

Product Data Sheet

Product Name: Novobiocin

Cat. No.: GD19096

Chemical Properties

Cas. No. 303-81-1

Formula $C_{31}H_{36}N_2O_{11}$

M.Wt 612.62

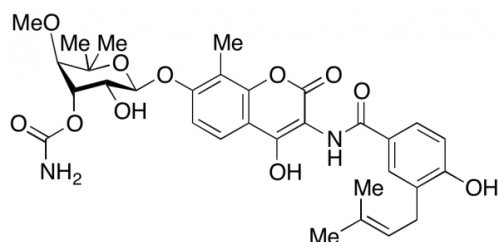
Solubility

Storage -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

Novobiocin (Albamycin) is a potent and orally active antibiotic. Novobiocin also is a DNA gyrase inhibitor and a heat shock protein 90 (Hsp90) antagonist. Novobiocin has the potential for the research of highly beta-lactam-resistant pneumococcal infections. Novobiocin shows anti-orthopoxvirus activity.

Novobiocin (1 mM) competitively inhibits ATP binding to gyrase B to interfere with nucleotide binding and interferes with the association of the co-chaperones Hsc70 and p23 with Hsp90^[1].

Novobiocin (200 μM; 24 h) inhibits the rate of repair of both cis-DDP and BCNU induced DNA interstrand cross-links and with a corresponding decrease in the clonogenic survival of the human glioblastoma multiforme cells^[2].

Novobiocin (0.3 mM; 48 hours) induces a caspase-3/7 enzyme-dependent apoptosis assays with

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an induction of approximately three- to fivefold of apoptotic cells in K562, HL60, Mutz-2^[5].

Novobiocin (25, 50, 100, 200 mg/kg; s.c.; 4 times at 1, 5, 24 and 48 h after infection) shows anti-infection activity in mice infected with amoxicillin-resistant *Streptococcus pneumoniae*^[3].

[1]. 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.

[2]. 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.

[3]. 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.

[4]. 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.

[5]. 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.

[6]. Smee DF. Progress in the discovery of compounds inhibiting orthopoxviruses in animal models. Antivir Chem Chemother. 2008;19(3):115-24.

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