Data Sheet (Cat.No.TN2279)

TargetMol
A DRUG SCREENING EXPERT

Totarol

Chemical Properties

CAS No.:	511-15-9
Formula:	C20H30O
Molecular Weight:	286.46
Appearance:	N/A
Storage:	0-4℃ for short term (days to weeks), or -20℃ for long term (months).

Biological Description

Description	Totarol has anti-bacteria effect by restraining bacterial growth by perturbing the cell division and proliferation, including several pathogenic Gram-positive bacteria, mycobacterium tuberculosis. Totarol treatment leads to metabolic shutdown by repressing the major central metabolic dehydrogenases in B. subtilis.
Targets(IC_{50})	Antifection: None
In vitro	In this study, Totarol was found to inhibit the proliferation of Bacillus subtilis cells with a minimum inhibitory concentration of 2 microM. It did not detectably perturb the membrane structure of B. subtilis; it strongly induced the filamentation in B. subtilis cells, suggesting that it inhibits bacterial cytokinesis. Totarol (1.5 microM) reduced the frequency of the Z-ring occurrence per micrometer of the bacterial cell length but did not affect the nucleoid frequency, suggesting that it blocks cytokinesis by inhibiting the formation of the Z-ring. The assembly dynamics of FtsZ is thought to play an important role in the formation and functioning of the Z-ring, a machine that engineers cytokinesis in bacteria. Since Totarol was shown to inhibit the proliferation of M. tuberculosis, we examined the effects of Totarol on the assembly dynamics of M. tuberculosis FtsZ (MtbFtsZ) in vitro. Totarol decreased the assembly of MtbFtsZ protofilaments and potently suppressed the GTPase activity of MtbFtsZ. It bound to MtbFtsZ with a dissociation constant of 11 +/- 2.3 microM. It increased the fluorescence intensity of the MtbFtsZ-1-anilinonaphthalene-8-sulfonic acid complex and inhibited the fluorescence intensity of N-(1-pyrene)maleimide-labeled MtbFtsZ, suggesting that Totarol induces conformational changes in MtbFtsZ. The results indicated that Totarol can perturb the assembly dynamics of FtsZ protofilaments in the Z-ring. Totarol exhibited extremely weak inhibitory effects on HeLa cell proliferation. It did not affect microtubule organization in HeLa cells[1]

Solubility Information

Solubility	< 1 mg/ml refers to the product slightly soluble or insoluble

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.491 mL	17.454 mL	34.909 mL
5 mM	0.698 mL	3.491 mL	6.982 mL
10 mM	0.349 mL	1.745 mL	3.491 mL
50 mM	0.07 mL	0.349 mL	0.698 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 ℃ for 6 months; - 20 ℃ for 1 month. Please use it as soon as possible.

Reference

1. Totarol inhibits bacterial cytokinesis by perturbing the assembly dynamics of FtsZ.Biochemistry. 2007 Apr 10;46(14):4211-20.

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