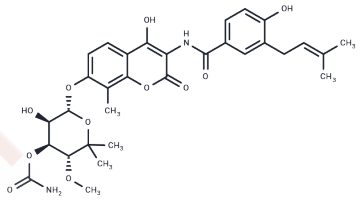
Data Sheet (Cat.No.T20510)

TargetMol

Novobiocin

Chemical Properties



CAS No. : 303-81-1

Formula: C31H36N2O11

Molecular Weight: 612.62

Storage: Store at low temperature
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	Novobiocin is an orally active and potent antibiotic.Novobiocin is a DNA gyrase inhibitor and heat shock protein 90 (Hsp90) antagonist with inhibitory effects on gyrase and Hsp90. Novobiocin has anti-positive activity and can be used to study highly resistant pneumococcal infections.
Targets(IC50)	Apoptosis,HSP,Antibacterial,Antibiotic,DNA gyrase,DNA/RNA Synthesis,Virus Protease
In vitro	Novobiocin (1 mM) competitively hinders the binding of ATP to gyrase B, disrupting nucleotide binding, and impairs the interaction between the co-chaperones Hsc70 and p23 with Hsp90.[1] Novobiocin (200 μM; 24 h) results in the inhibition of the repair rate of DNA interstrand cross-links induced by both cisplatin (cis-DDP) and BCNU. This is accompanied by a corresponding reduction in the clonogenic survival of human glioblastoma multiforme cells.[2] Novobiocin (0.3 mM; 48 hours) triggers caspase-3/7 enzyme-dependent apoptosis assays, resulting in an approximate three- to fivefold increase in the number of apoptotic cells in K562, HL60, and Mutz-2.[5]
In vivo	Novobiocin (25, 50, 100, 200 mg/kg; s.c.; 4 times at 1, 5, 24, and 48 h after infection; Adult female Swiss mice (30g) with sepsis induced by the penicillin-susceptible strain (AR33118)) exhibits anti-infection activity in mice infected with amoxicillin-resistant Streptococcus pneumoniae.[3]

Solubility Information

Solubility	DMSO: 237.5 mg/mL (387.68 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: 5 mg/mL (8.16 mM),Sonication is recommended. *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	1.6323 mL	8.1617 mL	16.3233 mL
5 mM	0.3265 mL	1.6323 mL	3.2647 mL
10 mM	0.1632 mL	0.8162 mL	1.6323 mL
50 mM	0.0326 mL	0.1632 mL	0.3265 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

Marcu MG, et al. The heat shock protein 90 antagonist novobiocin interacts with a previously unrecognized ATP-binding domain in the carboxyl terminus of the chaperone. J Biol Chem. 2000 Nov 24;275(47):37181-6.
Jing X, Zhang N, Zhou X, et al.Creating a bacterium that forms eukaryotic nucleosome core particles.Nature Communications.2024, 15(1): 8283.
Ali-Osman F, et al. Topoisomerase II inhibition and altered kinetics of formation and repair of nitrosourea and cisplatin-induced DNA interstrand cross-links and cytotoxicity in human glioblastoma cells. Cancer Res. 1993 Dec 1;53(23):5663-8.
Rodríguez-Cerrato V, et al. Comparative efficacy of novobiocin and amoxicillin in experimental sepsis caused by beta-lactam-susceptible and highly resistant pneumococci. Int J Antimicrob Agents. 2010 Jun;35(6):544-9.
Eder JP, et al. A phase I clinical trial of novobiocin, a modulator of alkylating agent cytotoxicity. Cancer Res. 1991 Jan 15;51(2):510-3.
Bhatia S, et al. Targeting HSP90 dimerization via the C terminus is effective in imatinib-resistant CML and lacks the heat shock response.Blood. 2018 Jul 19;132(3):307-320.