

PRODUCT INFORMATION



CAY10703

Item No. 18911

CAS Registry No.: 1841421-67-7
Formal Name: N,N',N''-(nitrilotris(ethane-2,1-diyl))tris(2,2-dichloroacetamide)

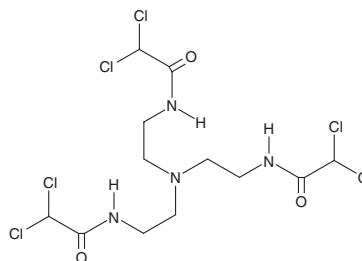
MF: C₁₂H₁₈Cl₆N₄O₃
FW: 479.0

Purity: ≥95%

Supplied as: A crystalline solid

Storage: -20°C

Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly



Laboratory Procedures

CAY10703 is supplied as a crystalline solid. A stock solution may be made by dissolving the CAY10703 in the solvent of choice. CAY10703 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of CAY10703 in these solvents is approximately 30 mg/ml.

CAY10703 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, CAY10703 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. CAY10703 has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Dichloroacetate (DCA) is an inhibitor of all pyruvate dehydrogenase kinase (PDHK) isoforms, which are enzymes that phosphorylate and inhibit PDH in mitochondria.^{1,2} Inhibition of PDHK shifts cell metabolism from glycolysis to mitochondrial glucose oxidation, an effect that has relevance to cancer, type 2 diabetes, and other diseases.^{2,3} CAY10703 is a DCA trimer that is at least 10-fold more cytotoxic against leukemia cell lines than DCA.⁴ It is approximately 3-fold less cytotoxic than DCA against peripheral blood mononuclear cells from healthy blood donors. CAY10703 significantly reduces both basal and maximal respiration in leukemia cells.⁴ It is stable *in vivo* after subcutaneous inoculation, remaining in circulation for more than five hours after injection.⁴

References

1. Whitehouse, S., Cooper, R.H., and Randle, P.J. Mechanism of activation of pyruvate dehydrogenase by dichloroacetate and other halogenated carboxylic acids. *Biochem. J.* **141(3)**, 761-774 (1974).
2. Rodrigues, A.S., Correia, M., Gomes, A., et al. Dichloroacetate, the pyruvate dehydrogenase complex and the modulation of mESC pluripotency. *PLoS One* **10(7)**, July 2015 (2015).
3. Ruggieri, V., Agriesti, F., Scrima, R., et al. Dichloroacetate, a selective mitochondria-targeting drug for oral squamous cell carcinoma: A metabolic perspective of treatment. *Oncotarget* **6(2)**, 1217-1230 (2015).
4. Trapella, C., Voltan, R., Melloni, E., et al. Design, synthesis, and biological characterization of novel mitochondria targeted dichloroacetate-loaded compounds with antileukemic activity. *J. Med. Chem.* **59(1)**, 147-156 (2016).

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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