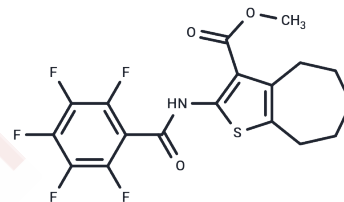


## Thiophene-2

## Chemical Properties

CAS No. :	420089-51-6
Formula:	C <sub>18</sub> H <sub>14</sub> F <sub>5</sub> NO <sub>3</sub> S
Molecular Weight:	419.37
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Thiophene-2 (TP2) is a targeted inhibitor of polyketide synthase 13 (Pks13), specifically designed to disrupt mycolic acid biosynthesis, effectively inducing rapid cell death in mycobacteria. It demonstrates notable anti-tuberculosis activity and exhibits a minimum inhibitory concentration (MIC) value of 1 $\mu$ M against Mycobacterium tuberculosis.
Targets(IC50)	Others,Antibacterial
In vitro	In vitro, TP inhibits the fatty acyl-AMP's ability to bind with Pks13, and Thiophene-2 (TP2; 0-125 $\mu$ M) demonstrates a dose-dependent inhibition of this activity in both wild-type Mycobacterium tuberculosis (Mtb) Pks13 (Pks13_WT) and the TP-resistant F79S mutant protein, specifically affecting palmitic acid (FL C16) loading. Furthermore, Thiophene-2 exhibits significant cytotoxic activity, with an IC50 of 17.5 $\mu$ M against monkey kidney Vero cells and 7.30 $\mu$ M against human liver carcinoma HepG2 cells. Notably, it also shows considerable intracellular killing capacity within BCG-infected J774A.1 macrophage cells at concentrations of 12.8 $\mu$ M[1].

## Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.3845 mL	11.9226 mL	23.8453 mL
5 mM	0.4769 mL	2.3845 mL	4.7691 mL
10 mM	0.2385 mL	1.1923 mL	2.3845 mL
50 mM	0.0477 mL	0.2385 mL	0.4769 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Regina Wilson, et al. Antituberculosis Thiophenes Define a Requirement for Pks13 in Mycolic Acid Biosynthesis. Nat Chem Biol. 2013 Aug;9(8):499-506.

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