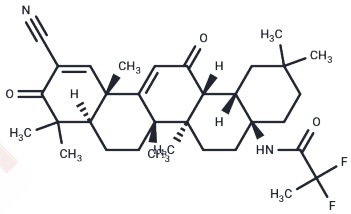
Data Sheet (Cat.No.T6919)

TargetMol

Omaveloxolone

Chemical Properties



CAS No. : 1474034-05-3

Formula: C33H44F2N2O3

Molecular Weight: 554.71

Storage: Store at low temperature
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	Omaveloxolone (RTA-408) is an oral, potent, and selective activator of the nuclear factor erythropoietin-related factor 2 (Nrf2) pathway, as well as a low-potency PPARγ agonist. Omaveloxolone inhibits osteoclast formation by suppressing the STING-dependent NF-κB signaling pathway. Omaveloxolone is being investigated for use in ALS, multiple sclerosis, non-alcoholic steatohepatitis, neurodegenerative diseases, and oncology research.
Targets(IC50)	Apoptosis,Nrf2,STING
In vitro	**Methods**: HT22 cells were treated with Omaveloxolone (100, 500, 1000 nM) for 24 hours, followed by Western blot analysis for NRF2, HO-1, and NQO1. **Results**: Omaveloxolone dose-dependently upregulated NRF2, HO-1, and NQO1 protein levels. [1] **Methods**: Human FA patient skin fibroblasts were treated with Omaveloxolone (50 nM) or DMF (10 μM) for 48 hours, followed by DCFDA fluorescence probe detection of reactive oxygen species (ROS) levels. **Results**: Omaveloxolone significantly reduced basal ROS levels in FA cells. [2]
In vivo	**Methods**: 10-month-old APP/PS1 transgenic mice (AD model) and wild-type (WT) controls received intraperitoneal injections of Omaveloxolone (1 mg/kg/day, once daily) for 2 consecutive months. **Results**: Omaveloxolone significantly improved the Y-maze alternation rate, number of platform crossings in the water maze, and time spent in the target quadrant in APP/PS1 mice, demonstrating cognitive enhancement.[1] **Methods**: Cardio/skeletal muscle-specific FXN knockout mice (FXN-cKO) received oral Omaveloxolone (24 mg/kg/day) mixed with peanut butter from 3 weeks of age until 8 weeks of age (5 weeks total). **Results**: Omarsolon significantly improved cardiac function: EF increased from 26% to 47.5% (P<0.001), and FS increased from 22% to 42.5%. [2]
Cell Research	For growth inhibition assays, cells are plated in duplicate 96-well culture dishes at 3 x 103 cells per well. The following day, one plate is treated with RTA 408 and the other is immediately processed for the sulforhodamine B (SRB) assay (time 0). Cells in the RTA 408-treated plate are processed for the SRB assay 72 hours after the start of treatment. Percentage of growth relative to vehicle-treated cells is calculated using: [(Ti-Tz)/(C-Tz)] x 100 where (Tz) is the absorbance value at time zero, (C) is absorbance value from

Cell Research	vehicle treated wells after 72 hours, and (Ti) is the absorbance value from wells treated with the drug. Dose-response curves are plotted in GraphPad Prism and GI50 values are calculated(Only for Reference)

Solubility Information

Solubility	Ethanol: 16 mg/mL (28.84 mM),Sonication is recommended. DMSO: 240 mg/mL (432.66 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Corn Oil: 3.3 mg/mL (5.95 mM),Sonication is recommended. *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	1.8027 mL	9.0137 mL	18.0274 mL
5 mM	0.3605 mL	1.8027 mL	3.6055 mL
10 mM	0.1803 mL	0.9014 mL	1.8027 mL
50 mM	0.0361 mL	0.1803 mL	0.3605 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

Cui X, et al. Omaveloxolone ameliorates cognitive dysfunction in APP/PS1 mice by stabilizing the STAT3 pathway. Life Sci. 2023 Dec 15;335:122261.
Salinas L, et al. Omaveloxolone, But Not Dimethyl Fumarate, Improves Cardiac Function in Friedreich's Ataxia Mice With Severe Cardiomyopathy. J Am Heart Assoc. 2025 Jun 17;14(12):e038505.
Reisman SA, et al. Arch Dermatol Res. 2014, 306(5), 447-454.
Goldman DC, et al. Radiat Res. 2015, 183(3), 338-344.