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产品名称：AdipoRon
产品别名：AdipoRon

生物活性：

Description	AdipoRon is an orally active adiponectin receptor (AdipoR) agonist, binding to AdipoR1 and AdipoR2 with Kds of 1.8 and 3.1 μM, respectively.
IC_{50} & Target	Kd: 1.8 μM (AdipoR1), 3.1 μM (AdipoR2)[1]
In Vitro	AdipoRon is an orally active and specific AdipoR agonist, binds to AdipoR1 and AdipoR2, with K_ds of 1.8 and 3.1 μM. AdipoRon (50 nM-50 μM) increases AMPK phosphorylation via AdipoR1[1]. AdipoRon (50 μM) dose-dependently attenuates the expression of TNF-α and TGF-β1 in the L02 cells. AdipoRon exhibits significant and dosage-dependent growth suppression on macrophages[2]. AdipoRon treatment significantly improves cardiac functional recovery after reperfusion, and inhibits post-MI apoptosis[3]. AdipoRon exerts vasodilation by mechanisms distinct to adiponectin and induces vasorelaxation without a marked decrease in VSMC $[Ca^{2+}]i$[4].
In Vivo	AdipoRon (50 mg/kg, i.v.) cuases significant phosphorylation of AMPK in skeletal muscle and liver of wild-type mice but not Adipor1$^{-/-}$ Adipor2$^{-/-}$ double-knockout mice[1]. AdipoRon (0.02, 0.1, and 0.5 mg/kg, i.g.) alleviates D-GalN induced hepatotoxicity in mice, and prevents hepatic architecture distortion against D-GalN challenge. The hepatoprotective potential of AdipoRon is particularly evident in higher dosages (0.1 and 0.5 mg/kg)[2]. Enhanced cardiomyocyte apoptosis in APN-deficient mice is rescued by AdipoRon (50 mg/kg, p.o.) administration. Antiapoptotic effect of AdipoRon is attenuated but not lost in AMPK-DN mice[3].
Solvent&Solubility	***In Vitro:*** **DMSO : ≥ 44 mg/mL (102.68 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	2.3336 mL	11.6681 mL	23.3361 mL
5 mM	0.4667 mL	2.3336 mL	4.6672 mL
10 mM	0.2334 mL	1.1668 mL	2.3336 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 (5.83 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (5.83 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 (5.83 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (5.83 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 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 (5.83 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (5.83 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]. Okada-Iwabu M, et al. A small-molecule AdipoR agonist for type 2 diabetes and short life in obesity. Nature. 2013 Nov 28;503(7477):493-9. [2]. Wang Y, et al. Hepatoprotective effects of AdipoRon against d-galactosamine-induced liver injury in mice. Eur J Pharm Sci. 2016 Aug 9;93:123-131. [3]. Zhang Y, et al. AdipoRon, the first orally active adiponectin receptor activator, attenuates postischemic myocardial apoptosis through both AMPK-mediated and AMPK-independent signalings. Am J Physiol Endocrinol Metab. 2015 Aug 1;309(3):E275-82. [4]. Hong K, et al. Adiponectin Receptor Agonist, AdipoRon, Causes Vasorelaxation Predominantly Via a Direct Smooth Muscle Action. Microcirculation. 2016 Apr;23(3):207-20.

实验参考：

Cell Assay	The effects of AdipoRon on the proliferation of parenchymal and non-parenchymal hepatocytes are evaluated in vitro via L02 and RAW264.7, by MTT assay as described with slight modification: 100 μL cells suspension (6×10^4/mL) are seeded in a 96-well plate and incubated for 18 h. Fresh media with AdipoRon are added at specified concentrations, and the incubations continue for a further 24 h. Then cells are incubated for 4 h with 0.5 mg/mL of MTT, and analyzed in a microplate reader at 490 nm. Each group is performed in six replications. The mean absorbance values corrected for a blank (medium only) are calculated as percentages of survival[2].
Animal Administration	Mice[2] After 3 days of acclimation, mice are randomLy divided into six groups (9 mice in each): control, model, bicyclol (20 mg/kg), AdipoRon (0.02 mg/kg, 0.1 mg/kg, 0.5 mg/kg). The synthetic AdipoRon and bicyclol are dissolved in DMSO and diluted by saline containing 0.5% sodium carboxymethyl cellulose (CMC-Na) [final vehicle: 5% DMSO (v/v) saline solution]. All test groups are administered with vehicle (control and model groups) or therapeutic agents (bicyclol or AdipoRon groups) at a dosing volume of 10 mL/kg, by intragastric (i.g.) gavage twice per day for three consecutive days

	prior to D-GalN administration. 2 h after last treatment, mice are challenged with a single intraperitoneal (i.p.) administration of D-GalN saline solution at a dose of 600 mg/kg to induce acute liver injury, while the control group mice receive saline instead. Then mice are fasted for 20 h before orbital blood collection. Finally, all animals are sacrificed by cervical dislocation, and livers are harvested for biochemical or histopathology analysis[2].
References	[1]. Okada-Iwabu M, et al. A small-molecule AdipoR agonist for type 2 diabetes and short life in obesity. Nature. 2013 Nov 28;503(7477):493-9. [2]. Wang Y, et al. Hepatoprotective effects of AdipoRon against d-galactosamine-induced liver injury in mice. Eur J Pharm Sci. 2016 Aug 9;93:123-131. [3]. Zhang Y, et al. AdipoRon, the first orally active adiponectin receptor activator, attenuates postischemic myocardial apoptosis through both AMPK-mediated and AMPK-independent signalings. Am J Physiol Endocrinol Metab. 2015 Aug 1;309(3):E275-82. [4]. Hong K, et al. Adiponectin Receptor Agonist, AdipoRon, Causes Vasorelaxation Predominantly Via a Direct Smooth Muscle Action. Microcirculation. 2016 Apr;23(3):207-20.