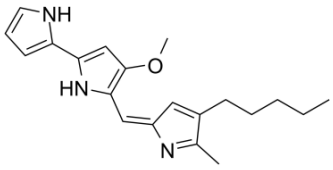
Prodigiosin

Cat. No.:	HY-100711
CAS No.:	82-89-3
Molecular Formula:	$C_{20}H_{25}N_3O$
Molecular Weight:	323.43
Target:	Wnt; Bacterial; Fungal; Parasite; Apoptosis
Pathway:	Stem Cell/Wnt; Anti-infection; Apoptosis
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



BIOLOGICAL ACTIVITY

Description

Prodigiosin (Prodigiosine) is a red pigment produced by bacteria as a bioactive secondary metabolite. Prodigiosin is a potent inhibitor of the Wnt/β-catenin pathway. Prodigiosin has antibacterial, antifungal, antiprotozoal, antimalarial, immunosuppressive, and anticancer properties[1][2].

In Vitro

Prodigiosin (25-500 nM; 24 hours) treatment reduces the viability of breast cancer cells, with IC_{50} values at 48 h of 62.52 nM in MDA-MB-231 cells and 261.2 nM in MDA-MB-468 cells[1].

Prodigiosin (25-500 nM; 24 hours) treatment significantly reduces the levels of phosphorylated LRP6 and DVL2, active β-catenin, and total β-catenin. Prodigiosin noticeably inhibits the phosphorylation of GSK3β at Ser9 in HEK293T cells, which is indicative of an increase in GSK3β activity[1].

Prodigiosin can inhibit proliferation and induce apoptosis in breast cancer cells[1].

Prodigiosin (25-500 nM; 24 hours) treatment dose-dependently blocks Wnt signaling activated by Wnt1, Wnt3, Wnt1/LRP6, Wnt3/LRP6, and Dishevelled 2 (DVL2) in transfected HEK293T cells. Prodigiosin treatment inhibits Wnt3A-CM-induced transcription in a dose-dependent manner. Prodigiosin inhibits transcription of the SuperTopFlash reporter activated by either Wnt transfection or Wnt3A treatment[1].

When applied to cultures of chytrid fungi Batrachochytrium dendrobatidis and B. salamandrivorans, Prodigiosin causes significant growth inhibition, with MIC values of 10 μM and 50 μM, respectively[2].

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

Cell Proliferation Assay[1]

Cell Line:	MDA-MB-231 and MDA-MB-468 cells
Concentration:	10 nM, 25 nM, 50 nM, 100 nM, 250 nM, 500 nM, 1000 nM, 2500 nM, 5000 nM
Incubation Time:	24 hours, 48 hours
Result:	Reduced the viability of breast cancer cells, with IC_{50} values at 48 h of 62.52 nM in MDA-MB-231 cells and 261.2 nM in MDA-MB-468 cells.

Western Blot Analysis[1]

Cell Line:	HEK293T cells
Concentration:	50 nM, 100 nM, 250 nM, 500 nM

Incubation Time:	24 hours
Result:	Significantly reduced the levels of phosphorylated LRP6 and DVL2, active β-catenin, and total β-catenin.

In Vivo

Prodigiosin (5 mg/kg; intraperitoneal injection; twice weekly; for 3 weeks) treatment significantly inhibits tumor growth. Prodigiosin treatment decreases tumor cell density and expression of the proliferation marker Ki-67[1].

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

Animal Model:	Female BALB/c nude mice injected with MDA-MB-231 cells[1]
Dosage:	5 mg/kg
Administration:	Intraperitoneal injection; twice weekly; for 3 weeks
Result:	Significantly inhibited tumor growth in mice.

REFERENCES

[1]. Woodhams DC, et al. Prodigiosin, Violacein, and Volatile Organic Compounds Produced by Widespread Cutaneous Bacteria of Amphibians Can Inhibit Two Batrachochytrium Fungal Pathogens. Microb Ecol. 2018 May;75(4):1049-1062.

[2]. Wang Z, et al. Prodigiosin inhibits Wnt/β-catenin signaling and exerts anticancer activity in breast cancer cells. Proc Natl Acad Sci U S A. 2016 Nov 15;113(46):13150-13155.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA