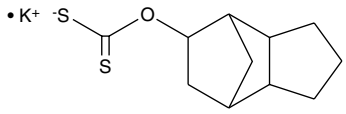
Product Information

D609 (potassium salt)

Item No. 13307

CAS Registry No.: 83373-60-8
Formal Name: O-(octahydro-4,7-methano-1H-inden-5-yl) ester, carbonodithioic acid, monopotassium salt
Synonym: Tricyclodecan-9-yl xanthogenate
MF: $C_{11}H_{15}OS_2 \bullet K$
FW: 266.5
Purity: ≥90%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 231, 304 nm



Laboratory Procedures

For long term storage, we suggest that D609 (potassium salt) be stored as supplied at -20°C. It should be stable for at least two years.

D609 (potassium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the D609 (potassium salt) in the solvent of choice. D609 (potassium salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of D609 (potassium salt) in these solvents is approximately 0.3, 20, and 30 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of D609 (potassium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of D609 (potassium salt) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Phosphatidylcholine-specific phospholipase C (PC-PLC) cleaves PC to generate diacylglycerol and phosphocholine. D609 is a xanthate that acts as a competitive inhibitor of PC-PLC (K_i = 6.4 µM).[1] It does not affect bacterial phosphatidylinositol-specific PLC, bovine pancreatic PLA_2, or phospholipase D.[2] D609 also reduces sphingomyelin synthase activity, both in membrane preparations (IC_{50} = 100 µg/ml) and in cells.[3] Like other xanthates, D609 has antioxidant, antiviral, and anti-tumor activities.[2] In addition, it has anti-inflammatory actions, blocking the induction of nitric oxide synthase by LPS in phagocytes (IC_{50} = 20 µg/ml) and the expression of vascular cell adhesion molecule 1 by IL-1β in endothelial cells.[4,5]

References

1. Amtmann, E. The antiviral, antitumoural xanthate D609 is a competitive inhibitor of phosphatidylcholine-specific phospholipase C. *Drugs Exp. Clin. Res.* **22(6)**, 287-294 (1996).
2. Adibhatla, R.M., Hatcher, J.F., and Gusain, A. Tricyclodecan-9-yl-xanthogenate (D609) mechanism of actions: A mini-review of literature. *Neurochem. Res.* **37(4)**, 671-679 (2012).
3. Luberto, C. and Hannun, Y.A. Sphingomyelin synthase, a potential regulator of intracellular levels of ceramide and diacylglycerol during SV40 transformation. Does sphingomyelin synthase account for the putative phosphatidylcholine-specific phospholipase C? *J. Biol. Chem.* **273(23)**, 14550-14559 (1998).
4. Tschaikowsky, K., Meisner, M., Schönhuber, F., *et al.* Induction of nitric oxide synthase activity in phagocytic cells inhibited by tricyclodecan-9-yl-xanthogenate (D609). *Br. J. Pharmacol.* **113(3)**, 664-668 (1994).
5. Cobb, R.R., Felts, K.A., Parry, G.C.N., *et al.* D609, a phosphatidylcholine-specific phospholipase C inhibitor, blocks interleukin-1β-induced vascular cell adhesion molecule 1 gene expression in human endothelial cells. *Mol. Pharmacol.* **49**, 998-1004 (1996).

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