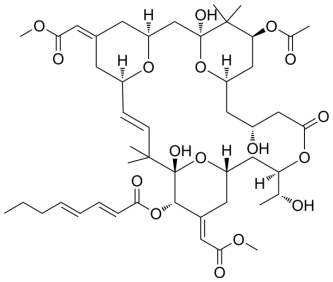
Bryostatin 1

Cat. No.:	HY-105231
CAS No.:	83314-01-6
Molecular Formula:	$C_{47}H_{68}O_{17}$
Molecular Weight:	905.03
Target:	PKC; HIV; Bacterial
Pathway:	Epigenetics; TGF-beta/Smad; Anti-infection
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



BIOLOGICAL ACTIVITY

Description

Bryostatin 1 is a natural macrolide isolated from the bryozoan Bugula neritina and is a potent and central nervous system (CNS)-permeable PKC modulator. Bryostatin 1 binds to the isolated C1 domain of Munc13-1 and the full-length Munc13-1 protein with K_is of 8.07 nM and 0.45 nM, respectively. Bryostatin 1 has anti-cancer, anti-inflammatory, neuroprotective, anti-HIV-1 infection properties[1][2][3][4].

IC_{50} & Target

HIV-1

In Vitro

Bryostatin 1 (1 μM; 5 minutes; HT22 cells) treatment successfully recruits Munc13-1 from the cytosol to the plasma membrane. Effects of Bryostatin 1 on the other Munc13 family members, ubMunc13-2 and bMunc13-2, resembled those of Munc13-1 for translocation [1].

The increased level of expression of Munc13-1 following a 24 h incubation with Bryostatin 1 in both HT22 and primary mouse hippocampal cells is observed[1].

Bryostatin 1 can also affect the immune system by modulating dendritic cells (DCs) via toll-like receptor 4 (TLR4) through the MyD88-independent pathway, which favors an anti-inflammatory environment by inducing a type 2 phenotype that promotes the differentiation of $CD4^+$ T-helper (Th) lymphocytes into Th2 versus Th1 effector cells[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	HT22 cells
Concentration:	1 μM
Incubation Time:	5 minutes
Result:	Caused Munc13-1 to transfer to the membrane fraction.

In Vivo

Bryostatin 1 (30 μg/kg; intraperitoneal injection; 3 d per week; for 2 weeks; C57BL/6J mice) treatment abolishes the onset of EAE[2].

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Animal Model:	Female C57BL/6J mice (8-12-week-old) with MOG_{35-55}[2]

Dosage:	30 μg/kg
Administration:	Intraperitoneal injection; 3 d per week; for 2 weeks
Result:	Abolished the onset of experimental autoimmune encephalomyelitis (EAE).

CUSTOMER VALIDATION

- Sci Transl Med. 2018 Jul 18;10(450):eaaq1093.

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REFERENCES

[1]. Blanco FA, et al. Munc13 Is a Molecular Target of Bryostatin 1. Biochemistry. 2019 Jul 9;58(27):3016-3030.

[2]. Kornberg MD, et al. Bryostatin-1 alleviates experimental multiple sclerosis. Proc Natl Acad Sci U S A. 2018 Feb 27;115(9):2186-2191.

[3]. Zeng N, et al. Bryostatin 1 causes attenuation of TPA-mediated tumor promotion in mouse skin. Mol Med Rep. 2018 Jan;17(1):1077-1082.

[4]. Proust A, et al. HIV-1 infection and latency-reversing agents bryostatin-1 and JQ1 disrupt amyloid beta homeostasis in human astrocytes. Glia. 2020 Apr 6.

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