , 99%; ¹⁵ N, 99%)	0.05 g, 0.1 g, 0.25 g
DNLM-4642	L-Leucine (D ₁₀ , 98%; ¹⁵ N, 97%)	0.25 g, 0.5 g
CDNLM-6808	L-Leucine (¹³ C ₆ , 97%; D ₁₀ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8203	L-Leucine (unlabeled)	Please inquire
DLM-476	L-Leucine, N-acetyl (D ₁₀ , 98%)	Please inquire
CLM-10684	L-Leucine·HCl (1- ¹³ C, 99%)	Please inquire
CLM-749	DL-Lysine·2HCl (1- ¹³ C, 99%)	Please inquire
DLM-8941	DL-Lysine·2HCl (4,4,5,5-D ₄ , 96%)	Please inquire
NLM-1031	DL-Lysine·2HCl (ε- ¹⁵ N, 98%)	0.1 g
CNLM-3452	DL-Lysine·2HCl (1- ¹³ C, 99%; ε- ¹⁵ N, 99%)	Please inquire
CNLM-3453	DL-Lysine·2HCl (2- ¹³ C, 99%; ε- ¹⁵ N, 99%) CP 95%	0.1 g
NLM-1683	DL-Lysine·HCl·H ₂ O (α- ¹⁵ N, 99%)	Please inquire
CLM-653	L-Lysine·2HCl (1- ¹³ C, 99%)	0.25 g, 0.5 g
CLM-632	L-Lysine·2HCl (6- ¹³ C, 99%)	0.25 g
CLM-2247-H	L-Lysine·2HCl (¹³ C ₆ , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-2640	L-Lysine·2HCl (4,4,5,5-D ₄ , 96%)	0.1 g, 0.25 g, 0.5 g, 1 g
DLM-2641	L-Lysine·2HCl (3,3,4,4,5,5,6,6-D ₈ , 98%)	0.25 g
DLM-570	L-Lysine·2HCl (D ₉ , 98%)	0.1 g
NLM-143	L-Lysine·2HCl (α- ¹⁵ N, 98%)	0.25 g, 1 g
NLM-631	L-Lysine·2HCl (ε- ¹⁵ N, 98%)	0.5 g
NLM-1554	L-Lysine·2HCl (¹⁵ N ₂ , 98%)	0.1 g
CNLM-7821	L-Lysine·2HCl (1- ¹³ C, 99%; ε- ¹⁵ N, 98%)	Please inquire
CNLM-3454	L-Lysine·2HCl (6- ¹³ C, 99%; ε- ¹⁵ N, 98%)	Please inquire
CNLM-291-H	L-Lysine·2HCl (¹³ C ₆ , 99%; ¹⁵ N ₂ , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DNLM-7545	L-Lysine·2HCl (D ₉ , 98%; ¹⁵ N ₂ , 98%)	0.25 g
CDNLM-6810	L-Lysine·2HCl (¹³ C ₆ , 97%; D ₉ , 97%; ¹⁵ N ₂ , 97%)	0.25 g
ULM-8766	L-Lysine·2HCl (unlabeled)	0.1 mg, 0.05 g, 0.1 g
DLM-4731	L-Lysine, N-ε-carboxymethyl (4,4,5,5-D ₄ , 96%)	Please inquire
CLM-7356	D-Methionine (1- ¹³ C, 99%) CP 96%	Please inquire
CLM-6191	DL-Methionine (1- ¹³ C, 99%)	Please inquire
DLM-10774	DL-Methionine (S-methyl-D ₃ , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Catalog No.	Description	Unit Size
DLM-2933	DL-Methionine (3,3,4,4-D ₄ , 98%)	Please inquire
CDNLM-8026	DL-Methionine (¹³ C ₅ , 97%; D ₈ , 97%; ¹⁵ N, 97%)	Please inquire
CLM-206	L-Methionine (methyl- ¹³ C, 99%)	1 g, 5 g, 10 g
CLM-3267	L-Methionine (1- ¹³ C, 99%)	0.25 g, 1 g
CLM-893-H	L-Methionine (¹³ C ₅ , 99%)	0.05 g, 0.1 g, 0.25 g
DLM-431	L-Methionine (methyl-D ₃ , 98%)	1 g, 5 g
DLM-6797	L-Methionine (2,3,3,4,4-D ₅ ; methyl-D ₃ , 98%)	0.1 g
NLM-752	L-Methionine (¹⁵ N, 96%)	0.5 g, 1 g
CDLM-9289	L-Methionine (methyl- ¹³ C, 99%; methyl-D ₃ , 98%)	0.25 g, 1 g
CDLM-760	L-Methionine (1- ¹³ C, 99%; methyl-D ₃ , 98%)	Please inquire
CDLM-8885	L-Methionine (methyl- ¹³ CH ₃ , 99%; 2,3,3,4,4-D ₅ , 98%)	0.5 g, 1 g
CNLM-7807	L-Methionine (1- ¹³ C, 99%; ¹⁵ N, 98%)	0.25 g
CNLM-9774	L-Methionine (1,2,3,4- ¹³ C ₄ , 99%; ¹⁵ N, 98%)	Please inquire
CNLM-759-H	L-Methionine (¹³ C ₅ , 99%; ¹⁵ N, 99%)	0.05 g, 0.1 g, 0.25 g
DNLM-7179	L-Methionine (D ₈ , 98%; ¹⁵ N, 98%)	0.25 g
CDNLM-6798	L-Methionine (¹³ C ₅ , 97%; D ₈ , 97%; ¹⁵ N, 97%)	Please inquire
CLM-8002	L-Methionine sulfone (1- ¹³ C, 99%)	Please inquire
CNLM-10424	β-N-Methylamino-L-alanine (BMAA) (¹³ C ₃ , 99%; ¹⁵ N ₂ , 98%) Patent No.: US 11,370,812 B2	0.01 g, 1.2 mL
ULM-10493	β-N-Methylamino-L-alanine (BMAA)-HCl (unlabeled) CP 97%	Please inquire
DLM-10673	3-Methylcrotonylglycine (glycine-2,2-D ₂ , 98%)	Please inquire
CNLM-8111	3-Methylcrotonylglycine (glycine- ¹³ C ₂ , 98%; ¹⁵ N, 98%)	Please inquire
DLM-11341	L-3-O-Methyl-dopa-H ₂ O (3-OMD) (methoxy-D ₃ , 98%)	Please inquire
DLM-8691	π-Methyl-L-histidine (methyl-D ₃ , 98%)	0.05 g
DLM-2949	τ-Methyl-L-histidine (methyl-D ₃ , 98%)	0.25 g
CLM-11828	3-(3-Methyl-1H-pyrazol-5-yl)propanoic acid (MPP) (¹³ C ₃ , 98%) CP 95%	1 mg
CLM-7944	3-(3-Methyl-1H-pyrazol-5-yl)propanoic acid (MPP) (methyl- ¹³ C, pyrazolyl- ¹³ C ₃ , 3- ¹³ C, 99%)	0.1 mg
CLM-7104	3-Nitro-L-tyrosine (ring- ¹³ C ₆ , 99%) CP 94%	0.01 g
CLM-9607	DL-Ornithine-HCl (1- ¹³ C, 99%)	Please inquire
CLM-1036	L-Ornithine-HCl (1,2- ¹³ C ₂ , 99%)	0.1 g
CLM-4724-H	L-Ornithine-HCl (¹³ C ₅ , 99%)	0.1 g
DLM-4261	L-Ornithine-HCl (5,5-D ₂ , 98%)	0.25 g
DLM-6046	L-Ornithine-HCl (4,4,5,5-D ₄ , 95%)	Please inquire
DLM-2969	L-Ornithine-HCl (3,3,4,4,5,5-D ₆ , 98%)	0.1 g, 0.25 g
DLM-6669	L-Ornithine-HCl (D ₇ , 98%)	0.25 g
NLM-2212	L-Ornithine-HCl (α- ¹⁵ N, 98%)	Please inquire
NLM-2174	L-Ornithine-HCl (5- ¹⁵ N, 98%)	Please inquire
NLM-3610	L-Ornithine-HCl (¹⁵ N ₂ , 98%)	0.25 g
CDLM-3873	L-Ornithine-HCl (5- ¹³ C, 99%; 4,4,5,5-D ₄ , 95%)	Please inquire
CNLM-7578-H	L-Ornithine-HCl (¹³ C ₅ , 99%; ¹⁵ N ₂ , 99%)	Please inquire
DNLM-7369	L-Ornithine-HCl (D ₇ , 98%; ¹⁵ N ₂ , 98%)	Please inquire
DLM-4526	D-Phenylalanine (ring-D ₅ , 97%)	Please inquire
CLM-761	DL-Phenylalanine (1- ¹³ C, 99%)	Please inquire
CLM-7486	DL-Phenylalanine (ring- ¹³ C ₆ , 99%)	Please inquire
DLM-2983	DL-Phenylalanine (2-D, 98%)	1 g
DLM-2986	DL-Phenylalanine (ring-D ₅ , 98%)	1 g
NLM-3434	DL-Phenylalanine (¹⁵ N, 98%)	Please inquire
CLM-762	L-Phenylalanine (1- ¹³ C, 99%)	1 g
CLM-1631	L-Phenylalanine (2- ¹³ C, 99%) CP 97%	0.05 g, 0.25 g
CLM-1053	L-Phenylalanine (3- ¹³ C, 99%)	0.1 g, 0.25 g
CLM-1055	L-Phenylalanine (ring- ¹³ C ₆ , 99%)	0.25 g, 1 g
CLM-2250-H	L-Phenylalanine (¹³ C ₉ , 99%)	0.25 g, 0.5 g, 1 g
DLM-2984	L-Phenylalanine (2-D, 95%)	0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
DLM-2985	L-Phenylalanine (3,3-D ₂ , 98%)	0.1 g, 0.5 g, 1 g
DLM-1258	L-Phenylalanine (ring-D ₅ , 98%)	1 g, 5 g
DLM-372	L-Phenylalanine (D ₈ , 98%)	1 g
NLM-108	L-Phenylalanine (¹⁵ N, 98%)	0.5 g, 1 g
CNLM-7611	L-Phenylalanine (2,3- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	Please inquire
CNLM-575-H	L-Phenylalanine (¹³ C ₉ , 99%; ¹⁵ N, 99%)	0.1 mg, 0.1 g, 0.25 g, 0.5 g, 1 g
DNLM-7180	L-Phenylalanine (D ₈ , 98%; ¹⁵ N, 98%)	0.25 g, 0.5 g
CDNLM-11149	L-Phenylalanine (4'- ¹³ C, 99%; 2,3,3,2',3',5',6'-D ₇ , 98%; ¹⁵ N, 98%)	0.1 g
CDNLM-12287	L-Phenylalanine (3',5'- ¹³ C ₂ , 99%; 2,3,3,2',4',6'-D ₆ , 98%; ¹⁵ N, 98%)	Please inquire
CDNLM-6811	L-Phenylalanine (¹³ C ₉ , 97%; D ₈ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8205	L-Phenylalanine (unlabeled)	0.1 mg
DLM-9715	3-Phenylpropionylglycine (2,2-D ₂ , 98%)	Please inquire
CNLM-9983	O-Phospho-L-serine (¹³ C ₃ , 99%; ¹⁵ N, 98%) CP 95%	Please inquire
CNLM-9169	Pipecolic acid (piperidine 2-carboxylic acid) (¹³ C ₆ , 98%; ¹⁵ N, 98%)	Please inquire
CLM-2479	DL-Proline (1- ¹³ C, 99%)	Please inquire
DLM-2657	DL-Proline (2,3,3,4,4,5,5-D ₇ , 97%)	0.25 g
CLM-510	L-Proline (1- ¹³ C, 99%)	0.25 g
CLM-2260-H	L-Proline (¹³ C ₅ , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-10775	L-Proline (2,5,5-D ₃ , 98%)	Please inquire
DLM-487	L-Proline (D ₇ , 97%)	0.1 g, 0.25 g
NLM-835	L-Proline (¹⁵ N, 98%)	0.25 g, 0.5 g
CNLM-7822	L-Proline (1- ¹³ C, 99%; ¹⁵ N, 98%)	Please inquire
CNLM-436-H	L-Proline (¹³ C ₅ , 99%; ¹⁵ N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7562	L-Proline (D ₇ , 98%; ¹⁵ N, 98%)	0.25 g
CDNLM-6812	L-Proline (¹³ C ₅ , 97%; D ₇ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8333	L-Proline (unlabeled)	0.05 g, 0.1 g
DLM-11082	DL-Pyroglutamic acid (3,3,4,4,5-D ₅ , 98%)	Please inquire
DLM-6874	Sarcosine-HCl (N-methylglycine-HCl) (methyl-D ₃ , 98%)	0.1 g, 0.25 g
CNLM-9699	Sarcosine-HCl (N-methylglycine-HCl) (¹³ C ₃ , 99%; ¹⁵ N, 98%)	Please inquire
CLM-1075	DL-Serine (1- ¹³ C, 99%)	Please inquire
CLM-496	DL-Serine (2- ¹³ C, 99%)	Please inquire
CLM-497	DL-Serine (3- ¹³ C, 99%)	Please inquire
DLM-1073	DL-Serine (2,3,3-D ₃ , 98%)	1 g
NLM-1531	DL-Serine (¹⁵ N, 98%)	Please inquire
CNLM-4207	DL-Serine (¹³ C ₃ , 98%; ¹⁵ N, 98%)	Please inquire
CLM-1573	L-Serine (1- ¹³ C, 99%)	0.25 g
CLM-2013	L-Serine (2- ¹³ C, 99%)	0.1 g
CLM-1572	L-Serine (3- ¹³ C, 99%)	0.1 g, 0.25 g
CLM-1574-H	L-Serine (¹³ C ₃ , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-161	L-Serine (3,3-D ₂ , 98%)	0.1 g
DLM-582	L-Serine (2,3,3-D ₃ , 98%)	0.1 g, 0.5 g
NLM-2036	L-Serine (¹⁵ N, 98%)	0.5 g, 1 g
OLM-9960	L-Serine (carboxyl- ¹⁸ O ₂ , 95%)	Please inquire
CDLM-12299	L-Serine (2- ¹³ C, 99%; 2,3,3-D ₃ , 97%) <3% D	Please inquire
CNLM-7814	L-Serine (1- ¹³ C, 99%; ¹⁵ N, 98%)	0.25 g
CNLM-474-H	L-Serine (¹³ C ₃ , 99%; ¹⁵ N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-6863	L-Serine (2,3,3-D ₃ , 98%; ¹⁵ N, 98%)	0.25 g
CDNLM-6813	L-Serine (¹³ C ₃ , 97%; D ₃ , 97%; ¹⁵ N, 97%)	0.25 g
DLM-10873	L-Serine, N-acetyl (2,3,3,-D ₃ , 98%)	Please inquire
CLM-3949	Sodium glutamate·XH ₂ O (¹³ C ₅ , 97%) (may be hydrate)	0.25 g
DLM-9713	N-Suberylglycine (2,2-D ₂ , 98%) CP 97%	Please inquire

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Catalog No.	Description	Unit Size
CNLM-8183	Suberylglycine (glycine- $^{13}\text{C}_2$, 98%; ^{15}N , 98%)	Please inquire
DLM-8738	S-Sulfo-DL-cysteine (2,3,3- D_3 , 99%)	Please inquire
DLM-8057	Taurine (D_4 , 98%) CP 95%	0.1 g, 0.25 g
CLM-6622	Taurine (1,2- $^{13}\text{C}_2$, 98%)	0.25 g, 0.5 g
DLM-8057	Taurine (D_4 , 98%) CP 95%	0.1 g, 0.25 g
NLM-4472	Taurine (^{15}N , 98%)	Please inquire
CNLM-10253	Taurine ($^{13}\text{C}_2$, 99%; ^{15}N , 98%)	0.01 g
CLM-447	L-Threonine (1- ^{13}C , 99%)	0.5 g
CLM-2261	L-Threonine ($^{13}\text{C}_4$, 97%)	0.1 g, 0.25 g, 0.5 g
DLM-1693	L-Threonine (D_5 , 98%)	0.1 g
NLM-742	L-Threonine (^{15}N , 98%)	0.25 g, 0.5 g
CDLM-9307	L-Threonine (4- ^{13}C , 97%; 2,3- D_2 , 96%)	0.1 g, 0.5 g
CNLM-587	L-Threonine ($^{13}\text{C}_4$, 97%; ^{15}N , 97%)	0.1 g, 0.25 g, 0.5 g
DNLM-7367	L-Threonine (D_5 , 97%; ^{15}N , 98%)	0.25 g, 0.5 g
CDNLM-6814	L-Threonine ($^{13}\text{C}_4$, 97%; D_5 , 97%; ^{15}N , 97%)	0.25 g
ULM-8800	L-Threonine (unlabeled)	Please inquire
CLM-6725	L-Thyroxine (T4) (tyrosine-ring- $^{13}\text{C}_6$, 99%) CP 90%	0.1 mg
CLM-8931	L-Thyroxine (T4) (ring- $^{13}\text{C}_{12}$, 99%) CP 97%	0.1 mg
ULM-8184	L-Thyroxine (T4) (unlabeled)	0.2 mg
CNLM-8110	Tiglylglycine (glycine- $^{13}\text{C}_2$, 98%; ^{15}N , 98%)	Please inquire
DLM-10522	D-Tryptophan (indole- D_5 , 98%)	Please inquire
CLM-778	L-Tryptophan (1- ^{13}C , 99%)	0.25 g
CLM-1543	L-Tryptophan (indole-2- ^{13}C , 98%)	0.25 g
CLM-716	L-Tryptophan (indole-3- ^{13}C , 95%)	0.25 g
CLM-717	L-Tryptophan (indole-4- ^{13}C , 99%) CP 95%	Please inquire
CLM-4290-H	L-Tryptophan ($^{13}\text{C}_{11}$, 99%)	0.1 g
DLM-1092	L-Tryptophan (indole- D_5 , 98%)	0.5 g
DLM-6903	L-Tryptophan (D_8 , 97%)	0.25 g
NLM-1695	L-Tryptophan (α - ^{15}N , 95%)	0.1 g
NLM-1208	L-Tryptophan (indole- ^{15}N , 98%)	0.25 g, 0.5 g
NLM-800	L-Tryptophan ($^{15}\text{N}_2$, 98%)	0.25 g, 0.5 g
CNLM-2475-H	L-Tryptophan ($^{13}\text{C}_{11}$, 99%; $^{15}\text{N}_2$, 99%)	0.1 g
DNLM-6904	L-Tryptophan (D_8 , 98%; $^{15}\text{N}_2$, 98%)	0.25 g
CDNLM-6816	L-Tryptophan ($^{13}\text{C}_{11}$, 97%; D_8 , 97%; $^{15}\text{N}_2$, 97%)	0.25 g
CLM-448	DL-Tyrosine (1- ^{13}C , 99%)	Please inquire
DLM-137	DL-Tyrosine (3,3- D_2 , 98%)	Please inquire
DLM-2914	DL-Tyrosine (ring-3,5- D_2 , 98%)	Please inquire
CLM-776	L-Tyrosine (1- ^{13}C , 99%)	1 g
CLM-437	L-Tyrosine (2- ^{13}C , 99%)	Please inquire
CLM-3378	L-Tyrosine (3- ^{13}C , 99%)	0.1 g, 0.25 g
CLM-622	L-Tyrosine (phenol-4- ^{13}C , 95%)	0.25 g
CLM-623	L-Tyrosine (phenol-3,5- $^{13}\text{C}_2$, 95%)	0.25 g
CLM-1542	L-Tyrosine (ring- $^{13}\text{C}_6$, 99%)	0.25 g
CLM-2263-H	L-Tyrosine ($^{13}\text{C}_9$, 99%)	0.1 g, 0.25 g, 0.5 g
DLM-2317	L-Tyrosine (3,3- D_2 , 98%)	0.5 g, 1 g
DLM-449	L-Tyrosine (ring-3,5- D_2 , 98%)	1 g, 5 g
DLM-2917	L-Tyrosine (ring-2,6- D_2 , 2- D , 98%)	Please inquire
DLM-451	L-Tyrosine (ring- D_4 , 98%)	0.5 g, 1 g
DLM-589	L-Tyrosine (D_7 , 98%)	0.05 g, 0.1 g
NLM-590	L-Tyrosine (^{15}N , 98%)	0.5 g
OLM-621	L-Tyrosine (phenol- ^{17}O , 35-40%)	0.25 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
OLM-8696	L-Tyrosine (phenol- ¹⁸ O, 85%)	Please inquire
CDLM-2369	L-Tyrosine (ring- ¹³ C ₆ , 99%; 3,3-D ₂ , 30%)	0.1 g
CNLM-7809	L-Tyrosine (1- ¹³ C, 99%; ¹⁵ N, 98%)	0.25 g
CNLM-7610	L-Tyrosine (2,3- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	Please inquire
CNLM-439-H	L-Tyrosine (¹³ C ₉ , 99%; ¹⁵ N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7373	L-Tyrosine (D ₇ , 97%; ¹⁵ N, 98%)	0.25 g
CDNLM-11148	L-Tyrosine (3',5'- ¹³ C ₂ , 99%; 2,3,3,2',6'-D ₅ , 98%; ¹⁵ N, 98%)	0.1 g
CDNLM-6815	L-Tyrosine (¹³ C ₉ , 97%; D ₇ , 97%; ¹⁵ N, 97%)	0.25 g
DLM-10940	L-Tyrosine, N-acetyl (acetyl-D ₃ , 98%)	Please inquire
CLM-10543	cis-Urocanic acid (1,2,3- ¹³ C ₃ , 99%)	1 mg, 2 mg, 5 mg
CLM-166	DL-Valine (1- ¹³ C, 99%)	Please inquire
CLM-3277	DL-Valine (2- ¹³ C, 99%)	Please inquire
DLM-311	DL-Valine (D ₈ , 98%)	1 g
NLM-236	DL-Valine (¹⁵ N, 98%)	Please inquire
CLM-470	L-Valine (1- ¹³ C, 99%)	1 g
CLM-3050	L-Valine (2- ¹³ C, 99%)	0.25 g
CLM-9217	L-Valine (dimethyl- ¹³ C ₂ , 99%)	0.25 g, 1 g
CLM-2249-H	L-Valine (¹³ C ₅ , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-7732	L-Valine (3-D, 98%)	1 g
DLM-4364	L-Valine (2,3-D ₂ , 98%)	0.1 g, 0.25 g
DLM-488	L-Valine (D ₈ , 98%)	0.25 g, 0.5 g
NLM-316	L-Valine (¹⁵ N, 98%)	0.5 g, 1 g
CNLM-3466	L-Valine (1- ¹³ C, 99%; ¹⁵ N, 98%)	0.25 g
CNLM-8678	L-Valine (2- ¹³ C, 99%; ¹⁵ N, 98%)	Please inquire
CNLM-442-H	L-Valine (¹³ C ₅ , 99%; ¹⁵ N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-4643	L-Valine (D ₈ , 96%; ¹⁵ N, 96%)	0.25 g, 0.5 g
CDNLM-4281	L-Valine (¹³ C ₅ , 95%; 2,3-D ₂ , 97%; ¹⁵ N, 96%)	0.1 g, 0.25 g
CDNLM-6817	L-Valine (¹³ C ₅ , 97%; D ₈ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8202	L-Valine (unlabeled)	0.1 mg
NLM-7888	L-Valine, N-acetyl (¹⁵ N, 98%)	0.5 g

Protected amino acids are also available. Please visit isotope.com for a complete product listing.

Bile Acids

The analysis of bile acids (BAs) in biofluids is a developing and growing MS 'omics field. These steroid-like compounds act as detergent that assist in the breakdown of fats. The primary BAs are synthesized from cholesterol in the liver, while secondary BAs are converted from primary BAs in the colon. The bile acids can also be conjugated with glycine or taurine in the liver, which increase their solubility in water. Bile acids have gained clinical attention by their linkage to colon cancer, liver disease, chronic diarrhea, cholestasis, hyperlipidemia, and gallstones. CIL is pleased to offer an extensive panel of primary and secondary BAs, in their free acid and conjugated salt forms. These research-grade products are available as isotopically labeled and/or unlabeled standards in solution (at 100 µg/mL in methanol) and/or neat form.

Primary Bile Acids and Their Conjugated Salts

Catalog No.	Description	Abbreviation	Concentration	Unit Size
DLM-11570-C	Allochenodeoxycholic acid (2,2,4,4-D ₄ , 98%)	allo-CDCA	100 µg/mL in methanol	1 mL
DLM-11641	Allocholic acid (2,2,4,4-D ₄ , 98%) CP 95%	allo-CA	neat	1 mg
CLM-2709	Chenodeoxycholic acid (24- ¹³ C, 99%)	CDCA	neat	0.1 g, 0.5 g
CLM-11579-C	Chenodeoxycholic acid (22,23,24- ¹³ C ₃ , 98%)	CDCA	100 µg/mL in methanol	1 mL
DLM-6780-C	Chenodeoxycholic acid (2,2,4,4-D ₄ , 98%)	CDCA	100 µg/mL in methanol	1 mL
DLM-6780	Chenodeoxycholic acid (2,2,4,4-D ₄ , 98%)	CDCA	neat	50 mg
DLM-9327	Chenodeoxycholic acid (2,2,3,4,4-D ₅ , 98%)	CDCA	neat	0.05 g, 0.1 g
DLM-9541-C	Chenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D ₉ , 98%)	CDCA	100 µg/mL in methanol	1 mL
DLM-9541	Chenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D ₉ , 98%)	CDCA	neat	10 mg
DLM-11784	Chenodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	CDCA-3S	neat	1 mg
CLM-2710	Cholic acid (24- ¹³ C, 99%)	CA	neat	0.1 g, 0.5 g
DLM-2611-C	Cholic acid (2,2,4,4-D ₄ , 98%)	CA	100 µg/mL in methanol	1 mL
DLM-2611	Cholic acid (2,2,4,4-D ₄ , 98%)	CA	neat	50 mg
DLM-9549	Cholic acid (2,2,3,4,4-D ₅ , 98%)	CA	neat	50 mg
DLM-10997	Cholic acid (3,6,6,7,8,11,11,12-D ₈ , 98%) CP 95%	CA	neat	Please inquire
DLM-11785	Cholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	CA-3S	neat	1 mg
DLM-9550	Glycochenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D ₉ , 98%) CP 97%	GCDCA	neat	10 mg
DLM-9550-C	Glycochenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D ₉ , 98%) CP 97%	GCDCA	100 µg/mL in methanol	1 mL
DLM-7804	Glycochenodeoxycholic acid (2,2,4,4-D ₄ , 98%) CP 97%	GCDCA	neat	10 mg
DLM-7804-C	Glycochenodeoxycholic acid (2,2,4,4-D ₄ , 98%) CP 97%	GCDCA	100 µg/mL in methanol	1 mL
DLM-11645	Glycochenodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	GCDCA-3S	neat	1 mg
DLM-2742-C	Glycocholic acid (2,2,4,4-D ₄ , 98%)	GCA	100 µg/mL in methanol	1 mL
DLM-2742	Glycocholic acid (2,2,4,4-D ₄ , 98%) (contains ~4% water) CP 96%	GCA	neat	10 mg
CLM-191	Glycocholic acid (glycine-1- ¹³ C, 99%)	GCA	neat	Please inquire
DLM-11640	Glycocholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	GCA-3S	neat	1 mg
DLM-11644	Isochenodeoxycholic acid (2,2,4,4-D ₄) CP 95%	iso-CDCA	neat	1 mg
DLM-10627	α-Muricholic acid (2,2,3,4,4-D ₅ , 99%)	MCA (α)	neat	1 mg
DLM-10626	β-Muricholic acid (2,2,3,4,4-D ₅ , 99%)	MCA (β)	neat	1 mg
DLM-10628	γ-Muricholic acid (2,2,3,4,4-D ₅ , 99%)	MCA (γ)	neat	1 mg
DLM-10629	ω-Muricholic acid (2,2,3,4,4-D ₅ , 99%)	MCA (ω)	neat	1 mg
DLM-11788	β-Muricholic acid 3-sulfate, disodium salt (2,2,3,4,4-D ₅ , 99%)	β-MCA-3S	neat	1 mg
DLM-11647	24-Norcholic acid (2,2,4,4-D ₄ , 98%) CP 95%	NCA	neat	1 mg
CLM-11577	3-Oxochenodeoxycholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	oxo-CDCA	neat	1 mg
DLM-9563	Taurochenodeoxycholic acid, sodium salt (2,2,3,4,4,6,6,7,8-D ₉ , 98%)	TCDCA	neat	5 mg
DLM-9563-C	Taurochenodeoxycholic acid, sodium salt (2,2,3,4,4,6,6,7,8-D ₉ , 98%)	TCDCA	100 µg/mL in methanol	1 mL
DLM-9562	Taurochenodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%) CP 97%	TCDCA	neat	10 mg
DLM-9562-C	Taurochenodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%) CP 97%	TCDCA	100 µg/mL in methanol	1 mL
DLM-11801	Taurochenodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	TCDCA-3S	neat	1 mg
DLM-9572	Taurocholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TCA	neat	10 mg
DLM-9572-C	Taurocholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TCA	100 µg/mL in methanol	1 mL
CNLM-10251	Taurocholic acid, sodium salt (taurine- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	TCA	neat	10 mg
DLM-11802	Taurocholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	TCA-3S	neat	1 mg

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Bile Acids *(continued)*

Catalog No.	Description	Abbreviation	Concentration	Unit Size
DLM-11627	Tauro- α -muricholic acid, sodium salt (2,2,3,4,4-D ₅ , 99%)	T-MCA(α)	neat	1 mg
DLM-11628	Tauro- β -muricholic acid, sodium salt (2,2,3,4,4-D ₅ , 99%)	T-MCA(β)	neat	1 mg

Unlabeled may be available. Please inquire.

Secondary Bile Acids and Their Conjugated Salts

Catalog No.	Description	Abbreviation	Concentration	Unit Size
CLM-11571	Alloisolithocholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	allo-iso-LCA	neat	1 mg
CLM-11574	Allolithocholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	allo-LCA	neat	1 mg
CLM-3364	Deoxycholic acid (24- ¹³ C, 98%) CP 97%	DCA	neat	0.1 g, 0.5 g
DLM-2824-C	Deoxycholic acid (2,2,4,4-D ₄ , 98%)	DCA	100 µg/mL in methanol	1 mL
DLM-2824	Deoxycholic acid (2,2,4,4-D ₄ , 98%)	DCA	neat	10 mg
DLM-9546-C	Deoxycholic acid (2,2,4,4,11,11-D ₆ , 98%)	DCA	100 µg/mL in methanol	1 mL
DLM-9546	Deoxycholic acid (2,2,4,4,11,11-D ₆ , 98%)	DCA	neat	10 mg
DLM-11786	Deoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	DCA-3S	neat	1 mg
DLM-11642	3-Epideoxycholic acid (2,2,4,4-D ₄)	3-epiDCA	neat	1 mg
DLM-9554-C	Glycodeoxycholic acid (2,2,4,4-D ₄ , 98%)	GDCA	100 µg/mL in methanol	1 mL
DLM-9554	Glycodeoxycholic acid (2,2,4,4-D ₄ , 98%)	GDCA	neat	10 mg
DLM-9553-C	Glycodeoxycholic acid (2,2,4,4,11,11-D ₆ , 98%)	GDCA	100 µg/mL in methanol	1 mL
DLM-9553	Glycodeoxycholic acid (2,2,4,4,11,11-D ₆ , 98%)	GDCA	neat	10 mg
DLM-11798	Glycodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	GDCA-3S	neat	1 mg
DLM-11625	Glycohyodeoxycholic acid (2,2,4,4-D ₄ , 98%)	GHDCA	neat	1 mg
DLM-9556-C	Glycolithocholic acid (2,2,4,4-D ₄ , 98%)	GLCA	100 µg/mL in methanol	1 mL
DLM-9556	Glycolithocholic acid (2,2,4,4-D ₄ , 98%)	GLCA	neat	10 mg
DLM-11799	Glycolithocholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	GLCA-3S	neat	1 mg
DLM-9558-C	Glycoursodeoxycholic acid (2,2,4,4-D ₄ , 98%) CP 97%	GUDCA	100 µg/mL in methanol	1 mL
CNLM-10252	Glycoursodeoxycholic acid (glycine- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	GUDCA	neat	10 mg
DLM-9558	Glycoursodeoxycholic acid (2,2,4,4-D ₄ , 98%) CP 97%	GUDCA	neat	10 mg
DLM-11800	Glycoursodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	GUDCA-3S	neat	1 mg
CLM-11567	3 β -Hydroxy-5-cholenoic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	3 β -OH- Δ 5	neat	1 mg
CLM-11587	7 α -Hydroxy-3-oxochol-4-en-24-oic acid (22,23,24- ¹³ C ₃ , 98%) CP 95%	7-HOCA	neat	1 mg
DLM-11626	Hyodeoxycholic acid (2,2,4,4-D ₄ , 98%)	HDCA	neat	1 mg
CLM-11575	Isolithocholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	iso-LCA	neat	1 mg
DLM-11646	Isolithocholic acid (2,2,4,4-D ₄ , 98%) CP 95%	iso-LCA	neat	1 mg
CLM-11581-C	Lithocholic acid (22,23,24- ¹³ C ₃ , 98%)	LCA	100 µg/mL in methanol	1 mL
CLM-11580-C	Lithocholic acid (3,4,23,24- ¹³ C ₄ , 98%)	LCA	100 µg/mL in methanol	1 mL
DLM-9560-C	Lithocholic acid (2,2,4,4-D ₄ , 98%)	LCA	100 µg/mL in methanol	1 mL
DLM-9560	Lithocholic acid (2,2,4,4-D ₄ , 98%)	LCA	neat	50 mg
DLM-11787	Lithocholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	LCA-3S	neat	1 mg
CLM-11565	3-Oxo-4-cholenoic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	LCA- Δ 4 -3-one	neat	1 mg
CLM-11566	3-Oxochola-4,6-dien-24-oic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	—	neat	1 mg
CLM-11573	3-Oxoallolithocholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	3-oxo-allo-LCA	neat	1 mg
CLM-11572	3-Oxolithocholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	3-oxo-LCA	neat	1 mg
DLM-9568-C	Taurodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TDCA	100 µg/mL in methanol	1 mL
DLM-9568	Taurodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TDCA	neat	10 mg
DLM-9567-C	Taurodeoxycholic acid, sodium salt (2,2,4,4,11,11-D ₆ , 98%)	TDCA	100 µg/mL in methanol	1 mL
DLM-9567	Taurodeoxycholic acid, sodium salt (2,2,4,4,11,11-D ₆ , 98%)	TDCA	neat	5 mg
DLM-11803	Taurodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	TDCA-3S	neat	1 mg
DLM-11681	Taurohyodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	THDCA	neat	1 mg
DLM-9570-C	Taurolithocholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TLCA	100 µg/mL in methanol	1 mL
DLM-9570	Taurolithocholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TLCA	neat	10 mg
DLM-11804	Taurolithocholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	TLCA-3S	neat	1 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Abbreviation	Concentration	Unit Size
DLM-9882-C	Tauroursodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TUDCA	100 µg/mL in methanol	1 mL
DLM-9882	Tauroursodeoxycholic acid, sodium salt (2,2,4,4-D ₄ , 98%)	TUDCA	neat	10 mg
CNLM-10250	Tauroursodeoxycholic acid, sodium salt (taurine- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	TUDCA	neat	10 mg
DLM-11805	Tauroursodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	TUDCA-3S	neat	1 mg
CLM-11568	3β,5α,6β-Trihydroxycholan-20-ic acid (22,23,24- ¹³ C ₃ , 98%)	—	neat	1 mg
CLM-11578-C	Ursodeoxycholic acid (22,23,24- ¹³ C ₃ , 98%) CP 97%	UDCA	100 µg/mL in methanol	1 mL
DLM-9574-C	Ursodeoxycholic acid (2,2,4,4-D ₄ , 98%)	UDCA	100 µg/mL in methanol	1 mL
DLM-9574	Ursodeoxycholic acid (2,2,4,4-D ₄ , 98%) CP 95%	UDCA	neat	50 mg
DLM-11789	Ursodeoxycholic acid 3-sulfate, disodium salt (2,2,4,4-D ₄ , 98%)	UDCA-3S	neat	1 mg

For a complete product listing, please visit isotope.com.

Caffeine and Its Metabolites

Caffeine is a psychoactive stimulant of the central nervous system that is extensively consumed worldwide. MS-based research into the kinetics/metabolism of this compound and its metabolites (e.g., paraxanthine, theobromine, theophylline) has revealed insight into its health impact and abuse in humans. Studies further suggest an influence on pharmacological activity and neurodegeneration (e.g., Parkinson's disease); thus, strengthening a need for its robust clinical analyses.

CIL offers stable isotope-labeled caffeine and a collection of isotopically labeled metabolites for basic and translational quantitative research. These standards are available in various labeling patterns, with alternate compounds or labels evaluated upon request.

Catalog No.	Description	Unit Size
CLM-728	Caffeine (3-methyl- ¹³ C, 99%)	0.5 g
CLM-514	Caffeine (trimethyl- ¹³ C ₃ , 99%)	1 g
NLM-332	Caffeine (1,3- ¹⁵ N ₂ , 99%)	Please inquire
CNLM-333	Caffeine (2- ¹³ C, 99%; 1,3- ¹⁵ N ₂ , 98%)	0.1 g
CLM-522	Ethyl acetoacetate (1,3- ¹³ C ₂ , 99%)	0.5 g, 1 g
CLM-523	Ethyl acetoacetate (2,4- ¹³ C ₂ , 99%)	0.5 g, 1 g
DLM-10436	Theobromine (3,7-dimethylxanthine) (7-methyl-D ₃ , 98%)	Please inquire
DLM-8565	Theobromine (3,7-dimethylxanthine) (dimethyl-D ₆ , 98%)	5 mg
CLM-6154	Theophylline (dimethyl- ¹³ C ₂ , 99%)	0.1 g
CNLM-444	Theophylline (2- ¹³ C, 99%; 1,3- ¹⁵ N ₂ , 98%)	0.05 g, 0.1 g
NLM-1697	Uric acid (1,3- ¹⁵ N ₂ , 98%)	0.1 g, 0.5 g

For a complete product listing, please visit isotope.com.

Carbohydrates

Carbohydrates are integral biomolecules to the function and process of living systems (e.g., in cell-to-cell signaling, immune responses, protein folding). Although this family of compounds is structurally diverse and complex, analysis by LC- and GC-MS techniques has been well adopted in the metabolomics field. Clinically, the quantitative analysis of sugars in human biosamples is of increasing importance for such disease screenings as cardiovascular and nonalcoholic fatty liver disease (NAFLD).

In addition to the classic monosaccharides (e.g., glucose, fructose, ribose) and sugar alcohols (e.g., erythritol, sorbitol, xylitol), CIL offers a number of other stable isotope-labeled carbohydrates. The list includes monosaccharides, under the pentose (e.g., arabinose, erythrose) and hexose (e.g., galactose, mannose) classes, disaccharides (e.g., lactose, maltose, sucrose), and polysaccharides (e.g., starch). These compounds are supplied with various labeling patterns as neat standards, in research or MPT grade.

Catalog No.	Description	Unit Size
CLM-10786	<i>N</i> -Acetyl-D-galactosamine (galactose- $^{13}\text{C}_6$, 99%)	Please inquire
CLM-1220	<i>N</i> -Acetylglucosamine (<i>N</i> -acetyl- $1\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-1827	<i>N</i> -Acetylglucosamine ($^{13}\text{C}_6$, 99%)	Please inquire
NLM-8810	<i>N</i> -Acetylglucosamine (^{15}N , 98%)	0.1 g
CLM-8597	<i>N</i> -Acetyl-D-neuraminic acid (4,5,6,7,8,9- $^{13}\text{C}_6$, 98%)	Please inquire
CLM-1699	Algal starch (U- ^{13}C , 98%) CP 90%	0.1 g, 0.5 g, 1 g
ULM-7806	Algal starch (unlabeled)	1 g
CLM-7642	D-Arabinitol (U- $^{13}\text{C}_5$, 98%)	Please inquire
CLM-9657	1,5-Anhydro-D-glucitol (U- $^{13}\text{C}_6$, 98%)	Please inquire
CLM-715	D-Arabinose ($1\text{-}^{13}\text{C}$, 99%)	0.25 g, 0.5 g, 1 g
CLM-1288	D-Arabinose ($2\text{-}^{13}\text{C}$, 98%)	Please inquire
CLM-8477	D-Arabinose (U- $^{13}\text{C}_5$, 99%)	0.1 g, 0.25 g
DLM-1379	D-Arabinose (2-D, 97%)	Please inquire
CLM-1824	2-Deoxy-D-glucose ($1\text{-}^{13}\text{C}$, 99%)	0.1 g, 0.25 g
CLM-2122	2-Deoxy-D-glucose ($6\text{-}^{13}\text{C}$, 99%)	0.25 g, 0.5 g, 1 g
CLM-10466	2-Deoxy-D-glucose (U- $^{13}\text{C}_6$, 99%)	Please inquire
DLM-6732	2-Deoxy-D-glucose (1-D, 98%)	Please inquire
DLM-6940	2-Deoxy-D-glucose (D_8 , 98%)	Please inquire
CLM-9601	2-Deoxy-D-glucose-6-phosphate, disodium salt ($6\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-7266	2-Deoxyribose ($1\text{-}^{13}\text{C}$, 99%)	Please inquire
DLM-4750	2-Deoxy-D-ribose ($5,5\text{-D}_2$, 98%)	Please inquire
CLM-9207	Erythritol (U- $^{13}\text{C}_4$, 99%)	Please inquire
CLM-1118	D-Erythrose ($1\text{-}^{13}\text{C}$, 99%) 1.2% in H_2O	Please inquire
CLM-1387	D-Erythrose ($2\text{-}^{13}\text{C}$, 99%) 1.2% in H_2O	Please inquire
CLM-8944	D-Erythrose ($4\text{-}^{13}\text{C}$, 99%) 1.2% in H_2O	Please inquire
CLM-7863	D-Erythrose (U- $^{13}\text{C}_4$, 98%) 1.2% in H_2O	Please inquire
CLM-1201	D-Fructose ($1\text{-}^{13}\text{C}$, 99%)	0.25 g, 0.5 g, 1 g
CLM-1527	D-Fructose ($2\text{-}^{13}\text{C}$, 99%)	0.25 g, 0.5 g, 1 g
CLM-7660	D-Fructose ($3\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-7661	D-Fructose ($4\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-7662	D-Fructose ($5\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-1388	D-Fructose ($6\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-2462	D-Fructose ($1\text{-}^{13}\text{C}$, 99%; $6\text{-}^{13}\text{C}$, 97%)	Please inquire
CLM-528	D-Fructose ($1,2\text{-}^{13}\text{C}_2$, 99%)	0.1 g, 0.25 g, 0.5 g
CLM-10546	D-Fructose ($4,5\text{-}^{13}\text{C}_2$, 99%)	Please inquire
CLM-8415	D-Fructose ($1,2,3\text{-}^{13}\text{C}_3$, 99%)	Please inquire
CLM-10223	D-Fructose ($4,5,6\text{-}^{13}\text{C}_3$, 98%)	Please inquire
CLM-1553	D-Fructose (U- $^{13}\text{C}_6$, 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-6050	D-Fructose (1-D, 97%)	Please inquire
DLM-1389	D-Fructose ($6,6\text{-D}_2$, 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Carbohydrates (continued)

Catalog No.	Description	Unit Size
CLM-6678	D-Fructose-1,6-bisphosphate, sodium salt, hydrate (1- ¹³ C, 99%)	Please inquire
CLM-8962	D-Fructose-1,6-bisphosphate, sodium salt, hydrate (U- ¹³ C ₆ , 98%)	0.05 g
CLM-8616	D-Fructose-6-phosphate-2Na ⁺ ·xH ₂ O (¹³ C ₆ , 99%) may contain up to ~10% ¹³ C ₆ glucose-6-phosphate	0.01 g, 25 mg, 0.05 g
CLM-3705	L-Fucose (1- ¹³ C, 99%)	Please inquire
CLM-219	L-Fucose (6- ¹³ C, 99%)	Please inquire
CLM-9605	L-Fucose (U- ¹³ C ₆ , 99%)	Please inquire
CLM-529	D-Galactitol (1- ¹³ C, 99%)	Please inquire
CLM-2199	D-Galactitol (U- ¹³ C ₆ , 99%)	Please inquire
CLM-11003	D-Galactonate, sodium salt (U- ¹³ C ₆ , 99%) CP 97%	Please inquire
CLM-744	D-Galactose (1- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-745	D-Galactose (2- ¹³ C, 99%)	Please inquire
CLM-4217	D-Galactose (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-1570	D-Galactose (U- ¹³ C ₆ , 99%)	0.1 g
DLM-1390	D-Galactose (1-D, 98%)	0.5 g, 1 g
DLM-1391	D-Galactose (2-D, 98%)	Please inquire
CLM-8998	D-Galactose-1-phosphate, dipotassium salt (1- ¹³ C, 99%)	0.01 g, 0.05 g, 0.1 g
CLM-9873	D-Galactose-1-phosphate, dipotassium salt (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-9874	D-Galactose-1-phosphate, dipotassium salt (galactose- ¹³ C ₆ , 99%)	Please inquire
CLM-9452	α-D-Glucopyranosyl-1-phosphate, dipotassium salt, monohydrate (¹³ C ₆ , 99%)	Please inquire
CLM-9938	D-Glucuronic acid, sodium salt, monohydrate (U- ¹³ C ₆ , 98%)	Please inquire
CLM-9883	D-Glucosamine-HCl (¹³ C ₆ , 99%)	Please inquire
NLM-11018	D-Glucosamine-HCl (¹⁵ N, 98%)	Please inquire
CLM-4819	D-Glucose (U- ¹² C ₆ , 99.9%)	1 g
CLM-420	D-Glucose (1- ¹³ C, 98%)	0.25 g, 0.5 g, 1 g, 5 g, 10 g
CLM-746	D-Glucose (2- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1393	D-Glucose (3- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1394	D-Glucose (4- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1395	D-Glucose (5- ¹³ C, 98%)	0.25 g, 0.5 g, 1 g
CLM-481	D-Glucose (6- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-2717	D-Glucose (1- ¹³ C, 99%; 6- ¹³ C, 97%)	0.1 g, 0.25 g, 1 g
CLM-504	D-Glucose (1,2- ¹³ C ₂ , 99%)	0.25 g, 0.5 g, 1 g
CLM-8942	D-Glucose (2,3- ¹³ C ₂ , 99%)	Please inquire
CLM-6750	D-Glucose (3,4- ¹³ C ₂ , 99%)	Please inquire
CLM-8787	D-Glucose (4,5- ¹³ C ₂ , 99%)	Please inquire
CLM-4673	D-Glucose (1,2,3- ¹³ C ₃ , 99%)	0.05 g, 0.1 g, 0.25 g
CLM-8770	D-Glucose (4,5,6- ¹³ C ₃ , 98%)	0.1 g
CLM-8946	D-Glucose (2,3,4,5,6- ¹³ C ₅ , 99%)	Please inquire
CLM-1396	D-Glucose (U- ¹³ C ₆ , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g, 2 g, 5 g, 10 g, 25 g, 50 g
CLM-1396-25	D-Glucose (¹³ C ₆ , 24%)	1 g
DLM-1150	D-Glucose (1-D, 98%)	0.25 g, 0.5 g, 1 g
DLM-1271	D-Glucose (2-D, 98%)	0.25 g, 0.5 g, 1 g
DLM-3557	D-Glucose (3-D, 97%)	0.1 g, 0.5 g
DLM-9294	D-Glucose (4-D, 98%)	Please inquire
DLM-6754	D-Glucose (5-D, 98%)	0.1 g, 0.25 g, 0.5 g
DLM-349	D-Glucose (6,6-D ₂ , 99%)	1 g, 5 g, 10 g
DLM-2062	D-Glucose (1,2,3,4,5,6,6-D ₇ , 97%)	0.5 g, 1 g, 5 g, 10 g, 20 g
DLM-9047	D-Glucose (U-D ₁₂ , 98%)	1 g
CDLM-6064	D-Glucose (1- ¹³ C, 99%; 1-D, 98%)	Please inquire
CDLM-999	D-Glucose (1- ¹³ C, 98%; 2-D, 98%)	Please inquire
CDLM-4895	D-Glucose (1- ¹³ C, 99%; 6- ¹³ C, 97%; 6,6-D ₂ , 98%)	Please inquire
CDLM-3813	D-Glucose (U- ¹³ C ₆ , 99%; 1,2,3,4,5,6,6-D ₇ , 97%)	1 g, 2 g, 10 g
CLM-8813	D-Glucose-1-phosphate, dicyclohexylammonium salt, monohydrate (U- ¹³ C ₆ , 99%) CP 95%	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Catalog No.	Description	Unit Size
CLM-8367	D-Glucose-6-phosphate, disodium salt, hydrate (U- ¹³ C ₆ , 99%)	0.1 mg, 0.01 g, 0.05 g, 0.1 g
CLM-1966	L-Glucose (1- ¹³ C, 99%)	Please inquire
CLM-1399	L-Glucose (2- ¹³ C, 99%)	Please inquire
DLM-7826	<i>myo</i> -Inositol (2-D, 91%)	Please inquire
DLM-2725	<i>myo</i> -Inositol (1,2,3,4,5,6-D ₆ , 98%)	Please inquire
CLM-4518	Lactose ureide·XH ₂ O (ureide- ¹³ C, 99%)	1 g, 10 g
ULM-4519	Lactose ureide·2H ₂ O (unlabeled)	10 g
CLM-4423	Lactose·H ₂ O (glucose- ¹³ C ₆ , 98%)	Please inquire
CLM-1127	D-Lyxose (1- ¹³ C, 99%)	Please inquire
CLM-1525	D-Lyxose (2- ¹³ C, 99%)	Please inquire
CLM-1128	D-Lyxose (5- ¹³ C, 99%)	Please inquire
DLM-1187	D-Lyxose (1-D, 98%)	Please inquire
DLM-1188	D-Lyxose (2-D, 98%)	Please inquire
CLM-2470	L-Lyxose (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-2642	D-Maltose·H ₂ O (U- ¹³ C ₁₂ , 99%)	Please inquire
CLM-10759	Maltotetraose (U- ¹³ C ₂₄ , 99%) CP 90%	Please inquire
CLM-1189	D-Mannitol (1- ¹³ C, 98%)	0.25 g, 0.5 g, 1 g
CLM-4416	D-Mannitol (2- ¹³ C, 99%)	Please inquire
CLM-10764	D-Mannitol (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-6733	D-Mannitol (U- ¹³ C ₆ , 99%)	0.1 g
CLM-9393	L-Mannitol (1- ¹³ C, 99%)	Please inquire
CLM-358	D-Mannose (1- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1523	D-Mannose (2- ¹³ C, 99%)	Please inquire
CLM-9064	D-Mannose (3- ¹³ C, 99%)	Please inquire
CLM-9394	D-Mannose (4- ¹³ C, 99%)	Please inquire
CLM-9063	D-Mannose (5- ¹³ C, 99%)	Please inquire
CLM-1192	D-Mannose (6- ¹³ C, 99%)	Please inquire
CLM-6567	D-Mannose (U- ¹³ C ₆ , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-1193	D-Mannose (1-D, 98%)	Please inquire
DLM-1194	D-Mannose (2-D, 98%)	Please inquire
DLM-1195	D-Mannose (6,6-D ₂ , 98%)	Please inquire
CLM-1218	L-Mannose (1- ¹³ C, 99%)	Please inquire
CLM-10491	3-O-Methyl-D-glucose (¹² C ₆ , 99.99%) ¹³ C depleted	Please inquire
CLM-10492	3-O-Methyl-D-glucose (¹³ C ₆ , 99%)	Please inquire
CLM-10568	L-Rhamnose·H ₂ O (U- ¹³ C ₆ , 99%)	Please inquire
CLM-1196	D-Ribitol (1- ¹³ C, 99%)	Please inquire
CLM-768	D-Ribose (1- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1069	D-Ribose (2- ¹³ C, 99%)	Please inquire
CLM-1066	D-Ribose (5- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-4602	D-Ribose (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-4830	D-Ribose (2,3,4,5- ¹³ C ₄ , 99%)	Please inquire
CLM-3652	D-Ribose (U- ¹³ C ₅ , 98%)	0.1 mg, 0.1 g
DLM-1070	D-Ribose (1-D, 98%)	0.25 g, 0.5 g, 1 g
DLM-1197	D-Ribose (2-D, 98%)	Please inquire
DLM-6559	D-Ribose (3-D, 98%)	Please inquire
DLM-7778	D-Ribose (5,5-D ₂ , 98%)	Please inquire
CLM-8780	Sodium D-gluconate (1- ¹³ C, 99%)	Please inquire
CLM-8781	Sodium D-gluconate (U- ¹³ C ₆ , 99%)	Please inquire
CLM-1565	D-Sorbitol (1- ¹³ C, 99%)	Please inquire
CLM-8529	D-Sorbitol (U- ¹³ C ₆ , 98%)	0.1 g, 0.25 g
DLM-3320	Sorbitol (1,1'-D ₂ , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Carbohydrates *(continued)*

Catalog No.	Description	Unit Size
CLM-10823	D-Sucrose (glucose-1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-9811	D-Sucrose (fructose- ¹³ C ₆ , 98%)	Please inquire
CLM-8091	D-Sucrose (glucose- ¹³ C ₆ , 98%)	0.1 mg
CLM-7757	D-Sucrose (¹³ C ₁₂ , 98%)	Please inquire
DLM-10939	D-Sucrose (U-D ₂₂ , 98%)	Please inquire
CLM-1203	D-Talitol (1- ¹³ C, 99%)	Please inquire
CLM-1204	D-Talose (2- ¹³ C, 99%)	Please inquire
CLM-1139	D-Threose (1- ¹³ C, 99%) 1.8% in H ₂ O	Please inquire
CLM-1207	D-Threose (2- ¹³ C, 99%) 1.8% in H ₂ O	Please inquire
CLM-1295	D-Xylitol (1- ¹³ C, 99%)	Please inquire
CLM-1214	D-Xylitol (5- ¹³ C, 99%)	Please inquire
CLM-7608	D-Xylitol (U- ¹³ C ₅ , 99%)	Please inquire
DLM-9656	D-Xylitol (1,1',2,3,4,5,5'-D ₇ , 98%)	Please inquire
CLM-1140	D-Xylose (1- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1524	D-Xylose (2- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-8593	D-Xylose (3- ¹³ C, 99%)	Please inquire
CLM-9083	D-Xylose (4- ¹³ C, 99%)	Please inquire
CLM-1219	D-Xylose (5- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-2456	D-Xylose (1,2- ¹³ C ₂ , 99%)	0.25 g, 0.5 g, 1 g
CLM-6140	D-Xylose (U- ¹³ C ₅ , 99%)	0.25 g, 0.5 g, 1 g
DLM-1215	D-Xylose (1-D, 99%)	Please inquire
DLM-1216	D-Xylose (2-D, 98%)	Please inquire
DLM-7121	D-Xylose (D ₆ , 98%)	Please inquire
CLM-11008	D-Xylulose (U- ¹³ C ₅ , 98%)	Please inquire

For a complete product listing, please visit isotope.com.

Carnitine and Acylcarnitines

Carnitine and acylcarnitines play an essential role in fatty acid metabolism. Metabolism disorders of fatty acid oxidation and several organic acidurias impose major clinical manifestations (e.g., hypoketotic hypoglycemia, skeletal myopathy, liver disease, and/or failure). These are largely attributed to enzymatic deficiencies and can be monitored through carnitine/acylcarnitine measurement.

To help facilitate metabolic screening exercises, CIL is pleased to offer a variety of stable isotope-labeled and unlabeled carnitine/acylcarnitine standards. Please refer to **page 52** for a list of mix offerings; individual standards are noted below.

Catalog No.	Description	Abbreviation	Unit Size
ULM-7801	L-Carnitine (unlabeled)	C0	Please inquire
DLM-1871	L-Carnitine·HCl (methyl-D ₃ , 98%)	C0	0.1 g
DLM-3820	L-Carnitine·HCl (dimethyl-D ₆ , 98%)	C0	Please inquire
DLM-10962	L-Carnitine·HCl (trimethyl-D ₉ , 98%)	C0	5 mg
DLM-3555	L-Carnitine (trimethyl-D ₉ , 98%)	C0	Please inquire
DNLM-10613	L-Carnitine (<i>N,N,N</i> -trimethyl-D ₉ , 98%; ¹⁵ N, 98%)	C0	Please inquire
ULM-9173	L-Carnitine·HCl (unlabeled)	C0	Please inquire
ULM-10431	DL-Carnitine·HCl, <i>O</i> -acetyl (unlabeled)	C2	Please inquire
DLM-754	L-Carnitine·HCl, <i>O</i> -acetyl (<i>N</i> -methyl-D ₃ , 98%)	C2	0.05 g
DLM-3821	L-Carnitine·HCl, <i>O</i> -acetyl (<i>N,N</i> -dimethyl-D ₆ , 98%) CP 97%	C2	Please inquire
ULM-7802	L-Carnitine·HCl, <i>O</i> -acetyl (unlabeled)	C2	Please inquire
ULM-10702	DL-Carnitine·HCl, <i>O</i> -propionyl (unlabeled)	C3	Please inquire
DLM-3973	L-Carnitine·HCl, <i>O</i> -propionyl (<i>N</i> -methyl-D ₃ , 98%)	C3	10 mg
ULM-7705	L-Carnitine·HCl, <i>O</i> -propionyl (unlabeled)	C3	Please inquire
DLM-11049	L-Carnitine·ClO ₄ , <i>O</i> -malonyl (D ₃ , 98%) CP 95%	C3-DC	Please inquire
ULM-8743	L-Carnitine·ClO ₄ , <i>O</i> -malonyl (unlabeled) CP 97%	C3-DC	0.1 mg
ULM-10703	DL-Carnitine·HCl, <i>O</i> -butyryl (unlabeled)	C4	Please inquire
DLM-3861	L-Carnitine·HCl, <i>O</i> -butyryl (<i>N</i> -methyl-D ₃ , 98%)	C4	10 mg
ULM-7704	L-Carnitine·HCl, <i>O</i> -butyryl (unlabeled)	C4	Please inquire
ULM-12274	L-Carnitine, <i>O</i> -methylmalonyl, lithium salt (unlabeled) in solution	C4-DC	Please inquire
DLM-11769	L-Carnitine·HCl, <i>O</i> -3-hydroxybutyryl (<i>N</i> -methyl-D ₃ , 98%) CP 95%	C4-OH	Please inquire
ULM-8621	L-Carnitine (mono)-ClO ₄ , <i>O</i> -3-DL-hydroxybutyryl (unlabeled)	C4-OH	0.1 mg
ULM-10704	DL-Carnitine·HCl, <i>O</i> -isovaleryl (unlabeled)	C5	Please inquire
DLM-3974	L-Carnitine·HCl, <i>O</i> -isovaleryl (<i>N,N,N</i> -trimethyl-D ₉ , 98%)	C5	5 mg
ULM-4697	L-Carnitine·HCl, <i>O</i> -isovaleryl (unlabeled)	C5	Please inquire
DLM-12325	L-Carnitine·ClO ₄ , <i>O</i> -tiglyl (<i>N,N,N</i> -trimethyl-D ₉ , 98%) CP 90%	C5:1	Please inquire
ULM-11154	L-Carnitine, <i>O</i> -tiglyl (unlabeled) CP 94%	C5:1	Please inquire
DLM-3975	L-Carnitine (mono)-ClO ₄ , <i>O</i> -glutaryl (<i>N</i> -methyl-D ₃ , 98%) CP 97%	C5-DC	0.1 mg
ULM-7594	L-Carnitine (mono)-ClO ₄ , <i>O</i> -glutaryl (unlabeled)	C5-DC	0.1 mg
DLM-8272	L-Carnitine·ClO ₄ , 3-hydroxyisovaleryl (<i>N</i> -methyl-D ₃ , 98%)	C5-OH	1 mg
ULM-8237	L-Carnitine·ClO ₄ , 3-hydroxyisovaleryl (unlabeled)	C5-OH	0.1 mg
DLM-9276	L-Carnitine·HCl, <i>O</i> -hexanoyl (<i>N</i> -methyl-D ₃ , 98%)	C6	0.1 mg
ULM-7198	L-Carnitine·HCl, <i>O</i> -hexanoyl (unlabeled)	C6	Please inquire
ULM-10432	DL-Carnitine·HCl, <i>O</i> -octanoyl (unlabeled)	C8	Please inquire
DLM-755	L-Carnitine·HCl, <i>O</i> -octanoyl (<i>N</i> -methyl-D ₃ , 98%)	C8	10 mg
ULM-7770	L-Carnitine·HCl, <i>O</i> -octanoyl (unlabeled)	C8	Please inquire
DLM-9067	L-Carnitine·HCl, <i>O</i> -decanoyl (<i>N</i> -methyl-D ₃ , 98%)	C10	0.1 mg
CNLM-11665	L-Carnitine·HCl, <i>O</i> -decanoyl (trimethyl- ¹³ C ₃ , 98%; ¹⁵ N, 98%) CP 95%	C10	1 mg
ULM-7195	L-Carnitine·HCl, <i>O</i> -decanoyl (unlabeled)	C10	Please inquire
DLM-8746	L-Carnitine·HCl, <i>O</i> -2-decenoyl (<i>N,N,N</i> -trimethyl-D ₉ , 98%) 95% E	C10:1	Please inquire
ULM-8198	L-Carnitine·HCl, <i>O</i> -2-decenoyl (unlabeled)	C10:1	0.1 mg
DLM-8162	L-Carnitine·HCl, <i>O</i> -dodecanoyl (<i>N</i> -methyl-D ₃ , 98%)	C12	0.1 mg
DLM-8215	L-Carnitine·HCl, <i>O</i> -dodecanoyl (<i>N,N,N</i> -trimethyl-D ₉ , 98%)	C12	0.1 mg
ULM-7199	L-Carnitine·HCl, <i>O</i> -dodecanoyl (unlabeled)	C12	0.1 mg
ULM-10705	DL-Carnitine·HCl, <i>O</i> -myristoyl (unlabeled)	C14	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

Carnitine and Acylcarnitines *(continued)*

Catalog No.	Description	Unit Size
DLM-4425	L-Carnitine·HCl, <i>O</i> -myristoyl (<i>N,N,N</i> -trimethyl-D ₉ , 98%)	C 14 5 mg
ULM-7737	L-Carnitine·HCl, <i>O</i> -myristoyl (unlabeled)	C 14 Please inquire
DLM-12326	L-Carnitine·ClO ₄ , tetradec-5- <i>cis</i> -enoyl (<i>N,N,N</i> -trimethyl-D ₉ , 98%) CP 90%	C 14:1 Please inquire
ULM-11318	L-Carnitine·ClO ₄ , tetradec-5- <i>cis</i> -enoyl (unlabeled) CP 90%	C 14:1 Please inquire
ULM-10433	DL-Carnitine·HCl, <i>O</i> -palmitoyl (unlabeled) CP 97%	C 16 Please inquire
DLM-1263	L-Carnitine·HCl, <i>O</i> -palmitoyl (<i>N</i> -methyl-D ₃ , 98%)	C 16 10 mg
ULM-7738	L-Carnitine·HCl, <i>O</i> -palmitoyl (unlabeled)	C 16 Please inquire
DLM-9189	L-Carnitine (mono)·ClO ₄ , <i>O</i> -3-DL-hydroxypalmitoyl (<i>N</i> -methyl-D ₃ , 98%)	C 16-OH 0.1 mg
ULM-8620	L-Carnitine (mono)·ClO ₄ , <i>O</i> -3-DL-hydroxypalmitoyl (unlabeled) CP 97%	C 16-OH 0.1 mg
DLM-8271	L-Carnitine·HCl, <i>O</i> -octadecanoyl (<i>N</i> -methyl-D ₃ , 98%)	C 18 0.1 mg
CNLM-11666	L-Carnitine·HCl, <i>O</i> -octadecanoyl (trimethyl- ¹³ C ₃ , 98%; ¹⁵ N, 98%) CP 95%	C 18 1 mg
ULM-7196	L-Carnitine·HCl, <i>O</i> -octadecanoyl (unlabeled) CP 97%	C 18 0.1 mg
DLM-6718	L-Carnitine·HCl, <i>O</i> -hexacosanoyl (<i>N</i> -methyl-D ₃ , 98%) CP 95%	C 26 Please inquire
DLM-11174	L-Carnitine·HCl, <i>O</i> -hexacosanoyl (<i>N,N,N</i> -trimethyl-D ₉ , 98%) CP 95% (may contain solvent)	C 26 Please inquire
ULM-6719	L-Carnitine·HCl, <i>O</i> -hexacosanoyl (unlabeled) CP 95%	C 26 Please inquire
DLM-11594	L-Carnitine, <i>O</i> -hexacosanoyl (<i>N</i> -methyl-D ₃ , 98%) CP 95%	C 26 1 mg
DLM-11741	L-carnitine, <i>O</i> -hexacosanoyl perchlorate (<i>N</i> -methyl-D ₃ , 98%) CP 95%	C 26 Please inquire

For a complete product listing, please visit isotope.com.

Drugs and Their Metabolites

The field and scope of drug screening/analysis continues to expand worldwide. Example areas of focus include therapeutic drug monitoring, drugs of abuse, prescription monitoring, and clinical toxicology. The nature of those monitored or identified in the MS-based analysis include psychoactive drugs (e.g., benzodiazepines, cannabinoids, hallucinogens), pain-management drugs (e.g., analgesics, opiates, skeletal muscle relaxants), disorder-related treatment drugs (e.g., anticonvulsants/antiepileptics, antipsychotics, erectile dysfunction), and infectious disease or disease-related treatment drugs (e.g., antibiotics, antiarrhythmics).

CIL is pleased to offer a broad collection of unlabeled and stable isotope-labeled standards to aid the qualitative/quantitative analysis of drugs and their metabolites. These encompass a multitude of classes (e.g., analgesics, benzodiazepines, cannabinoids and its agonists, opiate and opioid analgesics, stimulants). The offerings are individual standards and/or class-specific mixtures in predominantly their concentrated solution form.

Amphetamines

Catalog No.	Description	Concentration	Unit Size
CLM-10393-B	DL-MDEA·HCl (ring- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL
CLM-10390-B	DL-Methamphetamine·HCl (ring- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL

Analgesics

Catalog No.	Description	Concentration	Unit Size
CLM-2436	Acetaminophen (carbonyl- ¹³ C, 99%)	neat	Please inquire
CLM-10619	Acetaminophen (ring- ¹³ C ₆ , 98%)	neat	1 mg
CNLM-3726-1.2	Acetaminophen (acetyl- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	100 µg/mL in acetonitrile	1.2 mL
CNLM-3726	Acetaminophen (acetyl- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	neat	1 g
ULM-7629-1.2	Acetaminophen (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
CLM-630	Aminopyrine (N,N-dimethyl- ¹³ C ₂ , 99%)	neat	1 g
CLM-1296	Phenacetin (ethoxy-1- ¹³ C, 99%)	neat	0.5 g, 1 g

Antibiotics

Catalog No.	Description	Concentration	Unit Size
CLM-123	Erythromycin (N-methyl- ¹³ C, 99%)	neat	1 g
CDLM-10030-MT-1.2	Erythromycin (N-methyl- ¹³ C, 99%; D ₃ , 98%) CP 97%	100 µg/mL in methyl- <i>tert</i> butyl ester (MTBE)	1.2 mL
CLM-165	Erythromycin, lactobionate salt (N-methyl- ¹³ C, 99%)	neat	1 g
CLM-3758	Erythromycin, lactobionate salt (N,N-dimethyl- ¹³ C ₂ , ~90%)	neat	Please inquire
CLM-3045-1.2	Sulfamethazine (phenyl- ¹³ C ₆ , 99%)	100 µg/mL in acetonitrile	1.2 mL
CLM-3045	Sulfamethazine (phenyl- ¹³ C ₆ , 99%)	neat	10 mg
ULM-7220-1.2	Sulfamethazine (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
CLM-7988-A-1.2	Trimethoprim (pyrimidine-4,5,6- ¹³ C ₃ , 99%)	50 µg/mL in methanol	1.2 mL
ULM-7989-A-1.2	Trimethoprim (unlabeled)	50 µg/mL in methanol	1.2 mL

Anticonvulsants/Antiepileptics

Catalog No.	Description	Concentration	Unit Size
DLM-3025	5,5-Diphenylhydantoin (phenyl-D ₅ , 98%)	neat	10 mg
DLM-324	5,5-Diphenylhydantoin (diphenyl-D ₁₀ , 98%)	neat	0.01 g, 0.1 g
CNLM-411-1.2	5,5-Diphenylhydantoin (2- ¹³ C, 99%; 1,3- ¹⁵ N ₂ , 98%)	100 µg/mL in methanol	1.2 mL
CNLM-411	5,5-Diphenylhydantoin (2- ¹³ C, 99%; 1,3- ¹⁵ N ₂ , 98%)	neat	0.01 g, 0.05 g
ULM-8533-1.2	5,5-Diphenylhydantoin (unlabeled)	100 µg/mL in methanol	1.2 mL
CNLM-7633	Lamotrigine (5,6- ¹³ C ₂ , 99%; 5-amino- ¹⁵ N, 98%)	neat	10 mg

Antidepressants

Catalog No.	Description	Concentration	Unit Size
DLM-2762	Amitriptyline·HCl (N-methyl-D ₃ , 98%)	neat	Please inquire
DLM-2790	Buspirone·HCl (butyl-D ₈ , 98%)	neat	Please inquire
DLM-3020	Desipramine·HCl (2,4,6,8-D ₄ , 98%)	neat	5 mg
DLM-3035	Imipramine·HCl (2,4,6,8-D ₄ , 98%) CP 97%	neat	2 mg
DLM-3038	Nortriptyline·HCl (methyl-D ₃ , 98%)	neat	5 mg, 0.1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Drugs and Their Metabolites *(continued)***Antipsychotics**

Catalog No.	Description	Concentration	Unit Size
DLM-2816	Clozapine (4-methylpiperazinyl-D ₄ , 97%)	neat	5 mg, 10 mg

Barbituates

Catalog No.	Description	Concentration	Unit Size
DLM-433	Phenobarbital (ethyl-D ₅ , 98%)	neat	0.1 g
DLM-2659	DL-Secobarbital (1-methyl-D ₃ , butyl-2,2-D ₂ , 98%)	neat	Please inquire

Benzodiazepines

Catalog No.	Description	Concentration	Unit Size
CLM-10630-B	Clobazam (ring-[γ]- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL
CLM-10631-B	Clonazepam (ring-[α]- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL
CLM-10632-B	Diazepam (ring-[α]- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL
DLM-1886	Diazepam (phenyl-D ₅ , 98%)	neat	Please inquire
DLM-1885	Nordiazepam (phenyl-D ₅ , 98%)	neat	Please inquire
DLM-1888	Oxazepam (phenyl-D ₅ , 98%)	neat	Please inquire
CLM-10640-B	Triazolam (ring-[α]- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL

Cannabinoids and Its Agonists

Catalog No.	Description	Concentration	Unit Size
DLM-10854-1.2	Cannabichromene (CBC) (methyl-D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10854	Cannabichromene (CBC) (methyl-D ₃ , 98%)	neat	Please inquire
ULM-10878-1.2	Cannabichromene (CBC) (unlabeled)	1000 µg/mL in methanol	1.2 mL
DLM-10855-1.2	Cannabidiol (CBD) (D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10855	Cannabidiol (CBD) (D ₃ , 98%)	neat	Please inquire
ULM-10876-1.2	Cannabidiol (CBD) (unlabeled)	1000 µg/mL in methanol	1.2 mL
DLM-11140-1.2	Cannabidivarin (CBDV) (methyl-D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-11140	Cannabidivarin (CBDV) (methyl-D ₃ , 98%)	neat	Please inquire
DLM-10853-1.2	Cannabigerol (CBG) (methyl-D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10853	Cannabigerol (CBG) (methyl-D ₃ , 98%)	neat	Please inquire
ULM-10877-1.2	Cannabigerol (CBG) (unlabeled)	1000 µg/mL in methanol	1.2 mL
DLM-10847-1.2	Cannabinol (CBN) (methyl-D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10847	Cannabinol (CBN) (methyl-D ₃ , 98%)	neat	Please inquire
ULM-10875-1.2	Cannabinol (CBN) (unlabeled)	1000 µg/mL in methanol	1.2 mL
DLM-10915-1.2	Cannabivarin (CBV) (methyl D ₃ , 98%) CP 97%	100 µg/mL in methanol	1.2 mL
DLM-10915	Cannabivarin (CBV) (methyl-D ₃ , 98%) CP 97%	neat	Please inquire
ULM-10916-1.2	Cannabivarin (CBV) (unlabeled) CP 97%	1000 µg/mL in methanol	1.2 mL
DLM-10846-1.2	(-)-Δ ⁹ -(THC) (methyl-D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10707-1.2	Tetrahydrocannabivarin (THCV) (propyl-3,3,3-D ₃ , 98%) CP 97%	100 µg/mL in methanol	1.2 mL
DLM-10707	Tetrahydrocannabivarin (THCV) (propyl-3,3,3-D ₃ , 98%) CP 97%	neat	Please inquire

Cardiac Drugs

Catalog No.	Description	Concentration	Unit Size
DLM-1287-1.2	Clonidine-HCl (4,4,5,5-imidazoline-D ₄ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-1287	Clonidine-HCl (4,4,5,5-imidazoline-D ₄ , 98%) CP 95%	neat	5 mg, 10 mg
DLM-2745	Enalapril maleate (phenyl-D ₅ , 98%)	neat	Please inquire
CNLM-10539	Mecamylamine-HCl (tetramethyl- ¹³ C ₄ , 99%; ¹⁵ N, 98%)	neat	1 mg, 10 mg

*Products listed with an asterisk are available globally.

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Hallucinogens

Catalog No.	Description	Concentration	Unit Size
DLM-2646	5-Methoxytryptamine-HCl ($\alpha,\alpha,\beta,\beta$ -D ₄ , 98%)	neat	0.01 g, 0.1 g

Immunosuppressants

Catalog No.	Description	Concentration	Unit Size
DLM-9855	Everolimus (2-hydroxyethyl-D ₄ , 98%)	neat	1 mg
ULM-9856-C	Everolimus (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9856	Everolimus (unlabeled)	neat	10 mg
DLM-9220	Rapamycin (D ₃ , 98%)	neat	1 mg, 5 mg, 10 mg

Opiate and Opiod Analgesics

Catalog No.	Description	Concentration	Unit Size
CNLM-10389-B	Codeine (9,10,15,16- ¹³ C ₄ , 98%; ¹⁵ N, 98%) CP 95%	50 µg/mL in methanol	1 mL
DLM-1881SA	Morphine-H ₂ O (N-methyl-D ₃ , 98%)	0.1 mg/mL in methanol	Please inquire
CLM-7491	cis-(±)-Tramadol-HCl (methoxy- ¹³ C, 99%)	neat	Please inquire

Other Compounds

Catalog No.	Description	Concentration	Unit Size
DLM-10575	Aldox (D ₆ , 98%) CP 96%	neat	Please inquire
DLM-10574	Alexidine-2HCl (D ₁₀ , 98%) CP 97%	neat	Please inquire
CLM-6585	Aspirin (acetyl-1- ¹³ C, 99%)	neat	Please inquire
CLM-3655	Azidothymidine (AZT) (methyl- ¹³ C, 99%) CP 96%	neat	10 mg
CLM-10608	1,2-Benzisothiazol-3(2H)-one (ring- ¹³ C ₆ , 95%) CP 95%	neat	Please inquire
DLM-1566	Benztropine mesylate (N-methyl-D ₃ , 98%) CP 95%	neat	10 mg
CLM-1608	Chloral hydrate (trichloromethyl- ¹³ C, 97%)	neat	10 mg
DLM-10609	5-Chloro-2-methyl-4-isothiazolin-3-one (N-methyl-D ₃ , 98%)	neat	Please inquire
CLM-10642	p-Coumaric acid (propyl- ¹³ C ₃ , 99%)	neat	1 mg, 5 mg
DLM-7504	Dexamethasone (4,6 α ,21,21-D ₄ , 96%) may contain D at C-2	neat	Please inquire
CLM-3369	Dopamine-HCl (ring- ¹³ C ₆ , 99%)	neat	Please inquire
DLM-2181	Dopamine-HCl (ring-D ₃ , 98%)	neat	0.1 g
DLM-2498	Dopamine-HCl (1,1,2,2-D ₄ , 97%)	neat	0.01 g, 0.1 g
DLM-2744	Enalaprilat-H ₂ O (phenyl-D ₅ , 98%)	neat	Please inquire
CLM-10404	Estradiol undecanoate (2,3,4- ¹³ C ₃ , 98%) CP 95%	neat	1 mg
CLM-10405	Fenoprofen, sodium salt, hydrate (ring- ¹³ C ₆ , 99%)	neat	1 mg
DLM-3996	Glybenclamide (cyclohexylamine-D ₁₁ , 98%)	neat	Please inquire
CLM-373	Homovanillic acid (1,2- ¹³ C ₂ , 98%)	neat	0.1 g
DLM-2738	Homovanillic acid (phenyl-D ₃ , 2,2-D ₂ , 96%)	neat	0.1 g
COLM-376	Homovanillic acid (ring- ¹³ C ₆ , 99%; 4-hydroxy- ¹⁸ O, 90%)	neat	10 mg
DLM-10541	Iopromide (N-methyl-D ₃ , 98%)	neat	1 mg
CLM-7118	Ketoconazole (carbonyl- ¹³ C, 99%)	neat	Please inquire
CNLM-10406	Kevetrin-HCl (¹³ C ₂ , 98%; ¹⁵ N ₃ , 98%) CP 95%	neat	1 mg
DLM-7861	Metformin-HCl (dimethyl-D ₆ , 99%)	neat	Please inquire
CLM-1280	Methacetin (methoxy- ¹³ C, 99%)	neat	1 g, 10 g
CLM-7522	Naproxen, sodium salt (O-methyl- ¹³ C, 98%)	neat	Please inquire
DLM-8609	DL-Normetanephine-HCl (α,β,β -D ₃ , 98%)	neat	5 mg, 10 mg
DLM-10618	Obeticholic acid (2,2,4,4-D ₄ , 98%)	neat	1 mg
ULM-10473-C	Stanozolol (unlabeled)	100 µg/mL in methanol	1 mL
CLM-7119	Temozolomide (methyl- ¹³ C, 99%)	neat	Please inquire
CNLM-9258	1,2,4-Triazole (3,5- ¹³ C ₂ , 99%; 1,2,4- ¹⁵ N ₃ , 98%)	neat	1 mg, 5 mg

*Products listed with an asterisk are available globally.

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Drugs and Their Metabolites *(continued)***Stimulants**

Catalog No.	Description	Concentration	Unit Size
CLM-10387-B	DL-Amphetamine-HCl (ring- ¹³ C ₆ , 98%) CP 95%	50 µg/mL in methanol	1 mL
CLM-728	Caffeine (3-methyl- ¹³ C, 99%)	neat	0.5 g
CLM-514-1.2	Caffeine (trimethyl- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1.2 mL
CLM-514	Caffeine (trimethyl- ¹³ C ₃ , 99%)	neat	1 g
NLM-332	Caffeine (1,3- ¹⁵ N ₂ , 99%)	neat	Please inquire
CNLM-333	Caffeine (2- ¹³ C, 99%; 1,3- ¹⁵ N ₂ , 98%)	neat	0.1 g
ULM-7653-1.2	Caffeine (unlabeled)	100 µg/mL in methanol	1.2 mL
DLM-1819-1.2	DL-Cotinine (methyl-D ₃ , 98%)	100 µg/mL in acetonitrile	1.2 mL
DLM-1819	DL-Cotinine (methyl-D ₃ , 98%)	neat	0.01 g, 0.1 g, 0.5 g
CLM-3914-1.2	DL-Nicotine (3',4',5'- ¹³ C ₃ , 99%)	100 µg/mL in acetonitrile	1.2 mL
CLM-3914	DL-Nicotine (3',4',5'- ¹³ C ₃ , 99%)	neat	0.1 g
DLM-1818	DL-Nicotine (methyl-D ₃ , 98%)	neat	0.1 g, 0.5 g
DLM-9017	DL-Nornicotine (pyridine-D ₄ , 98%)	neat	Please inquire

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Fatty Acids and Lipids

Fatty acids and lipids are important biological compounds that are essential to the regulation and control of cellular functions and metabolic pathways. These biomolecules are also tied to the energetic balance of an organism. Their qualitative/quantitative analysis has emerged to better understand the underlying pathophysiology, as well as to identify new biomarkers or diagnose existing ones.

To aid such research initiatives, CIL is pleased to offer a multitude of stable isotope-labeled and unlabeled fatty acids and lipids. The fatty acids cover saturated and unsaturated classes, while the lipids include ceramides (e.g., *N*-palmitoyl-D-sphingosine, *N*-oleoyl-D-sphingosine), and phospholipids (e.g., dodecylphosphocholine, dipalmitoyl phosphatidylcholine), as well as triacylglycerides (e.g., tripalmitin, tristearin, triolein). These are available in various labeling patterns (i.e., uniform, partial), forms (i.e., free acid, salt, ester), and material grades (i.e., research, MPT).

Catalog No.	Description	Unit Size
DLM-10481	Arachidic acid (2,2-D ₂ , 98%)	Please inquire
DLM-1234	Arachidic acid (methyl-D ₃ , 98%) CP 97%	0.1 g
DLM-10519	Arachidic acid (12,12,13,13-D ₄ , 98%)	0.1 g, 0.25 g
DLM-1233	Arachidic acid (D ₃₉ , 98%)	1 g
DLM-1661-N	Arachidonic acid (5,6,8,9,11,12,14,15-D ₈ , 98%)	5 mg
DLM-11670	Arachidonic acid (d16,16,17,17,8,18,19,19,20,20,20-D ₁₁ , 98%) CP 95%	1 mg
ULM-10272	Arachidonic acid (unlabeled)	Please inquire
CLM-9666	Butyric acid (1- ¹³ C, 99%)	1 g
CLM-9215	Butyric acid (¹³ C ₄ , 99%)	0.1 g
DLM-1110	Butyric acid (3,3,4,4,4-D ₅ , 97%)	Please inquire
DLM-1508	Butyric acid (D ₇ , 98%)	5 g
CLM-9768	Butyryl coenzyme A, lithium salt (butyryl- ¹³ C ₄ , 99%) CP 95% (in solution)	Please inquire
DLM-10279	Coenzyme Q10 (ubiquinone) (dimethoxy-D ₆ , methyl-D ₃ , 98%) CP 97%	1 mg, 5 mg
DLM-2006	Decanoic acid (methyl-D ₃ , 98%)	0.5 g, 1 g
DLM-270	Decanoic acid (D ₁₉ , 98%)	1 g
DLM-1002	<i>N</i> -Decanol (D ₂₁ , 98%)	1 g
ULM-9721	<i>N</i> -Decanoyl-D-sphingosine (ceramide d18:1/10:0) (unlabeled) CP 97%	Please inquire
DLM-677-1.2	Dibenz[<i>A,H</i>]anthracene (D ₁₄ , 98%) (200 µg/mL in toluene-D ₈)	1.2 mL
DLM-677	Dibenz[<i>A,H</i>]anthracene (D ₁₄ , 98%)	0.01 g, 0.1 g, 0.5 g
DLM-11092	1,2-Diheptanoyl- <i>SN</i> -glycero-3-phosphocholine (DHPC-C7) (heptanoyl-D ₂₆ , 97%; 50-60% on α carbons)	100 mg
DLM-11085	1,2-Dihexanoyl- <i>SN</i> -glycero-3-phosphocholine (DHPC-C6) (hexanoyl-D ₂₂ , 97%; 50-60% on α carbons)	100 mg
DLM-11093	1,2-Dimyristoyl- <i>SN</i> -glycero-3-phosphocholine (DMPC) (dimyristoyl-D ₅₄ , 97%; 50-60% on α carbons)	100 mg
DLM-11097	1,2-Dimyristoyl- <i>SN</i> -glycero-3-phosphoglycerol, ammonium salt (DMPG) (dimyristoyl-D ₅₄ , 99%; 50-60% on α carbons)	100 mg
DLM-11094	1,2-Dipalmitoyl- <i>SN</i> -glycero-3-phosphocholine (DPPC) (dipalmitoyl-D ₆₂ , 97%; 50-60% on α carbons)	100 mg
DLM-11098	1,2-Dipalmitoyl- <i>SN</i> -glycero-3-phosphoethanolamine (DPPE) (dipalmitoyl-D ₆₂ , 97%; 50-60% on α carbons)	100 mg
DLM-11099	1,2-Dipalmitoyl- <i>SN</i> -glycero-3-phosphoserine, ammonium salt (DPPS) (dipalmitoyl-D ₆₂ , 97%; 50-60% on α carbons)	50 mg
DLM-11095	1,2-Dioleoyl- <i>SN</i> -glycero-3-phosphocholine (DOPC) (dioleoyl-D ₆₄ , 97%; 50-60% on α and allylic carbons)	50 mg
CLM-8388	Docosahexaenoic acid (DHA) (U- ¹³ C ₂₂ , 99%) may contain 5% docosapentaenoic acid or "DPA"	1 mg, 5 mg
DLM-10012	Docosahexaenoic acid (DHA) (21,21,22,22,22-D ₅ , 98%)	1 mg, 5 mg
ULM-10013	Docosahexaenoic acid (DHA) (unlabeled)	1 mg, 5 mg
DLM-10015	Docosahexaenoic acid, ethyl ester (DHA ethyl ester) (21,21,22,22,22-D ₅ , 98%) CP 95%	Please inquire
ULM-10016	Docosahexaenoic acid, ethyl ester (DHA ethyl ester) (unlabeled) CP 95%	Please inquire
CLM-8398	Docosahexaenoic acid, methyl ester (DHA methyl ester) (DHA U- ¹³ C ₂₂ , 99%) may contain 5% docosapentaenoic acid or "DPA"	1 mg, 5 mg
DLM-10014	Docosahexaenoic acid, methyl ester (DHA methyl ester) (21,21,22,22,22-D ₅ , 98%) CP 97%	1 mg
CLM-9909	Docosanoic acid (1,2,3,4,5,6- ¹³ C ₆ , 99%) CP 95%	Please inquire
DLM-9180	Docosanoic acid (22,22,22-D ₃ , 98%)	Please inquire
DLM-9951	Docosanoic acid (3,3,5,5-D ₄ , 98%) CP 95%	Please inquire
DLM-10503	Docosanoic acid (12,12,13,13-D ₄ , 98%)	0.1 g, 0.25 g
DLM-4703	Docosanoic acid (D ₄₃ , 98%)	Please inquire
DLM-738	<i>N</i> -Dodecanol (D ₂₅ , 98%)	0.5 g, 1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Fatty Acids and Lipids (continued)

Catalog No.	Description	Unit Size
DLM-2274	Dodecylphosphocholine (D ₃₈ , 98%)	0.1 mg, 0.5 g
DLM-9720	<i>cis</i> -5,8,11,14,17-Eicosapentaenoic acid (19,19,20,20,20-D ₅ , 98%)	1 mg, 5 mg
ULM-10024	<i>cis</i> -5,8,11,14,17-Eicosapentaenoic acid (unlabeled)	1 mg, 5 mg
DLM-10558	Eicosapentaenoic acid, ethyl ester (19,19,20,20,20-D ₅ , 98%) CP 95%	Please inquire
DLM-10559	<i>cis</i> -5,8,11,14,17-Eicosapentaenoic acid, methyl ester (19,19,20,20,20-D ₅ , 98%) CP 95%	1 mg
DLM-10667	Ethyl hexacosanoate (hexacosanoyl-12,12,13,13-D ₄ , 98%)	Please inquire
CLM-8274	Ethyl hexanoate (hexanoate- ¹³ C ₆ , 99%)	Please inquire
DLM-6013	Ethylmalonic acid (methyl-D ₃ , 98%)	0.1 g
CLM-11683	<i>SN</i> -Glycerol 3-phosphate, disodium salt (glycerol- ¹³ C ₃ , 99%) CP 95%	1 mg
DLM-1308	Heptadecanoic acid (methyl-D ₃ , 98%)	0.1 g
DLM-6905	Heptadecanoic acid (D ₃₃ , 98%)	0.25 g, 0.5 g
DLM-1820	Heptanoic acid (2,2,3,3-D ₄ , 98%)	Please inquire
DLM-2731	Heptanoic acid (D ₁₃ , 98%)	0.5 g
CLM-9790	Hexacosanoic acid (1,2,3,4,5,6- ¹³ C ₆ , 99%)	Please inquire
DLM-9953	Hexacosanoic acid (3,3,5,5-D ₄ , 98%) CP 95%	Please inquire
DLM-8510	Hexacosanoic acid (12,12,13,13-D ₄ , 98%)	0.1 g
CLM-3519	Hexanoic acid (1- ¹³ C, 99%)	0.5 g
DLM-3030	Hexanoic acid (2,2-D ₂ , 98%)	Please inquire
DLM-612	Hexanoic acid (methyl-D ₃ , 98%)	0.1 g, 0.5 g, 1 g
DLM-11023	Hexanoic acid (4,4,5,5,6,6,6-D ₇ , 98%)	Please inquire
DLM-277	Hexanoic acid (D ₁₁ , 98%)	0.1 g, 1 g
DLM-11424	2-Hexyldecanoic acid (D ₃₁ , 98%) CP 97%	Please inquire
DLM-2922	DL-3-Hydroxymyristic acid (2,2,3,4,4-D ₅ , 96%)	Please inquire
CLM-2095	Isovaleric acid (1- ¹³ C, 99%)	1 g
CLM-10348	Isovaleric acid (2,3,4- ¹³ C ₃ , 3-methyl- ¹³ C, 99%)	Please inquire
DLM-2938	Isovaleric acid (D ₉ , 98%)	Please inquire
CLM-1586	Lauric acid (1- ¹³ C, 99%)	1 g, 5 g
DLM-3062	Lauric acid (methyl-D ₃ , 99%)	0.5 g, 1 g
DLM-563	Lauric acid (D ₂₃ , 98%)	1 g
CLM-9688	Linoleic acid (18:2) (1- ¹³ C, 99%)	1 g
CLM-6855	Linoleic acid (18:2) (U- ¹³ C ₁₈ , 98%) CP 94% (<10% <i>cis/trans</i> isomer)	0.1 mg, 0.1 g, 0.25 g, 1 g
CLM-2119	Linoleic acid (18:2), ethyl ester (1- ¹³ C, 99%)	Please inquire
CLM-3960	Linoleic acid (18:2), ethyl ester (U-linoleate- ¹³ C ₁₈ , 98%) CP 95%	0.5 g
DLM-227	Linoleic acid (18:2), ethyl ester (17,17,18,18,18-D ₅ , 98%)	Please inquire
DLM-766	Linoleic acid (18:2), ethyl ester (D ₃₁ , 98%) CP 95%	Please inquire
CLM-8395	Linoleic acid (18:2), methyl ester (U-linoleate- ¹³ C ₁₈ , 98%) CP 95%	0.1 g, 0.25 g, 1 g
DLM-9663	Linoleic acid (18:2), methyl ester (D ₃₁ , 98%) CP 95%	Please inquire
CLM-6229	Linoleic acid (18:2), potassium salt (1- ¹³ C, 99%)	1 g
CLM-8835	Linoleic acid (18:2), potassium salt (U- ¹³ C ₁₈ , 98%) CP 97% (may have up to 5% isomers)	Please inquire
CLM-10487	Linoleic acid (18:2), sodium salt (U- ¹³ C ₁₈ , 98%) CP 94% (may have up to 5% isomers)	Please inquire
CLM-8386	Linolenic acid (18:3) (U- ¹³ C ₁₈ , 98%) CP 95%	0.1 g
DLM-9348	Linolenic acid (18:3) (17,17,18,18,18-D ₅ , 98%) CP 90%	0.25 g
DLM-2351	Linolenic acid (18:3), ethyl ester (17,17,18,18,18-D ₅ , 98%) CP 95%	0.25 g
CLM-8396	Linolenic acid (18:3), methyl ester (linolenate-U- ¹³ C ₁₈ , 98%) CP 95%	0.1 g
DLM-10520	Lysophosphatidylcholine 20:0 (LysoPC C20:0) (eicosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-10521	Lysophosphatidylcholine 20:0 (LysoPC C20:0) (unlabeled)	5 mg, 10 mg
CLM-10499	Lysophosphatidylcholine 22:0 (LysoPC C22:0) (docosanoyl-1,2,3,4,5,6- ¹³ C ₆ , 99%)	1 mg, 5 mg
DLM-10500	Lysophosphatidylcholine 22:0 (LysoPC C22:0) (docosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-10498	Lysophosphatidylcholine 22:0 (LysoPC C22:0) (unlabeled)	5 mg, 10 mg
CLM-10496	Lysophosphatidylcholine 24:0 (LysoPC C24:0) (tetracosanoyl-1,2,3,4,5,6- ¹³ C ₆ , 99%)	1 mg, 5 mg
DLM-10497	Lysophosphatidylcholine 24:0 (LysoPC C24:0) (tetracosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-10495	Lysophosphatidylcholine 24:0 (LysoPC C24:0) (unlabeled)	5 mg, 10 mg

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Catalog No.	Description	Unit Size
CLM-9792	Lysophosphatidylcholine 26:0 (LysoPC C26:0) (hexacosanoyl-1,2,3,4,5,6- ¹³ C ₆ , 99%)	1mg, 5mg
DLM-10501	Lysophosphatidylcholine 26:0 (LysoPC C26:0) (hexacosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-9791	Lysophosphatidylcholine 26:0 (LysoPC C26:0) (unlabeled)	5 mg, 10 mg
DLM-2960	2-Methylsuccinic acid (D ₆ , 98%)	1 g
CLM-1844	Myristic acid (1- ¹³ C, 99%)	1 g
CLM-3665	Myristic acid (1,2,3- ¹³ C ₃ , 99%)	0.5 g
DLM-1039	Myristic acid (methyl-D ₃ , 98%)	0.1 g
DLM-7487	Myristic acid (13,13,14,14,14-D ₅ , 98%)	Please inquire
DLM-11024	Myristic acid (12,12,13,13,14,14,14-D ₇ , 98%)	Please inquire
DLM-208	Myristic acid (D ₂₇ , 98%)	1 g
CLM-6228	Myristic acid, potassium salt (1- ¹³ C, 99%)	Please inquire
CLM-8695	Myristic acid, sodium salt (1,2,3- ¹³ C ₃ , 99%)	0.5 g
DLM-11100	1-Myristoyl-2-lyso-5N-glycero-3-phosphoglycerol, ammonium salt (LysoPC 14:0) (myristoyl-D ₂₇ , 97%; 50-60% on α carbon)	100 mg
DLM-11671	N-Nervonoyl-D-sphingosine (C24:1 ceramide, d18:1/24:1) (16,16,17,17,18,18,18-D ₇ , 98%) CP 95%	1 mg
DLM-10367	Nonadecanoic acid (D ₃₇ , 98%)	Please inquire
CLM-8724	Nonanoic acid (U- ¹³ C ₉ , 98%)	Please inquire
DLM-7490	Nonanoic acid (9,9,9-D ₃ , 98%)	Please inquire
DLM-9501	Nonanoic acid (D ₁₇ , 98%)	0.5 g, 1 g
DLM-795	N-Octadecanol (D ₃₇ , 98%)	1 g
CLM-293	Octanoic acid (1- ¹³ C, 99%)	1 g, 5 g
CLM-3827	Octanoic acid (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-2721	Octanoic acid (1,2,3,4- ¹³ C ₄ , 99%)	0.25 g
CLM-3981	Octanoic acid (¹³ C ₈ , 99%)	Please inquire
DLM-619	Octanoic acid (D ₁₅ , 98%)	1 g
CLM-3707	2-Octanoyl-1,3-distearin (octanoic-1- ¹³ C, 99%)	1 g, 10 g
CLM-4258	2-Octanoyl-1,3-distearin (octanoyl-1,2- ¹³ C ₂ , 99%)	1 g
ULM-9722	N-Octanoyl-D-sphingosine (ceramide d18:1/8:0) (unlabeled)	Please inquire
DLM-6726	n-Octyl-β-glucoside (D ₂₄ , 98%)	0.1 g
CLM-9583	N-Oleoyl-D-sphingosine (ceramide d18:1/18:1 (9z) (oleoyl-U- ¹³ C ₁₈ , 99%) CP 95%	0.1 mg, 1 mg
CLM-2492	Oleic acid (methyl- ¹³ C, 99%)	0.25 g
CLM-149	Oleic acid (1- ¹³ C, 99%)	0.5 g, 1 g
CLM-460	Oleic acid (U- ¹³ C ₁₈ , 98%)	0.1 mg, 0.1 g
DLM-689	Oleic acid (9,10-D ₂ , 97%)	0.1 g
DLM-1891	Oleic acid (D ₃₃ , 98%)	Please inquire
CLM-3959	Oleic acid, ethyl ester (oleate-U- ¹³ C ₁₈ , 98%) CP 95%	1 g
DLM-8747	Oleic acid, ethyl ester (D ₃₃ , 98%) CP 95%	Please inquire
CLM-4337	Oleic acid, methyl ester (oleate- ¹³ C ₁₈ , 98%)	Please inquire
CLM-4477	Oleic acid, potassium salt (1- ¹³ C, 99%)	1 g
CLM-8856	Oleic acid, potassium salt (U- ¹³ C ₁₈ , 98%) CP 95%	Please inquire
DLM-8837	Oleic acid, potassium salt (15,15,16,16,17,17,18,18,18-D ₉ , 98%)	Please inquire
CLM-6230	Oleic acid, sodium salt (1- ¹³ C, 99%)	Please inquire
CLM-8763	Oleic acid, sodium salt (U- ¹³ C ₁₈ , 98%)	Please inquire
ULM-9581	N-Oleoyl-D-sphingosine (ceramide d18:1/18:1 (9z) (unlabeled) CP 95%	0.1 mg
NLM-10511	Oleylamine (¹⁵ N, 98%)	Please inquire
CLM-150	Palmitic acid (1- ¹³ C, 99%)	1 g, 5 g, 10 g
CLM-2120	Palmitic acid (2- ¹³ C, 99%)	1 g
CLM-214	Palmitic acid (1,2- ¹³ C ₂ , 99%)	0.5 g
CLM-7896	Palmitic acid (1,2,3,4- ¹³ C ₄ , 99%)	0.1 mg, 1 g
CLM-10926	Palmitic acid (1,2,3,4,5,6- ¹³ C ₆ , 99%)	Please inquire
CLM-409	Palmitic acid (U- ¹³ C ₁₆ , 98%)	0.01 g, 0.1 g, 0.5 g
DLM-8673	Palmitic acid (12-D, 98%)	Please inquire
DLM-1153	Palmitic acid (2,2-D ₂ , 98%)	1 g

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Fatty Acids and Lipids (continued)

Catalog No.	Description	Unit Size
DLM-2890	Palmitic acid (9,9-D ₂ , 98%)	Please inquire
DLM-2891	Palmitic acid (13,13-D ₂ , 98%)	0.5 g
DLM-611	Palmitic acid (methyl-D ₃ , 98%)	0.5 g
DLM-2893	Palmitic acid (7,7,8,8-D ₄ , 98%)	0.1 g, 0.5 g
DLM-2894	Palmitic acid (11,11,12,12-D ₄ , 98%)	Please inquire
DLM-9424	Palmitic acid (13,13,14,14,15,15,16,16,16-D ₉ , 98%)	Please inquire
DLM-2895	Palmitic acid (9,9,10,10,11,11,12,12,13,13,14,14,15,15,16,16,16-D ₁₇ , 98%) CP 97%	0.1 g
DLM-215	Palmitic acid (D ₃₁ , 98%)	1 g
CLM-3957	Palmitic acid, ethyl ester (palmitate- ¹³ C ₁₆ , 98%) CP 95%	1 g
DLM-8793	Palmitic acid, ethyl ester (D ₃₁ , 98%)	Please inquire
CLM-11289	Palmitic acid, methyl ester (1,2,3,4- ¹³ C ₄ , 99%)	Please inquire
CLM-8390	Palmitic acid, methyl ester (palmitate- ¹³ C ₁₆ , 98%)	0.25 g, 1 g
CLM-2241	Palmitoleic acid (U- ¹³ C ₁₆ , 98%) CP 97%	5 mg, 10 mg
CLM-3958	Palmitoleic acid, ethyl ester (palmitoleate-U- ¹³ C ₁₆ , 98%) CP 97%	Please inquire
CLM-8391	Palmitoleic acid, methyl ester (palmitoleate-U- ¹³ C ₁₆ , 98%) CP 97%	Please inquire
DLM-11101	1-Palmitoyl-2-lyso- <i>SN</i> -glycero-3-phosphoglycerol, ammonium salt (LysoPPG) (palmitoyl-D ₃₁ , 97%; 50-60% at α carbon)	100 mg
DLM-11096	1-Palmitoyl-2-oleoyl- <i>SN</i> -glycero-3-phosphocholine (POPC) (fatty acids-D ₆₃ , 97%; 50-60% on α, vinyl carbons)	50 mg
CLM-9582	<i>N</i> -Palmitoyl-D-sphingosine (C 16 ceramide, d18:1/16:0) (palmitoyl-U- ¹³ C ₁₆ , 99%) CP 95%	0.1 mg, 1 mg
DLM-11674	<i>N</i> -Palmitoyl-D-sphingosine (C 16 ceramide, d18:1/16:0) (16,16,17,17,18,18,18-D ₇ , 98%) CP 95%	1 mg
ULM-9580	<i>N</i> -Palmitoyl-D-sphingosine (C 16 ceramide, d18:1/16:0) (unlabeled) CP 95%	0.1 mg
DLM-1307	Pentadecanoic acid (methyl-D ₃ , 98%)	0.1 g
DLM-572	Pentanoic acid (D ₉ , 98%)	1 g, 5 g
CLM-10700	Pentanoic acid, pentyl ester (¹³ C ₁₀ , 99%) CP 95%	Please inquire
DLM-4341	DL-α-Phosphatidylcholine, dihexanoyl (DHPC) (D ₄₀ , 98%) CP 95%	0.1 g
CLM-9668	DL-α-Phosphatidylcholine, dipalmitoyl (DPPC) (U- ¹³ C ₄₀ , 98%) CP 95%	0.05 g
DLM-8256	DL-α-Phosphatidylcholine, dipalmitoyl (DPPC) (D ₈₀ , 98%) CP 95%	Please inquire
DLM-6998	Phytanic acid (3-methyl-D ₃ , 98%) CP 95%	Please inquire
CLM-1889	Potassium palmitate (1- ¹³ C, 99%)	1 g
CLM-6865	Potassium palmitate (1,2,3,4- ¹³ C ₄ , 99%)	Please inquire
CLM-10942	Potassium palmitate (1,2,3,4,5,6- ¹³ C ₆ , 99%)	Please inquire
CLM-3943	Potassium palmitate (U- ¹³ C ₁₆ , 98%)	0.5 g
DLM-3773	Potassium palmitate (2,2-D ₂ , 97%)	1 g
DLM-6199	Potassium palmitate (methyl-D ₃ , 98%)	Please inquire
DLM-6033	Potassium palmitate (7,7,8,8-D ₄ , 98%)	0.5 g
DLM-8302	Pristanic acid (2-methyl-D ₃ , 98%) CP 95%	Please inquire
DLM-10241	Sebacic acid (2,2,9,9-D ₄ , 98%)	Please inquire
CLM-1256	Sodium butyrate (1- ¹³ C, 99%)	1 g, 5 g
CLM-4780	Sodium butyrate (2- ¹³ C, 99%)	Please inquire
CLM-10426	Sodium butyrate (¹³ C ₄ , 99%)	0.1 g
DLM-641	Sodium butyrate (3,3,4,4,4-D ₅ , 98%)	Please inquire
DLM-7616	Sodium butyrate (D ₇ , 98%)	Please inquire
DLM-197	Sodium dodecyl sulfate (D ₂₅ , 98%)	1 g
CLM-10897	Sodium isobutyrate (¹³ C ₄ , 99%)	Please inquire
CLM-1948	Sodium octanoate (1- ¹³ C, 99%)	1 g, 5 g, 10 × 0.1 g
CLM-3876	Sodium octanoate (1,2,3,4- ¹³ C ₄ , 99%)	0.1 g, 0.25 g
CLM-3980	Sodium octanoate (2,4,6,8- ¹³ C ₄ , 99%)	Please inquire
CLM-9617	Sodium octanoate (U- ¹³ C ₈ , 99%)	Please inquire
CLM-174	Sodium palmitate (1- ¹³ C, 99%)	1 g
CLM-6059	Sodium palmitate (U- ¹³ C ₁₆ , 98%)	1 g
ULM-9579	Sphingosine (unlabeled) CP 95%	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Catalog No.	Description	Unit Size
CLM-490	Stearic acid (methyl- ^{13}C , 99%)	1 g
CLM-676	Stearic acid ($1\text{-}^{13}\text{C}$, 99%)	1 g, 5 g
CLM-6990	Stearic acid ($\text{U-}^{13}\text{C}_{18}$, 98%) CP 97%	0.25 g
DLM-1154	Stearic acid (methyl- D_3 , 98%)	0.1 g, 0.25 g
DLM-2712	Stearic acid (17,17,18,18,18- D_5 , 98%)	0.1 g, 0.5 g
DLM-379	Stearic acid (D_{35} , 98%)	1 g
CLM-8731	Stearic acid, ethyl ester (stearate- $\text{U-}^{13}\text{C}_{18}$, 98%)	Please inquire
CLM-8394	Stearic acid, methyl ester (stearate- $\text{U-}^{13}\text{C}_{18}$, 98%) CP 95%	0.25 g, 1 g
CLM-6227	Stearic acid, potassium salt ($1\text{-}^{13}\text{C}$, 99%)	Please inquire
CLM-10365	Stearic acid, sodium salt ($\text{U-}^{13}\text{C}_{18}$, 98%) CP 97%	Please inquire
DLM-11672	<i>N</i> -Stearoyl-D-sphingosine (C18 ceramide, d18:1/18:0) (d16,16,17,17,18,18,18- D_7 , 98%) CP 95%	1 mg
DLM-6143	Suberic acid (2,2,7,7- D_4 , 98%)	0.5 g, 1 g
CLM-9932	Tetracosanoic acid (1,2,3,4,5,6- $^{13}\text{C}_6$, 99%) CP 96%	Please inquire
DLM-9952	Tetracosanoic acid (3,3,5,5- D_4 , 98%) CP 95%	Please inquire
DLM-9179	Tetracosanoic acid (9,9,10,10- D_4 , 98%)	Please inquire
DLM-10502	Tetracosanoic acid (12,12,13,13- D_4 , 98%)	0.1 g, 0.25 g
DLM-7302	Tetracosanoic acid (D_{47} , 98%)	Please inquire
DLM-11673	<i>N</i> -Tetracosanoylsphingosine (C24 ceramide, d18:1/24:0) (16,16,17,17,18,18,18- D_7 , 98%) CP 95%	1 mg
DLM-1392	Tridecanoic acid (D_{25} , 98%)	Please inquire
DLM-11086	Triheptanoin (tris(heptanoyl-7,7,7)- D_9 , 98%)	Please inquire
CLM-162	Trioctanoin (1,1,1- $^{13}\text{C}_3$, 99%)	0.25 g, 0.5 g, 1 g
CLM-163	Triolein (1,1,1- $^{13}\text{C}_3$, 99%)	0.1 g, 0.5 g
CLM-8445	Tripalmitin (glyceryl- $^{13}\text{C}_3$, 99%)	Please inquire
CLM-164	Tripalmitin (1,1,1- $^{13}\text{C}_3$, 99%)	0.25 g, 0.5 g, 1 g
CLM-350	Tripalmitin (2,2,2- $^{13}\text{C}_3$, 99%)	0.1 g
CLM-9468	Tripalmitin (1,1,1,2,2,2,3,3,3,4,4,4- $^{13}\text{C}_{12}$, 99%)	Please inquire
DLM-9986	Tripalmitin (glyceryl- D_5 , 98%)	Please inquire
DLM-9462	Tripalmitin (trispalmitoyl- D_{93} , 98%)	0.5 g
DLM-9044	Tripalmitin (D_{98} , 98%)	Please inquire
DLM-7875	Tristearin (tristearoyl- D_{105} , 98%)	Please inquire
CLM-3399	Valproic acid (1,2,3,3'- $^{13}\text{C}_4$, 99%)	Please inquire
DLM-7876	Valproic acid (propyl-1,1- D_2 , pentanoic-3,3- D_2 , 98%)	Please inquire
DLM-4291	Valproic acid (4,4,4',4'- D_4 , 98%)	0.1 g
DLM-8875	Valproic acid (D_{15} , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

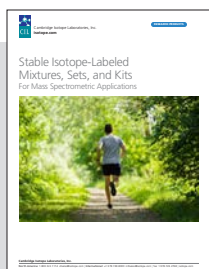
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Metabolomics Mixtures and Kits

Metabolomics is an increasingly important and growing area of research. The use of stable isotopes (as internal standards), in combination with analytical techniques such as mass spectrometry, allow researchers to identify and quantify metabolites in a given biological sample. This information can be used to better understand disease mechanisms, evaluate drug responses, and assess putative biomarkers, amongst other targeted applications. To help facilitate such initiatives, CIL is pleased to offer a variety of mixes and kits. These are designed to aid ease of use in untargeted and targeted metabolomics exercises (e.g., in quantification, qualification, quality control, system suitability). The mixtures are offered neat or as solutions, while the kits are additionally supplied with a user manual. The manuals outline general procedures and processing tables (i.e., platform parameters and conditions), as well as alternate method suggestions and data analysis guides for user reference. Supplemental figures and references in the user manuals provide additional user support.

Catalog No.	Description	Unit Size
ISO1	Metabolite Yeast Extract (U- ¹³ C, 99%)	1 kit
ISO1-KIT	Metabolite Yeast Extract Kit	1 kit
L-ISO1	Crude Lipid Yeast Extract (U- ¹³ C, 99%)	1 kit
MSK-A2	Metabolomics Amino Acid Mix	1.2 mL
MSK-CAA	Canonical Amino Acid Mix	1 vial
MSK-NCAA	Non-canonical Amino Acid Mix	1 vial
MSK-CNCAA	Canonical/Non-canonical Amino Acid Mix Sets	2 × 1 vial
NSK-BCAA	Branched-chain Amino Acid Standards Mix	1 vial
MSK-BA1	Bile Acid Standard Mix 1 – Unconjugated	1 vial
MSK-BA2	Bile Acid Standard Mix 2 – Conjugated	1 vial
MSK-BA-A	Bile Acid Standards Mix Sets 1 and 2	2 × 1 vial
MSK-BA1-25X	Bile Acid Standard Mix 1 (25X) – Unconjugated	1 vial
MSK_BA2-20X	Bile Acid Standard Mix 2 (20X) – Conjugated	1 vial
MSK-BA3	Bile Acid Standards Mix 3 – Unconjugated Sulfates	1 vial
MSK-BA4	Bile Acid Standards Mix 4 – Conjugated Sulfates	1 vial
MSK-CRED-DD-KIT	Credentialed <i>E. coli</i> Cell Extract Kit (dried down)	1 kit
MSK-CRED-KIT	Credentialed <i>E. coli</i> Cell Extract Kit (solution)	1 kit
MSK-MET1	Metabolomics Standards Mix 1	1 vial
MSK-MSM1	Metabolomics Screening and Monitoring Standards Mix 1	1 vial
MSK-QC1	Metabolomics QC Standards Mix 1	1 vial
MSK-QC2	Metabolomics QC Standards Mix 2	1 vial
MSK-QC-KIT	Metabolomics QC Kit	1 kit
MSK-QCMSI-KIT	Metabolomics QC Kit for MSI	1 kit
MSK-QReSS1	Metabolomics QReSS™ Standards Mix 1	1 vial
MSK-QReSS2	Metabolomics QReSS™ Standards Mix 2	1 vial
MSK-QReSS-KIT	Metabolomics QReSS™ Kit	1 kit
MSK-OA	Organic Acid Mix	1 vial
MSK-SBCFA	Short-/Branched-chain Fatty Acid Mix	1 vial
MSK-TCA1	TCA Cycle Standards Mix 1	1 vial
MSK-TCA2-A	TCA Cycle Standards Mix 2A	1 vial
MSK-TCA-A	TCA Cycle Standards Mix Sets 1 and 2A	2 × 1 vial

Companion unlabeled standard mixes and kits are also available; please inquire.



This catalog details CIL's stable isotope-labeled mixtures, sets, and kits for MS 'omics and MS/MS screening exercises. Here you can find the mix/set compositions, kit contents, usage specifications, sample results, and example references. A series of Q&As are also provided on the back end for general information.

For complete product details, click on the thumbnail to download the catalog or visit the **Metabolomics Mixtures and Kits application page** at isotope.com.

MRS/MRI Tracers

Using stable isotopes in magnetic resonance spectroscopy (MRS) and magnetic resonance imaging (MRI) research takes advantage of the changes in chemical shifts to measure rates of conversion between different molecules. Normally in these types of studies, stable isotope compounds will contain D, ^{13}C , ^{15}N , and/or ^{17}O as tracers. The ability to easily differentiate isotopomers is a huge advantage to using MRS/MRI as opposed to mass spectrometry in this work. There are different techniques that use MRS/MRI in tracer research, including:

- Hyperpolarization – allows for sensitivity increases of up to 100,000 times for short periods of time to image metabolite conversion.
- Deuterium imaging – takes advantage of the very low deuterium background and chemical shifts differences to determine the rates.
- Metabolomics/Metabolism – determines the fates of compounds or the number of turns of specific cycles.

CIL is pleased to offer a vast array of stable isotope-labeled compounds for use as tracers in MRS/MRI research. These materials are available in their neat and/or solution form.

Catalog No.	Description	Unit Size
CLM-317	Acetic acid ($1\text{-}^{13}\text{C}$, 99%)	1 g, 5 g
CLM-318	Acetic acid ($2\text{-}^{13}\text{C}$, 99%)	1 g
CLM-113	Acetic acid ($1,2\text{-}^{13}\text{C}_2$, 99%)	0.5 g, 1 g
CLM-548	Choline chloride ($1,2\text{-}^{13}\text{C}_2$, 99%)	0.1 g
CLM-344	Ethanol ($1\text{-}^{13}\text{C}$ 99%) <6% H_2O	0.5 g, 1 g
CLM-130	Ethanol ($2\text{-}^{13}\text{C}$, 99%) <6% H_2O	0.5 g, 1 g
CLM-551	Ethanol ($1,2\text{-}^{13}\text{C}_2$, 99%) <6% H_2O	0.5 g, 1 g
CLM-2291	Ethanolamine ($^{13}\text{C}_2$, 99%)	Please inquire
CLM-3911	Ethanolamine-HCl ($1\text{-}^{13}\text{C}$, 99%)	1 g
CLM-274	Ethanolamine-HCl ($1,2\text{-}^{13}\text{C}_2$, 99%)	0.1 g, 0.25 g
CLM-522	Ethyl acetoacetate ($1,3\text{-}^{13}\text{C}_2$, 99%)	0.5 g, 1 g
CLM-523	Ethyl acetoacetate ($2,4\text{-}^{13}\text{C}_2$, 99%)	0.5 g, 1 g
CLM-4454	Fumaric acid ($1,4\text{-}^{13}\text{C}_2$, 99%)	Please inquire
CLM-1529	Fumaric acid ($^{13}\text{C}_4$, 99%)	100 mg, 0.1 g
CDLM-6062	Fumaric acid ($1\text{-}^{13}\text{C}$, 99%; $2,3\text{-D}_2$, 98%)	Please inquire
CLM-420	D-Glucose ($1\text{-}^{13}\text{C}$, 98%)	0.25 g, 0.5 g, 1 g, 5 g, 10 g
CLM-2717	D-Glucose ($1\text{-}^{13}\text{C}$, 99%; $6\text{-}^{13}\text{C}$, 97%)	0.1 g, 0.25 g, 1 g
CLM-6750	D-Glucose ($3,4\text{-}^{13}\text{C}_2$, 99%)	Please inquire
CLM-1396	D-Glucose ($\text{U-}^{13}\text{C}_6$, 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g, 2 g, 5 g, 10 g, 25 g, 50 g
DLM-349	D-Glucose ($6,6\text{-D}_2$, 99%)	1 g, 5 g, 10 g
CLM-4338	DL-Glycerol ($1\text{-}^{13}\text{C}$, 99%) aqueous solution	Please inquire
CLM-1397	Glycerol ($2\text{-}^{13}\text{C}$, 99%)	0.25 g, 0.5 g, 1 g
CLM-1857	Glycerol ($1,3\text{-}^{13}\text{C}_2$, 99%)	0.25 g, 0.5 g, 1 g
DLM-10430	Glycerol (2-D , 95%) aqueous solution	Please inquire
DLM-1229	Glycerol ($1,1,2,3,3\text{-D}_5$, 99%)	1 g, 5 g
CLM-9675	1,2-Glycerol carbonate (carbonyl- ^{13}C , 99%) CP 97%	1 g
CLM-8065	L-Malic acid ($^{13}\text{C}_4$, 99%)	0.1 mg, 5 mg, 0.01 g, 0.05 g, 0.1 g
CLM-1189	D-Mannitol ($1\text{-}^{13}\text{C}$, 98%)	0.25 g, 0.5 g, 1 g
CLM-646	Propionic acid ($1\text{-}^{13}\text{C}$, 99%)	1 g
CLM-647	Propionic acid ($^{13}\text{C}_3$, 99%)	1 g
CLM-8077	Pyruvic acid ($1\text{-}^{13}\text{C}$, 99%)	1 g, 5 g
CLM-8849	Pyruvic acid ($2\text{-}^{13}\text{C}$, 99%) CP 95%	1 g, 5 g
CLM-9505	Pyruvic acid ($1,2\text{-}^{13}\text{C}_2$, 99%)	1 g, 5 g
CLM-156	Sodium acetate ($1\text{-}^{13}\text{C}$, 99%)	1 g, 5 g, 10 g
CLM-381	Sodium acetate ($2\text{-}^{13}\text{C}$, 99%)	1 g, 5 g, 10 g
CLM-440	Sodium acetate ($1,2\text{-}^{13}\text{C}_2$, 99%)	1 g, 5 g
CLM-1256	Sodium butyrate ($1\text{-}^{13}\text{C}$, 99%)	1 g, 5 g
CLM-10426	Sodium butyrate ($^{13}\text{C}_4$, 99%)	0.1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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MRI/MRS Tracers *(continued)*

Catalog No.	Description	Unit Size
CLM-3706	Sodium D-3-hydroxybutyrate (2,4- ¹³ C ₂ , 99%)	1 g
CLM-3853	Sodium D-3-hydroxybutyrate (¹³ C ₄ , 99%) CP 97%	0.5 g
CLM-1577	Sodium L-lactate (1- ¹³ C, 99%) 20% w/w in H ₂ O	1 g
CLM-1578	Sodium L-lactate (3- ¹³ C, 98%) 20% w/w in H ₂ O	0.25 g, 0.5 g, 1 g
CLM-1579	Sodium L-lactate (¹³ C ₃ , 98%) 20% w/w in H ₂ O	0.1 g, 0.5 g
DLM-9071	Sodium L-lactate (3,3,3-D ₃ , 98%) 20% w/w in H ₂ O	0.1 g, 0.25 g
CLM-771	Sodium propionate (1- ¹³ C, 99%)	1 g
CLM-1506	Sodium propionate (2- ¹³ C, 99%)	0.5 g, 1 g
CLM-4573	Sodium propionate (3- ¹³ C, 99%)	Please inquire
CLM-3042	Sodium propionate (2,3- ¹³ C ₂ , 99%)	Please inquire
CLM-1865	Sodium propionate (¹³ C ₃ , 99%)	0.1 g
CLM-1082	Sodium pyruvate (1- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1580	Sodium pyruvate (2- ¹³ C, 99%)	0.5 g, 1 g
CLM-1575	Sodium pyruvate (3- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1565	D-Sorbitol (1- ¹³ C, 99%)	Please inquire
CLM-8529	D-Sorbitol (¹³ C ₆ , 98%)	0.1 g, 0.25 g
CLM-9371	Succinic acid, disodium salt (2,3- ¹³ C ₂ , 99%)	1 g

For a complete product listing, please visit isotope.com.

MS/MS Screening Mixtures and Standards

The utility of stable isotope-labeled standards for MS/MS screening is gaining traction worldwide. To support such research endeavors and enhance method adoption, CIL is pleased to offer a breadth of high-quality, stable isotope-labeled mixtures. These mixes contain a collection of stable isotope-labeled standards (e.g., 12 amino acids in NSK-A) and are class-specific (e.g., amino acids, carnitine/acylcarnitines, steroids). These are available in 10-vial sets or single vials and are suitable for metabolite quantification in isotope dilution MS (IDMS) experiments. Also listed here are example individual standards used in MS/MS screening research.

Mixtures and Sets

Catalog No.	Description	Unit Size
NSK-A	Amino Acid Standards Mix A	1 vial, 10 vials
NSK-A1	Amino Acid Standards Mix A1	1 vial, 10 vials
NSK-AA3	3-Plex Amino Acid Standards Mix	1 vial, 10 vials
NSK-AA3-10X	3-Plex Amino Acid Standards Mix (10X)	1 vial, 10 vials
NSK-B	Carnitine/Acylcarnitine Standards Mix B	1 vial, 10 vials
NSK-B-G1	Acylcarnitine Standards Mix 1 Supplement to NSK-B	1 vial, 10 vials
NSK-AB	Standards Mix Sets A and B	2 × 10 vials
NSK-BCAA	Branched-chain Amino Acid Standards Mix	1 vial
NSK-NI	Acid Sphingomyelinase Substrate and Internal Standards Set	1 vial
NSK-KR	Galactocerebrosidase Substrate and Internal Standards Set	1 vial
NSK-FA	α-Galactosidase Substrate and Internal Standards Set	1 vial
NSK-GA	Glucocerebrosidase Substrate and Internal Standards Set	1 vial
NSK-MP	α-L-Iduronidase Substrate and Internal Standards Set	1 vial
NSK-PO	Acid α-Glucosidase Substrate and Internal Standards Set	1 vial
NSK-LPC	Lysophosphatidylcholine Mix	1 vial
NSK-S	Steroid Standards Mix S	1 vial, 10 vials
NSK-S-40X	Steroid Standards Mix S (40X)	1 vial
NSK-S-EXP	Expanded Steroid Standards Mix S	1 vial, 10 vials

Companion unlabeled standard mixes are also available; please inquire.

Individual Standards (Examples)

Catalog No.	Description	Unit Size
CLM-3777	N-Acetyl glycine (2- ¹³ C, 99%)	Please inquire
CLM-3678	Adenosine (ribose- ¹³ C ₅ , 98%) CP 97%	0.05 g, 0.1 g
CLM-8755	β-Alanine (3- ¹³ C, 99%)	Please inquire
CLM-8756	β-Alanine (¹³ C ₃ , 99%)	Please inquire
NLM-1656	β-Alanine (¹⁵ N, 98%)	0.25 g
CNLM-3440	β-Alanine (3- ¹³ C, 99%; ¹⁵ N, 98%)	Please inquire
CNLM-8457	β-Alanine (1,2- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	Please inquire
CNLM-3946	β-Alanine (¹³ C ₃ , 98%; ¹⁵ N, 96%)	0.25 g
CNLM-9007-CA	L-Argininosuccinic acid, barium salt·2H ₂ O (arginine- ¹³ C ₆ , 99%; ¹⁵ N ₄ , 99%) CP 90%	0.1 mg, 0.5 mg
ULM-9008-CA	L-Argininosuccinic acid, barium salt·3H ₂ O (unlabeled) CP 90%	0.1 mg
ULM-10431	DL-Carnitine·HCl, O-acetyl (unlabeled)	Please inquire
ULM-10703	DL-Carnitine·HCl, O-butyl (unlabeled)	Please inquire
ULM-10704	DL-Carnitine·HCl, O-isovaleryl (unlabeled)	Please inquire
ULM-10705	DL-Carnitine·HCl, O-myristoyl (unlabeled)	Please inquire
ULM-10432	DL-Carnitine·HCl, O-octanoyl (unlabeled)	Please inquire
ULM-10433	DL-Carnitine·HCl, O-palmitoyl (unlabeled) CP 97%	Please inquire
ULM-10702	DL-Carnitine·HCl, O-propionyl (unlabeled)	Please inquire
DLM-11049	L-Carnitine·ClO ₄ , O-malonyl (N-methyl-D ₃ , 98%)	Please inquire
DLM-10962	L-Carnitine·HCl (trimethyl-D ₉ , 98%)	5 mg
DLM-9067	L-Carnitine·HCl, O-decanoyl (N-methyl-D ₃ , 98%)	0.1 mg
DLM-8162	L-Carnitine·HCl, O-dodecanoyl (N-methyl-D ₃ , 98%)	0.1 mg
DLM-9276	L-Carnitine·HCl, O-hexanoyl (N-methyl-D ₃ , 98%)	0.1 mg
ULM-7198	L-Carnitine·HCl, O-hexanoyl (unlabeled)	Please inquire

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MS/MS Screening Standards (continued)

Catalog No.	Description	Unit Size
DLM-6718	L-Carnitine-HCl, O-hexacosanoyl (N-methyl-D ₃ , 98%) CP 95%	Please inquire
CLM-7933	Creatine (guanidino- ¹³ C, 99%)	0.1 g
DLM-1302	Creatine (methyl-D ₃ , 98%) CP 97%	0.25 g
DLM-3653	Creatinine (N-methyl-D ₃ , 98%)	0.1 g
CLM-4579	2'-Deoxyadenosine-H ₂ O (ribose- ¹³ C ₅ , 99%)	Please inquire
CLM-7686	2'-Deoxyguanosine-H ₂ O (ribose-1- ¹³ C, 98%)	Please inquire
DLM-7687	2'-Deoxyguanosine-H ₂ O (ribose-5,5-D ₂ , 98%)	0.05 g, 0.1 g
NLM-3899-CA	2'-Deoxyguanosine-H ₂ O (¹⁵ N ₅ , 98%) CP 95%	5 mg, 10 mg, 25 mg
CNLM-3900-CA	2'-Deoxyguanosine-H ₂ O (¹³ C ₁₀ , 98%; ¹⁵ N ₅ , 96%)	5 mg, 10 mg, 25 mg
DLM-6013	Ethylmalonic acid (methyl-D ₃ , 98%)	0.1 g
CLM-744	D-Galactose (1- ¹³ C, 99%)	0.25 g, 0.5 g, 1 g
CLM-4217	D-Galactose (1,2- ¹³ C ₂ , 99%)	Please inquire
CLM-1570	D-Galactose (U- ¹³ C ₆ , 99%)	0.1 g
DLM-9308	D-Galactose (6,6'-D ₂ , 97%)	Please inquire
CLM-1822-H	L-Glutamine (¹³ C ₅ , 99%)	0.1 mg, 0.01 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-1826	L-Glutamine (2,3,3,4,4-D ₅ , 97%)	0.1 g
CNLM-1275	L-Glutamine (¹³ C ₅ , 99%; ¹⁵ N ₂ , 99%)	0.1 g, 0.25 g, 0.5 g
CLM-1017	Glycine (1,2- ¹³ C ₂ , 97-99%)	0.5 g, 1 g, 5g
DLM-280	Glycine (D ₅ , 98%)	5 g
NLM-202	Glycine (¹⁵ N, 98%)	1 g, 5 g
CNLM-8111	N-(3-Methylcrotonyl)glycine (glycine- ¹³ C ₂ , 98%; ¹⁵ N, 98%)	Please inquire
DLM-9715	N-(3-Phenylpropionyl)glycine (2,2,-D ₂ , 98%)	Please inquire
DLM-9998	Guanidinoacetic acid (2,2-D ₂ , 97%)	Please inquire
CLM-7688	Guanosine-H ₂ O (ribose-1- ¹³ C, 98%)	0.05 g, 0.1 g
DLM-7689	Guanosine-H ₂ O, (ribose-5,5-D ₂ , 98%)	0.05 g, 0.1 g
CNLM-3808-CA	Guanosine-H ₂ O (¹³ C ₁₀ , 98%; ¹⁵ N ₅ , 96%)	5 mg, 10 mg, 25 mg
CNLM-8448	N-Hexanoylglycine (¹³ C ₂ , 97%; ¹⁵ N, 97%) CP 95%	Please inquire
NLM-4649	L-Histidine (ring-ε- ¹⁵ N, 98%) (<5% D)	Please inquire
NLM-4457	L-Histidine (ring-π- ¹⁵ N, 98%) (<5% D)	Please inquire
NLM-9585	L-Histidine (ring- ¹⁵ N ₂ , 98%)	Please inquire
DLM-3619	DL-Homocystine (3,3,3',3',4,4,4',4'-D ₈ , 98%)	0.1 g, 0.5 g, 1 g
NLM-4264	Inosine (¹⁵ N ₄ , 95%)	0.01 g, 0.05 g
CLM-8742	L-allo-Isoleucine (¹³ C ₆ , 97%)	Please inquire
DLM-1505	L-allo-Isoleucine (D ₁₀ , 98%)	0.1 g
CNLM-9291	N-Isovalerylglycine (glycine- ¹³ C ₂ , 99%; ¹⁵ N, 99%)	Please inquire
CLM-2247-H	L-Lysine-2HCl (¹³ C ₆ , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-2640	L-Lysine-2HCl (4,4,5,5-D ₄ , 96%)	0.1 g, 0.25 g, 0.5 g, 1 g
NLM-143	L-Lysine-2HCl (α- ¹⁵ N, 95%)	0.25 g, 1 g
DLM-10520	Lysophosphatidylcholine 20:0 (eicosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-10521	Lysophosphatidylcholine 20:0 (unlabeled)	5 mg, 10 mg
CLM-10499	Lysophosphatidylcholine 22:0 (docosanoyl-1,2,3,4,5,6- ¹³ C ₆ , 99%)	1 mg, 5 mg
DLM-10500	Lysophosphatidylcholine 22:0 (docosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-10498	Lysophosphatidylcholine 22:0 (unlabeled)	5 mg, 10 mg
CLM-10496	Lysophosphatidylcholine 24:0 (tetracosanoyl-1,2,3,4,5,6- ¹³ C ₆ , 99%)	1 mg, 5 mg
DLM-10497	Lysophosphatidylcholine 24:0 (tetracosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-10495	Lysophosphatidylcholine 24:0 (unlabeled)	5 mg, 10 mg
CLM-9792	Lysophosphatidylcholine 26:0 (hexacosanoyl-1,2,3,4,5,6- ¹³ C ₆ , 99%)	1 mg, 5 mg
DLM-10501	Lysophosphatidylcholine 26:0 (hexacosanoyl-12,12,13,13-D ₄ , 98%)	1 mg, 5 mg
ULM-9791	Lysophosphatidylcholine 26:0 (unlabeled)	5 mg, 10 mg
CLM-10350	2-Methylbutyric acid (methyl- ¹³ C, 99%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Unit Size
DLM-2312	DL-2-Methylcitric acid (methyl-D ₃ , 98%) CP 90%	5 mg, 10 mg
CLM-9426	Methylmalonic acid (¹³ C ₄ , 99%)	0.1 g
DLM-387	Methylmalonic acid (methyl-D ₃ , 98%)	0.25 mg
ULM-10578	Methylmalonic acid, disodium salt (unlabeled) CP 95%	Please inquire
DLM-2960	2-Methylsuccinic acid (D ₆ , 98%)	1 g
NLM-1048	Orotic acid·H ₂ O (1,3- ¹⁵ N ₂ , 98%)	0.25 mg
CLM-10604	Phenylpyruvic acid, sodium salt (¹³ C ₉ , 99%)	Please inquire
CLM-7944	3-(3-Methyl-1H-pyrazol-5-yl)propanoic acid (MPP) (methyl- ¹³ C, pyrazolyl- ¹³ C ₃ , 3- ¹³ C, 99%)	0.1 mg
CNLM-9292	N-Propionylglycine (glycine- ¹³ C ₂ , 99%; ¹⁵ N, 99%)	Please inquire
CLM-510	L-Proline (1- ¹³ C, 99%)	0.25 g
CLM-2260-H	L-Proline (¹³ C ₅ , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-487	L-Proline (D ₇ , 97%)	0.1 g, 0.25 g
NLM-835	L-Proline (¹⁵ N, 98%)	0.25 g, 0.5 g
CNLM-7822	L-Proline (1- ¹³ C, 99%; ¹⁵ N, 98%)	Please inquire
CNLM-436-H	L-Proline (¹³ C ₅ , 99%; ¹⁵ N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7562	L-Proline (D ₇ , 98%; ¹⁵ N, 98%)	0.25 g
CDNLM-6812	L-Proline (¹³ C ₅ , 97%; D ₇ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8333	L-Proline (unlabeled)	0.05 g, 0.1 g
CLM-646	Propionic acid (1- ¹³ C, 99%)	1 g
CLM-647	Propionic acid (¹³ C ₃ , 99%)	1 g
DLM-2488	Propionic acid (2,2-D ₂ , 98%)	1 g, 5 g
DLM-1137	Propionic acid (methyl-D ₃ , 98%)	5 g
DLM-1919	Propionic acid (D ₅ , 98%)	5 g
DLM-599	Propionic acid (D ₆ , 98%)	Please inquire
CLM-1036	L-Ornithine·HCL (1,2- ¹³ C ₂ , 99%)	0.1 g
CLM-4724	L-Ornithine·HCL (¹³ C ₅ , 98%)	0.1 g
DLM-2969	L-Ornithine·HCL (3,3,4,4,5,5-D ₆ , 98%)	0.1 g, 0.25 g
NLM-3610	L-Ornithine·HCL (¹⁵ N ₂ , 98%)	0.25 g
NLM-1072	Sarcosine (¹⁵ N, 98%)	Please inquire
CNLM-8183	Suberylglycine (glycine- ¹³ C ₂ , 98%; ¹⁵ N, 98%) CP 95%	Please inquire
NSK-T	Succinylacetone Standard Set T	1 vial, 10 vials
NSK-T-US	Succinylacetone Standard Set T (unlabeled)	1 vial
DLM-10502	Tetracosanoic acid (12,12,13,13-D ₄ , 98%)	0.1 g, 0.25 g
CLM-2261	L-Threonine (¹³ C ₄ , 97%)	0.1 g, 0.25 g, 0.5 g
DLM-1693	L-Threonine (D ₅ , 98%)	0.1 g
NLM-742	L-Threonine (¹⁵ N, 98%)	0.25 g, 0.5 g
CNLM-587	L-Threonine (¹³ C ₄ , 97%; ¹⁵ N, 97%)	0.1 g, 0.25 g, 0.5 g
CLM-6725	L-Thyroxine (T4) (tyrosine-ring- ¹³ C ₆ , 99%) CP 90%	0.1 mg
CLM-8931	L-Thyroxine (T4) (ring- ¹³ C ₁₂ , 99%) CP 97%	0.1 mg
ULM-8184	L-Thyroxine (T4) (unlabeled)	0.2 mg
DLM-10758	Trisodium 2-methylcitrate (methyl-D ₃ , 98%) CP 90% (racemic mixture of diastereomers)	5 mg, 10 mg
ULM-10510	Trisodium 2-methylcitrate (unlabeled) CP 90% (racemic mixture of diastereomers)	Please inquire
CLM-716	L-Tryptophan (indole-3- ¹³ C, 95%)	0.25 g
CLM-4290-H	L-Tryptophan (¹³ C ₁₁ , 99%)	0.1 g
DLM-6903	L-Tryptophan (D ₈ , 97%)	0.25 g
NLM-800	L-Tryptophan (¹⁵ N ₂ , 98%)	0.25 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Neurotransmitters and Their Metabolites

Neurotransmitters are small chemicals in the central nervous system that modulate and regulate brain function. Signals are relayed from neuron to neuron by release, upon stimulation, from a synaptic vesicle into a space where it can bind to a receptor. These molecules can be grouped into several classes, such as catecholamines (e.g., dopamine, epinephrine) and indolamines (e.g., melatonin, serotonin). MS analysis of neurotransmitters in human biosamples, such as urine, is a clinically relevant area as they mediate homeostatic function, modulate neural activity, and have been correlated to the pathogenesis of neurodegenerative diseases (e.g., Alzheimer's).

CIL offers an array of stable isotope-labeled neurotransmitters. These research-grade materials are available in their solution and/or neat form.

Catecholamines

Catalog No.	Description	Unit Size
CLM-3368	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1- ¹³ C, 99%)	0.01 g, 0.05 g
CLM-9926	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (2- ¹³ C, 99%)	Please inquire
CLM-3369	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (ring- ¹³ C ₆ , 99%)	Please inquire
DLM-2833	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1,1-D ₂ , 93%) CP 96%	Please inquire
DLM-2834	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (2,2-D ₂ , 97%)	0.01 g, 0.1 g
DLM-2181	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (ring-D ₃ , 98%)	0.1 g
DLM-2498	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1,1,2,2-D ₄ , 97%)	0.01 g, 0.1 g
DLM-2290	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (ring-D ₃ , 95%; 2,2-D ₂ , 95%) CP 95%	0.05 g, 0.1 g
CNLM-3445	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1- ¹³ C, 99%; ¹⁵ N, 99%)	Please inquire
DLM-9088	DL-Epinephrine (ring-D ₃ , 1,2,2-D ₃ , 98%)	Please inquire
CNLM-7889	DL-Epinephrine (1,2- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	10 mg
DLM-8820	DL-Norepinephrine-HCl (ring-D ₃ , 1,2,2-D ₃ , 99%)	5 mg, 10 mg

Indolamines

Catalog No.	Description	Unit Size
DLM-7101	Melatonin (acetyl-D ₃ , 98%)	5 mg, 10 mg
DLM-11030	Serotonin-HCl (α,α,β,β-D ₄ , 98%) CP 96%	Please inquire

Other Compounds

Catalog No.	Description	Unit Size
DLM-11620	Acetylcholine chloride (N,N,N-trimethyl-D ₉ , 98%)	Please inquire
DLM-11029	N-Acetyl-5-hydroxytryptamine (N-acetylserotonin) (acetyl-D ₃ , 98%)	Please inquire
CLM-8666	γ-Aminobutyric acid (GABA) (¹³ C ₄ , 97%)	0.05 g, 0.1 g
DLM-7760	γ-Aminobutyric acid (GABA) (2,2,3,3,4,4-D ₆ , 98%)	Please inquire
CLM-548	Choline chloride (1,2- ¹³ C ₂ , 99%)	0.1 g
DLM-549	Choline chloride (trimethyl-D ₉ , 98%)	1 g
DLM-2499	3,4-Dihydroxyphenylacetic acid (ring-D ₃ , 2,2-D ₂ , 98%)	0.01 g, 0.1 g
CLM-3632	DL-Glutamic acid (3- ¹³ C, 99%)	Please inquire
DLM-335	DL-Glutamic acid (2,4,4-D ₃ , 98%)	1 g
DLM-357	DL-Glutamic acid (2,3,3,4,4-D ₅ , 97%)	0.25 g
CLM-674	L-Glutamic acid (1- ¹³ C, 99%)	1 g
CLM-2474	L-Glutamic acid (2- ¹³ C, 99%)	Please inquire
CLM-4742	L-Glutamic acid (3- ¹³ C, 99%)	Please inquire
CLM-2431	L-Glutamic acid (4- ¹³ C, 98%)	Please inquire
CLM-613	L-Glutamic acid (5- ¹³ C, 99%)	0.1 g
CLM-2024	L-Glutamic acid (1,2- ¹³ C ₂ , 99%)	0.25 g
CLM-3646	L-Glutamic acid (3,4- ¹³ C ₂ , 99%)	0.25 g
CLM-1800-H	L-Glutamic acid (¹³ C ₅ , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-3725	L-Glutamic acid (2,4,4-D ₃ , 97%)	0.5 g
DLM-556	L-Glutamic acid (2,3,3,4,4-D ₅ , 98%)	0.05 g, 0.1 g
NLM-135	L-Glutamic acid (¹⁵ N, 98%)	0.5 g, 1 g
CNLM-7812	L-Glutamic acid (1- ¹³ C, 99%; ¹⁵ N, 98%)	0.25 g
CNLM-554-H	L-Glutamic acid (¹³ C ₅ , 99%; ¹⁵ N, 99%)	0.25 g, 0.5 g, 1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Catalog No.	Description	Unit Size
DNLM-6996	L-Glutamic acid (2,3,3,4,4-D ₅ , 98%; ¹⁵ N, 98%)	0.25 g, 0.5 g
CDNLM-6804	L-Glutamic acid (¹³ C ₅ , 97%; D ₅ , 97%; ¹⁵ N, 97%)	0.25 g
ULM-8675	L-Glutamic acid (unlabeled)	0.1 mg
CLM-6664	L-Glutamic acid, N-acetyl (glutamate- ¹³ C ₅ , 97%)	Please inquire
CLM-3721	DL-Glutamic acid·H ₂ O (1- ¹³ C, 99%)	1 g
OLM-8028	L-Glutamic acid·HCl (¹⁷ O ₄ , ~30%)	Please inquire
CLM-11041	4-(aminobutyl)Guanidine sulfate (butyl- ¹³ C ₄ , 98%) CP 95%	Please inquire
DLM-2911	Histamine·2HCl (α,α,β,β-D ₄ , 98%)	10 mg
CLM-373	Homovanillic acid (1,2- ¹³ C ₂ , 98%)	0.1 g
DLM-2738	Homovanillic acid (phenyl-D ₃ , 2,2-D ₂ , 96%)	0.1 g
COLM-376	Homovanillic acid (ring- ¹³ C ₆ , 99%; 4-hydroxy- ¹⁸ O, 90%)	0.01 g
CLM-10900	Homovanillic acid, sodium salt (1,2- ¹³ C ₂ , 98%)	Please inquire
ULM-10577	Homovanillic acid, sodium salt (unlabeled)	Please inquire
CLM-9936-1.2	5-Hydroxyindole-3-acetic acid (3α,4,5,6,7,7α- ¹³ C ₆ , 98%)	1.2 mL
ULM-11111-1.2	5-Hydroxyindole-3-acetic acid (unlabeled)	1.2 mL
CLM-1896	Indole-3-acetic acid (IAA) (phenyl- ¹³ C ₆ , 99%)	0.01 g
DLM-3560	DL-Metanephine·HCl (α,β,β-D ₃ , 98%)	5 mg, 10 mg
DLM-2950	N-τ-Methylhistamine·2HCl (N-methyl-D ₃ , 98%)	0.1 g
DLM-8609	DL-Normetanephine·HCl (α,β,β-D ₃ , 98%)	5 mg, 10 mg
DLM-2993	2-Phenylethylamine (2,2-D ₂ , 95%)	Please inquire
CLM-6622	Taurine (1,2- ¹³ C ₂ , 98%)	0.25 g, 0.5 g
DLM-8057	Taurine (D ₄ , 98%) CP 95%	0.1 g, 0.25 g
NLM-4472	Taurine (¹⁵ N, 98%)	Please inquire
CNLM-10253	Taurine (¹³ C ₂ , 99%; ¹⁵ N, 98%)	0.01 g
DLM-8075	Tyramine·HCl (1,1,2,2-D ₄ , 98%)	Please inquire
DLM-4794	DL-Vanilmandelic acid (VMA) (ring-D ₃ , 98%)	0.1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Nucleic Acids

Nucleic acids are necessary biomolecules of living systems, being fundamentally important to a multitude of cellular processes. Its basic building blocks are nucleobases (e.g., adenine, cytosine, xanthine), nucleosides (e.g., adenosine, guanosine, inosine), and nucleotides (e.g., ATP, CMP, dGTP). The qualification/quantification of these compounds, and their synthetic analogues (e.g., allantoin, 5-fluorouracil, pseudouridine), in biosamples is performed preclinically and clinically to address a number of purposes. This includes the screening of metabolic errors and the efficacy evaluation of drug treatments (be it anticancer, antiviral, or immunosuppressive), among other target areas.

CIL offers an array of stable isotope-labeled nucleic acid building blocks for MS- or NMR-based research. These standards are available in a variety of labeling patterns and quantities.

Catalog No.	Description	Unit Size
CLM-1654	Adenine (8- ¹³ C, 95%)	0.5 g
NLM-6924	Adenine·HCl·½H ₂ O (¹⁵ N ₅ , 98%)	10 mg
CLM-3698	Adenosine (ribose-2- ¹³ C, 99%)	Please inquire
CLM-3678	Adenosine (ribose- ¹³ C ₅ , 98%) CP 97%	0.05 g, 0.1 g
DLM-7676	Adenosine (ribose-1-D, 98%)	Please inquire
DLM-7677	Adenosine (ribose-2-D, 97%)	Please inquire
DLM-7678	Adenosine (ribose-5,5-D ₂ , 98%)	Please inquire
NLM-9750-SL	Adenosine (U- ¹⁵ N ₅ , 96%)	10 mg, 50 mg
CNLM-3806-CA	Adenosine (¹³ C ₁₀ , 98%; ¹⁵ N ₅ , 96%)	10 mg, 50 mg
CLM-3605	Adenosine·H ₂ O (ribose-1- ¹³ C, 99%) CP 95%	0.1 g, 0.25 g
CLM-7674	Adenosine·H ₂ O (3'- ¹³ C, 98%)	0.05 g, 0.1 g
CNLM-3802-SL	Adenosine 5'-monophosphate (AMP) (U- ¹³ C ₁₀ , 98%; U- ¹⁵ N ₅ , 96%)	10 mg, 50 mg
CNLM-3802-CA	Adenosine 5'-monophosphate (AMP), ammonium salt (U- ¹³ C ₁₀ , 99%; U- ¹⁵ N ₅ , 98%) CP 95% (100 mM in water, pH 7.5)	10 mg, 50 mg
NLM-3792-SL	Adenosine 5'-monophosphate (AMP), lithium salt (U- ¹⁵ N ₅ , 96%) in solution	10 mg, 50 mg
CLM-11604-SL	Adenosine phosphoramidite (U- ¹³ C ₁₀ , 98%) CP 95%	10 mg, 50 mg
NLM-11609-SL	Adenosine phosphoramidite (U- ¹⁵ N ₅ , 98%) CP 95%	10 mg, 50 mg
CNLM-11613-SL	Adenosine phosphoramidite (U- ¹³ C ₁₀ , 98%; U- ¹⁵ N ₅ , 98%) CP 95%	10 mg, 50 mg
CLM-11402-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (4'- ¹³ C, 99%) CP 95% (in solution)	Please inquire
CLM-11403-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (5'- ¹³ C, 99%) CP 95% (in solution)	Please inquire
CLM-11404-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (1',2',3',4',5'- ¹³ C ₅ , 99%) CP 95% (in solution)	Please inquire
CLM-8426-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (¹³ C ₁₀ , 99%) CP 95% (in solution)	100 µmol
DLM-7514-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (U-D, 97%) CP 90% (in solution)	20 µmol, 50 µmol, 100 µmol
DLM-8815-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (2-D, 97%) CP 90% (in solution)	100 µmol
DLM-11405-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (4'-D, 97%) CP 95% (in solution)	Please inquire
DLM-9268-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (2,8-D ₂ , 98%) CP 95% (in solution)	Please inquire
DLM-11406-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (5',5"-D ₂ , 97%) CP 95% (in solution)	Please inquire
DLM-8922-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (ribose-3',4',5',5'-D ₄ , 98%) CP 90% (in solution)	20 µmol, 50 µmol, 100 µmol
NLM-3987-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (¹⁵ N ₅ , 98%) CP 90% (in solution)	20 µmol, 100 µmol
CNLM-4265-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (¹³ C ₁₀ , 98%; ¹⁵ N ₅ , 98%) CP 90% (in solution)	20 µmol, 50 µmol, 100 µmol
DNLM-10985-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (ribose-D ₆ , 98%; ¹⁵ N ₅ , 98%) CP 95% (in solution)	Please inquire
NLM-12312	DL-Allantoin (¹⁵ N ₄ , 98%) CP 97%	Please inquire
CLM-3611	Cytidine (ribose-1- ¹³ C, 99%)	0.25 g
CLM-3699	Cytidine (ribose-2- ¹³ C, 99%)	Please inquire
CLM-3679	Cytidine (ribose- ¹³ C ₅ , 98%)	0.05 g, 0.1 g
DLM-7681	Cytidine (ribose-5,5-D ₂ , 98%)	Please inquire
NLM-3797	Cytidine (¹⁵ N ₃ , 96%)	50 mg
CNLM-3807	Cytidine (¹³ C ₉ , 98%; ¹⁵ N ₃ , 96%)	50 mg
NLM-3793-SL	Cytidine 5'-monophosphate (CMP), lithium salt (U- ¹⁵ N ₃ , 96%) CP 90% (in solution)	10 mg, 50 mg
CNLM-3803-SL	Cytidine 5'-monophosphate (CMP), lithium salt (U- ¹³ C ₉ , 98%; U- ¹⁵ N ₃ , 96%) CP 90% (in solution)	10 mg, 50 mg
CLM-11606-SL	Cytidine phosphoramidite (U- ¹³ C ₉ , 98%) CP 95%	10 mg, 50 mg
NLM-11610-SL	Cytidine phosphoramidite (U- ¹⁵ N ₃ , 98%) CP 95%	10 mg, 50 mg
CNLM-11614-SL	Cytidine phosphoramidite (U- ¹³ C ₉ , 98%; U- ¹⁵ N ₃ , 98%) CP 95%	10 mg, 50 mg

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Catalog No.	Description	Unit Size
CLM-10987-CA	Cytidine 5'-triphosphate (CTP), ammonium salt ($^{13}\text{C}_9$, 99%) CP 95% (in solution)	100 μmol
DLM-9267-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (5,6- D_2 , 97%) CP 90% (in solution)	100 μmol
DLM-8924-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (5-D, ribose-3',4',5',5'- D_4 , 97%) CP 90% (in solution)	20 μmol , 50 μmol , 100 μmol
DLM-8594-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (cytosine-5-D, 6-H; ribose-1,2,3,4,5,5- D_6 , 96%) in solution	100 μmol
DLM-7515-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (D_8 , 97%) CP 90% (in solution)	20 μmol , 50 μmol , 100 μmol
NLM-4266-CA	Cytidine 5'-triphosphate (CTP), ammonium salt ($^{15}\text{N}_3$, 96%) CP 90% (in solution)	20 μmol , 100 μmol
CNLM-4267-CA	Cytidine 5'-triphosphate (CTP), ammonium salt ($^{13}\text{C}_9$, 99%; $^{15}\text{N}_3$, 96%) CP 90% (in solution)	20 μmol , 50 μmol , 100 μmol
CLM-1001	Cytosine (2- ^{13}C , 99%)	Please inquire
CNLM-4424	Cytosine (2- ^{13}C , 99%; 1,3- $^{15}\text{N}_2$, 98%)	0.05 g
DLM-4750	2-Deoxy-D-ribose (5,5- D_2 , 98%)	Please inquire
CLM-3700	2'-Deoxyadenosine- H_2O (deoxyribose-1- ^{13}C , 99%)	Please inquire
CLM-3701	2'-Deoxyadenosine- H_2O (deoxyribose-2- ^{13}C , 99%)	Please inquire
CLM-7682	2'-Deoxyadenosine- H_2O (ribose-5- ^{13}C , 98%)	0.05 g, 0.1 g
CLM-4579	2'-Deoxyadenosine- H_2O (ribose- $^{13}\text{C}_5$, 99%)	Please inquire
DLM-7683	2'-Deoxyadenosine- H_2O (ribose-5,5- D_2 , 98%)	0.05 g, 0.1 g
NLM-3895	2'-Deoxyadenosine- H_2O ($^{15}\text{N}_5$, 96%)	25 mg
CNLM-3896-CA	2'-Deoxyadenosine monohydrate ($^{13}\text{C}_{10}$, 98%; $^{15}\text{N}_5$, 96%)	5 mg, 10 mg, 25 mg
NLM-3919-SL	2'-Deoxyadenosine 5'-monophosphate ($\text{U-}^{15}\text{N}_5$, 98%)	10 mg, 50 mg
CNLM-3918-SL	2'-Deoxyadenosine 5'-monophosphate, lithium salt ($\text{U-}^{13}\text{C}_{10}$, 98%; $\text{U-}^{15}\text{N}_5$, 98%) in solution	10 mg, 50 mg
NLM-6829	2'-Deoxyadenosine phosphoramidite ($^{15}\text{N}_5$, 98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6828	2'-Deoxyadenosine phosphoramidite ($^{13}\text{C}_{10}$, 98%; $^{15}\text{N}_5$, 98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6219-CA	2'-Deoxyadenosine 5'-triphosphate, ammonium salt ($^{13}\text{C}_{10}$, 98%; $^{15}\text{N}_5$, 96%) CP 90% (in solution)	20 μmol , 100 μmol
DLM-7507-SL	2'-Deoxyadenosine 5'-triphosphate, lithium salt (U-D, 97%) CP 90% (in solution)	10 mg, 50 mg
NLM-6215-SL	2'-Deoxyadenosine 5'-triphosphate, lithium salt ($\text{U-}^{15}\text{N}_5$, 98%) CP 90% (in solution)	10 mg, 50 mg
NLM-3897	2'-Deoxycytidine ($^{15}\text{N}_3$, 96%)	25 mg
CLM-7684	2'-Deoxycytidine- H_2O (ribose-1- ^{13}C , 98%)	Please inquire
CLM-3702	2'-Deoxycytidine- H_2O (deoxyribose-2- ^{13}C , 99%)	Please inquire
DLM-7685	2'-Deoxycytidine- H_2O (ribose-5,5- D_2 , 98%)	Please inquire
NLM-3921	2'-Deoxycytidine 5'-monophosphate ($^{15}\text{N}_3$, 96%)	10 mg
NLM-6827	2'-Deoxycytidine phosphoramidite ($^{15}\text{N}_3$, 97%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6830	2'-Deoxycytidine phosphoramidite ($^{13}\text{C}_9$, 98%; $^{15}\text{N}_3$, 98%) CP 95%	10 mg, 25 mg, 50 mg
DLM-7508-SL	2'-Deoxycytidine 5'-triphosphate, dilithium salt (U-D, 97%) CP 90% (in solution)	10 mg, 50 mg
NLM-6216-SL	2'-Deoxycytidine 5'-triphosphate, lithium salt ($\text{U-}^{15}\text{N}_3$, 98%) CP 90% (in solution)	10 mg, 50 mg
CNLM-6220-SL	2'-Deoxycytidine 5'-triphosphate, lithium salt ($\text{U-}^{13}\text{C}_9$, 98%; $\text{U-}^{15}\text{N}_3$, 98%) CP 90% (in solution)	10 mg, 50 mg
CLM-7686	2'-Deoxyguanosine- H_2O (ribose-1- ^{13}C , 98%)	Please inquire
CLM-11401-CA	2'-Deoxyguanosine- H_2O ($^{13}\text{C}_{10}$, 99%) CP 95%	Please inquire
DLM-7687	2'-Deoxyguanosine- H_2O (ribose-5,5- D_2 , 98%)	0.05 g, 0.1 g
NLM-3899-CA	2'-Deoxyguanosine- H_2O ($^{15}\text{N}_5$, 98%) CP 95%	5 mg, 10 mg, 25 mg
CNLM-3900-CA	2'-Deoxyguanosine- H_2O ($^{13}\text{C}_{10}$, 98%; $^{15}\text{N}_5$, 96%)	5 mg, 10 mg, 25 mg
NLM-6835-SL	2'-Deoxyguanosine 5'-monophosphate ($\text{U-}^{15}\text{N}_5$, 98%) CP 90% (in solution)	10 mg
CNLM-6836-SL	2'-Deoxyguanosine 5'-monophosphate ($\text{U-}^{13}\text{C}$, 98%; $\text{U-}^{15}\text{N}$, 98%)	10 mg, 50 mg
NLM-6826	2'-Deoxyguanosine phosphoramidite ($^{15}\text{N}_5$, 98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6825	2'-Deoxyguanosine phosphoramidite ($^{13}\text{C}_{10}$, 98%; $^{15}\text{N}_5$, 98%) CP 95%	10 mg, 25 mg, 50 mg
NLM-6217-CA	2'-Deoxyguanosine 5'-triphosphate, ammonium salt ($^{15}\text{N}_5$, 98%) CP 90% (in solution)	100 μmol
CNLM-6221-CA	2'-Deoxyguanosine 5'-triphosphate, ammonium salt ($^{13}\text{C}_{10}$, 98%; $^{15}\text{N}_5$, 96%) CP 90% (in solution)	100 μmol
DLM-7509-SL	2'-Deoxyguanosine 5'-triphosphate, dilithium salt (U-D, 97%) CP 90% (in solution)	10 mg, 50 mg
CNLM-7871-SL	Set of 4 2'-deoxyribonucleoside 5'-monophosphates ($\text{U-}^{13}\text{C}$, 98%; $\text{U-}^{15}\text{N}$, 98%) CP 90% (in solution)	4 $\times$ 10 mg
DLM-7511-SL	Set of 4 2'-deoxyribonucleoside 5'-triphosphates, lithium salt (U-D, 98%) CP 90% (in solution)	4 $\times$ 10 mg, 4 $\times$ 50 mg
NLM-7512-SL	Set of 4 2'-deoxyribonucleoside 5'-triphosphates, lithium salt ($\text{U-}^{15}\text{N}$, 98%) CP 90% (in solution)	4 $\times$ 10 mg, 4 $\times$ 50 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Nucleic Acids (continued)

Catalog No.	Description	Unit Size
CNLM-7513-SL	Set of 4 2'-deoxyribonucleoside 5'-triphosphates, lithium salt (U- ¹³ C, 98%; U- ¹⁵ N, 98%) (in solution) CP 90%	4 × 10 mg, 4 × 50 mg
CNLM-8771-CA	2'-Deoxyuridine, ammonium salt (¹³ C ₉ , 98%; ¹⁵ N ₂ , 98%) CP 90% (in solution)	25 μmol, 50 μmol, 100 μmol
DLM-4391	5,6-Dihydrothymine (5,6,6-D ₃ , methyl-D ₃ , 95%)	50 mg
CNLM-4510	5,6-Dihydrouracil (¹³ C ₄ , 99%; ¹⁵ N ₂ , 98%)	25 mg
DLM-7862	Equimolar mix: ATP, GTP (ribose-3',4',5',5''-D ₄ , 98%), CTP, UTP (5-D, ribose-3',4',5',5''-D ₄ , 98%) ammonium salt	100 mg
CNLM-3752	Fapyadenine (formyl- ¹³ C, 98%; diamino- ¹⁵ N ₂ , 98%)	25 mg
CNLM-3858	Fapyguanine (formyl- ¹³ C, 99%; 4-amino-5-amido- ¹⁵ N ₂ , 98%)	Please inquire
ULM-11411-CA	2-Fluoro-2'-deoxyadenosine 5'-triphosphate, ammonium salt (unlabeled) CP 95% (in solution)	Please inquire
ULM-11412-CA	5-Fluoro-2'-deoxycytidine 5'-triphosphate, ammonium salt (unlabeled) CP 95% (in solution)	Please inquire
ULM-11413-CA	5-Fluoro-2'-deoxyuridine 5'-triphosphate, ammonium salt (unlabeled) CP 95% (in solution)	Please inquire
NLM-798	5-Fluorouracil (1,3- ¹⁵ N ₂ , 99%)	Please inquire
CNLM-3916	5-Fluorouracil (¹³ C ₄ , 99%; ¹⁵ N ₂ , 98%)	10 mg
DLM-1846	Guanidine·DCI (D ₆ , 98%)	1 g
NLM-6723	Guanidine·HBr (¹⁵ N ₃ , 98%)	Please inquire
CLM-1019	Guanine (8- ¹³ C, 98%)	0.5 g
NLM-6925	Guanine (¹⁵ N ₅ , 98%)	10 mg
CNLM-3990	Guanine (8- ¹³ C, 98%; 7,9- ¹⁵ N ₂ , 98%)	25 mg
CLM-7688	Guanosine·H ₂ O (ribose-1- ¹³ C, 98%)	Please inquire
DLM-7689	Guanosine·H ₂ O (ribose-5,5-D ₂ , 98%)	Please inquire
CNLM-3808-CA	Guanosine·H ₂ O (¹³ C ₁₀ , 98%; ¹⁵ N ₅ , 96%)	5 mg, 10 mg, 25 mg
NLM-3798	Guanosine·2H ₂ O (¹⁵ N ₅ , 96%)	50 mg
CNLM-3804-SL	Guanosine 5'-monophosphate (GMP), lithium salt (U- ¹³ C ₁₀ , 98%; U- ¹⁵ N ₅ , 98%) CP 90% (in solution)	10 mg, 50 mg
NLM-3794-SL	Guanosine 5'-monophosphate (GMP) (U- ¹⁵ N ₅ , 98%) CP 90% (lyophilized powder)	10 mg, 50 mg
CLM-11607-SL	Guanosine phosphoramidite (U- ¹³ C ₁₀ , 98%) CP 95%	10 mg, 50 mg
NLM-11611-SL	Guanosine phosphoramidite (U- ¹⁵ N ₅ , 98%) CP 95%	10 mg, 50 mg
CNLM-11615-SL	Guanosine phosphoramidite (U- ¹³ C ₁₀ , 98%; U- ¹⁵ N ₅ , 98%) CP 95%	10 mg, 50 mg
CLM-10988-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (¹³ C ₁₀ , 99%) CP 90% (in solution)	100 μmol
DLM-7516-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (U-D, 97%) CP 90% (in solution)	20 μmol, 50 μmol, 100 μmol
DLM-11407-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (3'-D, 97%) CP 95% (in solution)	Please inquire
DLM-8923-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (ribose-3',4',5',5''-D ₄ , 98%) CP 90% (in solution)	20 μmol, 50 μmol, 100 μmol
DNLM-10913-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (ribose-1',2',3',4',5',5''-D ₆ , 98%; ¹⁵ N ₅ , 98%) CP 90% (in solution)	Please inquire
NLM-4268-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (¹⁵ N ₅ , 98%) CP 90% (in solution)	20 μmol, 100 μmol
CNLM-4269-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (¹³ C ₁₀ , 99%; ¹⁵ N ₅ , 98%) CP 90% (in solution)	20 μmol, 50 μmol, 100 μmol
DNLM-10913-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (ribose-1',2',3',4',5',5''-D ₆ , 98%; ¹⁵ N ₅ , 98%) CP 90% (in solution)	100 μmol
NLM-6715	8-Hydroxy-2'-deoxyguanosine (¹⁵ N ₅ , 98%) CP 95%	0.1 mg, 1 mg
CNLM-4392	5-Hydroxycytosine (2- ¹³ C, 99%; 1,3- ¹⁵ N ₂ , 98%)	25 mg, 50 mg
DLM-10484	5-Hydroxymethyl-2'-deoxycytidine (hydroxymethyl-D ₂ , 6-D, 98%)	Please inquire
CLM-8042	Hypoxanthine (¹³ C ₅ , 99%)	0.1 mg, 10 mg
DLM-8658	Hypoxanthine (2,8-D ₂ , 98%)	0.1 g
DLM-2923	Hypoxanthine (2,8,9-D ₃ , OD, 98%)	0.1 g
NLM-8500	Hypoxanthine (¹⁵ N ₄ , 98%)	Please inquire
CNLM-7894	Hypoxanthine (¹³ C ₅ , 99%; ¹⁵ N ₄ , 98%)	10 mg
NLM-4264	Inosine (¹⁵ N ₄ , 95%)	0.01 g, 0.05 g
NLM-8712-CA	Inosine 5'-monophosphate, ammonium salt (¹⁵ N ₄ , 98%) CP 90% (in solution)	100 μmol
DLM-7471	3-Methyladenine (methyl-D ₃ , 98%)	50 mg
CNLM-11120	2'-O-Methyladenosine (¹³ C ₁₀ , 98%; ¹⁵ N ₅ , 96%)	Please inquire
DLM-7472	7-Methylguanine (methyl-D ₃ , 98%)	10 mg
DLM-7473	6-O-Methylguanine (methyl-D ₃ , 98%)	10 mg

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Catalog No.	Description	Unit Size
CLM-10671	Nicotinamide adenine dinucleotide (NAD ⁺), ammonium salt (ribose- ¹³ C ₅ , 98%) CP 96% (in solution)	0.5 mg, 1 mg
CLM-9427-CA	1-(5'-Phosphoribosyl)-5-amino-4-imidazole-carboxamide salt (2NH ₄ ⁺) (ribose- ¹³ C ₅ , 99%) CP 90%	100 µmol
CLM-11345-CA	Pseudouridine (¹³ C ₉ , 99%; ¹⁵ N ₂ , 98%) in solution	Please inquire
CLM-11344-CA	Pseudouridine 5'-monophosphate, ammonium salt (¹³ C ₉ , 99%; ¹⁵ N ₂ , 98%) in solution	Please inquire
DLM-7518-SL	Set of 4 ribonucleoside 5'-triphosphates, lithium salt (U-D, 98%) CP 90% (in solution)	10 mg, 50 mg
NLM-7519-SL	Set of 4 ribonucleoside 5'-triphosphates, lithium salt (U- ¹⁵ N, 98%) CP 90% (in solution)	10 mg, 50 mg
CNLM-7503-SL	Set of 4 ribonucleoside 5'-triphosphates, lithium salt (U- ¹³ C, 98%; U- ¹⁵ N, 98%) CP 90% (in solution)	10 mg, 50 mg
DLM-7518-CA	Set of 4 ribonucleoside 5'-triphosphates, ammonium salt (U-D, 98%) CP 90% (in solution)	4 × 20 µmol, 4 × 50 µmol, 4 × 100 µmol
NLM-7519-CA	Set of 4 ribonucleoside 5'-triphosphates, ammonium salt (U- ¹⁵ N, 98%) CP 90% (in solution)	4 × 100 µmol
CNLM-7503-CA	Set of 4 ribonucleoside 5'-triphosphates, ammonium salt (U- ¹³ C, U- ¹⁵ N; 98%) CP 90% (in solution)	4 × 20 µmol, 4 × 50 µmol, 4 × 100 µmol
CLM-11348-CA	1-Ribosyl-5-aminoimidazole-4-carboxamide (acadesine) (ribose- ¹³ C ₅ , 99%)	100 µmol
CLM-3629	Ribothymidine (ribose-1- ¹³ C, 99%)	Please inquire
NLM-7565-SL	RNA standard (¹⁵ N, 98%)	1 mg
DLM-10436	Theobromine (3,7-dimethylxanthine) (7-methyl-D ₃ , 98%)	Please inquire
CLM-3647	Thymidine (methyl- ¹³ C, 98%)	0.25 g, 0.5 g
CLM-4289	Thymidine (deoxyribose-1- ¹³ C, 99%)	Please inquire
CLM-3703	Thymidine (deoxyribose-2- ¹³ C, 99%)	Please inquire
CLM-7692	Thymidine (deoxyribose-3- ¹³ C, 99%)	Please inquire
DLM-7691	Thymidine (ribose-5,5-D ₂ , 98%)	Please inquire
DLM-3327	Thymidine (methyl-D ₃ , ring-6-D, 97%) CP 95%	Please inquire
NLM-3901	Thymidine (¹⁵ N ₂ , 96%)	25 mg
CNLM-3902	Thymidine (¹³ C ₁₀ , 98%; ¹⁵ N ₂ , 96%)	25 mg
NLM-10691	α-Thymidine (¹⁵ N ₂ , 98%)	Please inquire
NLM-3925	Thymidine 5'-monophosphate (¹⁵ N ₂ , 98%)	10 mg
CNLM-3924-SL	Thymidine 5'-monophosphate (U- ¹³ C ₁₀ , 98%; U- ¹⁵ N ₂ , 98%)	10 mg, 50 mg
NLM-6823	Thymidine phosphoramidite (¹⁵ N ₂ , 96%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6824	Thymidine phosphoramidite (¹³ C ₁₀ , 98%; ¹⁵ N ₂ , 98%) CP 95%	10 mg, 25 mg, 50 mg
DLM-7510-SL	Thymidine 5'-triphosphate, lithium salt (U-D, 97%) CP 90% (in solution)	10 mg, 50 mg
NLM-6218-SL	Thymidine 5'-triphosphate, lithium salt (U- ¹⁵ N ₂ , 98%) CP 90% (in solution)	10 mg, 50 mg
CNLM-6222-SL	Thymidine 5'-triphosphate, lithium salt (U- ¹³ C ₁₀ , 98%; U- ¹⁵ N ₂ , 98%) CP 90% (in solution)	10 mg, 50 mg
CLM-3764	Thymine (6- ¹³ C, 99%)	0.25 g
DLM-1089	Thymine (α,α,α,6-D ₄ , 98%)	1 g
NLM-3995	Thymine (1,3- ¹⁵ N ₂ , 98%)	0.1 g
CNLM-6945	Thymine (¹³ C ₅ , 98%; ¹⁵ N ₂ , 98%)	Please inquire
CLM-10507	Uracil (¹³ C ₄ , 99%)	Please inquire
NLM-637	Uracil (1,3- ¹⁵ N ₂ , 98%)	0.25 g, 0.5 g
NLM-1697	Uric acid (1,3- ¹⁵ N ₂ , 98%)	0.1 g, 0.5 g
CNLM-10617	Uric acid (2- ¹³ C, 98%; 1,3,7- ¹⁵ N ₃ , 98%) CP 95%	1 mg
CLM-3276	Uracil (2- ¹³ C, 99%)	0.1 g
CLM-692	Uracil (4,5- ¹³ C ₂ , 99%)	0.25 g
DLM-8633	Uracil (5-D, 98%)	0.1 g, 0.25 g
DLM-8502	Uracil (5,6-D ₂ , 98%)	0.1 g, 0.25 g
CNLM-3917	Uracil (¹³ C ₄ , 99%; ¹⁵ N ₂ , 98%)	0.1 g
NLM-10910	Uric acid, sodium salt (¹⁵ N ₂ , 98%) CP 95%	Please inquire
CLM-3630	Uridine (ribose-1- ¹³ C, 99%)	0.05 g, 0.1 g
CLM-3680	Uridine (ribose- ¹³ C ₅ , 98%)	Please inquire
DLM-11408-CA	Uridine (5-D, 97%) CP 95% (in solution)	Please inquire
DLM-7693	Uridine (ribose-5,5-D ₂ , 98%)	Please inquire
NLM-812	Uridine (¹⁵ N ₂ , 98%)	25 mg

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Nucleic Acids *(continued)*

Catalog No.	Description	Unit Size
CDLM-11409-CA	Uridine (1',2',3',4',5'- ¹³ C ₅ , 99%; 5-D, 97%) CP 95% (in solution)	Please inquire
CNLM-3809	Uridine (¹³ C ₉ , 98%; ¹⁵ N ₂ , 96%)	Please inquire
CDNLM-11410-CA	Uridine (2,4,5,6- ¹³ C ₄ , 99%; 5-D, 97%; 1,3- ¹⁵ N ₂ , 98%) CP 95% (in solution)	Please inquire
CLM-10513	Uridine diphosphate-α-D-glucose, disodium salt (glucose- ¹³ C ₆ , 99%) in solution	Please inquire
NLM-3795	Uridine 5'-monophosphate (¹⁵ N ₂ , 96%)	10 mg
NLM-3795-SL	Uridine 5'-monophosphate, lithium salt (U- ¹⁵ N ₂ , 96%) in solution	10 mg
CNLM-3805-SL	Uridine 5'-monophosphate, lithium salt (U- ¹³ C ₉ , 98%; U- ¹⁵ N ₂ , 96%) CP 90% (in solution)	10 mg, 50 mg
CLM-11608-SL	Uridine phosphoramidite (U- ¹³ C ₉ , 98%) CP 95%	10 mg, 50 mg
NLM-11612-SL	Uridine phosphoramidite (U- ¹⁵ N ₂ , 98%) CP 95%	10 mg, 50 mg
CNLM-11616-SL	Uridine phosphoramidite (U- ¹³ C ₉ , 98%; U- ¹⁵ N ₂ , 98%) CP 95%	10 mg, 50 mg
CLM-10914-CA	Uridine 5'-triphosphate (UTP), ammonium salt (¹³ C ₉ , 99%) CP 90% (in solution)	100 μmol
DLM-9365-CA	Uridine 5'-triphosphate (UTP), ammonium salt (uracil-5-D, 98%) CP 90% (in solution)	100 μmol
DLM-9100-CA	Uridine 5'-triphosphate (UTP), ammonium salt (5,6-D ₂ , 98%) CP 90% (in solution)	100 μmol
DLM-8925-CA	Uridine 5'-triphosphate (UTP), ammonium salt (5-D, ribose-3',4',5',5'-D ₄ , 98%) CP 90% (in solution)	20 μmol, 50 μmol, 100 μmol
DLM-8637-CA	Uridine 5'-triphosphate (UTP), ammonium salt (uracil-5-D, 6-H; ribose-1,2,3,4,5,5-D ₆ , 96%) CP 90% (in solution)	100 μmol
DLM-7517-CA	Uridine 5'-triphosphate (UTP), ammonium salt (D ₈ , 97%) CP 90% (in solution)	20 μmol, 50 μmol, 100 μmol
NLM-4270-CA	Uridine 5'-triphosphate (UTP), ammonium salt (¹⁵ N ₂ , 98%) CP 90% (in solution)	20 μmol, 100 μmol
CNLM-4271-CA	Uridine 5'-triphosphate (UTP), ammonium salt (¹³ C ₉ , 99%; ¹⁵ N ₂ , 98%) CP 90% (in solution)	20 μmol, 50 μmol, 100 μmol
DNLM-10986-CA	Uridine 5'-triphosphate (UTP), ammonium salt (ribose-D ₆ , 98%; uracil- ¹⁵ N ₂ , 98%) CP 95% (in solution)	Please inquire
NLM-1698	Xanthine (1,3- ¹⁵ N ₂ , 98%) CP 90%	0.1 g
CLM-10530	Xanthosine (¹³ C ₅ , 98%) CP 95%	Please inquire
CLM-8700-CA	Xanthosine-5'-monophosphate, ammonium salt (¹³ C ₁₀ , 98%) CP 90% (in solution)	100 μmol

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Organic Acids and Their Conjugate Salts

Organic acids (OAs) play essential roles in energy metabolism pathways (e.g., glycolysis, tricarboxylic acid cycle), with the short-chained OAs emerging as important regulators of host immune response and transcriptional regulation.

To aid quantitative research in preclinical and clinical studies, CIL is pleased to offer a collection of stable isotope-labeled and unlabeled OAs and their conjugate salts. These encompass monocarboxylic (e.g., acetic, lactic), dicarboxylic (e.g., malic, succinic), and tricarboxylic (e.g., *cis*-aconitic, citric) acids.

Catalog No.	Description	Concentration	Unit Size
CLM-317	Acetic acid (1- ¹³ C, 99%)	neat	1 g, 5 g
CLM-318	Acetic acid (2- ¹³ C, 99%)	neat	1 g
CLM-113	Acetic acid (1,2- ¹³ C ₂ , 99%)	neat	0.5 g, 1 g
CLM-12323	<i>cis</i> -Aconitic acid, trisodium salt, trihydrate (¹³ C ₄ , 99%) (1,2,3,6 : 3,4,5,6 AS 96:4) CP 97%	neat	1 g, 5 g, 10 g
CLM-9878	<i>trans</i> -Aconitic acid (2,4,4'- ¹³ C ₃ , 99%) CP 95%	neat	Please inquire
CLM-4723	Adipic acid (¹³ C ₆ , 99%)	neat	0.1 g
DLM-2905	Adipic acid (2,2,5,5-D ₄ , 98%)	neat	Please inquire
DLM-2632	Adipic acid (3,3,4,4-D ₄ , 98%)	neat	0.5 g, 1 g
DLM-2115	Adipic acid (D ₁₀ , 98%)	neat	Please inquire
CLM-10894	Adipic acid, disodium salt (¹³ C ₆ , 99%)	neat	0.1 mg
ULM-10893	Adipic acid, disodium salt (unlabeled) CP 95%	neat	0.1 mg
CLM-535	5-Aminolevulinic acid:HCl (4- ¹³ C, 99%)	neat	0.05 g
CLM-1371	5-Aminolevulinic acid:HCl (5- ¹³ C, 99%) CP 96%	neat	0.05 g, 0.1 g
CLM-7337	Citric acid (1,5- ¹³ C ₂ , 98%)	neat	Please inquire
CLM-148	Citric acid (2,4- ¹³ C ₂ , 99%)	neat	Please inquire
CLM-9876	Citric acid (1,5,6-carboxyl- ¹³ C ₃ , 99%)	neat	0.1 mg, 0.1 g
CLM-9021	Citric acid (¹³ C ₆ , 99%) CP 97%	neat	Please inquire
DLM-3487	Citric acid (2,2,4,4-D ₄ , 98%)	neat	0.5 g
CLM-7933	Creatine (guanidino- ¹³ C, 99%)	neat	0.1 g
DLM-1302	Creatine (methyl-D ₃ , 98%) CP 97%	neat	0.25 g
DLM-12302	Creatine-H ₂ O (<i>N</i> -methyl-D ₃ ; glycine-2,2-D ₂ , 99%)	neat	Please inquire
CLM-495	Diethyl malonate (2- ¹³ C, 99%)	neat	0.5 g, 1 g
CLM-521	Diethyl malonate (1,3- ¹³ C ₂ , 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-3603	Diethyl malonate (1,2,3- ¹³ C ₃ , 99%)	neat	0.5 g
CLM-681	Ethyl acetoacetate (3- ¹³ C, 99%)	neat	0.5 g, 1 g
CLM-1284	Formic acid (¹³ C, 99%) <5% H ₂ O	neat	0.5 g, 1 g, 5 g
DLM-743	Formic acid (formyl-D, 98%) <5% H ₂ O	neat	5 g
DLM-285	Formic acid (OD, 98%) <5% D ₂ O	neat	5 g
DLM-286	Formic acid (D ₂ , 98%) <5% D ₂ O	neat	5 g
CLM-1529	Fumaric acid (¹³ C ₄ , 99%)	neat	0.1 mg, 0.1 g
DLM-1539	Fumaric acid (2,3-D ₂ , 98%)	neat	5 g
DLM-7654	Fumaric acid (D ₄ , 98%)	neat	1 g
CDLM-6062	Fumaric acid (1- ¹³ C, 99%; 2,3-D ₂ , 98%)	neat	Please inquire
CDLM-8473	Fumaric acid (1,4- ¹³ C ₂ , 99%; 2,3-D ₂ , 98%)	neat	0.1 g
CLM-10890	Fumaric acid, disodium salt (¹³ C ₄ , 99%)	neat	Please inquire
DLM-3106	Glutaric acid (2,2,4,4-D ₄ , 98%)	neat	5 g
CLM-10351	DL-2-Hydroxyglutaric acid, disodium salt (¹³ C ₅ , 99%)	neat	1 mg, 10 mg
ULM-10479	DL-2-Hydroxyglutaric acid, disodium salt (unlabeled)	neat	0.01 g, 0.1 g
DLM-9104	(<i>RS</i>)-2-Hydroxyglutaric acid, disodium salt (2,3,3-D ₃ ; OD, 98%) CP 95%	neat	0.1 g
CLM-12282	Isocitric acid, trisodium salt, hydrate (3,4,5,6- ¹³ C ₄ , 98%) mixture of diastereomers	neat	1 mg, 5 mg, 10 mg
CLM-6820	α-Ketobutyric acid, sodium salt (methyl- ¹³ C, 99%)	neat	0.5 g
CLM-6164	α-Ketobutyric acid, sodium salt (¹³ C ₄ , 98%)	neat	0.5 g
CDLM-7318	α-Ketobutyric acid, sodium salt (methyl- ¹³ C, 99%; 3,3-D ₂ , 98%)	neat	0.5 g, 1 g
CDLM-7353	α-Ketobutyric acid, sodium salt (4- ¹³ C, 99%; 3,3,4,4-D ₄ , 98%)	neat	0.25 g

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Organic Acids and Their Conjugate Salts (continued)

Catalog No.	Description	Concentration	Unit Size
CDLM-4611	α -Ketobutyric acid, sodium salt ($^{13}\text{C}_4$, 98%; 3,3- D_2 , 98%)	neat	0.1 g, 0.25 g
CLM-2411	α -Ketoglutaric acid ($^{13}\text{C}_5$, 99%) CP 90%	neat	0.01 g, 0.1 g
DLM-9476	α -Ketoglutaric acid (D_6 , 98%)	neat	0.01 g, 0.1 g
CLM-4442	α -Ketoglutaric acid, disodium salt (1,2,3,4- $^{13}\text{C}_4$, 99%) CP 97%	neat	0.1 mg, 10 mg, 0.1 g, 0.5 g
ULM-10648	α -Ketoglutaric acid, disodium salt, hydrate (unlabeled) CP 90%	neat	0.1 mg
CLM-2093	α -Ketoisocaproic acid, sodium salt (^{13}C , 99%)	neat	1 g, 10 g
CLM-4826	α -Ketoisocaproic acid, sodium salt (1,2- $^{13}\text{C}_2$, 99%)	neat	0.1 g
DLM-4214	α -Ketoisocaproic acid, sodium salt (isopropyl- D_7 , 98%)	neat	0.1 g, 0.25 g
CLM-4785	α -Ketoisocaproic acid, sodium salt ($^{13}\text{C}_6$, 99%)	neat	0.1 g
DLM-1944	α -Ketoisocaproic acid, sodium salt (methyl- D_3 , 98%)	neat	0.5 g
CLM-6821	α -Ketoisovaleric acid, sodium salt (dimethyl- $^{13}\text{C}_2$, 99%)	neat	0.5 g
CLM-4418	α -Ketoisovaleric acid, sodium salt ($^{13}\text{C}_5$, 98%)	neat	0.25 g, 1 g
DLM-4646	α -Ketoisovaleric acid, sodium salt (D_7 , 98%)	neat	Please inquire
CDLM-10647	α -Ketoisovaleric acid, sodium salt (dimethyl- $^{13}\text{C}_2$, 99%; 3- D , 98%)	neat	0.1 g, 0.5 g
CDLM-4418	α -Ketoisovaleric acid, sodium salt ($^{13}\text{C}_5$, 98%; 3- D , 98%)	neat	0.25 g
CDLM-7317	α -Ketoisovaleric acid, sodium salt (3-methyl- ^{13}C , 99%; 3,4,4,4- D_4 , 98%)	neat	0.5 g, 1 g
CDLM-7354	α -Ketoisovaleric acid, sodium salt (3-methyl- ^{13}C , 99%; 3-methyl- D_2 , 3,4,4,4- D_4 , 98%)	neat	0.25 g
CDLM-8446	α -Ketoisovaleric acid, sodium salt (dimethyl- $^{13}\text{C}_2$, 98%; 3-methyl- D_2 , 4,4- D_2 , 98%)	neat	0.25 g
CDLM-8100	α -Ketoisovaleric acid, sodium salt (1,2,3,4- $^{13}\text{C}_4$, 99%; 3,4',4',4'- D_4 , 97%)	neat	0.25 g
DLM-1129	Maleic acid (2,3- D_2 , 98%)	neat	5 g
CLM-10892	Maleic acid, disodium salt, monohydrate ($^{13}\text{C}_4$, 99%)	neat	Please inquire
CLM-310	Maleic anhydride (1,4- $^{13}\text{C}_2$, 99%)	neat	0.25 g
CLM-312	Maleic anhydride (2,3- $^{13}\text{C}_2$, 99%)	neat	0.1 g
CLM-6019	Maleic anhydride ($^{13}\text{C}_4$, 99%)	neat	Please inquire
DLM-1853	Maleic anhydride (D_2 , 98%)	neat	1 g, 5 g
DLM-9045	DL-Malic acid (2,3,3- D_3 , 98%)	neat	0.1 g
CLM-8065	L-Malic acid ($^{13}\text{C}_4$, 99%)	neat	0.1 mg, 5 mg, 0.01 g, 0.05 g, 0.1 g
ULM-10964	L-Malic acid (unlabeled)	neat	0.1 mg
CLM-10826	Malic acid, disodium salt, monohydrate ($^{13}\text{C}_4$, 99%)	neat	Please inquire
CLM-751	Malonic acid (2- ^{13}C , 99%)	neat	0.5 g, 1 g
CLM-1248	Malonic acid (1,3- $^{13}\text{C}_2$, 99%)	neat	0.25, 0.5 g, 1 g
CLM-6123	Malonic acid ($^{13}\text{C}_3$, 99%)	neat	0.25 g
DLM-205	Malonic acid (D_4 , 98%)	neat	50 g
CLM-10887	Malonic acid, disodium salt ($^{13}\text{C}_3$, 99%)	neat	Please inquire
DLM-2312	DL-2-Methylcitric acid (methyl- D_3 , 98%) CP 90%	neat	5 mg, 10 mg
CLM-4285	3-Methylglutaconic acid (2,4- $^{13}\text{C}_2$, 3-methyl- ^{13}C , 99%) <i>cis/trans</i> mix	neat	5 mg
CLM-10398	2-Methylglutaric acid (4,5- $^{13}\text{C}_2$, 98%) CP 95%	neat	Please inquire
CLM-9426	Methylmalonic acid ($^{13}\text{C}_4$, 99%)	neat	0.1 g
DLM-387	Methylmalonic acid (methyl- D_3 , 98%)	neat	0.25 g
CLM-10895	Methylmalonic acid, disodium salt ($^{13}\text{C}_4$, 99%)	neat	Please inquire
ULM-10578	Methylmalonic acid, disodium salt (unlabeled) CP 95%	neat	Please inquire
NLM-10907	Orotic acid, sodium salt ($^{15}\text{N}_2$, 98%)	neat	Please inquire
NLM-1048	Orotic acid· H_2O (1,3- $^{15}\text{N}_2$, 98%)	neat	0.25 g
CNLM-10662	Orotic acid· H_2O (2- ^{13}C , 99%; 1,3- $^{15}\text{N}_2$, 98%)	neat	Please inquire
CLM-4449	Oxalic acid, disodium salt (1,2- $^{13}\text{C}_2$, 99%)	neat	1 g
CLM-10902	Phthalic acid, disodium salt ($^{13}\text{C}_4$, 99%)	neat	Please inquire
CLM-3551	Potassium phosphoenol pyruvate (2- ^{13}C , 99%)	neat	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Catalog No.	Description	Concentration	Unit Size
CLM-2723	Potassium phosphoenol pyruvate (3- ¹³ C, 99%)	neat	Please inquire
CLM-3398	Potassium phosphoenol pyruvate (2,3- ¹³ C ₂ , 99%)	neat	0.05 g
CLM-646	Propionic acid (1- ¹³ C, 99%)	neat	1 g
CLM-647	Propionic acid (¹³ C ₃ , 99%)	neat	1 g
DLM-2488	Propionic acid (2,2-D ₂ , 98%)	neat	1 g, 5 g
DLM-1137	Propionic acid (methyl-D ₃ , 98%)	neat	5 g
DLM-1919	Propionic acid (D ₅ , 98%)	neat	5 g
DLM-599	Propionic acid (D ₆ , 98%)	neat	Please inquire
CLM-8077	Pyruvic acid (1- ¹³ C, 99%)	neat	1 g, 5 g
CLM-8849	Pyruvic acid (2- ¹³ C, 99%)	neat	1 g, 5 g
CLM-9505	Pyruvic acid (1,2- ¹³ C ₂ , 99%)	neat	1 g, 5 g
DLM-10675	Pyruvic acid (D ₄ , 98%)	neat	Please inquire
CDLM-10674	Pyruvic acid (1- ¹³ C, 99%; D ₄ , 98%)	neat	Please inquire
CLM-2471	Sodium acetate (1,2- ¹² C ₂ , 99.95%) ¹³ C depleted	neat	1 g
CLM-156	Sodium acetate (1- ¹³ C, 99%)	neat	1 g, 5 g, 10 g
CLM-381	Sodium acetate (2- ¹³ C, 99%)	neat	1 g, 5 g, 10 g
CLM-440	Sodium acetate (1,2- ¹³ C ₂ , 99%)	neat	1 g, 5 g
DLM-3126	Sodium acetate (D ₃ , 99%)	neat	25 g
OLM-1077	Sodium acetate (¹⁸ O ₂ , 95%)	neat	1 g
CDLM-611	Sodium acetate (1- ¹³ C, 99%; D ₃ , 98%)	neat	1 g
CDLM-3457	Sodium acetate (1,2- ¹³ C ₂ , 99%; D ₃ , 98%)	neat	1 g
CDLM-1240	Sodium acetate (2- ¹³ C, 99%; D ₃ , 98%)	neat	1 g
COLM-1230	Sodium acetate (1- ¹³ C, 99%; ¹⁸ O ₂ , 96%)	neat	Please inquire
CLM-1256	Sodium butyrate (1- ¹³ C, 99%)	neat	1 g, 5 g
CLM-10426	Sodium butyrate (¹³ C ₄ , 99%)	neat	0.1 g
DLM-641	Sodium butyrate (3,3,4,4,4-D ₅ , 98%)	neat	Please inquire
DLM-7616	Sodium butyrate (D ₇ , 98%)	neat	Please inquire
CLM-3780	Sodium dichloroacetate (¹³ C ₂ , 99%)	neat	Please inquire
CLM-583	Sodium formate (¹³ C, 99%)	neat	1 g, 5 g
OLM-8123	Sodium formate (¹⁸ O ₂ , 95%)	neat	0.5 g
CLM-3706	Sodium D-3-hydroxybutyrate (2,4- ¹³ C ₂ , 99%)	neat	1 g
CLM-3853	Sodium D-3-hydroxybutyrate (¹³ C ₄ , 99%) CP 97%	neat	0.5 g
DLM-10415-D	Sodium DL-3-hydroxybutyrate (3,4,4,4-D ₄ , 98%) CP 95%	1 mg/mL in water	1 mL
CLM-10768	Sodium D-lactate (¹³ C ₃ , 98%)	20% w/w in water	Please inquire
CLM-1577	Sodium L-lactate (1- ¹³ C, 99%)	20% w/w in water	1 g/compound
CLM-1578	Sodium L-lactate (3- ¹³ C, 98%)	20% w/w in water	0.25 g/compound, 0.5 g/compound, 1 g/compound
CLM-1579	Sodium L-lactate (¹³ C ₃ , 98%)	20% w/w in water	0.1 g/compound
CLM-1579-N	Sodium L-lactate (¹³ C ₃ , 98%)	neat	0.1 mg
DLM-9071	Sodium L-lactate (3,3,3-D ₃ , 98%)	20% w/w in water	0.1 g/compound, 0.25 g/compound
CLM-771	Sodium propionate (1- ¹³ C, 99%)	neat	1 g
CLM-1506	Sodium propionate (2- ¹³ C, 99%)	neat	0.5 g, 1 g
CLM-4573	Sodium propionate (3- ¹³ C, 99%)	neat	Please inquire
CLM-3042	Sodium propionate (2,3- ¹³ C ₂ , 99%)	neat	Please inquire
CLM-1865	Sodium propionate (¹³ C ₃ , 99%)	neat	0.1 g
DLM-1601	Sodium propionate (D ₅ , 98%)	neat	1 g
CLM-1082	Sodium pyruvate (1- ¹³ C, 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-1580	Sodium pyruvate (2- ¹³ C, 99%)	neat	0.5 g, 1 g
CLM-1575	Sodium pyruvate (3- ¹³ C, 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-3507	Sodium pyruvate (2,3- ¹³ C ₂ , 99%)	neat	0.5 g, 1 g

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Organic Acids and Their Conjugate Salts *(continued)*

Catalog No.	Description	Concentration	Unit Size
CLM-2440	Sodium pyruvate ($^{13}\text{C}_3$, 99%)	neat	0.5 g, 1 g
DLM-6068	Sodium pyruvate (D_3 , 97%)	neat	0.5 g, 1 g
CLM-1084	Succinic acid ($1,4\text{-}^{13}\text{C}_2$, 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-1199	Succinic acid ($2,3\text{-}^{13}\text{C}_2$, 99%)	neat	1 g
CLM-1571	Succinic acid ($^{13}\text{C}_4$, 99%)	neat	0.1 g, 0.25 g, 0.1 mg
DLM-584	Succinic acid (D_4 , 98%)	neat	5 g, 10 g
DLM-831	Succinic acid (D_6 , 98%)	neat	5 g
CDLM-7754	Succinic acid ($^{13}\text{C}_4$, 99%; $2,2,3,3\text{-D}_4$, 98%)	neat	Please inquire
CLM-9371	Succinic acid, disodium salt ($2,3\text{-}^{13}\text{C}_2$, 99%)	neat	1 g
CLM-10364	Succinic acid, disodium salt ($^{13}\text{C}_4$, 99%)	neat	Please inquire
DLM-2307	Succinic acid, disodium salt (D_4 , 80%) CP 95%	neat	10 g, 25 g
CLM-6755	Succinylacetone ($3,4,5,6,7\text{-}^{13}\text{C}_5$, 99%)	neat	10 mg
CLM-10366	Trisodium citrate, hemihydrate ($1,5,6\text{-carboxy-}^{13}\text{C}_3$, 99%) CP 95%	neat	Please inquire
DLM-10758	Trisodium 2-methylcitrate (methyl- D_3 , 98%) CP 90% (racemic mixture of diastereomers)	neat	5 mg, 10 mg
NLM-1697	Uric acid ($1,3\text{-}^{15}\text{N}_2$, 98%)	neat	0.1 g, 0.5 g
NLM-1697	Uric acid ($1,3\text{-}^{15}\text{N}_2$, 98%)	neat	0.1 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Other Compounds

CIL offers a breadth of other compounds that could find utility in qualitative and quantitative, analytical analyses. These are available in neat or solution form in variable unit sizes. For a comprehensive listing of additional individual compounds, please visit isotope.com.

Catalog No.	Description	Concentration	Unit Size
CLM-173	Acetaldehyde (1,2- ¹³ C ₂ , 99%)	neat	0.5 g, 1 g
DLM-112	Acetaldehyde (D ₄ , 99%)	neat	1 g, 5 g
DLM-11675	Albuterol (3-hydroxymethyl-D ₂ , α-D ₁ , 98%) CP 95%	neat	Please inquire
NLM-467	Ammonium chloride (¹⁵ N, 99%)	neat	1 g, 5 g, 10 g, 25 g, 50 g
DLM-11473	4-(2-Aminoethyl)morpholine (morpholino-2,2,3,3,5,5,6,6-D ₈ , 98%)	neat	Please inquire
CLM-9435	N-(3-Aminopropyl) butane-1,4-diamine-3HCl (spermidine-3HCl) (¹³ C ₄ , 99%) CP 95%	neat	5 mg, 10 mg
DLM-9261	N-(3-Aminopropyl) butane-1,4-diamine-3HCl (spermidine-3HCl) (1,1,2,2,3,3,4,4-D ₈ , 98%) CP 95%	neat	5 mg, 10 mg, 50 mg
ULM-10264	N-(3-Aminopropyl) butane-1,4-diamine (unlabeled) CP 95%	neat	1 mg, 5 mg, 10 mg
DLM-9262	N,N'-bis(3-Aminopropyl)-1,4-butanediamine-4HCl (spermine-3HCl) (1,1,2,2,3,3,4,4-D ₈ , 97%) CP 95%	neat	5 mg, 10 mg
ULM-10265	N,N'-bis(3-Aminopropyl)-1,4-butanediamine-4HCl (unlabeled) CP 95%	neat	1 mg, 5 mg, 10 mg
NLM-711	Ammonium nitrate (ammonium- ¹⁵ N, 98%)	neat	1 g
NLM-711-10	Ammonium nitrate (ammonium- ¹⁵ N, 10%)	neat	Please inquire
NLM-712	Ammonium nitrate (nitrate- ¹⁵ N, 98%)	neat	1 g
NLM-712-10	Ammonium nitrate (nitrate- ¹⁵ N, 10%)	neat	Please inquire
NLM-390	Ammonium nitrate (¹⁵ N ₂ , 98%)	neat	1 g
NLM-390-10	Ammonium nitrate (¹⁵ N ₂ , 10%)	neat	Please inquire
NLM-390-5	Ammonium nitrate (¹⁵ N ₂ , 5%)	neat	Please inquire
NLM-713	Ammonium sulfate (¹⁵ N ₂ , 99%)	neat	1 g, 5 g, 10 g, 25 g, 50 g
NLM-713-10	Ammonium sulfate (¹⁵ N ₂ , 10%)	neat	50 g
NLM-713-5	Ammonium sulfate (¹⁵ N ₂ , 5%)	neat	Please inquire
DLM-1100	Ammonium sulfate (D ₈ , 98%)	neat	5 g, 10 g
CLM-8141	Arsenobetaine bromide (carboxymethyl- ¹³ C ₂ , 99%) CP 90%	neat	Please inquire
CNLM-9695	5-Azacytosine (4,6- ¹³ C ₂ , 98%; ¹⁵ N ₄ , 98%)	neat	Please inquire
DLM-1109	t-Butanol (anhydrous) (OD, 99%)	neat	25 g, 100 g
DLM-4862	Cacodylic acid (D ₇ , 98%)	neat	0.5 g
NLM-499	Calcium nitrate (¹⁵ N ₂ , 98%)	neat	1 g
NLM-499-10	Calcium nitrate (¹⁵ N ₂ , 10%)	neat	Please inquire
CLM-9256	(±)-Catechin (2,3,4- ¹³ C ₃ , 99%)	neat	1 mg
CLM-10554	(±)-Catechin gallate (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	1 mg
DLM-2816	Clozapine (4-methylpiperazinyl-D ₄ , 97%)	neat	5 mg, 10 mg
NEX-CRP-N	C-reactive protein (CRP) (human) (¹⁵ N, 98%) CP 95%	100 µg/mL in 20 mM Tris-HCl (pH 8.0) with 100 mM NaCl	1 mL
NEX-CRP-N-D	C-reactive protein (CRP) (human) (¹⁵ N, 98%) CP 95% (denatured)	100 µg/mL in 50 mM sodium acetate (pH 4.0) with 500 mM NaCl and 8 M urea	1 mL
DLM-9786	p-Cresol sulfate, potassium salt (D ₇ , 98%) CP 95%	neat	10 mg
CNLM-4661-10X-1.2	Cyanuric acid (¹³ C ₃ , 99%; ¹⁵ N ₃ , 98%) CP 90%	1000 µg/mL in water	1.2 mL
CNLM-4661-1.2	Cyanuric acid (¹³ C ₃ , 99%; ¹⁵ N ₃ , 98%) CP 90%	100 µg/mL in water	1.2 mL
NLM-11619	Cyclopropylamine (¹⁵ N, 98%)	neat	Please inquire
CLM-11588	Dansyl chloride (Dns-Cl) (dimethyl- ¹³ C ₂ , 99%)	neat	5 mg
ULM-11630	Dansyl chloride (Dns-Cl) (unlabeled) CP 97%	neat	5 mg
CLM-9255	1,3-Diaminobenzene (¹³ C ₆ , 99%) CP 95%	neat	Please inquire
CLM-10563	1,4-Diaminobenzene (¹³ C ₆ , 99%)	neat	Please inquire
DLM-10544	Desethylamodiaquine (ethyl-D ₅ , 97%)	neat	2 mg, 5 mg
DLM-2744	Enalaprilat-H ₂ O (phenyl-D ₅ , 98%)	neat	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Other Compounds (continued)

Catalog No.	Description	Concentration	Unit Size
CLM-10553	(±)-Epicatechin gallate (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	1 mg
CLM-344	Ethanol (1- ¹³ C, 99%) <6% H ₂ O	neat	0.5 g, 1 g
CLM-130	Ethanol (2- ¹³ C, 99%) <6% H ₂ O	neat	0.5 g, 1 g
CLM-551	Ethanol (1,2- ¹³ C ₂ , 99%) <6% H ₂ O	neat	0.5 g, 1 g
DLM-552	Ethanolamine (1,1,2,2-D ₄ , 98%)	neat	0.1 g, 1 g
NLM-8722	Ethanolamine (¹⁵ N, 98%)	Please inquire	Please inquire
CLM-3911	Ethanolamine-HCl (1- ¹³ C, 99%)	neat	1 g
CLM-274	Ethanolamine-HCl (1,2- ¹³ C ₂ , 99%)	neat	0.1 g, 0.25 g
CNLM-3446	Ethylenediamine-2HCl (¹³ C ₂ , 99%; ¹⁵ N ₂ , 99%)	neat	Please inquire
ULM-10281	Galangin (unlabeled)	neat	1 mg
CLM-10556	(±)-Galocatechin (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	1 mg
CLM-10552	(±)-Galocatechin gallate (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	1 mg
CLM-11768	Glutathione (GSH) (cysteinyl- ¹³ C ₃ , 99%) 90% net peptide (peptide purity 85%)	neat	5 g
CNLM-6245	Glutathione (GSH) (glycine- ¹³ C ₂ , 98%; ¹⁵ N, 96%) 65% net peptide (peptide purity 85%)	neat	10 mg, 50 mg
CNLM-6245-HP	Glutathione (GSH) (glycine- ¹³ C ₂ , 98%; ¹⁵ N, 96%) 90% net peptide (peptide purity 95%)	neat	10 mg
CNLM-8782	Glutathione disulfide (GSSG) (glycines- ¹³ C ₂ , 98%; ¹⁵ N, 96%) (65% net peptide) peptide purity 90%	neat	5 mg
DLM-558	Glycerol (D ₈ , 99%)	neat	1 g, 5 g
DLM-1326	Glycerol [(OD) ₃ , 98%]	neat	5 g, 10 g
CDLM-11589	Glycerol (1,3- ¹³ C ₂ , 99%; D ₈ , 98%) CP 95%	neat	Please inquire
CLM-11669	Glycylglycine (Gly-Gly) (¹³ C ₄ , 98%) CP 95%	neat	1 mg
NLM-6723	Guanidine-HBr (¹⁵ N ₃ , 98%)	neat	0.1 g
CLM-10368	Hydrocinnamic acid (1- ¹³ C, 99%)	neat	Please inquire
CLM-8877	Hydrocinnamic acid (1,2,3- ¹³ C ₃ , 99%)	neat	0.1 g
CNLM-10399	DL-3-Hydroxykynurenine (1,2,3- ¹³ C ₃ , 98%; α-amino- ¹⁵ N, 98%) CP 95%	neat	1 mg
CLM-9260	4-Hydroxy-3-methoxycinnamic acid (1',2',3'- ¹³ C ₃ , 99%)	neat	1 mg, 5 mg
DLM-3033	Imidazole (D ₄ , 98%)	neat	1 g, 5 g
CLM-10572	Isobutanol (3,4- ¹³ C ₂ , 99%)	Please inquire	Please inquire
CLM-9755	Kaempferol (2,3,4- ¹³ C ₃ , 99%) CP 95%	Please inquire	Please inquire
CLM-11040	Kaempferol (U- ¹³ C, 98%)	neat	Please inquire
CLM-7613	<i>trans</i> -Lycopene (8,8',9,9',10,10',11,11',19,19'- ¹³ C ₁₀ , 99%)	neat	Please inquire
CNLM-8150-10X-1.2	Melamine (¹³ C ₃ , 99%; amino- ¹⁵ N ₃ , 98%)	1000 µg/mL in water	1.2 mL
CNLM-8150-1.2	Melamine (¹³ C ₃ , 99%; amino- ¹⁵ N ₃ , 98%)	100 µg/mL in water	1.2 mL
DLM-7101	Melatonin (acetyl-D ₃ , 98%)	neat	5 mg, 10 mg
CLM-359	Methanol (¹³ C, 99%)	neat	1 g, 5 g
DLM-1211	Methanol (D, 98%)	neat	5 g
DLM-1209	Methanol (D ₂ , 98%)	neat	5 g
CDLM-1035	Methanol (¹³ C, 99%; D ₃ , 98%)	Please inquire	Please inquire
DLM-651	Methyl formate (formyl-D, 99%)	neat	5 g, 10 g
CDLM-11829	6-Methylmercaptapurine (¹³ C ₃ , 98%; D ₃ , 98%) CP 95%	neat	1 mg
CLM-9754	Myricetin (2,3,4- ¹³ C ₃ , 99%) CP 95%	neat	1 mg
CNLM-11821	L-Norepinephrine-HCl (1,2- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	neat	0.1 g
CLM-7831	(±)-Pantoprazole, sodium salt, sesquihydrate (pyridyl-4-methoxy- ¹³ C, 98%)	neat	Please inquire
CLM-10408	<i>N</i> -Phenyl-1-naphthylamine (phenyl- ¹³ C ₆ , 98%)	neat	1 mg
CLM-10409	<i>N</i> -Phenyl-2-naphthylamine (phenyl- ¹³ C ₆ , 98%)	neat	1 mg
DLM-9842	<i>N</i> -Phosphorylethanolamine (1,1,2,2-D ₄ , 98%)	Please inquire	Please inquire
NLM-765	Potassium nitrate (¹⁵ N, 99%)	neat	1 g
NLM-765-10	Potassium nitrate (¹⁵ N, 10%)	neat	Please inquire
CLM-222	Potassium thiocyanate (¹³ C, 95%) CP 95%	neat	0.5 g, 1 g

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Catalog No.	Description	Concentration	Unit Size
CNLM-3952	Potassium thiocyanate (^{13}C , 99%; ^{15}N , 98%)	neat	0.5 g
DLM-11667	Ractopamine-HCl (1-methyl- D_3 -propyl-1,2,2- D_3 , 98%) CP 95%	neat	1 mg
DLM-11668	Ractopamine-HCl (2-hydroxyethyl-1,1,2- D_3 , 98%) CP 95%	neat	1 mg
DLM-10542	Resorufin (D_6 , 98%) CP 96%	neat	10 mg, 50 mg
CLM-9259	Resveratrol (4-hydroxyphenyl- $^{13}\text{C}_6$, 99%)	neat	1 mg, 5 mg, 10 mg
DLM-3579	Serotonin creatinine sulfate complex ($\alpha,\alpha,\beta,\beta$ - D_4 , 98%)	neat	Please inquire
CLM-441	Sodium bicarbonate (^{13}C , 99%)	neat	1 g, 5 g
CLM-3780	Sodium dichloroacetate ($^{13}\text{C}_2$, 99%)	neat	Please inquire
CLM-9676	Sodium isopropyl carbonate (carbonyl- ^{13}C , 99%)	neat	Please inquire
CLM-1579	Sodium L-lactate ($^{13}\text{C}_3$, 98%) 20% w/w in water	neat	1 g
NLM-157	Sodium nitrate (^{15}N , 98%)	neat	1 g, 5 g
CLM-3046	Thiourea (^{13}C , 99%)	neat	0.5 g
CNLM-4818	Thiourea (^{13}C , 99%; $^{15}\text{N}_2$, 98%)	neat	0.5 g
CLM-10417	Toxoflavin (3,4 α ,5,8 α - $^{13}\text{C}_4$, 98%) CP 95%	neat	1 mg
DLM-4779	Trimethylamine N-oxide (D_9 , 98%)	neat	1 g
CLM-796	Vanillic acid (carboxyl- ^{13}C , 99%)	neat	0.1 g
CLM-1867	Vanillic acid (ring- $^{13}\text{C}_6$, 99%)	neat	0.1 g

For a complete product listing, please visit isotope.com.

Steroids and Hormones

Steroids and hormones play vital roles in the regulation of a diverse array of cellular functions and physiological processes. These pertain to development, reproduction, homeostasis, and metabolism, among others. Accurate quantification of this compound class is essential for basic and clinical translation research. This can be achieved by spiking an isotopically labeled steroid standard(s) into a sample of interest, such as plasma or urine, with measurement performed by an MS- or NMR-based approach.

CIL offers a variety of stable isotope-labeled and unlabeled steroids and hormones. These are available in different labeling patterns in their neat and/or solution forms.

Catalog No.	Description	Concentration	Unit Size
DLM-10472-C	Aldosterone (9,11,12,12-D ₄ , 98%) CP 97%	100 µg/mL in acetonitrile	1 mL
DLM-8438-C	Aldosterone (2,2,4,6,6,17,21,21-D ₈)	100 µg/mL in acetonitrile	1 mL
DLM-8438	Aldosterone (2,2,4,6,6,17,21,21-D ₈)	neat	1 mg, 2 mg, 5 mg
ULM-9134-C	Aldosterone (unlabeled)	100 µg/mL in acetonitrile	1 mL
ULM-9134	Aldosterone (unlabeled) CP 95%	neat	1 mg, 5 mg
DLM-10269	5α-Androstan-3β-ol-17-one (epiandrosterone) (2,2,4,4-D ₄ , 98%)	neat	1 mg, 5 mg
ULM-10270	5α-Androstan-3β-ol-17-one (epiandrosterone) (unlabeled)	neat	1 mg
CLM-10548	5α-Androstan-3,17-dione (androstanedione) (2,3,4- ¹³ C ₃ , 98%)	neat	1 mg
ULM-8794-C	5α-Androstan-3,17-dione (androstanedione) (unlabeled) CP 95%	100 µg/mL in methanol	1 mL
ULM-8794	5α-Androstan-3,17-dione (androstanedione) (unlabeled)	neat	1 mg
DLM-8750	5β-Androstan-3α-ol-17-one (etiocholanolone) (16,16-D ₂ , 98%)	neat	Please inquire
DLM-10008-C	5β-Androstan-3α-ol-17-one (etiocholanolone) (2,2,3,4,4-D ₅ , 98%)	100 µg/mL in methanol	1 mL
DLM-10008	5β-Androstan-3α-ol-17-one (etiocholanolone) (2,2,3,4,4-D ₅ , 98%)	neat	1 mg
ULM-10009-C	5β-Androstan-3α-ol-17-one (etiocholanolone) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-10009	5β-Androstan-3α-ol-17-one (etiocholanolone) (unlabeled)	neat	1 mg
DLM-9769-C	5α-Androstane-3α,17β-diol (16,16,17-D ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-9769	5α-Androstane-3α,17β-diol (16,16,17-D ₃ , 98%) CP 95%	neat	1 mg
ULM-9752-C	5α-Androstane-3α,17β-diol (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9752	5α-Androstane-3α,17β-diol (unlabeled)	neat	1 mg
ULM-10732	5α-Androstane-3β,17β-diol (unlabeled)	neat	1 mg
DLM-9787	Androstanediol glucuronide, sodium salt (16,16,17-D ₃ , 98%) CP 97%	neat	1 mg
DLM-10396	4-Androsten-11β-ol-3,17-dione (9,11,12,12-D ₄ , 98%)	neat	1 mg
DLM-9697	4-Androsten-11β-ol-3,17-dione (2,2,4,6,6,16,16-D ₇ , 98%)	neat	Please inquire
DLM-10397	4-Androsten-11β-17β-diol-3-one (9,11,12,12-D ₄ , 98%) CP 95%	neat	1 mg
DLM-10401-1.2	5-Androsten-3β-17β-diol (16,16,17-D ₃ , 98%) CP 95%	100 µg/mL in methanol	1.2 mL
DLM-10401	5-Androsten-3β-17β-diol (16,16,17-D ₃ , 98%) CP 95%	neat	1 mg
CLM-9135-D	4-Androstene-3,17-dione (2,3,4- ¹³ C ₃ , 98%)	1000 µg/mL in methanol	1 mL
CLM-9135-C	4-Androstene-3,17-dione (2,3,4- ¹³ C ₃ , 98%)	100 µg/mL in methanol	1 mL
CLM-9135	4-Androstene-3,17-dione (2,3,4- ¹³ C ₃ , 98%)	neat	5 mg, 10 mg
DLM-8330	4-Androstene-3,17-dione (2,2,4,6,6-D ₅ , 98%)	neat	0.05 g, 0.1 g
DLM-7976	4-Androstene-3,17-dione (2,2,4,6,6,16,16-D ₇ , 97%)	neat	0.05 g, 0.1 g
ULM-8472	4-Androstene-3,17-dione (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10420-C	4-Androstene-6β,17β-diol-3-one (16,16,17-D ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-10420	4-Androstene-6β,17β-diol-3-one (16,16,17-D ₃ , 98%)	neat	1 mg
DLM-7937	Androsterone (5α-androstan-3α-ol-17-one) (16,16-D ₂ , 98%)	neat	Please inquire
DLM-10402-C	Androsterone (5α-androstan-3α-ol-17-one) (2,2,4,4-D ₄ , 98%)	100 µg/mL in methanol	1 mL
DLM-10402	Androsterone (5α-androstan-3α-ol-17-one) (2,2,4,4-D ₄ , 98%) CP 95%	neat	1 mg
ULM-10403-C	Androsterone (5α-androstan-3α-ol-17-one) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-10403	Androsterone (5α-androstan-3α-ol-17-one) (unlabeled)	neat	1 mg
DLM-9137	Androsterone glucuronide, sodium salt (2,2,4,4-D ₄ , 98%)	neat	Please inquire
ULM-9138	Androsterone glucuronide, sodium salt (unlabeled)	neat	5 mg, 10 mg
DLM-4700	5α-Cholestane (5α-cholane) (3,3-D ₂ , 98%)	neat	Please inquire
DLM-8276	Cholestenone (2,2,4,6,6-D ₅ , 98%)	neat	0.1 g
CLM-804	Cholesterol (3,4- ¹³ C ₂ , 99%)	neat	0.1 g
CLM-9139-C	Cholesterol (2,3,4- ¹³ C ₃ , 98%)	100 µg/mL in ethanol	1 mL
CLM-9139	Cholesterol (2,3,4- ¹³ C ₃ , 99%)	neat	2 mg, 5 mg

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Catalog No.	Description	Concentration	Unit Size
CLM-9587-1.2	Cholesterol (23,24,25,26,27- ¹³ C ₅ , 99%)	100 µg/mL in methanol	1.2 mL
CLM-9587	Cholesterol (23,24,25,26,27- ¹³ C ₅ , 99%)	neat	2 mg, 5 mg
DLM-1831	Cholesterol (3-D, 97%)	neat	Please inquire
DLM-7260	Cholesterol (25,26,26,26-D ₄ , 98%)	neat	Please inquire
DLM-2607-C	Cholesterol (2,2,3,4,4,6-D ₆ , 97%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-2607	Cholesterol (2,2,3,4,4,6-D ₆ , 97%)	neat	0.1 g
DLM-3057	Cholesterol (25,26,26,26,27,27,27-D ₇ , 98%)	neat	10 mg, 0.1 g
OLM-7695	Cholesterol (¹⁸ O, 95%)	neat	Please inquire
ULM-9140-1.2	Cholesterol (unlabeled)	100 µg/mL in methanol	1.2 mL
ULM-9140	Cholesterol (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg
CLM-3361	Cholesterol-3-octanoate (octanoate-1- ¹³ C, 99%)	neat	1 g
DLM-10416	Cholesterol-3-sulfate, sodium salt (25,26,26,26,27,27,27-D ₇ , 98%)	neat	1 mg
CLM-11838-C	Corticosterone (3,4,20,21- ¹³ C ₄ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-11017-C	Corticosterone (9,11,12,12-D ₄ , 98%) CP 97%	100 µg/mL in acetonitrile	1 mL
DLM-11017	Corticosterone (9,11,12,12-D ₄ , 98%)	neat	1 mg, 5 mg
DLM-7347	Corticosterone (2,2,4,6,6,17α,21,21-D ₈ , 97%)	neat	10 mg
ULM-9988	Corticosterone (unlabeled)	neat	1 mg
CLM-10371-C	Cortisol (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1 mL
DLM-2615	Cortisol (1,2-D ₂ , 98%)	neat	Please inquire
DLM-2057	Cortisol (9,12,12-D ₃ , 98%)	neat	10 mg
DLM-2218	Cortisol (9,11,12,12-D ₄ , 98%)	neat	0.1 mg, 10 mg
ULM-9141	Cortisol (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10471	Cortisol-21-sulfate, sodium salt (9,11,12,12-D ₄ , 98%) CP 95%	neat	1 mg
CLM-10536-C	Cortisone (2,3,4- ¹³ C ₃ , 98%) CP 97%	100 µg/mL in methanol	1 mL
DLM-8863	Cortisone (1,2-D ₂ , 98%) CP 95%	neat	Please inquire
DLM-9142-C	Cortisone (2,2,4,6,6,12,12-D ₇ , 98%)	100 µg/mL in methanol	1 mL
DLM-9976	Cortisone (2,2,4,6,6,9,12,12-D ₈ , 98%)	neat	1 mg, 5 mg
ULM-9202-C	Cortisone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9202	Cortisone (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-11710	7-Dehydrocholesterol (23,24,25,26,27- ¹³ C ₅ , 98%) CP 95%	neat	1 mg
DLM-4216	7-Dehydrocholesterol (25,26,26,26,27,27,27-D ₇ , 98%)	neat	Please inquire
DLM-11835-C	11-Dehydrodexamethasone (D ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
CLM-10549-C	Dehydroepiandrosterone (DHEA) (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1 mL
CLM-10549	Dehydroepiandrosterone (DHEA) (2,3,4- ¹³ C ₃ , 99%)	neat	1 mg
DLM-7714	Dehydroepiandrosterone (DHEA) (16,16-D ₂ , 97%)	neat	0.1 g
DLM-8049-C	Dehydroepiandrosterone (DHEA) (2,2,3,4,4,6-D ₆ , 97%)	100 µg/mL in methanol	1 mL
DLM-8049	Dehydroepiandrosterone (DHEA) (2,2,3,4,4,6-D ₆ , 98%) CP 97%	neat	5 mg
ULM-9143-D	Dehydroepiandrosterone (DHEA) (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-9143-C	Dehydroepiandrosterone (DHEA) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9143	Dehydroepiandrosterone (DHEA) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-8701	Dehydroepiandrosterone sulfate (DHEA-S), sodium salt (16,16-D ₂ , 97%)	neat	Please inquire
ULM-9144-D	Dehydroepiandrosterone sulfate (DHEA-S), sodium salt (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-9144-C	Dehydroepiandrosterone sulfate (DHEA-S), sodium salt (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9144	Dehydroepiandrosterone sulfate (DHEA-S), sodium salt (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-8337-C	Dehydroepiandrosterone sulfate (DHEA-S), sodium salt·2H ₂ O (2,2,3,4,4,6-D ₆ , 95%)	100 µg/mL in methanol	1 mL
DLM-8337	Dehydroepiandrosterone sulfate (DHEA-S), sodium salt·2H ₂ O (2,2,3,4,4,6-D ₆ , 95%)	neat	5 mg
CLM-10010-C	11-Deoxycorticosterone (DOC) (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1 mL
CLM-10010	11-Deoxycorticosterone (DOC) (2,3,4- ¹³ C ₃ , 99%)	neat	Please inquire
CLM-11834-C	11-Deoxycorticosterone (DOC) (3,4,20,21- ¹³ C ₄ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-11249	11-Deoxycorticosterone (DOC) (2,2,6,6,17,21,21-D ₇ , 96%)	neat	Please inquire
DLM-7228	11-Deoxycorticosterone (DOC) (2,2,4,6,6,17,21,21-D ₈ , 96%) CP 97%	neat	Please inquire
ULM-10011-C	11-Deoxycorticosterone (DOC) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-10011	11-Deoxycorticosterone (DOC) (unlabeled)	neat	1 mg

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Steroids and Hormones (continued)

Catalog No.	Description	Concentration	Unit Size
CLM-11840-C	21-Deoxycorticosterone (DOC) (3,4,20,21- ¹³ C ₄ , 98%) CP 95%	100 µg/mL in methanol	1 mL
CLM-10384-C	11-Deoxycortisol (2,3,4- ¹³ C ₃ , 99%) CP 97%	100 µg/mL in methanol	1 mL
CLM-10384	11-Deoxycortisol (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	1 mg
DLM-7209	11-Deoxycortisol (21,21-D ₂ , 96%)	neat	5 mg, 10 mg
DLM-8336-C	11-Deoxycortisol (2,2,4,6,6-D ₅ , 98%)	100 µg/mL in methanol	1 mL
DLM-8336	11-Deoxycortisol (2,2,4,6,6-D ₅ , 98%) CP 97%	neat	5 mg, 10 mg
ULM-9145-D	11-Deoxycortisol (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-9145-C	11-Deoxycortisol (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9145	11-Deoxycortisol (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-11709-C	21-Deoxycortisol (2,3,4- ¹³ C ₃ , 98%) CP 98%	100 µg/mL in methanol	1 mL
DLM-11414	21-Deoxycortisol (9,11,11,12-D ₄ , 98%) CP 95%	neat	Please inquire
DLM-8305	21-Deoxycortisol (2,2,4,6,6,21,21,21-D ₈ , 97%)	neat	10 mg
ULM-9987-C	21-Deoxycortisol (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9987	21-Deoxycortisol (unlabeled)	neat	1 mg
CLM-11836-C	21-Deoxycortisone (2,3,4- ¹³ C ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-11827	Dexamethasone (D ₃ , 98%) CP 95%	neat	1 mg
DLM-170-D-1.2	Diethylstilbestrol (ring-3,3',5,5'-diethyl-1,1',1'-D ₈ , 98%) <i>cis/trans</i> mix	100 µg/mL in dioxane	1.2 mL
DLM-170	Diethylstilbestrol (ring-3,3',5,5'-diethyl-1,1',1'-D ₈ , 98%) <i>cis/trans</i> mix	neat	0.05 g, 0.1 g
CLM-9146-D	5α-Dihydrotestosterone (2,3,4- ¹³ C ₃ , 99%) CP 97%	1000 µg/mL in methanol	1 mL
CLM-9146-C	5α-Dihydrotestosterone (2,3,4- ¹³ C ₃ , 99%) CP 97%	100 µg/mL in methanol	1 mL
CLM-9146	5α-Dihydrotestosterone (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	1 mg, 5 mg, 10 mg
DLM-3023	5α-Dihydrotestosterone (16,16,17-D ₃ , 98%)	neat	Please inquire
DLM-9041	5α-Dihydrotestosterone (2,2,4,4-D ₄ , 98%) CP 95%	neat	1 mg
ULM-8364-D	5α-Dihydrotestosterone (unlabeled)	1 mg/mL in methanol	1 mL
ULM-8364-C	5α-Dihydrotestosterone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-8364	5α-Dihydrotestosterone (unlabeled)	neat	Please inquire
CLM-9222-C	L-3,3'-Diiodothyronine (T2) (phenoxy- ¹³ C ₆ , 99%) CP 97%	100 µg/mL in 0.1 N NH ₃ in methanol	1 mL
CLM-9222	L-3,3'-Diiodothyronine (T2) (phenoxy- ¹³ C ₆ , 99%) CP 97%	neat	1 mg, 5 mg
ULM-9223-C	L-3,3'-Diiodothyronine (T2) (unlabeled)	100 µg/mL in 0.1 N NH ₃ in methanol	1 mL
ULM-9223	L-3,3'-Diiodothyronine (T2) (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-7768	Epicholesterol (3,4- ¹³ C ₂ , 99%)	neat	0.1 g
DLM-9088	DL-Epinephrine (ring-D ₃ ,1,2,2-D ₃ , 98%)	neat	Please inquire
CNLM-7889	DL-Epinephrine (1,2- ¹³ C ₂ , 99%; ¹⁵ N, 98%)	neat	10 mg
CLM-11416	Epitestosterone (2,3,4- ¹³ C ₃ , 98%) CP 95%	neat	Please inquire
CLM-803-1.2	Estradiol (3,4- ¹³ C ₂ , 99%)	100 µg/mL in acetonitrile	1.2 mL
CLM-803	Estradiol (3,4- ¹³ C ₂ , 99%)	neat	Please inquire
DLM-3694	Estradiol (16,16,17-D ₃ , 98%) CP 95%	neat	1 mg, 10 mg
DLM-2487	Estradiol (2,4,16,16-D ₄ , 95%)	neat	5 mg
ULM-7449-1.2	Estradiol (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
ULM-7449	Estradiol (unlabeled)	neat	0.1 mg
CLM-7936-1.2	DL-Estradiol (13,14,15,16,17,18- ¹³ C ₆ , 99%)	100 µg/mL in methanol	1.2 mL
CLM-7936	DL-Estradiol (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
CLM-10404-C	Estradiol undecanoate (2,3,4- ¹³ C ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
CLM-10404	Estradiol undecanoate (2,3,4- ¹³ C ₃ , 98%) CP 95%	neat	1 mg
CLM-9147-C	Estriol (16α-hydroxyestradiol) (2,3,4- ¹³ C ₃ , 99%) CP 97%	100 µg/mL in methanol	1 mL
CLM-9147	Estriol (16α-hydroxyestradiol) (2,3,4- ¹³ C ₃ , 99%) CP 97%	neat	0.1 mg, 0.25 mg, 0.5 mg, 1 mg
DLM-8586	Estriol (2,4,16-D ₃ , 98%) CP 96%	neat	5 mg, 10 mg
DLM-8343	Estriol (2,4,17-D ₃ , 98%) CP 96%	neat	Please inquire
ULM-8218	Estriol (unlabeled)	neat	0.1 mg
CLM-673-1.2	Estrone (3,4- ¹³ C ₂ , 90%)	100 µg/mL in acetonitrile	1.2 mL

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Catalog No.	Description	Concentration	Unit Size
CLM-673	Estrone (3,4- ¹³ C ₂ , 99%)	neat	Please inquire
CLM-9148-C	Estrone (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1 mL
CLM-9148-B	Estrone (2,3,4- ¹³ C ₃ , 99%)	50 µg/mL in methanol	1 mL
CLM-9148	Estrone (2,3,4- ¹³ C ₃ , 99%)	neat	1 mg, 5 mg
DLM-3976	Estrone (2,4,16,16-D ₄ , 97%)	neat	5 mg
CLM-7935-1.2	DL-Estrone (13,14,15,16,17,18- ¹³ C ₆ , 99%) CP 95%	100 µg/mL in methanol	1.2 mL
CLM-7935	DL-Estrone (13,14,15,16,17,18- ¹³ C ₆ , 99%) CP 95%	neat	0.1 mg
CLM-8033	DL-Estrone 3-methyl ether (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
ULM-10356	Estrone 3-methyl ether (unlabeled)	neat	0.1 mg
CLM-3375-1.2	Ethinylestradiol (20,21- ¹³ C ₂ , 99%) CP 97%	100 µg/mL in acetonitrile	1.2 mL
ULM-7211-1.2	Ethinylestradiol (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
DLM-4691	17α-Ethinylestradiol (2,4,16,16-D ₄ , 97%)	neat	10 mg
DLM-11826	Flumethasone (D ₃ , 98%) CP 95%	neat	1 mg
CLM-11415	7α-Hydroxy-4-cholesten-3-one (23,24,25,26,27- ¹³ C ₅ , 98%) CP 95%	neat	Please inquire
ULM-10267	7α-Hydroxycholesterol (unlabeled)	neat	1 mg
DLM-8646	7β-Hydroxycholesterol (25,26,26,26,27,27,27-D ₇ , 98%) CP 97%	neat	Please inquire
ULM-10268	7β-Hydroxycholesterol (unlabeled)	neat	Please inquire
DLM-9150-C	18-Hydroxycorticosterone (9,11,12,12-D ₄ , 98%)	100 µg/mL in acetonitrile	1 mL
DLM-9150	18-Hydroxycorticosterone (9,11,12,12-D ₄ , 98%) CP 95%	neat	1 mg
ULM-9151-C	18-Hydroxycorticosterone (unlabeled) CP 95%	100 µg/mL in methanol	1 mL
ULM-9151	18-Hydroxycorticosterone (unlabeled) CP 95%	neat	1 mg
ULM-10007-C	18-Hydroxycortisol (unlabeled) CP 97%	100 µg/mL in methanol	1 mL
ULM-10007	18-Hydroxycortisol (unlabeled) CP 95%	neat	1 mg
ULM-8134	2-Hydroxyestrone (unlabeled)	neat	0.1 mg
ULM-8261	4-Hydroxyestrone (unlabeled) CP 96%	neat	0.1 mg
CLM-8012	DL-2-Hydroxyestradiol (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
ULM-8133	2-Hydroxyestrone-3-methyl ether (unlabeled) CP 97%	neat	0.1 mg
CLM-9153-C	16α-Hydroxyestrone (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1 mL
CLM-9153	16α-Hydroxyestrone (2,3,4- ¹³ C ₃ , 99%)	neat	0.1 mg, 0.25 mg, 0.5 mg, 1 mg
ULM-9152-C	16α-Hydroxyestrone (unlabeled)	100 µg/mL in methanol	1 mL
CLM-8011	DL-2-Hydroxyestrone (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
CLM-8016	DL-2-Hydroxyestrone-3-methyl ether (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
CLM-8013	DL-4-Hydroxyestrone (13,14,15,16,17,18- ¹³ C ₆ , 99%) CP 97%	neat	0.1 mg
DLM-7206	17α-Hydroxypregnenolone (21,21,21-D ₃ , 97%)	neat	Please inquire
CDLM-9154-C	17α-Hydroxypregnenolone (20,21- ¹³ C ₂ , 98%; 16,16-D ₂ , 98%)	100 µg/mL in methanol	1 mL
CDLM-9154	17α-Hydroxypregnenolone (20,21- ¹³ C ₂ , 98%; 16,16-D ₂ , 98%)	neat	1 mg
ULM-9155-C	17α-Hydroxypregnenolone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9155	17α-Hydroxypregnenolone (unlabeled)	neat	Please inquire
CLM-9157-D	17α-Hydroxyprogesterone (2,3,4- ¹³ C ₃ , 98%)	1000 µg/mL in methanol	1 mL
CLM-9157-C	17α-Hydroxyprogesterone (2,3,4- ¹³ C ₃ , 98%)	100 µg/mL in methanol	1 mL
CLM-9157	17α-Hydroxyprogesterone (2,3,4- ¹³ C ₃ , 98%)	neat	1 mg, 5 mg
DLM-6598	17α-Hydroxyprogesterone (2,2,4,6,6,21,21,21-D ₈ , 98%)	neat	10 mg, 0.05 g
ULM-9156-C	17α-Hydroxyprogesterone (unlabeled) CP 95%	100 µg/mL in methanol	1 mL
ULM-9156	17α-Hydroxyprogesterone (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-11837-C	11β-Hydroxytestosterone (2,3,4- ¹³ C ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
CLM-11708-F	11-Ketoandrostenedione (11-KA4) (2,3,4- ¹³ C ₃ , 98%) CP 95%	10 µg/mL in methanol	1 mL
DLM-11248	11-Ketoandrostenedione (11-KA4) (D ₁₀ , 98%) CP 95%	neat	Please inquire
DLM-8647	7-Ketocholesterol (7-KC) (25,26,26,26,27,27,27-D ₇ , 99%)	neat	Please inquire
CLM-11839-C	11-Ketoprogesterone (3,4,20,21- ¹³ C ₄ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-10395	11-Ketotestosterone (11-KT) (16,16,17-D ₃) CP 95%	neat	1 mg
DLM-7101	Melatonin (acetyl-D ₃ , 98%)	neat	5 mg, 10 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

Steroids and Hormones (continued)

Catalog No.	Description	Concentration	Unit Size
DLM-3560	DL-Metanephine-HCl (α,β,β -D ₃ , 98%)	neat	5 mg, 10 mg
CLM-8015	DL-2-Methoxyestradiol (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
ULM-8137	DL-2-Methoxyestradiol (unlabeled)	neat	0.1 mg
CLM-8014	DL-2-Methoxyestrone (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
CLM-8017	DL-4-Methoxyestrone (13,14,15,16,17,18- ¹³ C ₆ , 99%)	neat	0.1 mg
ULM-8263	2-Methoxyestrone (unlabeled)	neat	0.1 mg
ULM-8262	4-Methoxyestrone (unlabeled)	neat	0.1 mg
DLM-8820	DL-Norepinephrine (noradrenaline)-HCl (ring-D ₃ , 1,2,2-D ₃ , 99%)	neat	5 mg, 10 mg
CLM-2468	Norethindrone (ethynyl- ¹³ C ₂ , 99%)	neat	10 mg
CLM-9980	Nestorone (16-methylene- ¹³ C, 20,21- ¹³ C ₂ , 99%) CP 96%	neat	Please inquire
DLM-8609	DL-Normetanephine-HCl (α,β,β -D ₃ , 98%)	neat	5 mg, 10 mg
DLM-3979-1.2	19-Nortestosterone (16,16,17-D ₃ , 98%)	100 µg/mL in methanol	1.2 mL
DLM-3979	19-Nortestosterone (16,16,17-D ₃ , 98%)	neat	5 mg
ULM-4841-1.2	19-Nortestosterone (unlabeled)	100 µg/mL in methanol	1.2 mL
CLM-11841-C	Prednisolone (2,3,4- ¹³ C ₃ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-3754	5 α -Pregnan-3 α -ol-20-one (17,21,21,21-D ₄ , 96%) CP 95%	neat	10 mg
DLM-7492	5 α -Pregnan-3 β -ol-20-one (17 α ,21,21,21-D ₄ , 97%) CP 96%	neat	Please inquire
ULM-8242	5 α -Pregnan-3 β -ol-20-one (unlabeled)	neat	1 mg
DLM-10969-C	5 α -Pregnan-3 α ,11 β ,17,21-tetrol-20-one (2,2,3,4,4-D ₅ , 98%)	100 µg/mL in methanol	1 mL
DLM-10969	5 α -Pregnan-3 α ,11 β ,17,21-tetrol-20-one (2,2,3,4,4-D ₅ , 98%)	neat	1 mg
DLM-11010-C	5 α -Pregnan-3 α ,17,21-triol-11,20-dione (2,2,4,4-D ₄ , 98%)	100 µg/mL in methanol	1 mL
DLM-11010	5 α -Pregnan-3 α ,17,21-triol-11,20-dione (2,2,4,4-D ₄ , 98%)	neat	Please inquire
DLM-11009-C	5 α -Pregnan-3 α ,17,21-triol-11,20-dione (2,2,3,4,4-D ₅ , 98%)	100 µg/mL in methanol	1 mL
DLM-11009	5 α -Pregnan-3 α ,17,21-triol-11,20-dione (2,2,3,4,4-D ₅ , 98%)	neat	Please inquire
DLM-2294	5 β -Pregnan-3 α -ol-20-one (17,21,21,21-D ₄ , 96%)	neat	10 mg
DLM-8751	5 β -Pregnan-3 α ,11 β ,17 α ,21-tetrol-20-one (9,11 α ,12-D ₃ , 95%)	neat	Please inquire
DLM-11014-C	5 β -Pregnan-3 α ,11 β ,17 α ,21-tetrol-20-one (2,2,3,4,4-D ₅ , 98%)	100 µg/mL in methanol	1 mL
DLM-11014	5 β -Pregnan-3 α ,11 β ,17 α ,21-tetrol-20-one (2,2,3,4,4-D ₅ , 98%)	neat	1 mg
ULM-11015-C	5 β -Pregnan-3 α ,11 β ,17 α ,21-tetrol-20-one (unlabeled)	100 µg/mL in methanol	1 mL
ULM-11015	5 β -Pregnan-3 α ,11 β ,17 α ,21-tetrol-20-one (unlabeled)	neat	1 mg
DLM-11012-C	5 β -Pregnan-3 α ,11 β ,21-triol-20-one (2,2,3,4,4-D ₅ , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-11012	5 β -Pregnan-3 α ,11 β ,21-triol-20-one (2,2,3,4,4-D ₅ , 98%) CP 95%	neat	1 mg
ULM-11011-C	5 β -Pregnan-3 α ,11 β ,21-triol-20-one (unlabeled)	100 µg/mL in methanol	1 mL
ULM-11011	5 β -Pregnan-3 α ,11 β ,21-triol-20-one (unlabeled)	neat	1 mg
DLM-11013-C	5 β -Pregnan-3 α ,17,21-triol-11,20-dione (2,2,3,4,4-D ₅ , 98%)	100 µg/mL in methanol	1 mL
DLM-11013	5 β -Pregnan-3 α ,17,21-triol-11,20-dione (2,2,3,4,4-D ₅ , 98%)	neat	1 mg
DLM-8753	5 β -Pregnan-3 α ,17 α ,20-triol (20,21,21,21-D ₄ , 98%) mix of 20 α and 20 β	neat	Please inquire
DLM-10413	5 β -Pregnane-3 α -20 α -diol (2,2,3,4,4-D ₅ , 98%) CP 95%	neat	1 mg
CLM-10412	5 β -Pregnane-3 α -20 α -diol glucuronide, sodium salt (2,3,4,20,21- ¹³ C ₅ , 99%) CP 95%	neat	1 mg
DLM-3910	5 α -Pregnane-3 α ,21-diol-20-one (17,21,21-D ₃ , 95%)	neat	10 mg
ULM-10385	5 α -Pregnane-3 α ,21-diol-20-one (unlabeled)	neat	1 mg
DLM-3816	5 α -Pregnane-3,20-dione (1,2,4,5,6,7-D ₆ , 95%)	neat	10 mg, 0.05 g
DLM-9901	5 β -Pregnane-3,20-dione (2,2,4,4,17 α ,21,21,21-D ₈ , 98%) CP 97%	neat	Please inquire
DLM-6896	Pregnenolone (17,21,21,21-D ₄ , 98%)	neat	10 mg
CDLM-9158-C	Pregnenolone (20,21- ¹³ C ₂ , 99%; 16,16-D ₂ , 98%)	100 µg/mL in acetonitrile	1 mL
CDLM-9158	Pregnenolone (20,21- ¹³ C ₂ , 98%; 16,16-D ₂ , 98%)	neat	1 mg, 5 mg
ULM-9159-C	Pregnenolone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9159	Pregnenolone (unlabeled)	neat	1 mg, 5 mg, 10 mg
CDLM-9160	Pregnenolone sulfate, sodium salt (20,21- ¹³ C ₂ , 99%; 16,16-D ₂ , 98%)	neat	1 mg, 5 mg
ULM-9161	Pregnenolone sulfate, sodium salt (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-457	Progesterone (3,4- ¹³ C ₂ , 90%)	neat	10 mg
CLM-9162-C	Progesterone (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in acetonitrile	1 mL

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Catalog No.	Description	Concentration	Unit Size
CLM-9162-B	Progesterone (2,3,4- ¹³ C ₃ , 99%)	50 µg/mL in acetonitrile	1 mL
CLM-9162	Progesterone (2,3,4- ¹³ C ₃ , 99%)	neat	1 mg, 5 mg
CLM-10414	Progesterone (2,3,4,20,21- ¹³ C ₅ , 99%)	neat	1 mg
DLM-7953-1.2	Progesterone (2,2,4,6,6,17α,21,21,21-D ₉ , 98%)	100 µg/mL in <i>p</i> -dioxane	1.2 mL
DLM-7953	Progesterone (2,2,4,6,6,17α,21,21,21-D ₉ , 98%)	neat	10 mg
ULM-8219-1.2	Progesterone (unlabeled)	100 µg/mL in <i>p</i> -dioxane	1.2 mL
DLM-3627	Prostaglandin A2 (3,3,4,4-D ₄ , 98%)	500 µg/mL in methyl acetate	Please inquire
DLM-3728	Prostaglandin E1 (3,3,4,4-D ₄ , 98%)	500 µg/mL in methyl acetate	Please inquire
DLM-3628	Prostaglandin E2 (3,3,4,4-D ₄ , 98%)	500 µg/mL in methyl acetate	Please inquire
DLM-3558	Prostaglandin-F2α (3,3,4,4-D ₄ , 98%)	Please inquire	Please inquire
DLM-7457	Sodium 17β-estradiol 3-sulfate (2,4,16,16-D ₄ , 98%) stabilized with 50% w/w Tris	neat	Please inquire
DLM-7456	Sodium estrone 3-sulfate (2,4,16,16-D ₄ , 98%) stabilized with 50% w/w Tris	neat	Please inquire
ULM-8132	Sodium estrone 3-sulfate (unlabeled)	neat	0.1 mg
DLM-9503	Stigmastanol (2,2,3,4,4-D ₅ , 98%)	neat	10 mg
CLM-159	Testosterone (3,4- ¹³ C ₂ , 99%)	neat	10 mg
CLM-9164-C	Testosterone (2,3,4- ¹³ C ₃ , 99%)	100 µg/mL in methanol	1 mL
CLM-9164	Testosterone (2,3,4- ¹³ C ₃ , 99%)	neat	5 mg, 10 mg
DLM-683-1.2	Testosterone (1,2-D ₂ , 98%)	100 µg/mL in MeCl	1.2 mL
DLM-683	Testosterone (1,2-D ₂ , 98%)	neat	0.1 g
DLM-6224-C	Testosterone (16,16,17-D ₃ , 98%)	100 µg/mL in methanol	1 mL
DLM-6224	Testosterone (16,16,17-D ₃ , 98%)	neat	5 mg
DLM-8085-D-1.2	Testosterone (2,2,4,6,6-D ₅ , 98%)	100 µg/mL in dioxane	1.2 mL
DLM-8085-1.2	Testosterone (2,2,4,6,6-D ₅ , 98%)	100 µg/mL in MeCl	1.2 mL
DLM-8085	Testosterone (2,2,4,6,6-D ₅ , 98%)	neat	Please inquire
CDLM-11711-C	Testosterone (2,3,4- ¹³ C ₃ , 98%; 16,16,17-D ₃ , 98%) CP 95%	100 µg/mL in ethanol	1 mL
ULM-8081-1.2	Testosterone (unlabeled)	100 µg/mL in MeCl	1.2 mL
DLM-8265	Testosterone diacetate (testosterone-D ₄ , acetate methyl-D ₆ , 98%)	neat	Please inquire
DLM-11016-C	3α,5β-Tetrahydroaldosterone (2,2,4,4,6,6-D ₆ , 98%) CP 95%	100 µg/mL in acetonitrile	1 mL
DLM-11016	3α,5β-Tetrahydroaldosterone (2,2,4,4,6,6-D ₆ , 98%) CP 95%	neat	Please inquire
ULM-9163	3α,5β-Tetrahydroaldosterone (unlabeled)	neat	1 mg, 5 mg
CLM-6725	L-Thyroxine (T4) (tyrosine-ring- ¹³ C ₆ , 99%) CP 90%	neat	0.1 mg
CLM-8931	L-Thyroxine (T4) (ring- ¹³ C ₁₂ , 99%) CP 97%	neat	0.1 mg
ULM-8184	L-Thyroxine (T4) (unlabeled)	neat	0.2 mg
CLM-10596	3,3',5-Triiodo-L-thyronine (T3) (rings- ¹³ C ₁₂ , 99%) CP 94%	neat	Please inquire
CLM-7185-C	3,3',5-Triiodo-L-thyronine (T3)·HCl (diiodobenzene- ¹³ C ₆ , 99%)	100 µg/mL 0.1 N NH ₃ in methanol	1 mL
CLM-7185	3,3',5-Triiodo-L-thyronine (T3)·HCl (diiodobenzene- ¹³ C ₆ , 99%) CP 95%	neat	1 mg, 5 mg, 10 mg
ULM-10573-C	3,3',5-Triiodo-L-thyronine (T3)·HCl (unlabeled) CP 95%	100 µg/mL 0.1 N NH ₃ in methanol	1 mL
ULM-10573	3,3',5-Triiodo-L-thyronine (T3)·HCl (unlabeled) CP 95%	neat	1 mg, 5 mg, 10 mg
CLM-10601-C	Reverse 3,3',5'-triiodo-L-thyronine (rev T3)·HCl (diiodobenzene- ¹³ C ₆ , 99%) CP 95%	100 µg/mL 0.1 N NH ₃ in methanol	1 mL
CLM-10601	Reverse 3,3',5'-triiodo-L-thyronine (rev T3)·HCl (diiodobenzene- ¹³ C ₆ , 99%) CP 95%	neat	1 mg, 5 mg, 10 mg
ULM-10602-C	Reverse 3,3',5'-triiodo-L-thyronine (rev T3)·HCl (unlabeled) CP 95%	100 µg/mL 0.1 N NH ₃ in methanol	1 mL
DLM-10026	Triamcinolone hexacetonide (16,17-isopropylidenedioxy-D ₆ , 98%)	neat	Please inquire
DLM-6989	Tryptamine·HCl (α,α,β,β-D ₄ , 97%)	neat	Please inquire
DLM-10026	Triamcinolone hexacetonide (16,17-isopropylidenedioxy-D ₆ , 98%)	neat	Please inquire
DLM-6989	Tryptamine·HCl (α,α,β,β-D ₄ , 97%)	neat	Please inquire
DLM-6989	Tryptamine·HCl (α,α,β,β-D ₄ , 97%)	neat	Please inquire

For a complete product listing, please visit isotope.com.

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Vitamins and Their Metabolites

Vitamins are organic compounds that directly or indirectly participate in organisms' biochemical reactions. These are divided into two classes, based on their solubility in fat (includes A, D, E, and K) and water (includes B and C).

CIL offers unlabeled and stable isotope-labeled vitamins as neat compounds and/or in solution at specified concentrations. These can be used in a wide range of applications, such as metabolism and pathophysiology explorations, as well as disease biomarker evaluation in preclinical and clinical MS studies (e.g., vitamin D deficiency). These standards help facilitate accurate and precise quantification of endogenous metabolites in biological matrices.

Water Soluble

Catalog No.	Description	Concentration	Unit Size
CLM-11661	5-Formyltetrahydrofolic acid (glutamic acid- $^{13}\text{C}_5$, 98%)	neat	1 mg
CLM-9548	5-Methyltetrahydrofolic acid (prefolic A) (glutamic acid- $^{13}\text{C}_5$, 99%) CP 95%	neat	1 mg, 5 mg
DLM-11656	5-Methyltetrahydrofolic acid (prefolic A) (methyl- D_3 , 98%)	neat	1 mg
CLM-7321-N	5-Methyltetrahydrofolic acid (prefolic A), calcium salt (glutamic acid- $^{13}\text{C}_5$, 98%) CP 95%	neat	1 mg, 5 mg
CLM-7667	Vitamin B_1 (thiamine)-HCl (4,5,4-methyl- $^{13}\text{C}_3$, 99%) CP 97%	neat	5 mg
ULM-10004	Vitamin B_1 (thiamine)-HCl (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-8741	Vitamin B_1 (thiamine) pyrophosphate chloride (pyrimidyl-methyl- D_3 , 98%)	neat	1 mg
CNLM-8851	Vitamin B_2 (riboflavin) ($^{13}\text{C}_4$, 99%; $^{15}\text{N}_2$, 98%) CP 97%	neat	1 mg, 5 mg, 10 mg
ULM-9123	Vitamin B_2 (riboflavin) (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg
CNLM-10744	Vitamin B_2 (riboflavin) phosphate ($^{13}\text{C}_4$, 99%; $^{15}\text{N}_2$, 98%) CP 90%	neat	1 mg
CLM-9925	Vitamin B_3 (nicotinamide) ($^{13}\text{C}_6$, 99%)	neat	1 mg, 5 mg
DLM-6883	Vitamin B_3 (nicotinamide) (D_4 , 98%)	neat	0.1 g, 0.5 g
CNLM-9757	Vitamin B_3 (nicotinamide) (2,6-carbonyl- $^{13}\text{C}_3$, 99%; ring-1- ^{15}N , 98%)	neat	1 mg
CLM-9954	Vitamin B_3 (nicotinic acid) ($^{13}\text{C}_6$, 99%)	neat	1 mg, 5 mg
DLM-4578	Vitamin B_3 (nicotinic acid) (D_4 , 98%)	neat	5 mg, 1 g
CNLM-9512	Vitamin B_3 (nicotinic acid) (2,6-carboxyl- $^{13}\text{C}_3$, 99%; ^{15}N , 98%) CP 97%	neat	1 mg
DLM-2872	Vitamin B_3 (nicotinic acid), ethyl ester (2,4,5,6- D_4 , 98%)	neat	5 g
CNLM-7694	Vitamin B_5 (pantothenate)- H_2O , calcium salt (β -alaninyl- $^{13}\text{C}_3$, 99%; ^{15}N , 98%)	neat	10 mg
ULM-10003	Vitamin B_5 (pantothenate)- H_2O , calcium salt (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-9069	Vitamin B_6 (pyridoxal) (methyl- D_3 , 98%)	neat	1 mg, 5 mg, 10 mg
ULM-9118	Vitamin B_6 (pyridoxal)-HCl (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-9119	Vitamin B_6 (pyridoxamine)-2HCl (methyl- D_3 , 98%)	neat	1 mg, 5 mg, 10 mg
ULM-9120	Vitamin B_6 (pyridoxamine)-2HCl (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-7563	Vitamin B_6 (pyridoxine)-HCl (4,5-bis(hydroxymethyl)- $^{13}\text{C}_4$, 99%)	neat	10 mg
DLM-8754	Vitamin B_6 (pyridoxine)-HCl (5-hydroxymethyl- D_2 , 98%)	neat	1 mg, 5 mg
DLM-9121	Vitamin B_6 (pyridoxine)-HCl (methyl- D_3 , 98%) CP 96%	neat	1 mg, 5 mg, 10 mg
ULM-9122	Vitamin B_6 (pyridoxine)-HCl (unlabeled) CP 96%	neat	1 mg, 5 mg, 10 mg
DLM-9793-N	Vitamin B_6 (pyridoxal) phosphate (methyl- D_3 , 97%) CP 97% (mix of 5-,3-isomers)	neat	1 mg
DLM-11662	Vitamin B_6 phosphate (pyridoxal phosphate) (methyl- D_3 , 5-hydroxymethyl- D_2 , 98%)	neat	1 mg
DLM-8806	Vitamin B_7 (biotin) (ring-6,6- D_2 , 98%) CP 97%	neat	5 mg, 10 mg, 20 mg
DLM-9751	Vitamin B_7 (biotin) (3',3',4',4'- D_4 , 98%) CP 95%	neat	1 mg
ULM-9129	Vitamin B_7 (biotin) (unlabeled)	neat	1 mg, 5 mg
CLM-7861-N	Vitamin B_9 (folic acid) (glutamic acid- $^{13}\text{C}_5$, 99%) CP 95%	neat	1 mg, 5 mg
CLM-7861	Vitamin B_9 (folic acid) (glutamic acid- $^{13}\text{C}_5$, 95%) contains ~10% H_2O	neat	Please inquire
CNLM-9564	Vitamin B_9 (folic acid) (glutamic acid- $^{13}\text{C}_5$, 99%; ^{15}N , 98%) CP 95%	neat	1 mg, 5 mg
CLM-9770-E	Vitamin B_{12} (cyanocobalamin) ($^{13}\text{C}_7$, 99%) CP 95%	1 $\mu\text{g/mL}$ in methanol	1 mL
ULM-10005-E	Vitamin B_{12} (cyanocobalamin) (unlabeled)	1 $\mu\text{g/mL}$ in methanol	1 mL

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Catalog No.	Description	Concentration	Unit Size
CLM-3085	Vitamin C (L-ascorbic acid) (1- ¹³ C, 99%)	neat	0.05 g, 0.1 g, 0.25 g, 0.5 g
CLM-10991	Vitamin C (L-ascorbic acid) (1,2- ¹³ C ₂ , 99%)	neat	Please inquire
CLM-7283	Vitamin C (L-ascorbic acid) (U- ¹³ C ₆ , 98%)	neat	0.05 g, 0.1 g

Fat Soluble

Catalog No.	Description	Concentration	Unit Size
CLM-6126	β-Carotene (provitamin A) (10,10',11,11'- ¹³ C ₄ , 99%) CP 95%	neat	Please inquire
CLM-9641	β-Carotene (provitamin A) (12,12',13,13',14,14',15,15',20,20'- ¹³ C ₁₀ , 99%) CP 97%	neat	Please inquire
DLM-3829	β-Carotene (provitamin A) (19,19,19,19',19',19'-D ₆ , 98%) CP 95%	neat	Please inquire
DLM-2439	β-Carotene (provitamin A) (10,10',19,19,19,19',19',19'-D ₈ , 97%)	neat	Please inquire
ULM-11664	1,24-Dihydroxyvitamin D ₃ (tacalcitol) (unlabeled)	neat	1 mg
CLM-12291-A	1,25-Dihydroxyvitamin D ₂ (25,26,27- ¹³ C ₃ , 98%) CP 95%	5 µg/mL in ethanol	1 mL
CLM-11417	1,25-Dihydroxyvitamin D ₂ (20,21,22,26,27- ¹³ C ₅ , 98%) CP 95%	neat	Please inquire
ULM-9106-C	1,25-Dihydroxyvitamin D ₂ (unlabeled) CP 95%	100 µg/mL in ethanol	1 mL
ULM-9106-B	1,25-Dihydroxyvitamin D ₂ (unlabeled) CP 95%	50 µg/mL in ethanol	1 mL
ULM-9106	1,25-Dihydroxyvitamin D ₂ (unlabeled) CP 95%	neat	0.1 mg, 1 mg
CLM-12292-A	1,25-Dihydroxyvitamin D ₃ (25,26,27- ¹³ C ₃ , 98%) CP 95%	5 µg/mL in ethanol	1 mL
DLM-9107-C	1,25-Dihydroxyvitamin D ₃ (6,19,19-D ₃ , 97%) CP 95%	100 µg/mL in ethanol	1 mL
DLM-9107-B	1,25-Dihydroxyvitamin D ₃ (6,19,19-D ₃ , 97%) CP 95%	50 µg/mL in ethanol	1 mL
DLM-9107	1,25-Dihydroxyvitamin D ₃ (6,19,19-D ₃ , 97%) CP 95%	neat	1 mg
ULM-9108-C	1,25-Dihydroxyvitamin D ₃ (unlabeled) CP 95%	100 µg/mL in ethanol	1 mL
ULM-9108-B	1,25-Dihydroxyvitamin D ₃ (unlabeled) CP 95%	50 µg/mL in ethanol	1 mL
ULM-9108	1,25-Dihydroxyvitamin D ₃ (unlabeled) CP 95%	neat	0.5 mg, 1 mg
ULM-9109-C	24,25-Dihydroxyvitamin D ₂ (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9109	24,25-Dihydroxyvitamin D ₂ (unlabeled)	neat	1 mg
CLM-11663	24R,25-Dihydroxyvitamin D ₃ (25,26,27- ¹³ C ₃ , 98%)	50 µg/mL in ethanol	1 mL
CLM-11420	24R,25-Dihydroxyvitamin D ₃ (23,24,25,26,27- ¹³ C ₅ , 98%) CP 95%	neat	Please inquire
DLM-9404-C	24R,25-Dihydroxyvitamin D ₃ (26,26,26,27,27,27-D ₆ , 98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-9404	24R,25-Dihydroxyvitamin D ₃ (26,26,26,27,27,27-D ₆ , 98%) CP 97%	neat	1 mg
ULM-10610-C	24R,25-Dihydroxyvitamin D ₃ (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10610	24R,25-Dihydroxyvitamin D ₃ (unlabeled) CP 97%	neat	1 mg
CLM-11418	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (22,26,27- ¹³ C ₃ , 98%) CP 95%	50 µg/mL in ethanol	1 mL
CLM-11418	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (22,26,27- ¹³ C ₃ , 98%) CP 95%	10 µg/mL in ethanol	1 mL
CLM-11419	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (20,21,22,26,27- ¹³ C ₅ , 98%) CP 95%	50 µg/mL in ethanol	1 mL
CLM-11419	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (20,21,22,26,27- ¹³ C ₅ , 98%) CP 95%	10 µg/mL in ethanol	1 mL
ULM-9110-C	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9110-B	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9110	3- <i>epi</i> -25-Hydroxyvitamin D ₂ (unlabeled)	neat	1 mg
CLM-11421	25-Hydroxyvitamin D ₂ (22,26,27- ¹³ C ₃ , 98%) CP 95%	neat	Please inquire
CLM-11422	25-Hydroxyvitamin D ₂ (20,21,22,26,27- ¹³ C ₅ , 98%) CP 95%	neat	Please inquire
DLM-9114-C	25-Hydroxyvitamin D ₂ (6,19,19-D ₃ , 97%)	100 µg/mL in ethanol	1 mL
DLM-9114-B	25-Hydroxyvitamin D ₂ (6,19,19-D ₃ , 97%)	50 µg/mL in ethanol	1 mL
DLM-9114-A	25-Hydroxyvitamin D ₂ (6,19,19-D ₃ , 97%)	5 µg/mL in ethanol	1 mL
DLM-9114	25-Hydroxyvitamin D ₂ (6,19,19-D ₃ , 97%)	neat	1 mg
DLM-10219	25-Hydroxyvitamin D ₂ (26,26,26,27,27,27-D ₆ , 96%) CP 95%	neat	Please inquire
ULM-9115-C	25-Hydroxyvitamin D ₂ (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9115-B	25-Hydroxyvitamin D ₂ (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9115-A	25-Hydroxyvitamin D ₂ (unlabeled)	5 µg/mL in ethanol	1 mL
ULM-9115	25-Hydroxyvitamin D ₂ (unlabeled)	neat	1 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
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Vitamins and Their Metabolites (continued)

Catalog No.	Description	Concentration	Unit Size
DLM-10611-C	25-Hydroxyvitamin D ₂ sulfate, sodium salt (6,19,19-D ₃ , 97%) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10612-C	25-Hydroxyvitamin D ₂ sulfate, sodium salt (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
CLM-10266-C	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (23,24,25,26,27- ¹³ C ₅ , 99%) CP 96%	100 µg/mL in ethanol	1 mL
DLM-9111-C	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 98%)	100 µg/mL in ethanol	1 mL
DLM-9111-B	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 98%)	50 µg/mL in ethanol	1 mL
DLM-9111	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 98%)	neat	1 mg
DLM-10912	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (26,26,26,27,27,27-D ₆ , 96%) CP 95%	neat	Please inquire
ULM-9112-C	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9112-B	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9112	3- <i>epi</i> -25-Hydroxyvitamin D ₃ (unlabeled)	neat	1 mg
CLM-10025-C	25-Hydroxyvitamin D ₃ (23,24,25,26,27- ¹³ C ₅ , 99%) CP 95%	100 µg/mL in ethanol	1 mL
CLM-10025	25-Hydroxyvitamin D ₃ (23,24,25,26,27- ¹³ C ₅ , 99%) CP 95%	neat	1 mg
DLM-9116-C	25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 97%)	100 µg/mL in ethanol	1 mL
DLM-9116-B	25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 97%)	50 µg/mL in ethanol	1 mL
DLM-9116-A	25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 97%)	5 µg/mL in ethanol	1 mL
DLM-9116	25-Hydroxyvitamin D ₃ (6,19,19-D ₃ , 97%)	neat	1 mg, 5 mg
DLM-11423	25-Hydroxyvitamin D ₃ (26,26,26,27,27,27-D ₆ , 98%) CP 95%	neat	Please inquire
ULM-9117-C	25-Hydroxyvitamin D ₃ (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9117-B	25-Hydroxyvitamin D ₃ (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9117-A	25-Hydroxyvitamin D ₃ (unlabeled)	5 µg/mL in ethanol	1 mL
ULM-9117	25-Hydroxyvitamin D ₃ (unlabeled)	neat	5 mg
DLM-7708-C	25-Hydroxyvitamin D ₃ -H ₂ O (26,26,26,27,27,27-D ₆ , 98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-7708-B	25-Hydroxyvitamin D ₃ -H ₂ O (26,26,26,27,27,27-D ₆ , 98%) CP 97%	50 µg/mL in ethanol	1 mL
DLM-7708	25-Hydroxyvitamin D ₃ -H ₂ O (26,26,26,27,27,27-D ₆ , 98%) CP 97%	neat	1 mg
DLM-10782-C	25-Hydroxyvitamin D ₃ sulfate, sodium salt (6,19,19-D ₃ , 97%) CP 97%	100 µg/mL in ethanol	Please inquire
ULM-10781-C	25-Hydroxyvitamin D ₃ sulfate, sodium salt (unlabeled) CP 97%	100 µg/mL in ethanol	Please inquire
CLM-331	Vitamin A (retinoic acid) (10- ¹³ C, 99%)	neat	Please inquire
CLM-328	Vitamin A (retinoic acid) (11- ¹³ C, 98%)	neat	Please inquire
CLM-329	Vitamin A (retinoic acid) (14- ¹³ C, 99%)	neat	Please inquire
CLM-330	Vitamin A (retinoic acid) (15- ¹³ C, 99%)	neat	Please inquire
CLM-4343	Vitamin A (retinoic acid) (10,11,14,15- ¹³ C ₄ , 99%)	neat	Please inquire
DLM-7720	Vitamin A (retinoic acid) (19,19,19,20,20,20-D ₆ , 96%)	neat	1 mg
CLM-10259	Vitamin A (retinol) (12,13,14,20- ¹³ C ₄ , 99%) CP 95% (50 ppm BHT)	neat	Please inquire
DLM-9305	Vitamin A (retinol) (10,19,19,19-D ₄ , 96%) CP 95% (50 ppm BHT)	neat	1 mg, 5 mg
DLM-8113	Vitamin A (retinol) (19,19,19,20,20,20-D ₆ , 96%) CP 95% (50 ppm BHT)	neat	1 mg, 5 mg, 10 mg
DLM-9306	Vitamin A (retinol) (10,14,19,19,19,20,20,20-D ₈ , 90%) CP 95% (50 ppm BHT)	neat	Please inquire
CLM-8870	Vitamin A (retinol) acetate (12,13,14,20- ¹³ C ₄ , 99%)	neat	Please inquire
CLM-4831	Vitamin A (retinol) acetate (8,9,10,12,13,14,19,20- ¹³ C ₈ , 99%)	neat	Please inquire
CLM-7277	Vitamin A (retinol) acetate (8,9,10,11,12,13,14,15,19,20- ¹³ C ₁₀ , 99%)	neat	Please inquire
DLM-2244	Vitamin A (retinol) acetate (10,19,19,19-D ₄ , 96%) 3-4% <i>cis</i>	neat	Please inquire
DLM-3828	Vitamin A (retinol) acetate (19,19,19,20,20,20-D ₆ , 96%) 3-4% <i>cis</i>	neat	Please inquire
DLM-4203	Vitamin A (retinol) acetate (10,14,19,19,19,20,20,20-D ₈ , 90%) 3-4% <i>cis</i>	neat	Please inquire
CLM-320	Vitamin A (retinal) aldehyde (10- ¹³ C, 99%)	neat	Please inquire
CLM-325	Vitamin A (retinal) aldehyde (11- ¹³ C, 99%)	neat	Please inquire
CLM-326	Vitamin A (retinal) aldehyde (14- ¹³ C, 99%)	neat	Please inquire
CLM-327	Vitamin A (retinal) aldehyde (15- ¹³ C, 98%)	neat	Please inquire
CLM-10772	Vitamin A (retinal) aldehyde (12,13,14,20- ¹³ C ₄ , 96%)	neat	Please inquire
DLM-7719	Vitamin A (retinal) aldehyde (19,19,19,20,20,20-D ₆ , 96%)	neat	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Concentration	Unit Size
CLM-9395	Vitamin A (retinal) palmitate (12,13,20- ¹³ C ₃ , 98%) all <i>trans</i> , <4% <i>cis</i> (50 ppm BHT)	neat	Please inquire
CLM-10838	Vitamin A (retinal) palmitate (8,9,10,11,12,13,14,15,19,20- ¹³ C ₁₀ , 99%) all <i>trans</i> , <4% <i>cis</i> (50 ppm BHT)	neat	Please inquire
DLM-4902	Vitamin A (retinal) palmitate (10,19,19,19-D ₄ , 96%) all <i>trans</i> , <4% <i>cis</i> (50 ppm BHT)	neat	1 mg, 5 mg
DLM-9309	Vitamin A (retinal) palmitate (19,19,19,20,20,20-D ₆ , 97%) all <i>trans</i> , <4% <i>cis</i> (50 ppm BHT)	neat	Please inquire
DLM-8985-D	Vitamin D ₂ (ergocalciferol) (6,19,19-D ₃ , 97%)	1000 µg/mL in ethanol	1 mL
DLM-8985-C	Vitamin D ₂ (ergocalciferol) (6,19,19-D ₃ , 97%)	100 µg/mL in ethanol	1 mL
DLM-8985	Vitamin D ₂ (ergocalciferol) (6,19,19-D ₃ , 97%)	neat	1 mg
DLM-11830	Vitamin D ₂ (ergocalciferol) (26,26,26,27,27-D ₆ , 98%) CP 95%	neat	1 mg
ULM-9124-D	Vitamin D ₂ (ergocalciferol) (unlabeled)	1000 µg/mL in ethanol	1 mL
ULM-9124-C	Vitamin D ₂ (ergocalciferol) (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9124	Vitamin D ₂ (ergocalciferol) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10478-C	Vitamin D ₂ (ergocalciferol) sulfate, sodium salt (6,19,19-D ₃ , 98%) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10477-C	Vitamin D ₂ (ergocalciferol) sulfate, sodium salt (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
CLM-7850	Vitamin D ₃ (cholecalciferol) (23,24- ¹³ C ₂ , 99%) CP 90%	neat	Please inquire
CLM-10469-C	Vitamin D ₃ (cholecalciferol) (25,26,26- ¹³ C ₃ , 98%) CP 97%	100 µg/mL in ethanol	1 mL
CLM-10470-D	Vitamin D ₃ (cholecalciferol) (23,24,25,26,26- ¹³ C ₅ , 98%) CP 97%	1000 µg/mL in ethanol	1 mL
CLM-10470-C	Vitamin D ₃ (cholecalciferol) (23,24,25,26,26- ¹³ C ₅ , 98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-8853-D	Vitamin D ₃ (cholecalciferol) (6,19,19-D ₃ , 97%) CP 97%	1000 µg/mL in ethanol	1 mL
DLM-8853-C	Vitamin D ₃ (cholecalciferol) (6,19,19-D ₃ , 97%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-10749-D	Vitamin D ₃ (cholecalciferol) (26,26,26,27,27-D ₆ , 98%) CP 95%	1 mg/mL in ethanol	1 mL
DLM-10749-C	Vitamin D ₃ (cholecalciferol) (26,26,26,27,27-D ₆ , 98%) CP 95%	100 µg/mL in ethanol	1 mL
ULM-9125-D	Vitamin D ₃ (cholecalciferol) (unlabeled)	1000 µg/mL in ethanol	1 mL
ULM-9125-C	Vitamin D ₃ (cholecalciferol) (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9125	Vitamin D ₃ (cholecalciferol) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10475-C	Vitamin D ₃ (cholecalciferol) sulfate, sodium salt (6,19,19-D ₃ , 98%) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10474-C	Vitamin D ₃ (cholecalciferol) sulfate, sodium salt (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
CLM-10274	Vitamin E (DL-α-tocopherol) (trimethylphenyl- ¹³ C ₃ , 99%) CP 96%	neat	1 mg
CLM-10273	Vitamin E (α-tocopherol) (trimethylphenyl- ¹³ C ₃ , 99%) CP 96%	neat	1 mg
CLM-10275	Vitamin E (α-tocopherol) (phenyl- ¹³ C ₆ , 99%) CP 96%	neat	1 mg
CLM-10276	Vitamin E (α-tocopherol) (trimethylphenyl- ¹³ C ₉ , 99%) CP 96%	neat	1 mg
DLM-9126	Vitamin E (α-tocopherol) (5-methyl-D ₃ , 7-methyl-D ₃ , 98%)	neat	2 mg, 5 mg, 10 mg
CDLM-11053-1.2	Vitamin E (α-tocopherol) (dimethyl- ¹³ C ₂ , 99%; dimethyl-D ₆ , 98%)	100 µg/mL in methanol	1.2 mL
ULM-9127-1.2	Vitamin E (α-tocopherol) (unlabeled)	100 µg/mL in methanol	1.2 mL
ULM-9127	Vitamin E (α-tocopherol) (unlabeled) CP 96%	neat	1 mg, 5 mg, 10 mg
DLM-8847	Vitamin E (α-tocopherol) acetate (acetyl-D ₃ , 98%)	neat	Please inquire
DLM-11564	Vitamin E (α-tocopherol) acetate (phenyl-5,7-dimethyl-D ₆ , 98%)	neat	1 mg
CDLM-11054-1.2	Vitamin E (α-tocopherol) acetate (dimethyl- ¹³ C ₂ , acetyl- ¹³ C ₂ , 99%; dimethyl-D ₆ , 98%)	100 µg/mL in methanol	1.2 mL
ULM-11055-1.2	Vitamin E (α-tocopherol) acetate (unlabeled)	100 µg/mL in methanol	1.2 mL
DLM-11047	Vitamin E (α-tocopherol) succinate (5-methyl-D ₃ , 7-methyl-D ₃ , 98%) CP 95%	neat	1 mg, 2 mg, 10 mg
CLM-9566	Vitamin K ₁ (phyloquinone) (4α,5,6,7,8,8α- ¹³ C ₆ , 99%)	neat	1 mg
DLM-7702	Vitamin K ₁ (phyloquinone) (ring-D ₄ , 98%)	neat	1 mg
DLM-9130	Vitamin K ₁ (phyloquinone) (D ₇ , 99%) CP 97%	neat	1 mg, 5 mg, 10 mg
ULM-9131	Vitamin K ₁ (phyloquinone) (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg
CLM-10376	Vitamin K ₂ (menaquinone MK-4) (4',5,6,7,8,8'- ¹³ C ₆ , 99%) CP 95%	neat	1 mg
DLM-10379	Vitamin K ₂ (menaquinone MK-4) (5,6,7,8-D ₄ , 2-methyl-D ₃ , 98%) CP 95%	neat	1 mg
DLM-10382	Vitamin K ₂ (menaquinone MK-4) 2,3-epoxide (5,6,7,8-D ₄ , 2-methyl-D ₃ , 98%) CP 95%	neat	1 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Vitamins and Their Metabolites *(continued)*

Catalog No.	Description	Concentration	Unit Size
ULM-10383	Vitamin K ₂ (menaquinone MK-4) 2,3-epoxide (unlabeled) CP 95%	neat	1 mg
CLM-10377	Vitamin K ₂ (menaquinone MK-7) (4',5,6,7,8,8'- ¹³ C ₆ , 99%) CP 95%	neat	1 mg
DLM-10380	Vitamin K ₂ (menaquinone MK-7) (5,6,7,8-D ₄ , 2-methyl-D ₃ , 98%) CP 95%	neat	1 mg
CLM-10378	Vitamin K ₂ (menaquinone MK-9) (4',5,6,7,8,8'- ¹³ C ₆ , 99%) CP 95%	neat	1 mg
DLM-10381	Vitamin K ₂ (menaquinone MK-9) (5,6,7,8-D ₄ , 2-methyl-D ₃ , 98%) CP 95%	neat	1 mg
DLM-9132	Vitamin K ₃ (menadione) (D ₈ , 98%) CP 97%	neat	10 mg, 50 mg
ULM-9133	Vitamin K ₃ (menadione) (unlabeled) CP 97%	neat	5 mg, 10 mg

For a complete product listing, please visit isotope.com.

Urea

To complement the growing area of urea-based research in the preclinical and clinical fields (e.g., as biomarker of respiratory and renal diseases), CIL offers a variety of stable isotope-labeled urea compounds. These are available in various labeling patterns and in different material grades (i.e., research, MPT, cGMP). In one example application, a ^{13}C urea breath test can be used to accurately and noninvasively diagnose *H. pylori* infections, such as peptic ulcer disease and gastric cancer. This test involves the oral ingestion of cGMP-grade ^{13}C urea, with measurement of the $^{13}\text{CO}_2$ to $^{12}\text{CO}_2$ area ratios in the expired breath facilitating diagnosis.

Catalog No.	Description	Unit Size
CLM-311	Urea (^{13}C , 99%)	1 g
DLM-1269	Urea (D_4 , 98%)	25 g
NLM-233	Urea ($^{15}\text{N}_2$, 98%)	1 g, 5 g
NLM-233-10	Urea ($^{15}\text{N}_2$, 10%)	25 g
NLM-233-5	Urea ($^{15}\text{N}_2$, 5%)	Please inquire
OLM-655	Urea (^{18}O , 95%)	Please inquire
CNLM-234	Urea (^{13}C , 99%; $^{15}\text{N}_2$, 98%)	0.5 g
COLM-4861	Urea (^{13}C , 99%; ^{18}O , 98%)	0.5 g
CNOLM-8871	Urea (^{13}C , 99%; $^{15}\text{N}_2$, 99%; ^{18}O , 99%)	Please inquire

For a complete product listing, please visit isotope.com.

Water

CIL offers a variety of singly and doubly labeled water compounds for use in MS- and NMR-based studies (see list below). These could be applied, for example, in energy-expenditure research or in virtual biopsy methods.

Catalog No.	Description	Unit Size
DLM-4	Deuterium oxide (D , 99.9%)	10 g, 25 g, 50 g, 100 g, 1000 g
DLM-4-99.8	Deuterium oxide (D , 99.8%)	1000 g
DLM-2259	Deuterium oxide (D , 99.8%) microbiologically tested	100 mL, 250 mL, 1 L
DLM-4-99	Deuterium oxide (D , 99%)	1000 g, 5000 g
DLM-4-70	Deuterium oxide (D , 70%)	1000 g
DLM-2259-70	Deuterium oxide (D , 70%) microbiologically tested	Please inquire
OLM-782-90	Water (^{17}O , 90%)	1 g
OLM-782-70	Water (^{17}O , 70%)	Please inquire
OLM-782-40	Water (^{17}O , 35%)	1 g
OLM-782-20	Water (^{17}O , 20%)	1 g
OLM-782-10	Water (^{17}O , 10%)	1 g
OLM-240-97	Water (^{18}O , 97%)	1 g
OLM-240-10	Water (^{18}O , 10%)	1 g, 5 g, 10 g

For a complete product listing, please visit isotope.com.

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

cGMP (current good manufacturing practice) and MPT (microbiological and pyrogen tested) may be available; please inquire.

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Additional Information

Research Use of Products

CIL manufactures highly pure research biochemicals that are produced for research applications. As a service to our customers, some of these materials have been tested for the presence of *S. aureus*, *P. aeruginosa*, *E. coli*, *Salmonella sp.*, aerobic bacteria, yeast, and mold, as well as the presence of endotoxin in the bulk material by taking a random sample of the bulk product. Subsequent aliquots are not retested. Presence of endotoxin is assessed by determining endotoxin content following established protocols and standardized limulus amoebocyte lysate (LAL) reagents. Any materials listed in our catalog or website that are designated as “MPT” in the item product number (e.g., DLM-349-MPT) contain these tests as part of release specifications.

If a product does not have an “MPT” designation, CIL may be able to provide microbiological testing on the product. Depending on the compound and the quantity ordered, an additional fee may apply for the testing. Please note that microbiological-tested products are not guaranteed to be sterile and pyrogen-free when received by the customer, and microbiological testing does not imply suitability for any desired use. If the product must be sterile and pyrogen-free for a desired application, CIL recommends that the product be packaged or formulated into its ultimate dose form by the customer or appropriate local facility. The product should always be tested by a qualified pharmacy/facility prior to actual use.

CIL research products are labeled “For research use only. Not for use in diagnostic procedures.” Persons intending to use CIL products in applications involving humans are responsible for complying with all applicable laws and regulations including but not limited to the US FDA, other local regulatory authorities and institutional review boards concerning their specific application or desired use.

It may be necessary to obtain approval for using these research products in humans from the US FDA or the comparable governmental agency in the country of use. CIL will provide supporting information, such as lot-specific analytical data and test method protocols, to assist medical research groups in obtaining approval for the desired use. An Enhanced Data Package (EDP) is also available (see next page for an overview of the technical package contents).

CIL will allocate a specific lot of a product to customers who are starting long-term projects requiring large amounts of material. Benefits from this type of arrangement include experimental consistency arising from use of only one lot, no delay in shipments, and guaranteed stock. Please note that some CIL products have a specific shelf life and cannot be held indefinitely. If interested, please contact your sales manager for further details.

Because of increasing regulatory requirements, CIL manufactures different grades of materials to help researchers with those requirements. Listed below are the grades of materials that CIL currently manufactures:

Catalog No.	Description
CLM-XXX-PK	Research grade
CLM-XXX-MPT-PK	Microbiological and Pyrogen Tested
CLM-XXX-CTM	Manufactured following ICH Q7, Section XIX
CLM-XXX-GMP	Good Manufacturing Practices grade

➤ **For more information on controls in manufacturing and testing of the different grades, go to: [Search](#) → [Literature](#) → [Product Quality Designations from the isotope.com home page](#).**



Image is for illustrative purposes only and may not be representative of actual product(s).

Enhanced Data Package (EDP)

CIL offers the option of an Enhanced Data Package (EDP). This technical data package is available for most MPT products. It includes all of the data currently included with the MPT products, as well as the additional information listed below. You have the option of purchasing this package at the time of order or at a later date.

Please note that if you choose to purchase at a later date, some of the information listed below may not be available. Also, the EDP may not be available for all lots. In some cases, only a partial EDP may be available. Please confirm availability and content prior to order.

EDP Contents

- Product description: structural formula, stereochemical description, molecular formula.
- Product physical properties: melting point, pH, optical rotation (mix of literature or measured values).
- Outline of the synthesis route (including details of solvents used).
- Data used to confirm structure and chemical purity.
- Impurities: available data on impurities detected and identified together with the method of detection and the cutoff applied.
- Residual solvents: measured residual solvents from the final synthetic step and purification.
- Certificates of Analysis of raw materials, where appropriate.
- Informal stability data: estimated and measured.
 - This will be either actual shelf-life data, if it can be obtained from CIL history or by analysis of in-stock batches, or
 - If no data is available, CIL will commit to assaying the batch provided after six months and one year. Data will be provided after one year, unless the batch fails assay after six months. This option will not be available if the Enhanced Data Package is ordered at a later date.

cGMP Production Capabilities

With increasing requirements from institutional review boards (IRBs) and governmental agencies, partnering with CIL for your next stable isotope cGMP (current good manufacturing practices) project can help ensure your regulatory compliance. With the world's largest ^{13}C and ^{18}O isotope-separation plants, CIL is able to provide the raw materials necessary for your project. Your compound of interest most likely already appears in CIL's extensive list of research compounds – if not, CIL's team of PhD chemists can determine the best method of synthesis for incorporating ^{13}C , ^{15}N , D, ^{17}O , and/or ^{18}O into your compound.

CIL has manufactured bulk active pharmaceutical ingredients (APIs) since 1994. It recently added a 15,000-square-foot, state-of-the-art cGMP facility to complement its existing cGMP facilities. An additional team of experts – specializing in synthetic chemistry, customer support, quality control, and quality assurance – serves to provide technical guidance from beginning to end of your project. Partner with CIL to help you meet your increasing regulatory compliance requirements.

Products of Interest

Catalog No.	Description
CLM-804-CTM	Cholesterol ($3,4\text{-}^{13}\text{C}_2$)
DLM-349-CTM	D-Glucose ($6,6\text{-D}_2$)
CLM-2262-CTM	L-Leucine ($^{13}\text{C}_6$)
DLM-1259-CTM	L-Leucine ($5,5,5\text{-D}_3$)
CLM-762-CTM	L-Phenylalanine ($1\text{-}^{13}\text{C}$)
CLM-8077-CTM	Pyruvic acid ($1\text{-}^{13}\text{C}$)
CLM-156-CTM	Sodium acetate ($1\text{-}^{13}\text{C}$)
CLM-440-CTM	Sodium acetate ($1,2\text{-}^{13}\text{C}_2$)
CLM-311-GMP	Urea (^{13}C)

Other products may be available as CTM/cGMP. Please inquire for details.

Manufacturing Capabilities

- Dedicated development facility
- Five production and two isolation suites
- Dedicated packaging room
- Production scale from milligrams to multikilograms
- Clinical trials to bulk API
- Customizable projects to meet your needs

Analytical Services

- Fully equipped, cGMP-dedicated analytical facility
- Method development and validation
- Raw material and final product testing
- Wet chemistry and compendial methods
- Stability studies and chambers
- Analytical instrumentation:
 - High-field NMR (^1H , D, ^{13}C , ^{15}N , multinuclear)
 - HPLC with UV, RI, ELSD, DA, Pickering, and MS detection
 - GC with FID, ECD, and MS detection
 - KF
 - FT-IR
 - Polarimetry
 - TOC

Quality and Compliance

- Drug master files
- FDA-audited facility
- QA release of API product
- Follows FDA and ICH guidances
- CMC sections for NDA or IND

CTM: manufactured following ICH Q7, Section XIX
GMP: good manufacturing practices grade



Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.
For research use only. Not for use in diagnostic procedures.

Application Note Examples



Application Note 51

From QC to Quantitation: Utility of QReSS™ Metabolites in FBS Measurements

An area of metabolomics garnering great interest, particularly in discovery efforts, is the profiling and quantitation of cell cultures. In this *in vitro* application, fetal bovine serum (FBS) is commonly used as a supplemental growth medium. Here, the QReSS™ standard mixes were used in the QC of metabolites from variably sourced FBS samples. The QReSS standards are beneficial for QC assessments because they comprise a chemically diverse set of 18 stable isotope-labeled metabolites that span a broad molecular weight range, possess varied ionization propensities, and cover a distribution in class and retention time. [Click here to read more.](#)



Application Note 49

Standardizing Quantitative Metabolomics Analyses Through the QReSS™ Kit

One of the incessant challenges in mass spectrometry (MS)-based “omics” is the qualification of methods and instrument platforms. Required are materials that can be used to routinely test platform performance over time and to test assay effectiveness throughout all phases of a work list.^{1,2} Such evaluations are necessary as it provides an indicator to the effectiveness of an analytical method and platform. Errors or deficiencies observed in the performance would then cue corrective action. This could help save precious samples and experimental resources, while also extend column lifetimes. [Click here to read more.](#)



Application Note 43

Analysis of Whole-Body Branched-Chain Amino Acid Metabolism in Mice Utilizing 20% Leucine ¹³C₆ and 20% Valine ¹³C₅ Mouse Feed

Cancer cells have altered metabolism relative to normal cells. To date, most cancer metabolism research has focused on understanding the mechanisms of cell autonomous metabolic alterations such as the influence of different oncogenic signals on nutrient utilization and the effects of altered regulation of specific enzymes on metabolic fluxes through different pathways (Cairns RA et al. 2011). While these studies have provided insight into metabolic needs of proliferating cancer cells (Vander Heiden MG et al. 2009), they do not address potential interactions between tumor and normal tissues. [Click here to read more.](#)



Application Note 31

Tracing Lipid Disposition *in vivo* Using Stable Isotope-Labeled Fatty Acids and Mass Spectrometry

Lipids are ubiquitous molecules which serve a variety of important biological functions, including energy storage (triglycerides), modulation of cellular membrane structure and function (phospholipids and cholesterol), intracellular signaling, and hormonal regulation. Dysfunctions of lipid metabolism contribute to a variety of diseases including, among others, atherosclerosis, hypertriglyceridemia, and type 2 diabetes. As such, understanding the synthesis, regulation, and transport of lipids in the body is important to developing new and improved therapies for these diseases. Stable isotopes have been used to study several aspects of lipid metabolism including the synthesis and disposition of cholesterol,^{1,2} phospholipids,³ and VLDL triglycerides.⁴ In this application note, we highlight some of the advantages and experimental considerations for using stable isotope-labeled fatty acids as substrates to study lipid metabolism *in vivo* in mice. [Click here to read more.](#)

Please visit isotope.com for a list of additional compounds.



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CIL provides additional testing on many products as a service to our customers. CIL also has cGMP capabilities and can manufacture products to meet your increasing regulatory compliance requirements. Please contact us to learn more.

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