

# PRODUCT INFORMATION



## <sup>13</sup>C<sub>28</sub>-Bongkreic Acid Item No. 39454

**Formal Name:** (2E,4Z,6R,8Z,10E,14E,17S,18E,20Z)-20-((carboxy-<sup>13</sup>C)methyl-<sup>13</sup>C)-6-(methoxy-<sup>13</sup>C)-2,5,17-tri(methyl-<sup>13</sup>C)docosa-2,4,8,10,14,18,20-heptaenedioic-1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22-<sup>13</sup>C<sub>22</sub> acid

**Synonym:** <sup>13</sup>C<sub>28</sub>-Bongkreic Acid

**MF:** [<sup>13</sup>C]<sub>28</sub>H<sub>38</sub>O<sub>7</sub>

**FW:** 514.4

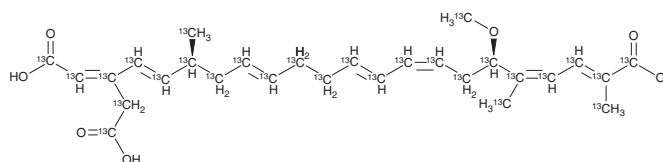
**Purity:** ≥98%

**Supplied as:** A 5 µg/ml solution in methanol

**Storage:** -20°C

**Stability:** ≥2 years

**Item Origin:** Synthetic



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

### Description

<sup>13</sup>C<sub>28</sub>-Bongkreic Acid is intended for use as an internal standard for the quantification of bongkreic acid (Item No. 38230) by GC- or LC-MS. Bongkreic acid is polyketide and bacterial toxin that has been found in *B. gladioli*.<sup>1,2</sup> It is an inhibitor of ADP/ATP translocase (AAT), a carrier protein that imports ADP into the mitochondrial matrix and exports ATP into the intermembrane space.<sup>1,3</sup> It prevents ADP import and inhibits mitochondrial respiration ( $K_i = 20$  nM in isolated rat liver mitochondria).<sup>4,5</sup> Bongkreic acid induces cell death in MCF-7 human breast cancer cells deprived of estradiol for six months ( $EC_{50} = 2.58$  µM).<sup>6</sup> It is toxic to mice ( $LD_{50s} = 0.68$ - $6.84$  mg/kg, p.o.).<sup>7</sup>

### References

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2. Xie, X., Khosla, C., and Cane, D.E. Elucidation of the stereospecificity of C-methyltransferases from *trans*-at polyketide synthases. *J. Am. Chem. Soc.* **139(17)**, 6102-6105 (2017).
3. Lauqin, G.J., Dulpaa, A.M., Klein, G., et al. Isobongkreic acid, a new inhibitor of mitochondrial ADP-ATP transport: Radioactive labeling and chemical and biological properties. *Biochemistry* **15(11)**, 2323-2327 (1976).
4. Kligenberg, M., Grebe, K., and Heldt, H.W. On the inhibition of the adenine nucleotide translocation by bongkreic acid. *Biochem. Biophys. Res. Commun.* **39(3)**, 344-351 (1970).
5. Ruprecht, J.J., King, M.S., Zögg, T., et al. The molecular mechanism of transport by the mitochondrial ADP/ATP carrier. *Cell* **176(3)**, 435-447 (2019).
6. Takeda, S., Okazaki, H., Kudo, T., et al. Bongkreic acid as a warburg effect modulator in long-term estradiol-deprived MCF-7 breast cancer cells. *Anticancer Res.* **36(10)**, 5171-5182 (2016).
7. Hu, W.J., Zhang, G.S., Chu, F.S., et al. Purification and partial characterization of flavotoxin A. *Appl. Environ. Microbiol.* **48(4)**, 690-693 (1984).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897

[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM