

Theophylline-platinum(IV) prodrug-1

Chemical Properties

CAS No. :

Formula:

Molecular Weight:

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	Theophylline-platinum(IV) prodrug-1 is a PARP-1 inhibitor. It enhances DNA damage, ROS generation, mitochondrial dysfunction, apoptosis, and S-phase arrest in SKOV3-BRCA1-KD cells while reducing invasion and metastasis. Additionally, it exhibits strong antitumor activity in SKOV3-BRCA1-KD xenograft tumor models. This compound is used for ovarian cancer research.
Targets(IC50)	Apoptosis,ERK,EGFR,Bcl-2 Family,NF-κB,PARP,ROS,TGF-beta/Smad,Cadherin
In vitro	Theophylline-platinum(IV) prodrug-1 effectively inhibits the proliferation of various cell lines, including SKOV3 (IC 50 = 0.13 μM), SKOV3-BRCA1-KD (IC 50 = 0.1 μM), A549 (IC 50 = 0.31 μM), A549-BRCA1-KD (IC 50 = 0.18 μM), MCF-7 (IC 50 = 0.10 μM), MCF-7-BRCA1-KD (IC 50 = 0.04 μM), MDA-MB-231 (IC 50 = 0.08 μM), IOSE-80 (IC 50 = 0.18 μM), and SI (IC 50 = 18 μM) when applied at concentrations of 10 to 10 ⁻³ μM for 72 hours. This compound also induces DNA damage in SKOV3 and SKOV3-BRCA1-KD cells at a concentration of 10 μM over 6 hours. Additionally, at concentrations ranging from 0.5 to 2 μM for 24 hours, it prompts reactive oxygen species (ROS) generation, disrupts mitochondrial membrane potential, causes cell cycle arrest, and initiates apoptosis in the same cell lines. Furthermore, at 0.5 μM for 24 hours, it inhibits invasion and metastasis in SKOV3 and SKOV3-BRCA1-KD cells.
In vivo	Theophylline-platinum(IV) prodrug-1 (Compound 4) exhibits outstanding antitumor activity in the SKOV3-BRCA1-KD xenograft tumor model, administered intravenously at 2.5 mg/kg every three days over a total of six doses.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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