Nitazoxanide

Cat. No.: HY-B0217

CAS No.: 55981-09-4

Molecular Formula: $C_{12}H_9N_3O_5S$

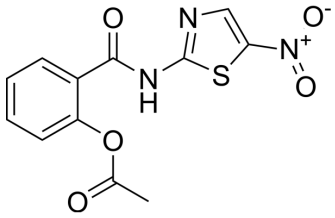
Molecular Weight: 307.28

Target: Influenza Virus; Autophagy; Parasite

Pathway: Anti-infection; Autophagy

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (325.44 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.2544 mL	16.2718 mL	32.5436 mL
5 mM	0.6509 mL	3.2544 mL	6.5087 mL
10 mM	0.3254 mL	1.6272 mL	3.2544 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: ≥ 3.25 mg/mL (10.58 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nitazoxanide (NTZ), an anthelmintic agent, exhibits a broad spectrum of activities against a wide variety of helminths, protozoa, and enteric bacteria infecting animals and humans. Nitazoxanide inhibits Giardia lamblia trophozoite proliferation in axenic culture with an IC_{50} of 2.4 μM[1]. Nitazoxanide can be used for the research of parasitic gastroenteritis. Nitazoxanide shows anti-Japanese encephalitis virus (JEV) activity in a mouse model[2].

In Vitro

Giardia lamblia, a flagellated protozoan, is the most common causative agent of persistent diarrhea worldwide[1].
?Nitazoxanide exhibits effect on G. lamblia trophozoite proliferation in axenic culture with an IC_{50} of 2.4 μM[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Human cancer colon Caco2 cells were incubated with increasing numbers of Giardia lamblia trophozoites (10^3 to 10^6 parasites per well)
Concentration:	30 μM
Incubation Time:	24 hours
Result:	70 to 90% of the trophozoites remained attached to the Caco2 cells for a period of 24 to 48 h in the absence of Nitazoxanide and at an initial inoculum density of 10^5 parasites per well. The number of parasites still attached to Caco2 cells after 24 h decreased to less than 20% of the control value in the presence of 30 μM Nitazoxanide with an inoculum density of 10^5 trophozoites.

In Vivo

Nitazoxanide exhibits a wide spectrum of in vivo activity against a broad spectrum of intestinal parasites, such as Giardia lamblia, Entamoeba histolytica, Trichomonas vaginalis, the apicomplexan Cryptosporidium parvum, and enteric bacteria infecting animals and humans[1].

?Nitazoxanide (50, 75 or 100 mg/kg/day; administered daily by intragastric for up to 25 days) reduces the mortality of Japanese encephalitis virus (JEV) strain-infected mice and protected mice from a lethal dose challenge of JEV[2].

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

Animal Model:	Three-week old female Chinese Kunming mice (12–14 g body weight) were infected intraperitoneally with JEV[2]
Dosage:	50, 75 or 100 mg/kg/day
Administration:	Administered intragastrically by gavage
Result:	50 mg/kg/day, 75 mg/kg/day and 100 mg/kg/day led to 30%, 70% and 90% mice survival, respectively.

CUSTOMER VALIDATION

- Cell Death Dis. 2018 Oct 9;9(10):1032.
- Mbio. 2023 Oct 26:e0168823.
- iScience. 2024 Mar 16.
- Biochem Pharmacol. 2021 May 3;114588.
- Antimicrob Agents Chemother. 2021 Jan 25;AAC.01445-20.

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REFERENCES

[1]. Rossignol JF, et al. Thiazolides, a new class of anti-influenza molecules targeting viral hemagglutinin at the post-translational level. J Biol Chem. 2009 Oct 23;284(43):29798-808.

[2]. Zixue Shi, et al. Nitazoxanide inhibits the replication of Japanese encephalitis virus in cultured cells and in a mouse model. Virol J. 2014 Jan 23;11:10.

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

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