

STAT3/CAIX-IN-1

Chemical Properties

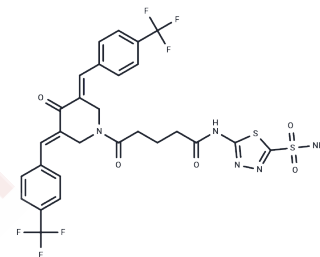
CAS No. : 3053583-60-8

Formula: C₂₈H₂₃F₆N₅O₅S₂

Molecular Weight: 687.63

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	STAT3/CAIX-IN-1 is a dual-target inhibitor of STAT3 (Kd: 60.03 μ M) and CAIX (IC ₅₀ : 80.45 nM). It induces ferroptosis by elevating reactive oxygen species (ROS) and lipid peroxides. This compound also inhibits cell migration, induces apoptosis, and causes cell cycle arrest in MDA-MB-231 cells. STAT3/CAIX-IN-1 is applicable for research in triple-negative breast cancer (TNBC).
Targets(IC ₅₀)	Apoptosis,Bcl-2 Family,Ferroptosis,Caspase,Carbonic Anhydrase,STAT,ROS
In vitro	STAT3/CAIX-IN-1 (Compound 7m) effectively inhibits the phosphorylation of STAT3 in MDA-MB-231 cells at concentrations of 2-8 μ M over 24 hours. At 4 μ M, it binds to STAT3, enhancing its stability. This compound enhances the proliferation inhibition of tumor cell lines with an IC ₅₀ of 2.18 μ M under hypoxia and 4.21 μ M under normoxia in MDA-MB-231 cells. Moreover, STAT3/CAIX-IN-1 induces ferroptosis via the GPX4 pathway, elevates reactive oxygen species levels, and increases lipid peroxidation in MDA-MB-231 cells at 4 μ M and 8 μ M over 24 hours. It also suppresses cell migration at 2 μ M and 4 μ M for 24-48 hours. At 4 μ M and 8 μ M for 24 hours, the compound induces apoptosis and causes G1/S phase cell cycle arrest in MDA-MB-231 cells. STAT3/CAIX-IN-1 demonstrates antitumor activity with IC ₅₀ values of 4.21 μ M in MDA-MB-231 cells, 5.67 μ M in MCF-7, 6.60 μ M in MDA-MB-231/ADR, and 14.19 μ M in MCF-10A.
In vivo	STAT3/CAIX-IN-1 (Compound 7m) demonstrated antitumor activity at doses of 5 mg/kg and 10 mg/kg over 48 hours, achieving a response rate of 75% without affecting weight or behavior. When administered intraperitoneally at 10 mg/kg every other day for 21 days, it reduced phosphorylated STAT3 expression in Balb/c nude mice xenografts. Additionally, STAT3/CAIX-IN-1, at 5 mg/kg and 10 mg/kg intraperitoneally every other day for 21 days, inhibited tumor growth in Balb/c nude mice with MDA-MB-231 xenografts.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.4543 mL	7.2714 mL	14.5427 mL
5 mM	0.2909 mL	1.4543 mL	2.9085 mL
10 mM	0.1454 mL	0.7271 mL	1.4543 mL
50 mM	0.0291 mL	0.1454 mL	0.2909 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.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use

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