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# 产品名称：GW1929
# 产品别名：GW1929

## 生物活性：

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| **Description** | GW1929 is a potent PPAR-γ agonist, with a pKi of 8.84 for human PPAR-γ, and pEC50s of 8.56 and 8.27 for human PPAR-γ and murine PPAR-γ, respectively. |
| **$IC_{50}$ & Target** | PPAR |
| | 8.56 ($pEC_{50}$, Human PPAR |
| **In Vitro** | GW1929 is a potent PPAR-γ activator, with $pK_i$s of 8.84, < 5.5, and < 6.5 for human PPAR-γ, PPAR-α, and PPAR-δ, and $pEC_{50}$s of 8.56 and 8.27 for human PPAR-γ and murine PPAR-γ, respectively[1]. GW1929 (10 μM) inhibits TBBPA-induced caspase-3 increase and TBBPA-stimulated LDH release in neocortical cell cultures[2]. |
| **In Vivo** | GW1929 (0.5, 1, 5 mg/kg, p.o.) highly decreases nonfasted plasma glucose levels in Zucker diabetic fatty (ZDF) rats after treatment for 14 days, and possesses antilipolytic efficacy. GW1929 (1, 5 mg/kg, p.o.) increases glucose-stimulated insuline secretion of β-cell in ZDF rats[1]. |
| **Solvent&Solubility** | ***In Vitro:***<br>**DMSO : ≥ 35 mg/mL (70.63 mM)**<br>* "≥" means soluble, but saturation unknown. |

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
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| 1 mM | 2.0179 mL | 10.0894 mL | 20.1788 mL |
| 5 mM | 0.4036 mL | 2.0179 mL | 4.0358 mL |
| 10 mM | 0.2018 mL | 1.0089 mL | 2.0179 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 (5.04 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (5.04 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 (5.04 mM); Clear solution

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| | 此方案可获得 ≥ 2.5 mg/mL (5.04 mM，饱和度未知) 的澄清溶液。<br>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。 |
| **References** | [1]. Brown KK, et al. A novel N-aryl tyrosine activator of peroxisome proliferator-activated receptor-gamma reverses the diabetic phenotype of the Zucker diabetic fatty rat. Diabetes. 1999 Jul;48(7):1415-24.<br>[2]. Wojtowicz AK, et al. PPAR-γ agonist GW1929 but not antagonist GW9662 reduces TBBPA-induced neurotoxicity in primary neocortical cells. Neurotox Res. 2014 Apr;25(3):311-22. |

**实验参考：**

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| **Cell Assay** | For the experiments, the cells are plated in 96-well plates at a density 2 × $10^5$ cells per $cm^2$ and cultured in the presence of TBBPA, in a concentrations range from 1 nM to 100 μM TBBPA. TBBPA is dissolved in DMSO, resulting in a final vehicle concentration of 0.1 % (v/v). Control (no vehicle) and DMSO-treated wells are included in the experimental design to determine the effect of DMSO. To study whether PPAR-γ is involved in the neurotoxic effect of TBBPA, cells are co-treated with 10 μM TBBPA and 10 μM GW1929 or GW9662. After 6 or 24 h of culture, 100 μL medium is collected for the LDH analysis, and the cells are collected and frozen at −70°C for the caspase-3 activity measurements[2]. |
| **AnimalAdministration** | Animals are housed at 72°F and 50% relative humidity with a 12-h light and dark cycle, and fed Formulab Diet 5008. Age- (60-day) and glucose-matched male Zucker diabetic fatty rats are gavaged twice daily for 14 days with vehicle (0.05 M N-methylglucamine), GW1929 (0.5, 1.0, or 5.0 mg/kg), or troglitazone (as the milled extrudate, in a suspension in methylcellulose, 50, 150, and 500 mg/kg). Another group of animals receives a mixture of Humulin N and Humulin R by subcutaneous injection twice daily. On days 7 and 14 of dosing, nonfasted measurements of glucose, lactate, insuline, total cholesterol, TGs, F FAs, and hematocrit are obtained. On day 14 of dosing, samples for serum drug levels (2-h postdose) and glycosylated hemoglobin measurements are also collected. In addition, once weekly, three animals from each group are placed in metabolic chambers for 48 h for quantitation of 24-h food and water consumption. Body weights are recorded throughout the study. At the conclusion of the study, perfused pancreas experiments are performed on 12 animals (n = 4 per group) that have received either GW1929 (1 and 5 mg/kg) or vehicle, to directly evaluate the effects of treatment on basal and glucose-stimulated insuline secretion. The remaining animals are killed, and their pancreases are processed for immunocytochemistry[1]. |
| **Kinase Assay** | Ligand binding to bacterially expressed ligand binding domain (LBD) of hPPAR-γ is determined by scintillation proximity assay (SPA). The assay measures the ability of putative ligands to displace receptor bound [$^3$H]BRL 49653. Assays are conducted in 96-well plates. Wells contained varying concentrations of GW1929 or troglitazone; streptavidin-modified SPA beads to which biotinylates PPAR-γ LBD is prebound; and 10 nM of the specific radioligand [$^3$H]BRL 49653 in a volume of 100 μL. The amount of nonspecific binding, as assessed by control wells that contained 50 μM of the corresponding unlabeled ligand, is subtracted from each data point. For each compound tested, plots of ligand concentration versus counts/min of radioligand bound are constructed, and apparent $K_i$ values are estimated from a nonlinear least squares fit of the data, assuming simple competitive binding. The results are expressed as $pK_i$, where $pK_i = -\log_{10}(K_i)$[1]. |

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| **References** | [1]. Brown KK, et al. A novel N-aryl tyrosine activator of peroxisome proliferator-activated receptor-gamma reverses the diabetic phenotype of the Zucker diabetic fatty rat. Diabetes. 1999 Jul;48(7):1415-24.<br>[2]. Wojtowicz AK, et al. PPAR-γ agonist GW1929 but not antagonist GW9662 reduces TBBPA-induced neurotoxicity in primary neocortical cells. Neurotox Res. 2014 Apr;25(3):311-22. |