Product Data Sheet

Product Name: TW-37
Cat. No.: GC12649

Chemical Properties

Cas. No.	877877-35-5		
Chemical Name	N-[4-(2-tert-butylphenyl)sulfonylphenyl]-2,3,4-trihydroxy-5-[(2-propan-2-ylphenyl)methyl] benzamide		
SMILES	CC(C)C1=CC=CC=C1CC2=C(C(=C(C(=C2)C(=O)NC3=CC=C(C=C3)S(=O)(=O)C4=CC=CC=C4C(C)(C)C)O)O)O		
Formula	$C_{33}H_{35}NO_6S$	M.Wt	573.7
Solubility	≥ 19.75 mg/mL in DMSO, ≥ 3.41 mg/mL in EtOH with ultrasonic and warming	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

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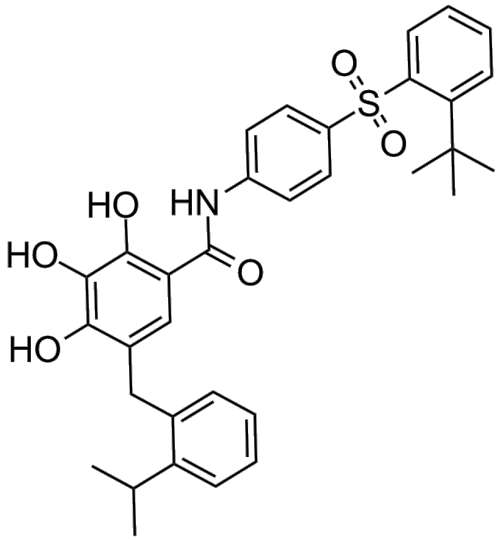
Structure



Protocol

Cell experiment: [1]

Cell lines	BxPC-3 and Colo-357 cells
Preparation method	The solubility of this compound in DMSO is >10 mM. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.
Reaction Conditions	750 nM, 72 hours for cell growth inhibition 500 nM, 48 hours for apoptosis induction (measured by Annexin V)

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Applications	The cell viability was assessed by the clonogenic assay. TW-37 resulted in a significant inhibition of colony formation of BxPC-3 and Colo-357 cells when compared with control. Besides that, TW-37 induced apoptosis in a dose- and time-dependent manner. In the Annexin V assay, the percentage of apoptotic cells increased from 5% to 6% in the control to 12% to 14% in both BxPC-3 and Colo-357 cell lines.

Animal experiment: [1]

Animal models	Female ICR-SCID mice bearing Colo-357 xenografts
Dosage form	Intravenous injection, 20 mg/kg/d
Applications	TW-37 treatment significantly inhibited pancreatic tumor growth in vivo. Western blot analysis showed that the expression level of Notch-1 was significantly lower in tumors from the TW-37–treated mice than those from vehicle-treated control mice. In addition, the expression of Jagged-1 and Notch-1 downstream target gene, Hes-1, was also down-regulated in TW-37–treated tumors.
Other notes	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

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References:

[1] Wang Z, Azmi A S, Ahmad A, et al. TW-37, a small-molecule inhibitor of Bcl-2, inhibits cell growth and induces apoptosis in pancreatic cancer: involvement of Notch-1 signaling pathway. Cancer research, 2009, 69(7): 2757-2765.

Background

TW-37 is a potent small-molecule inhibitor of BCL-2 (K_i = 290 nmol/L), which attenuates BCL-2 activation and inhibits multiple BCL-2 family members including BCL-XL (K_i = 1,110 nmol/L) and MCL-1 (K_i = 260 nmol/L). It binds to the BCL-2 homology domain 3 (BH3) groove of BCL-2 preventing the heterodimerization of proapoptotic proteins (such as Bid, Bim, and Bad) with BCL-2 and subsequently allowing them to induce apoptosis. Recent studies indicate TW-37 is able to inhibit the growth of a broad range of cancer cells (such as breast, prostate, lymphoma, and pancreatic cancer), since it induces S-phase cell cycle arrest with regulation of several important cell cycle related genes, including *p27, p57, E2F-1, cdc25A, CDK4, cyclin A, cyclin D1 and cyclin E.*

Reference

[1].Zhiwei Wang, Asfar Sohail Azmi, Aamir Ahmad, Sanjeev Banerjee, Shaomeng Wang, Fazlul H. Sarkar, and Ramzi M. Mohammad. TW-37, a small-molecule inhibitor of BCL-2, inhibits cell growth and induces apoptosis in pancreatic cancer: involvement of Notch-1 signaling pathway. Cancer Res 2009;69:2757-2765
[2].Naoki Ashimori, Benjamin D. Zeitlin, Zhaocheng Zhang, Kristy Warner, Ilan M. Turkienicz, Aaron C. Spalding, Theodoros N. Teknos, Shaomeng Wang, and Jacques E. Nor. TW-37, a small-molecule inhibitor of BCL-2, mediates S-phase cell cycle arrest and suppresses head and neck tumor angiogenesis. Mol Cancer Ther 2009;8:893-903

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