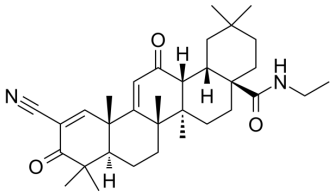
CDDO-EA

Cat. No.:	HY-12213
CAS No.:	932730-51-3
Molecular Formula:	$C_{33}H_{46}N_2O_3$
Molecular Weight:	518.73
Target:	Keap1-Nrf2
Pathway:	NF-κB
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 16.67 mg/mL (32.14 mM; ultrasonic and warming and heat to 80°C)

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

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.67 mg/mL (3.22 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.67 mg/mL (3.22 mM); Clear solution

BIOLOGICAL ACTIVITY

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].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	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]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	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. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- CNS Neurosci Ther. 2021 Jan;27(1):82-91.
- J Cell Mol Med. 2019 Sep;23(9):6034-6047.

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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.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA