Product Data Sheet

Product Name: Pironetin
Cat. No.: GC38456

Chemical Properties

Cas. No.	151519-02-7		
SMILES	O=C1C=C[C@H]([C@H](O1)C[C@H]([C@@H]([C@@H]([C@H](C/C=C/C)C)OC)C)O)CC		
Formula	$C_{19}H_{32}O_4$	M.Wt	324.45
Solubility	Dichloromethane: soluble,DMSO: soluble,Ethanol: soluble	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	Pironetin		

Background

Pironetin is a bacterial metabolite originally isolated from *Streptomyces* that has diverse biological activities, including anti-proliferative, immunosuppressive, and plant growth regulatory properties.[1,2,3,4] It binds to tubulin with a K_d value of 0.33 µM and increases the critical concentration (CrC) for tubulin assembly in glycerol-assembling buffer (GAB) at a concentration of 25 µM.[2,3] It also induces G_2/M phase cell cycle arrest in 3Y1 rat fibroblasts and apoptosis in HL-60 human leukemia cells when used at concentrations of 50 ng/ml and 33 nM, respectively.[2,5] It inhibits the growth of HT-29 human colorectal and MCF-7 human breast cancer cells (IC_{50}s = 6.4 and 6 nM, respectively) but also of non-cancerous human HEK293 cells (IC_{50} = 17 nM). It also inhibits the growth of A2780 human ovarian carcinoma cells, as well as of the drug-resistant, P-glycoprotein-expressing A2780AD subline (IC_{50}s = 8 and 25 nM, respectively). Pironetin (5 mg/kg) decreases the generation of cytotoxic T lymphocytes in mice in response to immunization by EL4 allogeneic mouse T lymphocytes.[4] It also inhibits rice plant growth

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by 23% when applied nine days prior to heading.[1]

1.Kobayashi, S., Tsuchiya, K., Harada, T., et al.Pironetin, a novel plant growth regulator produced by Streptomyces sp. NK10958. I. Taxonomy, production, isolation and preliminary characterizationJ. Antibiot. (Tokyo)47(6)697-702(1994) 2.Kondoh, M., Usui, T., Nishikiori, T., et al.Apoptosis induction via microtubule disassembly by an antitumour compound, pironetinBiochem. J.340(Pt 2)411-416(1999) 3.Vilanova, C., Díaz-Oltra, S., Murga, J., et al.Design and synthesis of pironetin analogue/colchicine hybrids and study of their cytotoxic activity and mechanisms of interaction with tubulinJ. Med. Chem.57(24)10391-10403(2014) 4.Yasui, K., Tamura, Y., Nakatani, T., et al.Chemical modification of PA-48153C, a novel immunosuppressant isolated from Streptomyces prunicolor PA-48153J. Antibiot. (Tokyo)49(2)173-180(1996) 5.Kondoh, M., Usui, T., Kobayashi, S., et al.Cell cycle arrest and antitumor activity of pironetin and its derivativesCancer Lett.126(1)29-32(1998)

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