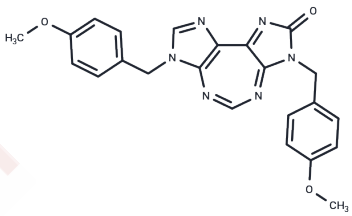
# Data Sheet (Cat.No.T6970)

RK33

## Chemical Properties



CAS No. : 1070773-09-9

Formula: C23H20N6O3

Molecular Weight: 428.44

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

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|---|---|
| Description | RK33 (RK 33) is a first-in-class small molecule inhibitor of DDX3 (a RNA helicase) and causes G1 cell cycle arrest, induces apoptosis, and promotes radiation sensitization in DDX3-overexpressing cells. |
| Targets(IC50) | COX,DNA/RNA Synthesis,SARS-CoV |
| In vitro | RK-33 binds specifically to DDX3, but not to the closely related proteins DDX5 and DDX17. RK-33 inhibits cancer growth and radiosensitizes lung cancer cells in a DDX3-dependent manner. RK-33 has no effect on either mitochondrial respiration or ATP generation. RK-33 curbs proliferation and induces apoptosis in a DDX3-dependent fashion. Wnt signaling is mediated by DDX3 and inhibited by RK-33. RK-33 impairs radiation-induced DNA damage repair by inhibiting NHEJ activity[1]. |
| In vivo | RK-33 in combination with radiation induces tumor regression in multiple mouse models of lung cancer. RK-33, at the dose used, is non-toxic in SCID mice. RK-33-treated mice do not exhibit any discernable morphological changes[1]. |
| Cell Research | Healthy, 60-70% confluent MDA-MB-231 cells are transduced with shDDX3 lentivirus particles. Knockdown of DDX3 expression is confirmed both by qRT-PCR and immunoblotting. MDA-MB-231 cells are treated with RK-33 (7.5 μM) for 12 h and harvested for RNA. Microarray experiments are performed.(Only for Reference) |

## Solubility Information

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|---|---|
| Solubility | H2O: < 1 mg/mL (insoluble or slightly soluble),<br>Ethanol: < 1 mg/mL (insoluble or slightly soluble),<br>DMSO: 25 mg/mL (58.35 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |
| In vivo Formulation | 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.5 mg/mL (5.84 mM),Suspension.<br>10% DMSO+90% Saline: < 2.5 mg/mL (5.84 mM),Lower concentrations may be soluble, but exact solubility limit is unknown.<br>*Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.* |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 2.334 mL | 11.6702 mL | 23.3405 mL |
| 5 mM | 0.4668 mL | 2.334 mL | 4.6681 mL |
| 10 mM | 0.2334 mL | 1.167 mL | 2.334 mL |
| 50 mM | 0.0467 mL | 0.2334 mL | 0.4668 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

Bol GM, et al. EMBO Mol Med. 2015, 7(5):648-69.