Product Data Sheet

Product Name: Pladienolide B
Cat. No.: GC18780

Chemical Properties

Cas. No.	445493-23-2		
Chemical Name	(4R,7R,8S,9E,11S,12S)-8-(acetyloxy)-4,7-dihydroxy-12-[(1E,3E,5S)-6-[(2R,3R)-3-[(1R,2S)-2-hydroxy-1-methylbutyl]-2-oxiranyl]-1,5-dimethyl-1,3-oxacyclododec-9-en-2-one		
SMILES	O[C@H]1CC(O[C@H](/C(C)=C/C=C/[C@@H](C)C[C@@H]2[C@]([C@H](C)[C@H](CC)O)([H])O2)[C@@H](C)/C=C/[C@H](OC(C)=O)[C@](C)(O)CC1)=O		
Formula	$C_{30}H_{48}O_8$	M.Wt	536.7
Solubility	DMF: Soluble,DMSO: Soluble,Ethanol: Soluble,Methanol: Soluble	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Caution: Product has not been fully validated for medical applications. For research use only.
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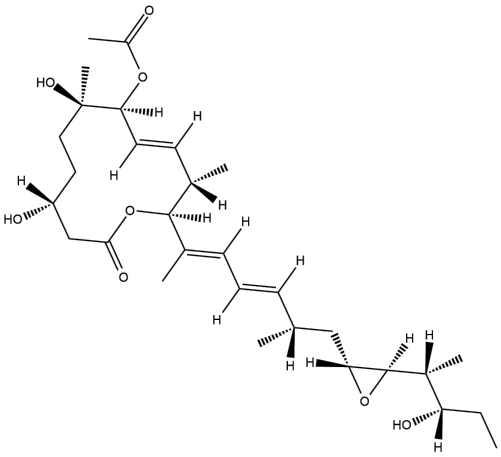
Structure



Background

Spliceosomes mediate the processing of pre-mRNA into mature mRNA.[1],[2] Each spliceosome is a multiunit complex containing several proteins and RNA molecules that work in unison to repeatedly cleave and rejoin segments of mRNA.[1],[3] Pladienolide B is a macrocyclic lactone that selectively binds splicing factor 3b and inhibits mRNA splicing.[4],[5] Through this action, pladienolide B potently blocks the growth of proliferating cells with mean IC50 values of 1.6 nM for six gastric cancer cell lines.[6],[7] In xenograft tumors generated in mice using human cancer cells, pladienolide B blocks mRNA splicing and induces apoptosis, clearing tumors within two weeks after treatment.[7]

Reference:

[1]. Naro, C., and Sette, C. Phosphorylation-mediated regulation of alternative splicing in cancer. Int.J.Cell Biol. 2013, 1-16 (2013).
[2]. Webb, T.R., Joyner, A.S., and Potter, P.M. The development and application of small molecule modulators of SF3b as therapeutic agents for cancer. Drug Discovery Today 18(1-2), 43-49 (2013).

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[4]. Yokoi, A., Kotake, Y., Takahashi, K., et al. Biological validation that SF3b is a target of the antitumor macrolide pladienolide. FEBS Journal 278(24), 4870-4880 (2011).
[5]. Kotake, Y., Sagane, K., Owa, T., et al. Splicing factor SF3b as a target of the antitumor natural product pladienolide. Nature Chemical Biology 3, 570-575 (2007).
[6]. Effenberger, K.A., Anderson, D.D., Bray, W.M., et al. Coherence between cellular responses and in vitro splicing inhibition for the anti-tumor drug pladienolide B and its analogs. The Journal of Biological Chemisty 289, 1938-1947 (2014).
[7]. Sato, M., Muguruma, N., Nakagawa, T., et al. High antitumor activity of pladienolide B and its derivative in gastric cancer. Cancer Science 105(1), 110-116 (2014).

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