



# Isotopic $^{18}\text{O}$ Labeling

## For Omics and Metabolism



Isotope exchange reaction with  $\text{H}_2^{18}\text{O}$  (at 97% isotopic enrichment) is among the chemical-tagging tools available to a scientist for structural insights and qualitative/quantitative analytics. Isotopic  $^{18}\text{O}$  labeling provides a stable and universal tag (e.g., on carboxyl and carbonyl functional groups) that is resistant to back-exchange and can be readily distinguished from natural abundance oxygen in MS-based measurements.

**Cambridge Isotope Laboratories, Inc. (CIL) is pleased to offer isotope-enriched  $\text{H}_2^{18}\text{O}$  for such applications as quantitative analysis in omics mixtures and flux tracer studies in metabolism.**

### Features and Benefits

- Reliable and accurate isotopic  $^{18}\text{O}$  labeling
- Absent of product side reactions
- Doesn't require initial modification of targets
- Applicable to simple and complex biological matrices
- Aids compound identification and quantitation
- Facilitates structural characterizations
- Tracks metabolic pathways and biosynthesis reactions

Catalog No.	Description	Unit Size
OLM-240	Water ( $^{18}\text{O}$ , 97%)	1 g, 10 g

### Example References

Osipenko, S.; Bashilov, A.; Vishnevskaya, A.; et al. **2023**. Investigating the metabolism of plants germinated in heavy water,  $\text{D}_2\text{O}$ , and  $\text{H}_2^{18}\text{O}$ -enriched media using high-resolution mass spectrometry. *Int J Mol Sci*, 24(20), 15396-15411.

Langenohl, F.; Rösle, J.; Zühlke, S.; et al. **2023**. A silicon-stereogenic silanol –  $^{18}\text{O}$ -isotope labeling and stereogenic probe reveals hidden stereospecific water exchange reaction. *Chemistry*, 29(1), e202202935-e202202940.

Kostyukevich, Y.; Sosnin, S.; Osipenko, S.; et al. **2022**. PyFragMS – A web tool for the investigation of the collision-induced fragmentation pathways. *ACS Omega*, 7(11), 9710-9719.

Rumiantseva, L.; Osipenko, S.; Podolskiy, I.I.; et al. **2022**. Increasing the reliability of compound identification in biological samples using  $^{16}\text{O}/^{18}\text{O}$ -exchange mass spectrometry. *Anal Bioanal Chem*, 414(8), 2537-2543.

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

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

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