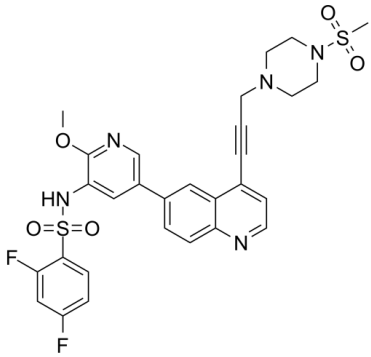
Data Sheet

Product Name:	NSC781406
Cat. No.:	CS-6958
CAS No.:	1676893-24-5
Molecular Formula:	C29H27F2N5O5S2
Molecular Weight:	627.68
Target:	mTOR; PI3K
Pathway:	PI3K/Akt/mTOR
Solubility:	DMSO : ≥ 150 mg/mL (238.98 mM)



BIOLOGICAL ACTIVITY:

NSC781406 is a highly potent **PI3K** and **mTOR** inhibitor with an **IC_{50}** of 2 nM for PI3Kα. IC50 & Target: IC50: 2 nM (PI3Kα), 1.78 μM (A549 cell), 0.93 μM (HCT116 cells), 1.44 μM (MDA-MB-231 cells), 20 nM (BEL-7404 cells)[1] **In Vitro:** NSC781406 demonstrates potent PI3K inhibition (PI3Kα IC_{50}=2.0 nM) that translates into BEL-7404 cells proliferation inhibition (IC_{50}=20 nM). NSC781406 displays reasonable liver microsome stability. NSC781406 demonstrates cytotoxic activities against leukemia, non-small cell, lung cancer, colon cancer, central nervous system cancer, melanoma, ovarian cancer, renal cancer, prostate cancer, and breast cancer. It is potent against 60 cancer cell lines with a mean GI_{50} value of 65 nM, and with a GI50 value less than 10 nM against four cancer cell lines[1]. **In Vivo:** In the xenograft models, treatment with 30 mg/kg of NSC781406 results in statistically significant antitumor activity, with a mean reduction in relative tumor volume ratio of 52%. Sorafenib displays an inhibition ratio of 44% at 50 mg/kg. NSC781406 is well tolerated at 30 mg/kg, with no observed mortality or significant reduction of body weight[1].

PROTOCOL (Extracted from published papers and Only for reference)

Kinase Assay: [1]IC_{50} values for inhibition of the PI3K is measured. PI-103 is used as the reference compound. The compounds (NSC781406) are tested in duplicate for 10 concentrations, 100 nM or 500 nM as the top concentration. All reagents are diluted in kinase buffer.Three-fold, ten-point serial compound (NSC781406) dilutions are performed in kinase buffer[1]. **Cell Assay:** NSC781406 is prepared in DMSO.[1]Cytotoxic effects are tested in the human lung adenocarcinoma cells A549, human colon cancer cells HCT-116, human breast cancer cells MDA-MB-231 and human hepatocellular carcinoma cells BEL-7404. These four tumor cells are diluted to a density of 40,000–50,000 cells/mL in logarithmic phase. After the cells are treated with compounds (NSC781406) for 72 h, MTT solution (5 mg/mL, 20 μL) is added another 4h at 37°C. IC_{50} values are determined by a nonlinear regression analysis[1]. **Animal Administration:** NSC781406 is suspended in Tween-80/water.[1]Mouse: NSC781406 is orally administered once a day 30 mg/kg for 14 consecutive days or with sorafenib at 50 mg/kg. The relative tumor volume to vehicle-treated control mice is monitored[1].

References:

[1]. Chen Y, et al. Discovery of benzenesulfonamide derivatives as potent PI3K/mTOR dual inhibitors with in vivo efficacies against hepatocellular carcinoma. Bioorg Med Chem. 2016 Mar 1;24(5):957-66.

CAIndexNames:

Benzenesulfonamide, 2,4-difluoro-N-[2-methoxy-5-[4-[3-[4-(methylsulfonyl)-1-piperazinyl]-1-propyn-1-yl]-6-quinolinyl]-3-pyridinyl]-

SMILES:

FC1=CC(F)=CC=C1S(=O)(NC2=CC(C3=CC=C(N=CC=C4C#CCN5CCN(S(C)(=O)=O)CC5)C4=C3)=CN=C2OC)=O

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 732-484-9848 Fax: 888-484-5008 E-mail: sales@ChemScene.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA