

## Product Data Sheet

Product Name: CEP-Lysine-d4

Cat. No.: GC47072

### Chemical Properties

Cas. No. N/A

SMILES OC(C([2H])([2H])C([2H])([2H])C1=CC=CN1CCCC[C@H](N)C(O)=O)=O

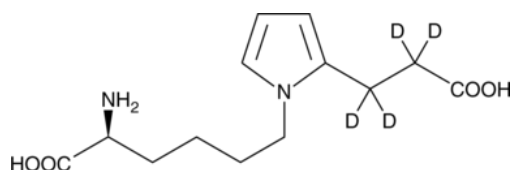
Formula C<sub>13</sub>H<sub>16</sub>D<sub>4</sub>N<sub>2</sub>O<sub>4</sub> M.Wt 272.3

Solubility DMF: 20 mg/ml, DMSO: 20 mg/ml, PBS (pH 7.2): 10 mg/ml  
Storage Store at -20°C

General For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the tips ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Evaluation sample solution: ship with blue ice All other available size: ship with RT, or Condition blue ice upon request.

Structure



### Background

CEP-Lysine-d<sub>4</sub> contains four deuterium atoms at the carboxyethyl 2,3',3,3' positions. It is intended for use as an internal standard for the quantification of CEP-lysine by GC- or LC-mass spectrometry (MS). Docosa-hexaenoic acid (DHA) is an ω-3 polyunsaturated fatty acid that is abundant in the brain and in photoreceptor cell membranes in the retina. Oxidative cleavage of phospholipids containing DHA produces reactive electrophilic phospholipid fragments, including 4-hydroxy-7-oxohept-5-enoates.<sup>1</sup> These can interact with the primary amine group of lysyl residues to produce 2- (ω-carboxyethyl)pyrrole (CEP) derivatives, which are abundant in certain diseases.<sup>2,3</sup> Advanced glycation end products, including CEP-lysine are biomarkers for age-related macular degeneration.<sup>4,5</sup> CEP-lysine-d<sub>4</sub> is a deuterated form of CEP-lysine.

1. Lu, L., Gu, X., Hong, L., et al. Synthesis and structural characterization of carboxyethylpyrrole-modified proteins: Mediators of age-related macular degeneration *Bioorganic & Medicinal*

**Caution: Product has not been fully validated for medical applications. For research use only.**

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Chemistry 177548-7561 (2009) 2. Gu, X., Sun, M., Gugiu, B., et al. Oxidatively truncated docosa-hexaenoate phospholipids: Total synthesis, generation, and peptide adduction chemistry The Journal of Organic Chemistry 68 3749-3761 (2003) 3. Crabb, J.W., Miyagi, M., Gu, X., et al. Drusen proteome analysis: An approach to the etiology of age-related macular degeneration Proceedings of the National Academy of Sciences of the United States of America 99(23) 14682-14687 (2002) 4. Gu, J., Pauer, G.J.T., Yue, X., et al. Assessing susceptibility to age-related macular degeneration with proteomic and genomic biomarkers Mol. Cell. Proteomics 8 1338-1349 (2009) 5. Ni, J., Yuan, X., Gu, J., et al. Plasma protein pentosidine and carboxymethyllysine, biomarkers for age-related macular degeneration Mol. Cell. Proteomics 8 1921-1933 (2009)

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