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产品名称：N-(1,3-苯并二氧杂环戊烯-5-基甲基)-2,6-二氯苯甲酰胺
产品别名：Alda-1

生物活性：

Description	Alda-1 is a potent ALDH2 agonist, which activates wild-type ALDH2 and restores near wild-type activity to ALDH2*2.
IC_{50} & Target	ALDH2[1]
In Vivo	Alda-1 treatment results in a significant decrease of 4-HNE-protein content in the plasma of apoE$^{-/-}$ mice. Alda-1 administration leads to a slight increase in gene expression related to neurogenesis (*Nog*), mitochondrial biogenesis (*CYTB*, *ND1*), and apoptosis (*Bax*, *Gsk3b*) in the Hp of apoE$^{-/-}$ mice. Alda-1 administration leads to 2 and 10 differentially expressed proteins in the FCx and Hp of apoE$^{-/-}$ mice, respectively[1]. Alda-1 (1.5 mg/kg, b.w., i.p.) administration significantly increases the climbing time, tends to reduce the immobility time and increases the swimming time of the prenatally stressed rats in the forced swim test. Moreover, treatment of prenatally stressed rats with Alda-1 significantly increases number of entries into the open arms of the maze and the time spent therein, as assessed by elevated plus-maze test[2]. Alda-1 (8.5 mg/kg, i.p.) with glucose significantly lowers 4-HNE and FJB-positive cells in the cerebral cortex of Alda-1-treated rats than in DMSO-treated rats 24 h after glucose administration[3]. Alda-1 (10 mg/kg per day) treatment prevents aldehydic overload, mitochondrial dysfunction and improves ventricular function in post-MI cardiomyopathy rats[4].
Solvent&Solubility	***In Vitro:*** **DMSO : ≥ 51 mg/mL (157.33 mM)** * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0849 mL	15.4245 mL	30.8490 mL
	5 mM	0.6170 mL	3.0849 mL	6.1698 mL
	10 mM	0.3085 mL	1.5424 mL	3.0849 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 →90% corn oil

Solubility: ≥ 2.5 mg/mL (7.71 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (7.71 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]. Stachowicz A, et al. Proteomic Analysis of Mitochondria-Enriched Fraction Isolated from the Frontal Cortex and Hippocampus of Apolipoprotein E Knockout Mice Treated with Alda-1, an Activator of Mitochondrial Aldehyde Dehydrogenase (ALDH2). Int J Mol Sci. [2]. Stachowicz A, et al. The impact of mitochondrial aldehyde dehydrogenase (ALDH2) activation by Alda-1 on the behavioral and biochemical disturbances in animal model of depression. Brain Behav Immun. 2016 Jan;51:144-53. [3]. Ikeda T, et al. Effects of Alda-1, an Aldehyde Dehydrogenase-2 Agonist, on Hypoglycemic Neuronal Death. PLoS One. 2015 Jun 17;10(6):e0128844. [4]. Gomes KM, et al. Aldehydic load and aldehyde dehydrogenase 2 profile during the progression of post-myocardial infarction cardiomyopathy: benefits of Alda-1. Int J Cardiol. 2015 Jan 20;179:129-138.

实验参考：

Cell Assay	Spleen cells (4×10^6 cells/mL) are stimulated by optimal concentrations of concanavalin A (Con A; 2.5 μg/mL and 0.6 μg/mL) and lipopolysaccharide (LPS, 5 μg/mL) and are incubated in 96-well plates at final volume of 0.2 mL for 72 h. Cell proliferation is determined by adding 0.5 μCi of [^{3}H]-thymidine per well at 16 h before the end of the incubation. The cultures are harvested with an automatic cell harvester, and [^{3}H] thymidine incorporation is assessed using a liquid scintillation counter. [2]
Animal Administration	After behavioral verification at three months of age, the animals are divided into the following four groups: control, control + Alda-1, prenatally stressed and prenatally stressed + Alda-1 (6 animals per group). Alda-1 injections are given intraperitoneally (i.p.) once daily at a dose of 1.5 mg/kg b.w. (dissolved in 1 mL/kg b.w. DMSO/water 50/50) for 14 days. At the same time, the control and prenatally stressed rats receive 1 mL/kg b.w. DMSO/water 50/50. The injections of Alda-1 and vehicle are given between 10 a.m and 11 a.m. In the last five days of Alda-1 treatment the behavioral parameters in the elevated plus maze test and then in the forced swim test are measured. [2]
References	[1]. Stachowicz A, et al. Proteomic Analysis of Mitochondria-Enriched Fraction Isolated from the Frontal Cortex and Hippocampus of Apolipoprotein E Knockout Mice Treated with Alda-1, an Activator of Mitochondrial Aldehyde Dehydrogenase (ALDH2). Int J Mol Sci. [2]. Stachowicz A, et al. The impact of mitochondrial aldehyde dehydrogenase (ALDH2) activation by Alda-1 on the behavioral and biochemical disturbances in animal model of depression. Brain Behav Immun. 2016 Jan;51:144-53. [3]. Ikeda T, et al. Effects of Alda-1, an Aldehyde Dehydrogenase-2 Agonist, on Hypoglycemic Neuronal Death. PLoS One. 2015 Jun 17;10(6):e0128844. [4]. Gomes KM, et al. Aldehydic load and aldehyde dehydrogenase 2 profile during the progression of post-myocardial infarction cardiomyopathy: benefits of Alda-1. Int J Cardiol. 2015 Jan 20;179:129-138.