

CHIR-090

Catalog No: **tcsc0973**



Available Sizes

Size: 5mg

Size: 10mg

Size: 50mg



Specifications

CAS No:

728865-23-4

Formula:

$C_{24}H_{27}N_3O_5$

Pathway:

Anti-infection

Target:

Bacterial

Purity / Grade:

>98%

Solubility:

DMSO : ≥ 30 mg/mL (68.57 mM)

Observed Molecular Weight:

437.49

Product Description

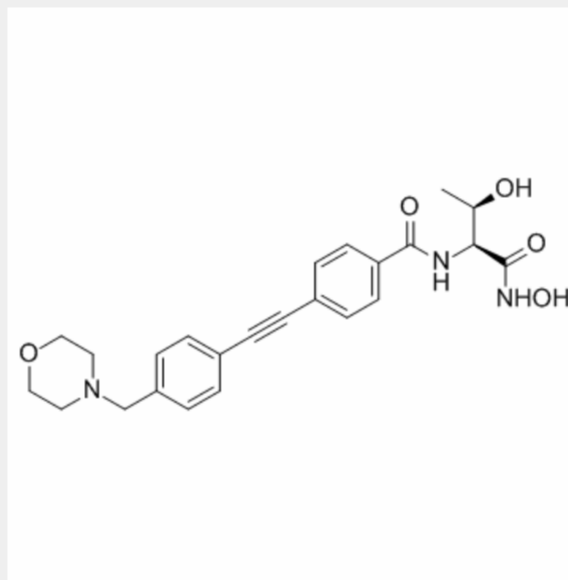
CHIR-090 is a potent, slow, tight-binding inhibitor of the **LpxC** deacetylase. It binds to *E. coli* **LpxC** with a **K_i** of 4.0 nM.

IC50 & Target: Ki: 4 nM (*Escherichia coli* LpxC)^[1]

In Vitro:

CHIR-090 is a potent, slow, tight-binding inhibitor of the LpxC deacetylase from the hyperthermophile *Aquifex aeolicus*, and it has excellent antibiotic activity against *P. aeruginosa* and *E. coli*, as judged by disk diffusion assays. CHIR-090 is also a two-step slow, tight-binding inhibitor of *Escherichia coli* LpxC with $K_i=4$ nM. CHIR-090 at low nM levels inhibits LpxC orthologues from diverse Gram-negative pathogens, including *Pseudomonas aeruginosa*, *Neisseria meningitidis*, and *Helicobacter pylori*. In contrast, CHIR-090 is a relatively weak competitive and conventional inhibitor (lacking slow, tight-binding kinetics) of LpxC from *Rhizobium leguminosarum* ($K_i=340$ nM), a Gram-negative plant endosymbiont that is resistant to this compound. An *E. coli* construct in which the chromosomal *lpxC* gene is replaced by *R. leguminosarum lpxC* is resistant to CHIR-090 up to 100 $\mu\text{g}/\text{mL}$, or 400 times above the minimal inhibitory concentration for wild-type *E. coli*. CHIR-090, a very potent, slow, tight-binding inhibitor of *Aquifex aeolicus* LpxC, the sequence of which is 31 % identical to *E. coli* LpxC. CHIR-090 has remarkable antibiotic activity against *E. coli* and *P. aeruginosa*, comparable to ciprofloxacin, as judged by disk diffusion assays^[1].

In Vivo: CHIR-090 is a potent antibiotic against *E. coli* and inhibits *E. coli* LpxC activity in vitro in the low nM range. *E. coli* W3110 colonies resistant to 1 $\mu\text{g}/\text{mL}$ CHIR-090 are not observed without prior chemical mutagenesis. A strain of *E. coli* W3110 is able to grow on LB agar plates containing 1 to 10 $\mu\text{g}/\text{mL}$ CHIR-090, which is 4 to 40 times above the MIC of 0.25 $\mu\text{g}/\text{mL}$ under our conditions for wild-type *E. coli* W3110. The doubling time of W3110RL is 40 min in the presence of 1 $\mu\text{g}/\text{mL}$ CHIR-090, which is exactly the same rate as wild-type in the absence of inhibitor. Wild-type cells stopped growing after about 2 h in the presence of 1 $\mu\text{g}/\text{mL}$ CHIR-090^[1].



All products are for RESEARCH USE ONLY. Not for diagnostic & therapeutic purposes!