Product Data Sheet

Product Name: Taurolidine
Cat. No.: GC11546

Chemical Properties

Cas. No.	19388-87-5		
Chemical Name	4,4'-methylenebis(tetrahydro-1,2H,4-thiadiazine) 1,1,1',1'-tetraoxide		
SMILES	O=S1(CCN(CN2CNS(CC2)(=O)=O)CN1)=O		
Formula	$C_7H_{16}N_4O_4S_2$	M.Wt	284.4
Solubility	≤10mg/ml in DMSO;10mg/ml in dimethyl formamide	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Taurolidine		

Background

IC50: 9.6-34.2 microM for several cancer cell lines

Taurolidine is a synthetic taurine analog with antimicrobial and anti-neoplastic actions.

Taurine, a conditionally-essential amino acid, is not utilized in protein synthesis, but is found free or in simple peptides. Taurine has been shown to be essential in mammalian development. In vitro studies have demonstrated that low levels of taurine are associated with various pathological lesions.

In vitro: Previous study found that in selected human and murine tumor cell lines, a 3-day exposure to taurolidine could inhibit the growth of all of the cell lines. Further mechanistic study showed that in NIH-3T3 murine fibroblasts and the PA-1 and SKOV-3 human ovarian tumor cells, a 48-h exposure to taurolidine had little effect on cell cycle distribution in PA-1 and SKOV-3 cells but greatly increased the appearance of DNA debris, an effect consistent with an induction of apoptosis. In contrast, in NIH-3T3 cells,

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taurolidine exposure did not increase DNA debris in the sub-G(0)/G(1) region [1].

In vivo: Animal study found that the i.v. administration of 2% taurolidine and 3% taurolidine as well the i.p. application of 2% taurolidine could decrease the development of advanced i.p. tumor lesions. No changes of differential blood count nor relevant animal weight changes resulted. Moreover, taurolidine did not impair the liver tissue, kidneys, SVC, and leucopoiesis. The intravenous therapy of 2% taurolidine was found to be safe and anti-tumorigenic in advanced local tumor growth in rats [2].

Clinical trial: So far, no clinical study has been conducted.

References:
[1] Calabresi, P. ,Goulette, F.A. and Darnowski, J.W. Taurolidine: Cytotoxic and mechanistic evaluation of a novel antineoplastic agent. Cancer Research 61(18), 6816-6821 (2001).
[2] Braumann C, Stuhldreier B, Bobrich E, Menenakos C, Rogalla S, Jacobi CA. High doses of taurolidine inhibit advanced intraperitoneal tumor growth in rats. J Surg Res. 2005 Nov;129(1):129-35.