Product Data Sheet

Product Name: (E)-3,4,5-Trimethoxycinnamic acid
Cat. No.: GC66255

Chemical Properties

Cas. No.	20329-98-0		
Formula	$C_{12}H_{14}O_5$	M.Wt	238.24
Solubility	DMSO : 100 mg/mL (419.74 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Background

(E)-3,4,5-Trimethoxycinnamic acid (TMCA) is a cinnamic acid substituted by multi-methoxy groups. (E)-3,4,5-Trimethoxycinnamic acid is an orally active and potent **$GABA_A$/BZ** receptor agonist. (E)-3,4,5-Trimethoxycinnamic exhibits favourable binding affinity to **$5\text{-}HT_{2C}$** and **$5\text{-}HT_{1A}$** receptor, with **IC_{50}** values of 2.5 and 7.6 μM, respectively. (E)-3,4,5-Trimethoxycinnamic acid shows anticonvulsant and sedative activity. (E)-3,4,5-Trimethoxycinnamic acid can be used for the research of insomnia, headache and epilepsy[1][2][3].

(E)-3,4,5-Trimethoxycinnamic acid (10 μg/mL, 1 h) increases the expressions of GAD_{65} and γ-subunit of $GABA_A$ receptors in the cerebellar granule cells[3].

(E)-3,4,5-Trimethoxycinnamic acid (0-10 μg/mL, 1 h) shows a significant increase in Cl^- influx[3].

Western Blot Analysis[3]

Cell Line: Primary cultured cerebellar granule cells

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Concentration:	10 μg/mL
Incubation Time:	1 h
Result:	Increased expression of GAD_{65} (glutamic acid decarboxylase) and γ-subunit of GABAA receptors, but did not influence the amounts of a-, b-subunits in the GABAA receptors.

Cell Viability Assay[3]

Cell Line:	Primary cultured cerebellar granule cells
Concentration:	1, 3, 5, 10 μg/mL
Incubation Time:	1 h
Result:	Produced a significant increase in Cl^- influx.

(E)-3,4,5-Trimethoxycinnamic acid (0-20 mg/kg, IP, once) shows anti-seizure effects[2].
(E)-3,4,5-Trimethoxycinnamic acid (0-10 mg/kg, Orally, once) enhances hypnotic effects in pentobarbital-treated mice[3].

Animal Model:	Ault male KunMing-strain mice (18-20 g, maximal electroshock (MES) and pentylenetetrazol (PTZ) models)[2]
Dosage:	5, 10 and 20 mg/kg; 10 mL/kg
Administration:	IP, once

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Result:	Significantly decreased the incidence of MES-induced THE (tonic hindlimb extension) to 50% and 20% of the value of the vehicle controls at 10 and 20 mg/kg. Decreased the incidence of MES-induced THE to only 80% at 5 mg/kg. Significantly delayed the onset of myoclonic jerks (MJ), and decreased the seizure severity and mortality compared with the vehicle-treated animals in PTZ seizure model. The incidence of generalized clonic convulsions (stage 4) disappeared at doses of both 10 and 20 mg/kg.
Animal Model:	ICR male mice (25-28 g, 10-12 in each group)[3]
Dosage:	2, 5 and 10 mg/kg
Administration:	Orally (p.o.), once, 15 min and 1 h prior to pentobarbital injection
Result:	Significantly decreased locomotor activity at 10 mg/kg. Increased NREM and total sleep, but decreased wakefulness.

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