Bay K 8644

Cat. No.: HY-10588

CAS No.: 71145-03-4

Molecular Formula: $C_{16}H_{15}F_3N_2O_4$

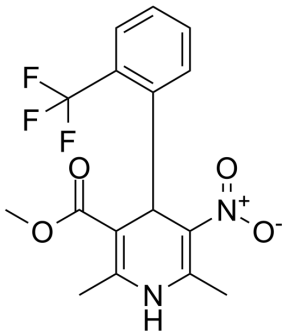
Molecular Weight: 356.3

Target: Calcium Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 83.33 mg/mL (233.88 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8066 mL	14.0331 mL	28.0662 mL
	5 mM	0.5613 mL	2.8066 mL	5.6132 mL
	10 mM	0.2807 mL	1.4033 mL	2.8066 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: 2.08 mg/mL (5.84 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.67 mg/mL (4.69 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Bay K 8644 ((±)-Bay K 8644) is a racemate consisting of two isomers (R)-(+)-Bay-K-8644 and (S)-(-)-Bay-K-8644[1]. Bay K 8644 is a L-type Ca^{2+} channel agonist with an EC_{50} of 17.3 nM. Bay K 8644 increases Ca^{2+} influx through sarcolemmal Ca^{2+} channels by increasing the open time of the channel. Bay K 8644 has vasoconstrictive effects[2][3].

IC_{50} & Target

L-type calcium channel
17.3 nM (EC50)

In Vitro

In newborn rat ventricular cardiomyocytes, Bay K 8644 (1 μM) treatment increases L-type calcium current density in 2-day-old cells. The higher increase of L-type calcium current density by Bay K 8644 in 2-day- than in 7-day-old cultured cells could be interpreted as the result of a difference in the phosphorylation level of calcium channels for each stage of development[4]

	. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	A one time dose as low as 10 μg/kg of Bay K 8644 significantly elevates mean arterial pressure (MAP) in endotoxin-treated hypotensive rats while having minimal effects in normal rats. Bay K 8644 also causes a dose-dependent decrease in heart rate of 37% in endotoxin-treated rats and 39% in control rats[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Neuroscience. 2022 Jun 1;492:47-57.

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REFERENCES

[1]. W Schreibmayer, et al. Kinetic modulation of guinea-pig cardiac L-type calcium channels by fendiline and reversal of the effects of Bay K 8644. Br J Pharmacol. 1992 May;106(1):151-6.

[2]. G A Rae, et al. Interactions of calcium antagonists and the calcium channel agonist Bay K 8644 on neurotransmission of the mouse isolated vas deferens. Br J Pharmacol. 1989 Feb;96(2):333-40.

[3]. H Satoh, et al. Bay K 8644 increases resting Ca2+ spark frequency in ferret ventricular myocytes independent of Ca influx: contrast with caffeine and ryanodine effects. Circ Res. 1998 Dec 14-28;83(12):1192-204.

[4]. J P Gomez, et al. Effects of Bay K 8644 on L-type calcium current from newborn rat cardiomyocytes in primary culture. J Mol Cell Cardiol. 1996 Oct;28(10):2217-29.

[5]. N Ives,et al. BAY k 8644, a calcium channel agonist, reverses hypotension in endotoxin-shocked rats. Eur J Pharmacol. 1986 Nov 4;130(3):169-75.

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