Niclosamide

Cat. No.: HY-B0497

CAS No.: 50-65-7

Molecular Formula: $C_{13}H_8Cl_2N_2O_4$

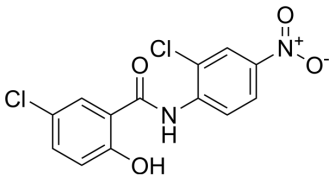
Molecular Weight: 327.12

Target: STAT; Parasite; Antibiotic

Pathway: JAK/STAT Signaling; Stem Cell/Wnt; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	1 year
	-20°C	6 months



SOLVENT & SOLUBILITY

In Vitro

DMF : 5 mg/mL (15.28 mM; Need ultrasonic)

DMSO : 4.55 mg/mL (13.91 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.0570 mL	15.2849 mL	30.5698 mL
5 mM	0.6114 mL	3.0570 mL	6.1140 mL
10 mM	0.3057 mL	1.5285 mL	3.0570 mL

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

In Vivo

1. Add each solvent one by one: 5% Cremophor EL >> 95% (20% HP-β-CD in Saline)
   Solubility: 5 mg/mL (15.28 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMF >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 0.5 mg/mL (1.53 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Niclosamide (BAY2353) is an orally active antihelminthic agent used in parasitic infection research[1]. Niclosamide is a STAT3 inhibitor with an IC_{50} of 0.25 μM in HeLa cells[4]. Niclosamide has biological activities against cancer, inhibits DNA replication in Vero E6 cells[2][3][5].

IC_{50} & Target

STAT3

0.25 μM (IC_{50}, in HeLa cells)

In Vitro

Niclosamide (0.6 nM-46 μM) treatment inhibits adrenocortical carcinoma cellular proliferation in BD140A, SW-13, and NCI-

H295R cells[3].
Niclosamide (0.05-5 μM, 24 h) treatment inhibits STAT3-mediated luciferase reporter activity in HeLa cells [4].
Niclosamide (10 μM) treatment inhibits virus replication in Vero E6 cells[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[3]

Cell Line:	BD140A, SW-13 and NCI-H295R cells
Concentration:	0.6 nM-46 μM
Incubation Time:	
Result:	Inhibited cellular proliferation in adrenocortical carcinoma cell lines with the IC_{50} of 0.12 μM, 0.15 μM, and 0.53 μM in BD140A, SW-13, and NCI-H295R, respectively.

Cell Viability Assay[4]

Cell Line:	Hela cells
Concentration:	0.05-5 μM
Incubation Time:	24 hours
Result:	Inhibited STAT3-mediated luciferase reporter activity with an IC_{50} of 0.25 μM.

Cell Viability Assay[4]

Cell Line:	Vero E6 cells[5]
Concentration:	10 μM
Incubation Time:	2 days
Result:	Inhibited the synthesis of viral antigens of SARS-CoV in Vero E6 cells.

In Vivo

Niclosamide (oral gavage; 100 mg/kg, 200 mg/kg; once a week; 8 weeks) treatment inhibits adrenocortical carcinoma tumor growth in vivo[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Nu^+/Nu^+ mice injected with NCI-H295R cells[3]
Dosage:	100 mg/kg, 200 mg/kg
Administration:	Oral gavage; 100 mg/kg, 200 mg/kg; once a week; 8 weeks
Result:	Showed a 60%-80% inhibition in tumor growth, as compared to the control group.

CUSTOMER VALIDATION

- Cell Res. 2022 Jun;32(6):513-529.
- Emerg Microbes Infect. 2022 Dec;11(1):483-497.
- Cell Syst. 2018 Apr 25;6(4):424-443.e7.
- Cell Death Dis. 2022 Feb 3;13(2):112.

- Antiviral Res. January 2022, 105228.

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REFERENCES

[1]. P Andrews, et al. The biology and toxicology of molluscicides, Bayluscide. Pharmacol Ther. 1982;19(2):245-95.

[2]. Wei Chen, et al. Niclosamide: Beyond an antihelminthic drug. Cell Signal. 2018 Jan;41:89-96.

[3]. Kei Satoh, et al. Identification of Niclosamide as a Novel Anticancer Agent for Adrenocortical Carcinoma. Clin Cancer Res. 2016 Jul 15;22(14):3458-66.

[4]. Xiaomei Ren, et al. Identification of Niclosamide as a New Small-Molecule Inhibitor of the STAT3 Signaling Pathway. ACS Med Chem Lett. 2010 Sep 7;1(9):454-9.

[5]. Chang-Jer Wu, et al. Inhibition of severe acute respiratory syndrome coronavirus replication by niclosamide. Antimicrob Agents Chemother. 2004 Jul;48(7):2693-6.

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