Data Sheet (Cat.No.T208340)

TargetMol

Antitumor photosensitizer-5

Chemical Properties

CAS No. :

Formula: C53H43F12N11O2P2RuS

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	Antitumor photosensitizer-5 (Ru2) is an effective photosensitizing agent that targets tumor mitochondria, with an IC50 of 0.3 μM for phototoxicity against A549 cells. Upon exposure to 460 nm light, it induces reactive oxygen species production and NADH depletion, leading to mitochondrial damage, caspase-3 activation, apoptosis induction, and inhibition of cell migration. Antitumor photosensitizer-5 shows potential for preventing malignant tumor growth and may be applicable in photodynamic therapy.
Targets(IC50)	Apoptosis,Reactive Oxygen Species
In vitro	Antitumor photosensitizer-5 significantly enhances fluorescence signals in biotin receptor-positive A549 cells by 32.08-fold, but negligibly affects biotin receptor-negative BHK cells with a 7.35-fold increase, after treatment with 10 μM for 4 hours. At concentrations of 0.391-100 μM for 24 hours, it exhibits phototoxicity in both BHK and A549 cells and shows minimal cytotoxicity without light exposure at 100 μM, maintaining over 75% cell viability. It has a Pearson colocalization coefficient of 0.87 with the mitochondrial probe Mito-Tracker Green, indicating a strong mitochondrial association. Treatment with 0.15-0.6 μM for 24 hours and subsequent 15-minute exposure to 460 nm light causes a concentration-dependent decrease in mitochondrial membrane potential probe fluorescence and an increase in ROS probe fluorescence, suggesting mitochondrial damage and efficient ROS generation. In A549 cells, post-illumination, apoptosis is induced, whereas in dark conditions, apoptosis remains unchanged; light exposure increases activated caspase-3 and DNA migration damage and reduces cellular NADH levels. After 460 nm light exposure, it inhibits A549 cell migration at concentrations of 0.15-0.6 μM for 24/48 hours.
In vivo	The compound Antitumor photosensitizer-5, administered at a dose of 10 mg/kg (i.tu., once over 24 days), significantly inhibits tumor growth when exposed to 460 nm light, without causing severe adverse effects on normal organs.

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