Product Data Sheet

Product Name: Cyclovirobuxine D
Cat. No.: GC38419

Chemical Properties

Cas. No.	860-79-7		
SMILES	C[C@H](NC)[C@@]1([H])[C@H](O)C[C@@]2(C)[C@]3([H])CC[C@@]4([H])C(C)(C)[C@@H](NC)CC[C@]4(C5)[C@]35CC[C@@]21C		
Formula	$C_{26}H_{46}N_2O$	M.Wt	402.66
Solubility	Ethanol: 13 mg/mL (32.29 mM)	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	Cyclovirobuxine D		

Background

Cyclovirobuxine D (CVB-D) is an alkaloid, and the main active component of the traditional Chinese medicine *B. microphylla*, that has diverse biological activities.[1,2,3,4,5,6] It is an ether-a-go-go related gene (ERG) potassium channel blocker with an IC_{50} value of 19.7 μM using whole-cell patch-clamp electrophysiology in HEK293 cells expressing the human receptor.[1] I_{ERG} blockade is activation-dependent, indicating CVB-D binds to open ERG channels. CVB-D increases the amount and rate of calcium release from intracellular stores in healthy neonatal rat cardiac myocytes and those isolated from adult rats with heart failure in a concentration-dependent manner.[2] It also increases expression of ryanodine receptor 2 (Ryr2) and sarcoplasmic reticulum calcium ATPase 2a (Serca2a) and decreases expression of the sodium-calcium exchanger (Ncx). *In vivo*, CVB-D (0.5-2.0 mg/kg) reduces mortality and improves cardiac function in a rat model of congestive heart failure.[3] CVB-D pretreatment (1 mg/kg per day for 4 days) inhibits myocardial apoptosis and mitochondrial cytochrome C release induced by

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doxorubicin in mice.[4] CVB-D also induces cellular autophagy and inhibits growth of MCF-7 breast cancer cells and induces mitochondrial apoptosis in MGC803 and MKN26 gastric cancer cells.[5,6]

1.Zhao, J., Wang, Q., Xu, J., et al.Cyclovirobuxine D inhibits the currents of HERG potassium channels stably expressed in HEK293 cellsEur. J. Pharmacol.660(2-3)259-267(2011) 2.Yu, B., Ruan, M., Zhou, L., et al.Influence of cyclovirobuxine D on intracellular [Ca2+] regulation and the expression of the calcium cycling proteins in rat myocytesFitoterapia83(8)1653-1665(2012) 3.Yu, B., Fang, T.-H., Lü, G.-H., et al.Beneficial effect of cyclovirobuxine D on heart failure rats following myocardial infarctionFitoterapia82(6)868-877(2011) 4.Guo, Q., Guo, J., Yang, R., et al.Cyclovirobuxine D attenuates doxorubicin-induced cardiomyopathy by suppression of oxidative damage and mitochondrial biogenesis impairmentOxid. Med. Cell. Longev.2015(151972)(2015) 5.Lu, J., Sun, D., Gao, S., et al.Cyclovirobuxine D induces autophagy-associated cell death via the Akt/mTOR pathway in MCF-7 human breast cancer cellsJ. Pharmacol. Sci.125(1)74-82(2014) 6.Wu, J., Tan, Z., Chen, J., et al.Cyclovirobuxine D inhibits cell proliferation and induces mitochondria-mediated apoptosis in human gastric cancer cellsMolecules20(11)20659-20668(2015)