# Prodigiosin hydrochloride

**Cat. No.:** HY-100711A

**CAS No.:** 56144-17-3

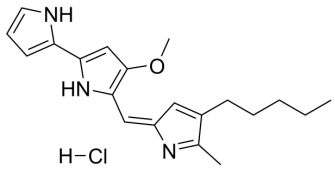
**Molecular Formula:** $C_{20}H_{26}ClN_3O$

**Molecular Weight:** 359.89

**Target:** Wnt; Bacterial; Fungal; Parasite; Apoptosis

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

**Storage:** -20°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 10 mg/mL (27.79 mM; Need ultrasonic)

| Preparing Stock Solutions | Concentration / Solvent / Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 2.7786 mL | 13.8931 mL | 27.7863 mL |
| | 5 mM | 0.5557 mL | 2.7786 mL | 5.5573 mL |
| | 10 mM | 0.2779 mL | 1.3893 mL | 2.7786 mL |

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.25 mg/mL (0.69 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.25 mg/mL (0.69 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Prodigiosin (Prodigiosine) hydrochloride is a red pigment produced by bacteria as a bioactive secondary metabolite. Prodigiosin hydrochloride is a potent proapoptotic agent, and inhibits Wnt/β-catenin pathway. Prodigiosin hydrochloride 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 IC50 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).

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## REFERENCES

[1]. 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.

[2]. 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.



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