

Product Data Sheet

Product Name: Rifampin

Cat. No.: GC16305

Chemical Properties

Cas. No. 13292-46-1

SMILES O[C@H]([C@H](C)[C@H]([C@H](/C=C/C=C(C)/C(=O)O)O)[C@@H](C)[C@H]([C@H](C)[C@H](/C=C/O[C@@]3(C)OC4=C(C)C(O)=C2C(C(/C1=C/NN5CCN(C)CC5)=O)=C4C3=O)OC)OC(C)=O

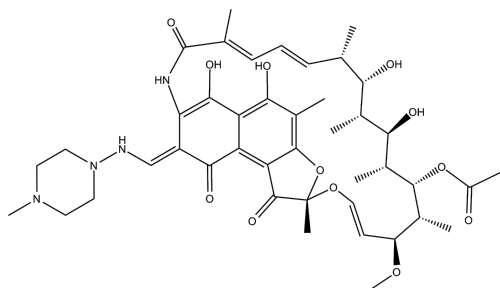
Formula C₄₃H₅₈N₄O₁₂ M.Wt 822.94

Solubility ≥ 26.25mg/mL in DMSO Storage Store at -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



Protocol

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

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Animal experiment: Briefly, 1 cm Teflon catheter (14-gauge) carrying 10⁴ cfu *S. aureus*, either the parental strain Xen 29 or the Rif^R mutants S464P or H481Y, are implanted subcutaneously in groups of nine mice per strain. One catheter segment is inserted on each side of each animal. Six days after the implantation of the catheters, five mice from each group are treated with rifampicin at 30 mg/kg intraperitoneally in 0.1 mL saline, twice daily for four consecutive days. The remaining four mice in each group are left untreated as controls. At various time points during the infection, the mice are anaesthetized using a constant flow of 1.5% isoflurane from the IVIS® manifold, and imaged using an IVIS® Image System 100 Series. The bioluminescent signals (photons/s) emitted from the mice are analysed using LivingImage® software and plotted over the course of infection. The mice are sacrificed 20 days after infection (11 days after final rifampicin treatment). The catheters are surgically removed and the bacteria are detached by sonication for determination of bacterial burdens on the catheters.

References:

- [1]. Piriou A, et al. Fatty liver induced by high doses of rifampicin in the rat: possible relation with an inhibition of RNA polymerases in eukaryotic cells. Arch Toxicol Suppl. 1979;(2):333-7.
- [2]. Yu J, et al. Monitoring in vivo fitness of rifampicin-resistant Staphylococcus aureus mutants in a mouse biofilm infection model. J Antimicrob Chemother. 2005 Apr;55(4):528-34. Epub 2005 Mar 2.
- [3]. Erokhina MV, et al. [In vitro development of rifampicin resistance in the epithelial cells]. Probl Tuberk Bolezn Legk. 2006;(8):58-61.

Background

Rifampicin is a potent and broad spectrum antibiotic against bacterial pathogens.

Rifampicin (100 mg/mL) can block the functional activity of P-glycoprotein. Rifampicin is not a substrate for P-glycoprotein. The mechanism of rifampicin resistance is unassociated with the functional activity of P-glycoprotein[3].

Rifampicin (200, 400 mg/kg) can induce fatty liver at high concentration[1]. Rifampicin (30 mg/kg, i.p.)

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treatment of S464P biofilms in vivo results in a slight decline, but earlier rebinds in bioluminescence from these catheters compared with the parental signal, whereas rifampicin has no affect on bioluminescence in mice infected with mutant H481Y[2].

References:

- [1]. Piriou A, et al. Fatty liver induced by high doses of rifampicin in the rat: possible relation with an inhibition of RNA polymerases in eukariotic cells. Arch Toxicol Suppl. 1979;(2):333-7.
- [2]. Yu J, et al. Monitoring in vivo fitness of rifampicin-resistant Staphylococcus aureus mutants in a mouse biofilm infection model. J Antimicrob Chemother. 2005 Apr;55(4):528-34. Epub 2005 Mar 2.
- [3]. Erokhina MV, et al. [In vitro development of rifampicin resistance in the epithelial cells]. Probl Tuberk Bolezn Legk. 2006;(8):58-61.

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