(S)-(-)-Bay-K-8644

Cat. No.: HY-15124

CAS No.: 98625-26-4

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

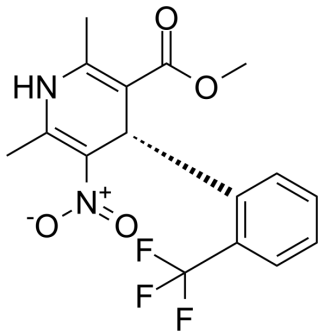
Molecular Weight: 356.3

Target: Calcium Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (280.66 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

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: 2.5 mg/mL (7.02 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.84 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

(S)-(-)-Bay-K-8644 is an agonist of L-type Ca^{2+} channel. (S)-(-)-Bay-K-8644 activates Ba^{2+} currents (I_{Ba}) (EC_{50}=32 nM).

IC_{50} & Target

EC50: 32 nM (I_{Ba})[1]

In Vitro

(±)-Bay K 8644, a conventional racemic mixture of Bay K 8644, is widely used as an L-type Ca^{2+} channel agonist. Each optical isomer possesses opposite effects on IBa (R(+)-Bay K 8644 as an antagonist and (S)-(-)-Bay-K-8644 as an agonist. (S)-(-)-Bay-K-8644 can prevent the inhibitory actions of two distinct cyclic nucleotide pathways on I_{Ba} in gastric myocytes of the guinea pig antrum[1]. The Ca^{2+} channel activity is enhanced by 3–30 μM (S)-(-)-Bay-K-8644 an agonist of L-type Ca^{2+} channels[2]. The interactions of two Ca^{2+} channel activators (S)-(-)-Bay-K-8644 and FPL 64176 is examined on smooth muscle L-type Ca^{2+}

channels. FPL 64176 (300 nM) causes a sustained contraction of rat tail artery strips. This contractile response is inhibited by approximately 70% by (S)-(-)-Bay-K-8644 (EC_{50}=14 nM). (S)-(-)-Bay-K-8644 (100 nM) increases whole-cell Ca^{2+} currents in A7r5 smooth muscle cells but effectively blocks further stimulation by 1 μM FPL 64176[3].

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

CUSTOMER VALIDATION

- Free Radic Biol Med. 2024 Jan 6:S0891-5849(24)00002-9.
- Life Sci. 2019 Mar 15;221:135-142.
- Int J Mol Sci. 2023 Nov 27, 24(23), 16806.
- Eur J Pharmacol. 2020 Nov 5;886:173513.

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REFERENCES

[1]. Zhu HL, et al. Antagonistic actions of S(-)-Bay K 8644 on cyclic nucleotide-induced inhibition of voltage-dependent Ba(2+) currents in guinea pig gastric antrum. Naunyn Schmiedebergs Arch Pharmacol. 2008 Dec;378(6):609-15.

[2]. Mironov SL, et al. L-type Ca2+ channels in inspiratory neurones of mice and their modulation by hypoxia. J Physiol. 1998 Oct 1;512 (Pt 1):75-87.

[3]. Rampe D, et al. Functional interactions between two Ca2+ channel activators, (S)-Bay K 8644 and FPL 64176, in smooth muscle. Mol Pharmacol. 1992 Apr;41(4):599-602.

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