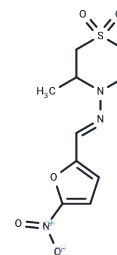


## Nifurtimox

## Chemical Properties

CAS No. :	23256-30-6
Formula:	C10H13N3O5S
Molecular Weight:	287.29
Storage:	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	Nifurtimox (BAY-A-2502) is an antiprotozoal agent (IC50s = 9.91, 12.28, and 10.44 $\mu$ M against Taluahuén, LQ, and Brener strains of <i>T. cruzi</i> - epimastigotes, respectively).
Targets(IC50)	Parasite, Dehydrogenase
In vitro	Nifurtimox can produce anion radicals and interfere with oxygen metabolism [1]. On the neuroblastoma cell lines LA-N-1, IMR-32, LS and SK-N-SH, the treatment of nifurtimox shows an increased production of oxidative stress, a reduced lactate dehydrogenase enzyme activity and reduced lactate production. Furthermore, nifurtimox leads to reduced mRNA and protein levels of the proto-oncogene protein N-Myc [2].
Cell Research	To assess the cell viability after incubation with nifurtimox at different concentrations (10 $\mu$ g/mL up to 50 $\mu$ g/mL or 34.8 $\mu$ M to 174 $\mu$ M, respectively in the supernatant growth medium) or the vehicle control with according concentrations, all neuroblastoma cell lines were subjected to an MTS assay. Stock solutions of MTS were made at 480 $\mu$ M in sterile filtered deionized water and stored at 20°C. Cells were grown to approximately 50% confluency, treated with nifurtimox, and incubated for 1 h with fresh media containing 12 $\mu$ M MTS. The supernatant was subsequently removed and the cells were lysed with DMSO containing 10% (w/v) sodium dodecyl sulfate (SDS) and 1% (v/v) glacial acetic acid (Carl Roth, #3738). Purple formazan contents of each cell lysate were photometrically analyzed in triplicates at 570 nm (630 nm reference wavelength) in 96 microtiter plates [2].

## Solubility Information

Solubility	H2O: Insoluble, DMSO: 255 mg/mL (887.6 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: 10 mg/mL (34.81 mM), Solution. 10% DMSO+90% Saline: < 10 mg/mL (34.81 mM), Lower concentrations may be soluble, but exact solubility limit is unknown. <i>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.</i>

### Preparing Stock Solutions

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	<b>1mg</b>	<b>5mg</b>	<b>10mg</b>
1 mM	3.4808 mL	17.404 mL	34.808 mL
5 mM	0.6962 mL	3.4808 mL	6.9616 mL
10 mM	0.3481 mL	1.7404 mL	3.4808 mL
50 mM	0.0696 mL	0.3481 mL	0.6962 mL

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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

- Maya JD, et al. Trypanosoma cruzi: effect and mode of action of nitroimidazole and nitrofurans derivatives. *Biochem Pharmacol.* 2003 Mar 15;65(6):1999-12006.
- Li C, Zhang J, Wu Q, et al. Nifuroxazide activates the parthanatos to overcome TMPRSS2: ERG fusion-positive prostate cancer. *Molecular Cancer Therapeutics.* 2023
- Cabanillas Stanchi KM, et al. Nifurtimox reduces N-Myc expression and aerobic glycolysis in neuroblastoma. *Cancer Biol Ther.* 2015;16(9):1353-63.

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