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产品名称：CDDO-EA
产品别名：CDDO ethyl amide; TP319; RTA 405

生物活性：

Description	CDDO-EA is an NF-E2 related factor 2/antioxidant response element (Nrf2/ARE) activator.
IC_{50} & Target	Nrf2/ARE[1]
In Vitro	CDDO-EA potently activates Nrf2/ARE in a cell culture model of ALS and in the G93A SOD1 mouse model of ALS[1]. CDDO-EA is a potent inducer of apoptosis in A549 lung cancer cells, as shown both by PARP cleavage and Annexin staining. CDDO-EA is more potent than CDDO itself as inducers of heme oxygenase-1 (HO-1). In RAW264.7 macrophage-like cells, CDDO-EA is 7-fold more potent than CDDO as suppressors of the ability of IFN-γ to induce iNOS[2].
In Vivo	The survival analysis shows that G93A mice treated with CDDO-EA, compared to G93A littermate controls, lives significantly longer. CDDO-EA treatment increases the life-span by 20.6 days from 124.05±3.7 days to 144.72±8.1 days (16.6%) (p<0.001). In CDDO-EA-treated G93A mice, the age of death is 141.4±5.2 days and the duration from the age of onset to the age of death is 57.6±7.6 days, which means that the age of death from onset is prolonged by 17.5 days (43%)[1].
Solvent&Solubility	***In Vitro:*** **DMSO : ≥ 34 mg/mL (65.54 mM)** * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.9278 mL	9.6389 mL	19.2779 mL
5 mM	0.3856 mL	1.9278 mL	3.8556 mL
10 mM	0.1928 mL	0.9639 mL	1.9278 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 (4.82 mM); Suspended solution; Need ultrasonic

此方案可获得 2.5 mg/mL (4.82 mM)的均匀悬浊液，悬浊液可用于口服和腹腔注射。

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 (4.82 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (4.82 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 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 (4.82 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (4.82 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]. Neymotin A, et al. Neuroprotective effect of Nrf2/ARE activators, CDDO ethylamide and CDDO trifluoroethylamide, in a mouse model of amyotrophic lateral sclerosis. Free Radic Biol Med. 2011 Jul 1;51(1):88-96. [2]. Liby K, et al. The synthetic triterpenoids CDDO-methyl ester and CDDO-ethyl amide prevent lung cancer induced by vinyl carbamate in A/J mice. Cancer Res. 2007 Mar 15;67(6):2414-9.

实验参考：

Cell Assay	Wild-type and Nrf2−/− mouse embryonic fibroblasts are pre-treated with CDDO-EA or CDDO-TFEA at various concentrations (1, 10 and 100 nM in DMSO) for 18 hours and incubated with 2',7'-Dichlorodihydrofluorecein diacetate (H2DCFDA) for 30 min. Cells are challenged with 250 μM tBHP for 15-30 min and the mean fluorescence intensity for ~10,000 cells is analyzed by FACSan flow cytometry using a 480-nm excitation wavelength and a 525-nm emission wavelength[1].
Animal Administration	Mice[1] G93A SOD1 transgenic familial ALS mice (high copy number) B6SJL background strain (G93A SOD1, B6SJL-TgGur1) are used. G93A transgenic mice are assigned randomly to the control (vehicle, mouse chaw only) and to mouse chaw containing either CDDO-EA or CDDO-TFEA (400 mg/kg of food, n=30 in both groups). This dose corresponds to about 80 mg/kg body weight/day, assuming each mouse consumes 5 grams of food per day. We found mice can tolerate this dose. Treatments started at two different time regimens: 1) "Early" at 30 days of age, about two months prior to symptom onset; 2) "At Onset" from the onset of the phenotype (80-90 days of age). A diet consisting of either 400 mg of CDDO-TFEA per kg of food or 400 mg of CDDO-EA per kg of food, and a control lab diet, are prepared by Purina.
References	[1]. Neymotin A, et al. Neuroprotective effect of Nrf2/ARE activators, CDDO ethylamide and CDDO trifluoroethylamide, in a mouse model of amyotrophic lateral sclerosis. Free Radic Biol Med. 2011 Jul 1;51(1):88-96. [2]. Liby K, et al. The synthetic triterpenoids CDDO-methyl ester and CDDO-ethyl amide prevent lung cancer induced by vinyl carbamate in A/J mice. Cancer Res. 2007 Mar 15;67(6):2414-9.