# Data Sheet (Cat.No.T213064)

TargetMol

ALR2-IN-9

## Chemical Properties

| | |
|---|---|
| CAS No. : | 2135481-84-2 |
| Formula: | C25H28N4O6 |
| Molecular Weight: | 480.52 |
| Storage: | Powder: -20°C for 3 years \| In solvent: -80°C for 1 year<br>Actual storage temperature shall be subject to the COA. |

## Biological Description

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|---|---|
| Description | ALR2-IN-9 is a potent inhibitor of ALR2 with an IC50 of 21.8 nM, demonstrating excellent antioxidant activity with an EC50 of 2.8 μM in DPPH free radical scavenging. It directly interacts with reactive oxygen (ROS) and reactive nitrogen species (RNS), blocking free radical chain reactions, and acts as an endogenous enzyme antioxidant regulator to modulate catalase (CAT) and superoxide dismutase (SOD) enzyme functions. By influencing the PI3K/Akt/Nrf2 pathway, ALR2-IN-9 inhibits excessive mitochondrial superoxide production induced by hyperglycemia in vitro and ameliorates oxidative stress induced by CuSO4 and H2O2 in vivo models. The compound also extends the lifespan of *Caenorhabditis elegans* by regulating stress response genes such as PMK-1 and shows potential as an anti-aging candidate. ALR2-IN-9 can be utilized in diabetes complication research. |
| Targets(IC50) | Akt,p38 MAPK,PI3K |
| In vitro | ALR2-IN-9 (compound 5N-D) at concentrations of 2.5-10 μM for 24 hours ameliorates the functional impairment of human lens epithelial cells (HLECs) induced by hyperglycemia and reduces their reactive oxygen species (ROS) levels. At 10 μM for 24 hours, ALR2-IN-9 protects HLECs from high glucose-induced damage by activating the PI3K/Akt pathway and reverses the hyperglycemia-induced downregulation of Nrf2, HO-1, and NQO-1 gene levels. At 10 μM for 1 hour, ALR2-IN-9 demonstrates significant antioxidant activity by markedly decreasing the increase in ROS levels in zebrafish larvae induced by CuSO4. ALR2-IN-9 at 0.2% and 0.4% wt% over 8 days extends the lifespan of Caenorhabditis elegans under oxidative stress conditions, enhances SOD and CAT activities, and reduces MDA levels. At 0.4% wt% for 8 days, it also decreases ROS levels in the nematodes, counteracts the suppression of AKT-1, SIR-2.1, DAF-16, and AGE-1 gene expression mediated by H2O2, and further boosts the upregulation of SKN-1 and PMK-1 genes induced by H2O2. |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 2.0811 mL | 10.4054 mL | 20.8108 mL |
| 5 mM | 0.4162 mL | 2.0811 mL | 4.1622 mL |
| 10 mM | 0.2081 mL | 1.0405 mL | 2.0811 mL |
| 50 mM | 0.0416 mL | 0.2081 mL | 0.4162 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.