



上海源叶生物科技有限公司
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产品名称: **Adjudin**
产品别名: **AF-2364**

生物活性:				
Description	Adjudin is an extensively studied male contraceptive with a superior mitochondria-inhibitory effect. Adjudin is also a potent Cl ⁻ channel blocker.			
IC ₅₀ & Target	Cl ⁻ channel[1] Mitochondria[2]			
In Vitro	Adjudin is a potent blocker of Cl ⁻ channels: disrupting Cl ⁻ ion transport function results in a decline in sperm capacitation and fertilizing ability in humans in vitro[1]. Adjudin (ADD) is a mitochondria inhibitor[2]. Adjudin is a molecule that mediates adherens junction disruption at the Sertoli-germ cell interface. To investigate the effect of Adjudin on cancer cells, more than ten different types of human or mice cancer cell lines are treated with increasing concentrations of Adjudin and the cell proliferation is measured by the modified MTT assay. Adjudin inhibits cell proliferation in a dose dependent manner in SGC-7901 (human gastric adenocarcinoma cell), MDA-MB-231 (human breast adenocarcinoma cell), Smmc-7721 (human hepatoma cell) and MIA Paca-2 (human pancreatic adenocarcinoma cell) cells. The IC50 of Adjudin is determined to be 58.0 μM, 13.8 μM, 72.3 μM and 52.7 μM against SGC-7901, MDA-MB-231, Smmc-7721 and MIA Paca-2 cells, respectively, after treatment for 24 h. Similar results are obtained in other human and mice cancer cell lines. The IC50 of Adjudin in A549 cells and PC3 cells is 63.1 μM and 93.0 μM, respectively. For WI-38 and BPH-1 cells, the IC50 of Adjudin can be observed at more than 300 μM and 200 μM, respectively, which is about 5 times and 2 times more than that for the cancer cell lines A549 and PC3[3].			
In Vivo	To determine whether Adjudin can inhibit lung and prostate cancer growth in vivo, the effect of Adjudin is tested in a subcutaneous model of lung and prostate cancer. Human lung carcinoma cells A549 and prostate carcinoma cells PC3 are injected into athymic nude mice subdermally at the lower back site respectively. Mice are then randomized into two treatment groups with similar mean tumor sizes: Adjudin and vehicle (control). Approximately 2 weeks after tumor inoculation Adjudin is injected intraperitoneally once every three days in lung carcinoma cells and every other day in prostate carcinoma cells at 100 mg/kg. Adjudin treatment can be well tolerated in rodent. And Adjudin-treated mice show significant tumor growth inhibition compared with the control group (P<0.0001 in the human lung carcinoma cells A549 and P=0.006 in the prostate carcinoma cells PC3)[3].			
In Vitro: DMSO : 16.67 mg/mL (49.73 mM; Need ultrasonic)				
Preparing Stock Solutions	<div>Solvent / Mass / Concentration</div>	1 mg	5 mg	10 mg
	1 mM	2.9834 mL	14.9169 mL	29.8338 mL
	5 mM	0.5967 mL	2.9834 mL	5.9668 mL
	10 mM	0.2983 mL	1.4917 mL	2.9834 mL
<p>*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液; 一旦配成溶液, 请分装保存, 避免反复冻融造成的产品失效。</p> <p>储备液的保存方式和期限 -80°C, 6 months; -20°C, 1 month。 -80°C 储存时, 请在 6 个月内使用, -20°C 储存时, 请在 1 个月内使用。</p>				



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Solvent&Solubility	<p>In Vivo:</p> <p>请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 In Vitro 方式配制澄清的储备液, 再依次添加助溶剂:</p> <p>——为保证实验结果的可靠性, 澄清的储备液可以根据储存条件, 适当保存; 体内实验的工作液, 建议您现用现配, 当天使用; 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比; 如在配制过程中出现沉淀、析出现象, 可以通过加热和/或超声的方式助溶</p> <p>1.请依序添加每种溶剂: 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline</p> <p>Solubility: ≥ 1.67 mg/mL (4.98 mM); Clear solution</p> <p>此方案可获得 ≥ 1.67 mg/mL (4.98 mM, 饱和度未知) 的澄清溶液。</p> <p>以 1 mL 工作液为例, 取 100 μL 16.699999 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中, 混合均匀; 向上述体系中加入 50 μL Tween-80, 混合均匀; 然后继续加入 450 μL 生理盐水定容至 1 mL。</p> <p>2.请依序添加每种溶剂: 10% DMSO →90% corn oil</p> <p>Solubility: ≥ 1.67 mg/mL (4.98 mM); Clear solution</p> <p>此方案可获得 ≥ 1.67 mg/mL (4.98 mM, 饱和度未知) 的澄清溶液, 此方案不适用于实验周期在半个月以上的实验。</p> <p>以 1 mL 工作液为例, 取 100 μL 16.699999 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中, 混合均匀。</p>
References	<p>[1]. Li K, et al. Inhibition of sperm capacitation and fertilizing capacity by adjuvin is mediated by chloride and its channels in humans. Hum Reprod. 2013 Jan;28(1):47-59.</p> <p>[2]. Li X, et al. Combination delivery of Adjuvin and Doxorubicin via integrating drug conjugation and nanocarrier approaches for the treatment of drug-resistant cancer cells. J Mater Chem B. 2015 Feb 28;3(8):1556-1564.</p> <p>[3]. Xie QR, et al. Male contraceptive Adjuvin is a potential anti-cancer drug. Biochem Pharmacol. 2013 Feb 1;85(3):345-55.</p>
实验参考:	
Cell Assay	<p>A549 cells, WI-38 cells, BPH-1 cells, PC-12 cells and other cell lines are seeded in 96-well plates at the density of 0.5×10^4/well in the complete growth medium and incubated for 24 h. Then the growth medium is replaced with a serial dilution of Adjuvin (300 μM, 100 μM, 30 μM, 10 μM, 3 μM and 0) in growth medium (without serum). The cells are incubated for another 24 h followed by the addition of 10 μL of Cell Counting Kit-8 solution to each well. After 4 h of incubation at 37 °C in the cell incubator, the absorbance at 450 nm is measured using a microplate reader[3].</p>
Animal Administration	<p>Mice[3]</p> <p>The male BALB/C nude mice weighing ~20g are equally implanted with A549 cells (0.5×10^7 cells) containing 3 mg/mL of matrigel and PC3 cells (1×10^6 cells) hypodermically. After 2 weeks, the mice with palpable tumors are divided into two groups (n=4 per group in each experiment and repeated with a total of three experiments): i.p. injection of Adjuvin which is dissolved in corn oil from a DMSO stock solution with final administered quantity at 100 mg/kg (~300 μM used in vitro); the equivalent vehicle control group are administered with the same amount of corn oil and DMSO via i.p. injection. Adjuvin or vehicles are administered every three day in A549 and every other day in PC3 up to 2</p>



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	weeks. Tumor volumes are determined and calculated.
References	<p>[1]. Li K, et al. Inhibition of sperm capacitation and fertilizing capacity by adjudin is mediated by chloride and its channels in humans. Hum Reprod. 2013 Jan;28(1):47-59.</p> <p>[2]. Li X, et al. Combination delivery of Adjudin and Doxorubicin via integrating drug conjugation and nanocarrier approaches for the treatment of drug-resistant cancer cells. J Mater Chem B. 2015 Feb 28;3(8):1556-1564.</p> <p>[3]. Xie QR, et al. Male contraceptive Adjudin is a potential anti-cancer drug. Biochem Pharmacol. 2013 Feb 1;85(3):345-55.</p>



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