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# 产品名称：AMG9810
# 产品别名：AMG9810

## 生物活性：

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| **Description** | AMG9810 is a selective and competitive vanilloid receptor 1 (TRPV1) antagonist with $IC_{50}$ values of 24.5 and 85.6 nM for human and rat TRPV1, repectively. |
| **$IC_{50}$ & Target** | IC50: 24.5 nM (human TRPV1), 85.6 nM (rat TRPV1)[1] |
| **In Vitro** | AMG9810 is a competitive antagonist of capsaicin activation ($IC_{50}$ value for human TRPV1, 24.5±15.7 nM; rat TRPV1, 85.6±39.4 nM) and blocks all known modes of TRPV1 activation, including protons ($IC_{50}$ value for rat TRPV1, 294±192 nM; human TRPV1, 92.7±72.8 nM), heat ($IC_{50}$ value for rat TRPV1, 21±17 nM; human TRPV1, 15.8±10.8 nM), and endogenous ligands, such as anandamide, N-arachidonyl dopamine, and oleoyldopamine. AMG9810 blocks capsaicin-evoked depolarization and calcitonin gene-related peptide release in cultures of rat dorsal root ganglion primary neurons. AMG9810 inhibits capsaicin-, proton-, heat-, and endogenous ligand-induced uptake of $^{45}Ca^{2+}$ into TRPV1-expressing cells[1]. |
| **In Vivo** | AMG9810 is effective at preventing capsaicin-induced eye wiping in a dose-dependent manner, and it reverses thermal and mechanical hyperalgesia in a model of inflammatory pain induced by intraplantar injection of complete Freund's adjuvant. At effective doses, AMG9810 does not show any significant effects on motor function. AMG9810 is the first cinnamide TRPV1 antagonist reported to block capsaicin-induced eye wiping behavior and reverse hyperalgesia in an animal model of inflammatory pain[1]. AMG9810, promotes mouse skin tumor development. The topical application of AMG9810 results in a significant increase in the expression level of the epidermal growth factor receptor (EGFR) and its downstream Akt/mammalian target of rapamycin (mTOR)-signaling pathway[2]. |
| **Solvent&Solubility** | ***In Vitro:***<br>**DMSO : ≥ 33 mg/mL (97.80 mM)**<br>* "≥" means soluble, but saturation unknown. |

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.9638 mL | 14.8188 mL | 29.6375 mL |
| 5 mM | 0.5928 mL | 2.9638 mL | 5.9275 mL |
| 10 mM | 0.2964 mL | 1.4819 mL | 2.9638 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

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| | Solubility: ≥ 2.5 mg/mL (7.41 mM); Clear solution<br>此方案可获得 ≥ 2.5 mg/mL (7.41 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 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。<br>2.请依序添加每种溶剂： 10% DMSO→ 90% (20% SBE-β-CD in saline)<br>Solubility: ≥ 2.5 mg/mL (7.41 mM); Clear solution<br>此方案可获得 ≥ 2.5 mg/mL (7.41 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<br>3.请依序添加每种溶剂： 10% DMSO →90% corn oil<br>Solubility: ≥ 2.5 mg/mL (7.41 mM); Clear solution<br>此方案可获得 ≥ 2.5 mg/mL (7.41 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。<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 玉米油中，混合均匀。 |
| **References** | [1]. Gavva NR, et al. AMG9810 [(E)-3-(4-t-butylphenyl)-N-(2,3-dihydrobenzo[b][1,4] dioxin-6-yl)acrylamide], a novel vanilloid receptor 1 (TRPV1) antagonist with antihyperalgesic properties. J Pharmacol Exp Ther. 2005 Apr;313(1):474-84.<br>[2]. Li S, et al. TRPV1-antagonist AMG9810 promotes mouse skin tumorigenesis through EGFR/Akt signaling. Carcinogenesis. 2011 May;32(5):779-85. |

**实验参考：**

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| **Cell Assay** | To assess cyotoxicity of AMG9810, N/TERT1 cells are treated with different concentrations of AMG9810 (0.25, 0.5, 1, 5 μM) and cultured for various periods of time (24, 48, 72 h). The CellTiter 96 AQueous One Solution is added to each well and then cells are kept in a 37°C, 5% $CO_2$ incubator for 1 h. Absorbance is then measured at 492 and 690 nm with a plate reader[2]. |
| **Animal Administration** | Rats: AMG9810 is dissolved in DMSO. Rats are acclimated for 30 to 45 min in a 30×30×30-cm Plexiglas chambers before the intraperitoneal injection of either vehicle (DMSO) or AMG 9810. Injections are made over a 5-s period in the lower right ventral quadrant of the abdomen either 15, 30, or 60 min before intraocular application of capsaicin. Intraocular application of capsaicin (3 μg/20 μL in 10% ethanol/PBS) or vehicle (20 μL in 10% ethanol/PBS) is done with a pipette, and the number of front paw eye wipes is counted over a 5-min period in 1-min intervals [1]. |
| **Kinase Assay** | Cultured adult rat dorsal root ganglia neurons in 96-well plates are washed twice with release buffer to initiate the assay. CGRP release is induced by incubation of neurons with capsaicin for 10 min at room temperature. The cultures are preincubated with increasing concentrations of capsazepine or AMG9810 for 15 min, followed by 300 nM capsaicin activation for 10 min at room temperature. The extracellular medium is collected and the CGRP content is determined using a commercially kit[1]. |
| **References** | [1]. Gavva NR, et al. AMG9810 [(E)-3-(4-t-butylphenyl)-N-(2,3-dihydrobenzo[b][1,4] dioxin-6-yl)acrylamide], a novel vanilloid receptor 1 (TRPV1) antagonist with antihyperalgesic properties. J Pharmacol Exp Ther. 2005 Apr;313(1):474-84.<br>[2]. Li S, et al. TRPV1-antagonist AMG9810 promotes mouse skin tumorigenesis through EGFR/Akt signaling. Carcinogenesis. 2011 May;32(5):779-85. |