产品名称：**EW-7197**
产品别名：**Vactosertib**

生物活性：					
Description	Vactosertib (EW-7197) is a potent, orally active and ATP-competitive activin receptor-like kinase 5 (ALK5) inhibitor with an IC50 of 12.9 nM. Vactosertib also inhibits ALK2 and ALK4 (IC50 of 17.3 nM) at nanomolar concentrations. Vactosertib has potently antimetastatic activity and anticancer effect[1][2].				
IC_{50} & Target	ALK5				
	12.9 nM (IC_{50})				
In Vitro	Vactosertib (10-1000 nM; 30 minutes; 4T1 cells) treatment blocks the TGFβ-induced phosphorylation of Smad2 or Smad3 in a dose-dependent manner in 4T1 cells[1]. Vactosertib suppresses the TGFβ-induced nuclear translocation of Smad2/3 in 4T1 cells and MCF10A cells. The IC50 value of Vactosertib on pSmad3 in 4T1 cells is 10-30 nM[1]. Vactosertib abrogates TGFb1-induced tumor cell migration and invasion[1]. TGFβ1 downregulated the mRNA level of CDH1 and upregulated the mRNA levels of FN1, HMGA2 (high-mobility group AT-hook 2), SNAI1, and SNAI2 (Snail family zinc finger 1 and 2, respectively). Moreover, Vactosertib abolishes the TGFβ1-induced effects on genes related to epithelial-to-mesenchymal transition (EMT)[1].				
	Western Blot Analysis[1]				
	Cell Line:	4T1 cells			
	Concentration:	10 nM, 30 μM, 50 nM, 100 μM, 300 nM, 500 nM, 1000 nM			
	Incubation Time:	30 minutes			
	Result:	Blocked the TGFb-induced phosphorylation of Smad2 or Smad3 in a dose-dependent manner.			
In Vivo	Vactosertib (40 mg/kg; intraperitoneal injection; every other day; for 10 weeks; MMTV/c-Neu female mice) treatment inhibits Smad/TGFβ signaling, cell migration, invasion, and lung metastasis in MMTV/c-Neu mice[1]. Vactosertib also inhibits the epithelial-to-mesenchymal transition (EMT) in both TGFβ-treated breast cancer cells and 4T1 orthotopic-grafted mice. Furthermore, Vactosertib enhances cytotoxic T lymphocyte activity in 4T1 orthotopic-grafted mice and increased the survival time of 4T1-Luc and 4T1 breast tumor-bearing mice[1].				
	Animal Model:	Mammary tumor virus (MMTV)/c-Neu female mice (32-week-old)[1]			
	Dosage:	40 mg/kg			
	Administration:	Intraperitoneal injection; every other day; for 10 weeks			
	Result:	Inhibited Smad/TGFβ signaling, cell migration, invasion, and lung metastasis in MMTV/c-Neu mice.			
	In Vitro: **DMSO : ≥ 83.3 mg/mL** (**208.55 mM**) **H_2O : < 0.1 mg/mL** (insoluble) * "≥" means soluble, but saturation unknown.				
	Preparing	**Solvent / Mass / Concentration**	**1 mg**	**5 mg**	**10 mg**
		1 mM	2.5036 mL	12.5182 mL	25.0363 mL

<table>
<tr><td rowspan="3">Solvent&Solubility</td><td rowspan="2">Stock Solutions</td><td>5 mM</td><td>0.5007 mL</td><td>2.5036 mL</td><td>5.0073 mL</td></tr>
<tr><td>10 mM</td><td>0.2504 mL</td><td>1.2518 mL</td><td>2.5036 mL</td></tr>
<tr><td colspan="5">*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。
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。
In Vivo:
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：
——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
1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline
Solubility: ≥ 2.5 mg/mL (6.26 mM); Clear solution
此方案可获得 ≥ 2.5 mg/mL (6.26 mM，饱和度未知) 的澄清溶液。
以 1 mL 工作液为例，取 100 μL 25.0 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。

2.请依序添加每种溶剂： 10% DMSO→ 90% (20% SBE-β-CD in saline)
Solubility: 2.5 mg/mL (6.26 mM); Suspended solution; Need ultrasonic
此方案可获得 2.5 mg/mL (6.26 mM)的均匀悬浊液，悬浊液可用于口服和腹腔注射。
以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 20% 的 SBE-β-CD 生理盐水水溶液中，混合均匀。

3.请依序添加每种溶剂： 10% DMSO →90% corn oil
Solubility: ≥ 2.5 mg/mL (6.26 mM); Clear solution
此方案可获得 ≥ 2.5 mg/mL (6.26 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。
以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。</td></tr>
<tr><td>References</td><td colspan="5">[1]. Son JY et al. EW-7197, a novel ALK-5 kinase inhibitor, potently inhibits breast to lung metastasis, 2014 Jul, 13(7):1704-16.
[2]. Naka K, et al. Novel oral transforming growth factor-β signaling inhibitor EW-7197 eradicates CML-initiating cells. Cancer Sci. 2016 Feb;107(2):140-8.</td></tr>
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