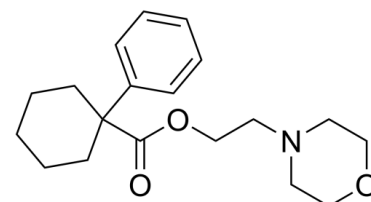


Data Sheet

Product Name:	PRE-084 (hydrochloride)
Cat. No.:	CS-5241
CAS No.:	75136-54-8
Molecular Formula:	C ₁₉ H ₂₈ ClNO ₃
Molecular Weight:	353.88
Target:	Akt; NO Synthase; Sigma Receptor
Pathway:	Immunology/Inflammation; Neuronal Signaling; PI3K/Akt/mTOR
Solubility:	DMSO : ≥ 34 mg/mL; H ₂ O : 33.33 mg/mL (ultrasonic;warming;heat to 60°C)



H-Cl

BIOLOGICAL ACTIVITY:

PRE-084 hydrochloride is a highly selective **σ₁ receptor (S1R)** agonist, with an **IC₅₀** of 44 nM. PRE-084 hydrochloride exhibits good neuroprotective effects, can improve motor function and motor neuron survival in mice. PRE-084 hydrochloride also can ameliorate myocardial ischemia-reperfusion injury in rats by activating the Akt-eNOS pathway^{[1][2][3][4]}. *In Vitro*: PRE-084 hydrochloride (0.1-100 μM; 24 h) protects cultured cortical neurons against β-amyloid toxicity (maximally neuroprotective at 10 μM) and reduces the levels of proapoptotic protein Bax at 10 μM^[1]. *In Vivo*: PRE-084 hydrochloride (0.25 mg/kg; i.p.; 3 times a week for 8 weeks) displays beneficial effects on motor performance (improves motor neuron survival, ameliorates paw abnormality and grip strength performance) in wobbler mice, and shows neuroprotective effects (increases the levels of BDNF in the gray matter)^[2].

PRE-084 hydrochloride (1 mg/kg; i.p.; single) protects the heart by activating the Akt-eNOS pathway in myocardial infarction model^[3].

PROTOCOL (Extracted from published papers and Only for reference)

Animal administration [2] Wobbler mice carrying a homozygous mutation (L967Q) for the Vps54 gene were easily distinguished from healthy littermates by the drastic reduction of growth (in length and body weight) and by the appearance of sustained tremors. These signs precede motor deficits and allow to follow muscular impairment along the whole duration of the clinical progression. Thirty wr mice (4th week of life) were randomly assigned to the two following experimental groups: vehicle-treated wr mice (n = 15) and PRE-084-treated wr mice. Ten healthy (homozygous wild-type) mice were treated with vehicle, and four were treated with PRE-084 and followed in parallel with wr mice as controls. The different experimental groups had the same number of male and female mice, since no sex-related difference in the evolution of the wr disease has been detected. Both wr and healthy mice were treated three times a week by intraperitoneal (i.p.) injection with PRE-084 at the dose of 0.25 μg/g of body weight (final concentration: 16.6 μg/mL diluted in sterile saline solution). The same volume of sterile saline solution was administered to vehicle-treated mice. The treatment was carried out from the 4th to the 12th week of age. Mice were weighted twice a week. Behavioral tests were carried out twice a week by the same operator blinded to the treatment. Both semi-quantitative (paw abnormality) and quantitative (grip strength) scores were assigned according to previously described protocols. Grip strength was measured using a Grip Meter apparatus by Ugo Basile.

References:

[1]. Marrazzo A, et al. Neuroprotective effects of sigma-1 receptor agonists against beta-amyloid-induced toxicity. *Neuroreport*. 2005 Aug 1;16(11):1223-6.

[2]. Peviani M, et al. Neuroprotective effects of the Sigma-1 receptor (S1R) agonist PRE-084, in a mouse model of motor neuron disease not linked to SOD1 mutation. Neurobiol Dis. 2014 Feb;62:218-32.

[3]. Gao QJ, et al. Sigma-1 Receptor Stimulation with PRE-084 Ameliorates Myocardial Ischemia-Reperfusion Injury in Rats. Chin Med J (Engl). 2018 Mar 5;131(5):539-543.

[4]. Su TP, et al. Sigma compounds derived from phencyclidine: identification of PRE-084, a new, selective sigma ligand. J Pharmacol Exp Ther. 1991 Nov;259(2):543-50.

CAIndexNames:

Cyclohexanecarboxylic acid, 1-phenyl-, 2-(4-morpholinyl)ethyl ester, hydrochloride (1:1)

SMILES:

O=C(C1(C2=CC=CC=C2)CCCCC1)OCCN3CCOCC3.[H]Cl

Caution: Product has not been fully validated for medical applications. For research use only.

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