产品名称：Atglistatin
产品别名：Atglistatin

生物活性：

Description	Atglistatin is a selective adipose triglyceride lipase (**ATGL**) inhibitor which inhibits lipolysis with an **IC_{50}** of 0.7 μM *in vitro*.
IC_{50} & Target	IC50: 0.7 μM (ATGL)[1]
In Vitro	Atglistatin inhibits Triacylglycerol (TG) hydrolase activity of wild-type white adipose tissue (WAT) in a dose-dependent manner up to 78% at the highest concentration. In comparison to wild-type preparations, TG hydrolase activity in WAT lysates from ATGL-ko animals is reduced by approximately 70% and Atglistatin had only a moderate effect on the residual activity. The combined use of Atglistatin and the hormone-sensitive lipase (HSL) inhibitor Hi 76-0079 leads to an almost complete inhibition (-95%) of TG hydrolase activity of WAT which implicates that most of the non-ATGL activity can be ascribed to HSL[1].
In Vivo	Animals receive Atglistatin dissolved in olive oil by oral gavage. After application, blood and tissues are collected for determination of plasma parameters, tissue Triacylglycerol (TG) levels, and inhibitor concentrations. Time-course experiments revealed that the lipolytic parameters fatty acids (FA) and glycerol are reduced 4 and 8 hours after application and returned to normal after 12 hours. Eight hours after treatment, a dose-dependent decrease is observed in FA and glycerol levels up to 50% and 62%, respectively. Atglistatin also caused a strong reduction in plasma TG levels (-43%) while blood glucose, total cholesterol, ketone bodies, and insulin levels do not significantly change. Dose and time-dependent inhibition of lipolysis is also observed in response to intraperitoneal injection of Atglistatin[1].
Solvent&Solubility	***In Vitro:*** **DMSO : ≥ 100 mg/mL** (**352.90 mM**) **H_2O : < 0.1 mg/mL** (insoluble) * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.5290 mL	17.6448 mL	35.2896 mL
	5 mM	0.7058 mL	3.5290 mL	7.0579 mL
	10 mM	0.3529 mL	1.7645 mL	3.5290 mL

*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 (8.82 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (8.82 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% corn oil Solubility: ≥ 2.5 mg/mL (8.82 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (8.82 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。
References	[1]. Mayer N, et al. Development of small-molecule inhibitors targeting adipose triglyceride lipase. (2013) Nat Chem Biol. 9(12):785-7.

实验参考：

Cell Assay	For MTT-based in vitro viability assays, cells are seeded at an initial density of 1×10^4 cells per well in 96-well plates and cultured under standard conditions for 24 hours. The next day, cells are pretreated with different concentrations of Atglistatin dissolved in DMSO or Cisplatin dissolved in dimethylformamide (DMF) as positive control for two hours. Medium is replaced by an identical fresh medium and incubated again for the indicated time-points. Thereafter cells are incubated for 3 hours with 100 μL Thiazolyl Blue Tetrazolium Bromide (MTT). The resulting violet formazan crystals are dissolved by adding 100 μL of MTT solubilization solution (0.1% NP-40, 4 mM HCl and anhydrous isopropanol). After complete dissolution of the formazan product, absorbance is measured at 595 nm using 690 nm as reference wavelength[1].
Animal Administration	Mice[1] Mice (C57Bl/6J) are used. Atglistatin is administrated orally by gavage in olive oil (200 μL) or by IP injection. For IP administration, we generated Atglistatin hydrochloride by the addition of 25 % HCl resulting in a water soluble compound. For intraperitoneal injection the inhibitor is dried, excess HCl is buffered with Tris base, and Atglistatin is dissolved in PBS containing 0.25 % Cremophor EL (pH 7.1). Atglistatin is administered orally by gavage in olive oil (1.4 mg/mouse). After 8 h tissues are collected and extracted twice using Folch procedure. Combined organic phases are concentrated, reconstituted in 500 μL chloroform and ssubjected to solid phase extraction (SPE). For SPE samples are loaded onto silica columns washed twice with 2 mL of chloroform and Atglistatin is eluted using 3 mL chloroform/methanol (99/1, v/v). Eluted samples are concentrated, dissolved in n-propanol/chloroform/methanol (8/1.3/0.6, v/v/v) and analyzed by UPLC/MS (m/z 284, MH+; SYNAPT G1 qTOF HD mass spectrometer, Waters).
References	[1]. Mayer N, et al. Development of small-molecule inhibitors targeting adipose triglyceride lipase. (2013) Nat Chem Biol. 9(12):785-7.