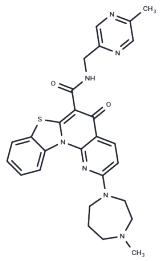
Data Sheet (Cat.No.T2100)

TargetMol

CX-5461

Chemical Properties



CAS No. : 1138549-36-6

Formula: C27H27N7O2S

Molecular Weight: 513.61

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	CX5461 is an rRNA synthesis inhibitor with oral activity that inhibits Pol I-driven rRNA transcription. CX5461 activates the DNA damage response and has antitumor activity in tumors such as ovarian cancer.
Targets(IC50)	DNA/RNA Synthesis
In vitro	**METHODS**: The phytopathogenic fungi A. tubingensis, Nigrospora oryzae and Phoma herbarum were treated with Carviolin (1-512 μg/mL) for 18 h and subjected to Antifungal Assay. **RESULTS**: Carviolin showed antifungal activity with MIC less than 200 μg/mL against all three fungi. [1]
In vivo	In a mouse model of xenograft human solid tumors, oral administration of CX-5461 (50 mg/kg) demonstrated antitumor activity against solid tumors.
Kinase Assay	Pol I and Pol II Transcription Assay: Two short-lived RNA transcripts (half-lives ~20-30 minutes), one produced by Pol I and another by Pol II, are quantitated by qRT-PCR as a measure of CX-5461-related effects on transcription. The 45S pre-rRNA served as the Pol I transcript and the mRNA for the protooncogene c-myc served as the comparator Pol II transcript. Both Pol I and Pol II transcription are known to be affected by general cellular stress. To minimize the potential effects of such stress, cells are exposed to test agents for only a short period of time (2 hours). This is sufficient time for these transcripts to be reduced by greater than 90% if CX-5461 affects their synthesis.
Cell Research	Cells are plated on 96-well plates and treated the next day with dose response of CX-5461 for 96 hours. Cell viability is determined using Alamar Blue and CyQUANT assays (Only for Reference)

Solubility Information

Solubility	0.1 M HCl: 25 mg/mL (48.68 mM),Sonictaion and heating are recommended. DMSO: 1 mg/mL (1.95 mM),Sonication is recommended. H2O: 5.15 mg/mL (10.03 mM),when pH is adjusted to 7 with HCl. Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.947 mL	9.735 mL	19.470 mL
5 mM	0.3894 mL	1.947 mL	3.894 mL
10 mM	0.1947 mL	0.9735 mL	1.947 mL
50 mM	0.0389 mL	0.1947 mL	0.3894 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

Drygin D, et al. Targeting RNA polymerase I with an oral small molecule CX-5461 inhibits ribosomal RNA synthesis and solid tumor growth. Cancer Res. 2011 Feb 15;71(4):1418-30.
Li, Dingfeng, Juan Zhang, Ming Wang, Xiaohui Li, Huarui Gong, Huiping Tang, Lin Chen, Lili Wan, and Qiang Liu. Activity dependent LoNA regulates translation by coordinating rRNA transcription and methylation. Nature Communications. 2018, 9(1): 1-14
Ismael M, et al. The Targeting of RNA Polymerase I Transcription Using CX-5461 in Combination with Radiation Enhances Tumour Cell Killing Effects in Human Solid Cancers. Cancers (Basel). 2019 Sep 25;11(10):1429.
Fu Y, Liu Y, Wen T, et al. Real-time imaging of RNA polymerase I activity in living human cells. Journal of Cell Biology. 2022, 222(1): e202202110.
Liu T, Wu Y, Qin L, et al.Nonselective Intercalation of G-Quadruplex-Targeting Ligands into Double-Stranded DNA Quantified by Single-Molecule Stretching.The Journal of Physical Chemistry B.2023
Zhang Y, Cheng Y, Luo Q, et al.Distinguishing G-Quadruplexes Stabilizer and Chaperone for c-MYC Promoter G-Quadruplexes through Single-Molecule Manipulation.Journal of the American Chemical Society.2024
Wu Z, Xie L, Yuan P, et al.WDR68 stimulates cellular proliferation via activating ribosome biogenesis in 293T cells. Neoplasia.2024, 56: 101033.