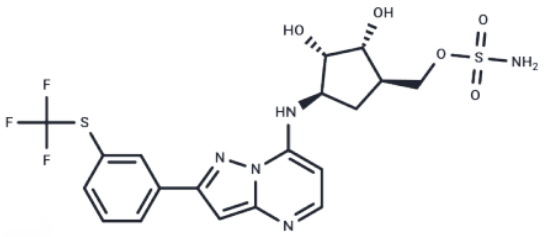
TAK-243

#Cat: NB-64-07969-1mg Size: 1 mg
#Cat: NB-64-07969-1mL Size: 1 mL
#Cat : NB-64-07969-2mg Size: 2 mg
#Cat : NB-64-07969-5mg Size: 5 mg
#Cat : NB-64-07969-10mg Size: 10 mg
#Cat : NB-64-07969-25mg Size: 25 mg
#Cat : NB-64-07969-50mg Size: 50 mg
#Cat : NB-64-07969-100mg Size: 100 mg

Chemical Properties:



CAS No: 1450833-55-2
Formula: $C_{19}H_{20}F_3N_5O_5S_2$
Molecular Weight: 519.52
Appearance: Solid
Storage: keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description:

Description	TAK-243 (MLN7243) is a selective inhibitor of the ubiquitin-activating enzyme UAE (IC50=1 nM), blocking ubiquitin binding and disrupting both mono-ubiquitin signaling and overall protein ubiquitination. TAK-243 exhibits antitumor activity and promotes apoptosis.
Targets (IC50)	Apoptosis,E1/E2/E3 Enzyme,NF-κB
In vitro	**METHODS**: Seven myeloma cells were treated with TAK-243 (6.25-500 nM) for 24 h. Cell viability was measured by WST-1 Assay. **RESULTS**: Most myeloma cells are very sensitive to TAK-243 with IC50 of 25-100 nM, e.g. MM1.S cells with IC50 of 25 nM. [1] **METHODS**: Human colorectal cancer cells HCT-116 were treated with TAK-243 (0.008-1μM) for 24 h, and the expression levels of target proteins were detected by Western Blot. **RESULTS**: TAK-243 showed strong selectivity for Sumo and autophagic UBL pathways, and TAK-243 inhibited two E1 enzymes (UBA6 and UAE), which are capable of activating ubiquitin, with equal potency. [2]
In vivo	**METHODS**: To assay antitumor activity in vivo, TAK-243 (12.5 mg/kg twice weekly; or 25 mg/kg once weekly) was administered intravenously for two weeks to SCID mice bearing myeloma MM1.S or MOLP-8. S and MOLP-8 models, twice-weekly administration of 12.5 mg/kg produced 60% and 73% tumor growth inhibition at 14 days. 25 mg/kg produced a greater effect. [1] **METHODS**: To test the antitumor activity in vivo, TAK-243 (20 mg/kg) was injected intravenously twice weekly into SCID mice bearing the human AML tumor OCI-AML2. **RESULTS**: TAK-243 significantly delayed tumor growth (T/C=0.02) in mice without toxicity. [3]

Solubility Information

Solubility	H_2O: < 1 mg/mL (insoluble or slightly soluble) DMSO: 237.5 mg/mL (457.15 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9249 mL	9.6243 mL	19.2485 mL
5 mM	0.385 mL	1.9249 mL	3.8497 mL
10 mM	0.1925 mL	0.9624 mL	1.9249 mL
50 mM	0.0385 mL	0.1925 mL	0.385 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.

Reference

Zhuang J, et al. Ubiquitin-activating enzyme inhibition induces an unfolded protein response and overcomes drug resistance in myeloma. Blood. 2019 Apr 4;133(14):1572-1584.

Wang Y, Yang H, Li N, et al.A Novel Ubiquitin Ligase Adaptor PTPRN Suppresses Seizure Susceptibility through Endocytosis of NaV1. 2 Sodium Channels.Advanced Science.2024: 2400560.

Hyer ML, et al. A small-molecule inhibitor of the ubiquitin activating enzyme for cancer treatment. Nat Med. 2018 Feb;24(2):186-193.

Selective degradation of multimeric proteins by TRIM21-based molecular glue and PROTAC degraders

Samir H. Barghout, et al. TAK-243 Is a Selective UBA1 Inhibitor That Displays Preclinical Activity in Acute Myeloid Leukemia (AML). Blood 2017, 130:814.

Ubiquitin-activating enzyme inhibition induces an unfolded protein response and overcomes drug resistance in myeloma.[J]. Blood, 2019.