Product Data Sheet

Product Name: Ribocil-C Racemate
Cat. No.: GC34299

Chemical Properties

Cas. No.	2309762-18-1		
SMILES	O=C1C=C(C2=CC=CS2)NC(C3CCCN(CC4=CN(C5=NC=CC=N5)C=N4)C3)=N1		
Formula	$C_{21}H_{21}N_7OS$	M.Wt	419.5
Solubility	DMSO : ≥ 30 mg/mL (71.51 mM)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Ribocil-C Racemate		

Protocol

Animal experiment:

DBA/2J mice are infected by intraperitoneal injectionwith Escherichia coli strain MB5746 (5×104 CFU per mouse) and treated by subcutaneous injection with Ribocil-C (30, 60, 120 mg/kg) or ciprofloxacin (0.5mg/kg) three times over a 24 h infection period. Spleens are aseptically collected from five mice per group and the reduction of log[CFU per g spleen tissue] is calculated on the basis of bacterial burden in spleens of the vehicle-treated (10% DMSO) control group[2].

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References:

[1]. Wang H, et al. Dual-Targeting Small-Molecule Inhibitors of the Staphylococcus aureus FMN Riboswitch DisruptRiboflavin Homeostasis in an Infectious Setting. Cell Chem Biol. 2017 May 18;24(5):576-588.
[2]. Howe JA, et al. Selective small-molecule inhibition of an RNA structural element. Nature. 2015 Oct 29;526(7575):672-7.

Background

Ribocil-C Racemate is the racemate of Ribocil-C. Ribocil-C is a highly selective inhibitor of bacterial riboflavin riboswitches.

Ribocil-C is a highly selective inhibitor of the flavin mononucleotide (FMN) riboswitch that controls expression of de novo riboflavin (RF, vitamin B2) biosynthesis in Escherichia coli. Ribocil-C specifically inhibits dual FMN riboswitches, separately controlling RF biosynthesis and uptake processes essential for Staphylococcus aureus growth and pathogenesis[1]. Ribocil-C is a small-molecule synthetic mimic of FMN that binds the FMN riboswitch of multiple GN bacteria, including Escherichia coli, Pseudomonas aeruginosa, and Acinetobacter baumannii, to inhibit ribB expression, RF synthesis, and consequently arrest bacterial growth[1][2].

Higher dose Ribocil-C treatment groups (60 and 120 mg kg21 ribocil-C) demonstrate a dose-dependent reduction in bacterial burden of 1.87 and 3.29 log10[CFU per g spleen]

reduction respectively versus shamtreated mice, without mortality or gross effects of toxicity observed[2].

[1]. Wang H, et al. Dual-Targeting Small-Molecule Inhibitors of the Staphylococcus aureus FMN Riboswitch DisruptRiboflavin Homeostasis in an Infectious Setting. Cell Chem Biol. 2017 May 18;24(5):576-588. [2]. Howe JA, et al. Selective small-molecule inhibition of an RNA structural element. Nature. 2015 Oct 29;526(7575):672-7.