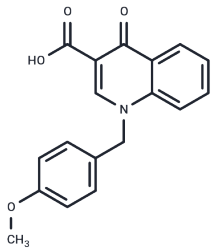
Data Sheet (Cat.No.T3993)

TargetMol

BQCA

Chemical Properties



CAS No. : 338747-41-4

Formula: C18H15NO4

Molecular Weight: 309.32

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	BQCA (benzylquinolone carboxylic acid) a highly selective allosteric M1 mAChR modulator.
Targets(IC50)	AChR
In vitro	BQCA increases M1 receptor affinity for acetylcholine. The activation of the M1 receptor by BQCA induces a robust inward current and increases spontaneous excitatory postsynaptic currents in medial prefrontal cortex (mPFC) pyramidal cells.
In vivo	BQCA induces β-arrestin recruitment to M1, suggesting a role for this signal transduction mechanism in the cholinergic modulation of memory. BQCA reverses scopolamine-induced memory deficits in contextual fear conditioning, increases blood flow to the cerebral cortex, and increases wakefulness while reducing delta sleep. BQCA increases firing of mPFC pyramidal cells in vivo. BQCA also restores discrimination reversal learning in a transgenic mouse model of Alzheimer's disease.
Kinase Assay	Competition binding reactions used 25 μg human M1 CHO membrane protein, BQCA or vehicle, and 0.15 nM [3H]NMS in 96-well deep-well plates. Binding reactions (30 °C for 2-3 h) are terminated by rapid filtration. Nonspecific binding is determined by adding 10 μM atropine. Filter plates are ished 4×with ice-cold 20 mM HEPES, 100 mM NaCl, and 5 mM MgCl2, pH 7.4 using a 96-well harvester. Plates are dried and radioactivity counted with a microplate scintillation counter[1].

Solubility Information

Solubility	DMSO: 6.25 mg/mL (20.21 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.2329 mL	16.1645 mL	32.329 mL
5 mM	0.6466 mL	3.2329 mL	6.4658 mL
10 mM	0.3233 mL	1.6164 mL	3.2329 mL
50 mM	0.0647 mL	0.3233 mL	0.6466 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Ma L, et al. Selective activation of the M1 muscarinic acetylcholine receptor achieved by allosteric potentiation. Proc Natl Acad Sci U S A. 2009 Sep 15;106(37):15950-5.

Shirey JK, et al. A selective allosteric potentiator of the M1 muscarinic acetylcholine receptorincreases activity of medial prefrontal cortical neurons and restores impairments in reversal learning. J Neurosci. 2009 Nov 11;29(45): 14271-86.