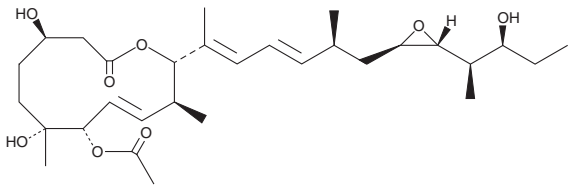
PRODUCT INFORMATION

Pladienolide B

Item No. 16538

CAS Registry No.: 445493-23-2
Formal 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
MF: $C_{30}H_{48}O_8$
FW: 536.7
Purity: ≥95%
Supplied as: A clear film
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Pladienolide B is supplied as a clear film. A stock solution may be made by dissolving the pladienolide B in the solvent of choice, which should be purged with an inert gas. Pladienolide B is soluble in ethanol, methanol, DMSO, and dimethyl formamide.

Description

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.[1,2] Pladienolide B is a macrocyclic lactone that selectively binds splicing factor 3b and inhibits mRNA splicing.[3,4] Through this action, pladienolide B potently blocks the growth of proliferating cells with mean IC_{50} values of 1.6 nM for six gastric cancer cell lines.[5,6] 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.[6]

References

1. Naro, C. and Sette, C. Phosphorylation-mediated regulation of alternative splicing in cancer. *Int. J. Cell Biol.* 151839 (2013).
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3. Yokoi, A., Kotake, Y., Takahashi, K., *et al.* Biological validation that SF3b is a target of the antitumor macrolide pladienolide. *FEBS J.* **278(24)**, 4870-4880 (2011).
4. Kotake, Y., Sagane, K., Owa, T., *et al.* Splicing factor SF3b as a target of the antitumor natural product pladienolide. *Nat. Chem. Biol.* **3(9)**, 570-575 (2007).
5. 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. *J. Biol. Chem.* **289(4)**, 1938-1947 (2014).
6. Sato, M., Muguruma, N., Nakagawa, T., *et al.* High antitumor activity of pladienolide B and its derivative in gastric cancer. *Cancer Sci.* **105(1)**, 110-116 (2014).

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