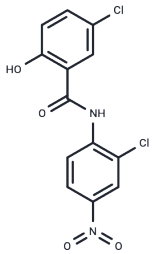
Data Sheet (Cat.No.T0711)

TargetMol

Niclosamide

Chemical Properties



CAS No. : 50-65-7

Formula: C13H8Cl2N2O4

Molecular Weight: 327.12

Storage: Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Niclosamide is a classic salicylanilide antiparasitic drug and a multi-target, low-toxicity, broad-spectrum small-molecule modulator with anthelmintic and antitumor activity. Niclosamide disrupts the parasite's energy metabolism by uncoupling mitochondrial oxidative phosphorylation, leading to reduced ATP production and ultimately killing the parasite. Niclosamide is a STAT3 inhibitor with an IC50 of 0.25 μM in HeLa cells.
Targets(IC50)	Antibiotic,STAT,Parasite
In vitro	**Methods**: $CD44^+/CD24^-$ breast cancer stem cells (CSCs) isolated from MDA-MB-231 cells were treated with Niclosamide (100 μM) for 6 hours. Western blot analysis was performed to detect p-STAT3, STAT3, and Bax protein levels. **Results**: Niclosamide induced a significant decrease in p-STAT3 levels and a significant increase in the pro-apoptotic protein Bax levels. [1]
In vivo	**Methods**: 13-week-old male SOD1-G93A mice received intraperitoneal injections of Niclosamide (20 mg/kg or 50 mg/kg) once daily until end-stage disease (approximately 160 days). **Results**: 20 mg/kg Niclosamide demonstrated significant efficacy, improving neurological scores, delaying motor function decline, markedly prolonging survival, and increasing survival probability across all disease stages. [2] **Methods**: Male db/db mice (type 2 diabetes model) underwent right nephrectomy at 8 weeks of age to accelerate diabetic nephropathy (DN) progression. Following surgery, Niclosamide (20 mg/kg/day) was administered intraperitoneally once daily for 4 consecutive weeks. **Results**: Niclosamide significantly reduced blood glucose and HbA1c levels, decreased urine output, improved BUN and Cr levels, halted progressive increases in urinary albumin, and mitigated renal hypertrophy, glomerulosclerosis, mesangial expansion, and Col-IV deposition. It also restored nephrin expression and podocyte numbers.[3]
Kinase Assay	Protein Kinase profiling assay: Assay for 22 different proteins kinases is carried out by ProQinase Gmbh. All of the protein kinases are expressed either in Sf9 insect cells or in E. coli as recombinant GST-fusion proteins or His-tagged proteins. Protein kinases are purified by affinity chromatography using either GSH-agarose or Ni_NTH-agarose. A radiometric protein kinase assay is used for measuring the kinase activity of the 22 protein kinases. Briefly, for each protein kinase, 50 μL reaction cocktail containing 60 mM HEPES-NaOH, 3 mM MgCl2, 3 mM MnCl2, 3 μM Na-orthovanadate, 1.2 mM DTT, 50

Kinase Assay	μg/mL PEG20000, 1 μM [γ-33P]-ATP, Niclosamide, adequate amount of enzyme and its substrate. The PKC-alpha assay additionally contain 1 mM Cacl2, 4 mM EDTA, 5 μg/mL phosphatidylserine and 1 μg/mL 1, 2-Dioleyl-glycerol. The reaction cocktails are incubated at 37 °C for 60 minutes and stop with 50 μL 2% (v/v) H3PO4. Incorporation of 33Pi is determined with a microplate scintillation counter. The activities and the IC50 values are calculated using Quattro Workflow V2.28.
Cell Research	Cells are plated in 96-well culture plates with cell density of 3-4 × 103 cells/well and treat with Niclosamide by adding 100 μL medium containing Niclosamide of various concentrations on the second day. After 72-hour's treatment, MTT is added to each well and incubated for additional 4-5 hours, and the absorbance is measured on a microplate reader at 570 nM. Cell growth inhibition is evaluated as the ratio of the absorbance of the sample to that of the control. The results are representative of at least 3 independent experiments. (Only for Reference)

Solubility Information

Solubility	DMSO: 6.25 mg/mL (19.11 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 0.63 mg/mL (1.93 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.057 mL	15.2849 mL	30.5698 mL
5 mM	0.6114 mL	3.057 mL	6.114 mL
10 mM	0.3057 mL	1.5285 mL	3.057 mL
50 mM	0.0611 mL	0.3057 mL	0.6114 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Altundag-Erdogan Ö, et al. Niclosamide Treatment Suppressed Metastatic, Apoptotic, and Proliferative Characteristics of MDA-MB-231 Cancer Stem Cells. ACS Omega. 2025 May 28;10(22):23629-23638.
Zhao W, Xu C, Peng L, et al.cAMP/PKA signaling promotes AKT deactivation by reducing CIP2A expression, thereby facilitating decidualization.Molecular and Cellular Endocrinology.2023: 111946.
Milani M, et al. Neuroprotective effects of niclosamide on disease progression via inflammatory pathways modulation in SOD1-G93A and FUS-associated amyotrophic lateral sclerosis models. Neurotherapeutics. 2024 Apr; 21(3):e00346.
Zhuang L, et al. Repurposing Niclosamide to Modulate Renal RNA-Binding Protein HuR for the Treatment of Diabetic Nephropathy in db/db Mice. Int J Mol Sci. 2024 Sep 6;25(17):9651.
Jin Y, et al. Cancer Res, 2010, 70(6), 2516-2527.

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