Product Data Sheet

Product Name: SU6656
Cat. No.: GC17500

Chemical Properties

Cas. No.	330161-87-0		
Chemical Name	(Z)-2-hydroxy-N,N-dimethyl-3-((4,5,6,7-tetrahydro-1H-indol-2-yl)methylene)-3H-indole-5-sulfonamide		
SMILES	CN(S(C1=CC(/C(C(O)=N2)=C([H])/C(N3)=CC4=C3CCCC4)=C2C=C1)(=O)=O)C		
Formula	$C_{19}H_{21}N_3O_3S$	M.Wt	371.45
Solubility	≥ 18.55mg/mL in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	SU6656		

Protocol

Cell experiment [1]:

Cell lines	FRO cells

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Preparation Method	FRO cells were cultured in RPMI 1640 medium supplemented with 10% heat-inactivated fetal bovine serum (FBS) and 1% streptomycin/penicillin at 37°C and 5% CO_2. Cells (5×10^3 cells /100µl) were seeded in 96-well plates and, after overnight culture, treated with 10, 20, 50, and 100µM SU6656 for 24, 48, and 72 hours. CCK-8 reagent was added, and the cells were cultured at 37°C for 4 hours, and the absorbance was measured at a wavelength of 450nm.
Reaction Conditions	10, 20, 50, and 100µM; 24, 48, and 72h
Applications	SU6656 treatment significantly inhibited the cell viability of FRO cells in a concentration- and time-dependent manner.

Animal experiment [2]:

Animal models	Female C57BL/6J mice
Preparation Method	Twelve 4-month-old female C57BL/6J mice were randomly divided into two groups and received intraperitoneal injections of SU6656 (25mg/kg) or an equal volume of control solution (20% dimethyl sulfoxide-DMSO, 20% polyethylene glycol 400, 60% sodium chloride) every other day for 12 weeks (6 mice per group). During the adaptation period (6 weeks) and the duration of the experiment, mice were housed under standard non-barrier conditions with a 12h/12h light/dark cycle and had AD libitum access to RM3 mouse diet and water containing 1.24% Ca and 0.56% available phosphorus. Bone mineral density (BMD) of the whole body, tibia, and lumbar spine was analyzed.
Dosage form	25mg/kg; every other day for 12 weeks; i.p.

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Applications	SU6656 treatment significantly increased total body, tibial, and lumbar BMD in skeletally mature mice, without affecting body weight.

References:
[1] Kim S H, Kang J G, Kim C S, et al. Inhibition of p21 and Akt potentiates SU6656-induced caspase-independent cell death in FRO anaplastic thyroid carcinoma cells[J]. Hormone and Metabolic Research, 2013, 45(06): 408-414.
[2] Thouverey C, Ferrari S, Caverzasio J. Selective inhibition of Src family kinases by SU6656 increases bone mass by uncoupling bone formation from resorption in mice[J]. Bone, 2018, 113: 95-104.

Background

SU6656 is a small-molecule indolinone that selectively inhibits Src, Yes, and Fyn at IC_{50} values of 0.28μM, 0.02μM, and 0.17μM, respectively [1]. SU6656 activated AMPK and

increased the phosphorylation at Thr172, and inhibited the phosphorylation of Erk1/2[2]. SU6656 has been widely used to regulate insulin secretion in different species[3].

In vitro, SU6656 treatment for 72 hours significantly inhibited BaF3 cell proliferation with an IC_{50} value of 0.18μM[4]. Treatment with 100μM SU6656 for 72h significantly inhibited FRO cell viability and resulted in increased p21 protein levels in the cells[5]. Treatment with 5μM SU6656 for 72h resulted in a significant increase in both nuclear and cytoplasmic volumes of B lymphoma cells[6].

In vivo, SU6656 treatment (25mg/kg; every other day for 12 weeks; i.p.) significantly increased total body, tibial, and lumbar Bone mineral density (BMD) in skeletally mature mice, without affecting body weight[7]. Intraperitoneal injection of SU6656 at a dose of 3 mg/kg/ day for 20 consecutive days alleviated fibrosis and improved lung function in a silicosis mouse model[8].

References:
[1] Blake R A, Broome M A, Liu X, et al. SU6656, a selective src family kinase inhibitor, used to probe growth factor signaling[J]. Molecular and cellular biology, 2000, 20(23): 9018-9027.
[2] Ross F A, Hawley S A, Auciello F R, et al. Mechanisms of paradoxical activation of AMPK by the kinase inhibitors SU6656 and sorafenib[J]. Cell chemical biology, 2017, 24(7): 813-824. e4.
[3] Cheng H, Straub S G, Sharp G W G. Inhibitory role of Src family tyrosine kinases on Ca2+-dependent insulin release[J]. American Journal of Physiology-Endocrinology and Metabolism, 2007, 292(3): E845-E852.
[4] Mologni L, Rostagno R, Brussolo S, et al. Synthesis, structure–activity relationship and crystallographic studies of 3-substituted indolin-2-one RET inhibitors[J]. Bioorganic & medicinal chemistry, 2010, 18(4): 1482-1496.
[5] Kim S H, Kang J G, Kim C S, et al. Inhibition of p21 and Akt potentiates SU6656-induced caspase-independent cell death in FRO anaplastic thyroid carcinoma cells[J]. Hormone and Metabolic Research, 2013, 45(06): 408-414.
[6] Dussault N, Simard C, Néron S, et al. Human B lymphocytes and non-Hodgkin's lymphoma cells become polyploid in response to the protein kinase inhibitor SU6656[J]. Blood Cells, Molecules, and Diseases, 2007, 39(1): 130-134.

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[7] Thouverey C, Ferrari S, Caverzasio J. Selective inhibition of Src family kinases by SU6656 increases bone mass by uncoupling bone formation from resorption in mice[J]. Bone, 2018, 113: 95-104.
[8] Hao X, Jin Y, Zhang Y, et al. Inhibition of oncogenic src ameliorates silica-induced pulmonary fibrosis via PI3K/AKT pathway[J]. International Journal of Molecular Sciences, 2023, 24(1): 774.