

# PRODUCT INFORMATION

## Palmitic Acid-<sup>13</sup>C (C2 labeled)

Item No. 28916

**CAS Registry No.:** 287100-87-2  
**Formal Name:** hexadecanoic-2-<sup>13</sup>C acid  
**Synonyms:** C16:0-<sup>13</sup>C, Cetylic Acid-<sup>13</sup>C (C2 labeled), FA 16:0-<sup>13</sup>C, Hexadecanoic Acid-<sup>13</sup>C  
**MF:** C<sub>15</sub>[<sup>13</sup>C]H<sub>32</sub>O<sub>2</sub>  
**FW:** 257.4  
**Purity:** ≥95%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Palmitic acid-<sup>13</sup>C (C2 labeled) is supplied as a crystalline solid. A stock solution may be made by dissolving the palmitic acid-<sup>13</sup>C (C2 labeled) in the solvent of choice, which should be purged with an inert gas. Palmitic acid-<sup>13</sup>C (C2 labeled) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of palmitic acid-<sup>13</sup>C (C2 labeled) in ethanol is approximately 30 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Palmitic acid-<sup>13</sup>C (C2 labeled) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, palmitic acid-<sup>13</sup>C (C2 labeled) should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Palmitic acid-<sup>13</sup>C (C2 labeled) has a solubility of approximately 0.25 mg/ml in a 1:10 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Palmitic acid-<sup>13</sup>C is intended for use as an internal standard for the quantification of palmitic acid (Item No. 10006627) by GC- or LC-MS. Palmitic acid is a common 16-carbon saturated fat that represents 10-20% of human dietary fat intake and comprises approximately 25 and 65% of human total plasma lipids and saturated fatty acids, respectively.<sup>1,2</sup> Acylation of palmitic acid to proteins facilitates anchoring of membrane-bound proteins to the lipid bilayer and trafficking of intracellular proteins, promotes protein-vesicle interactions, and regulates various G protein-coupled receptor functions.<sup>1</sup> Red blood cell palmitic acid levels are increased in patients with metabolic syndrome compared to patients without metabolic syndrome and are also increased in the plasma of patients with type 2 diabetes compared to individuals without diabetes.<sup>3,4</sup>

### References

1. Fatima, S., Hu, X., Gong, R.-H., *et al.* Palmitic acid is an intracellular signaling molecule involved in disease development. *Cell Mol. Life Sci.* **76(13)**, 2547-2557 (2019).
2. Santos, M.J., López-Jurado, M., Llopis, J., *et al.* Influence of dietary supplementation with fish oil on plasma fatty acid composition in coronary heart disease patients. *Ann. Nutr. Metab.* **39(1)**, 52-62 (1995).
3. Yi, L.-Z., He, J., Liang, Y.-Z., *et al.* Plasma fatty acid metabolic profiling and biomarkers of type 2 diabetes mellitus based on GC/MS and PLS-LDA. *FEBS J.* **580(30)**, 6837-6845 (2006).
4. Kabagambe, E.K., Tsai, M.Y., Hopkins, P.N., *et al.* Erythrocyte fatty acid composition and the metabolic syndrome: A national heart, lung, and blood institute GOLDN study. *Clin. Chem.* **54(1)**, 154-162 (2008).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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