Prodigiosin

Cat. No.: HY-100711

CAS No.: 82-89-3

Molecular Formula: $C_{20}H_{25}N_3O$

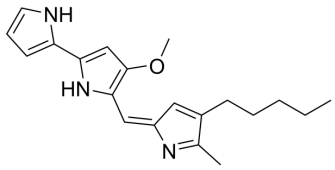
Molecular Weight: 323.43

Target: Fungal; Bacterial; Apoptosis; Wnt; Parasite

Pathway: Anti-infection; Apoptosis; Stem Cell/Wnt

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (77.30 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0919 mL	15.4593 mL	30.9186 mL
	5 mM	0.6184 mL	3.0919 mL	6.1837 mL
	10 mM	0.3092 mL	1.5459 mL	3.0919 mL

Please refer to the solubility information to select the appropriate solvent.

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].

IC_{50} & Target

Plasmodium

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.

CUSTOMER VALIDATION

- J Physiol Pharmacol. 2023 Feb;74(1).

See more customer validations on www.MedChemExpress.com

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.

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

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