Small Molecules

(+)-Bay K8644

L-type calcium channel inhibitor

Catalog #72362	1 mg
72364	10 mg

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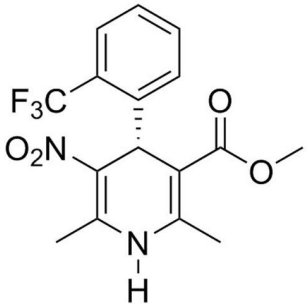
Product Description

Bay K8644, originally described as a modulator of potential operated calcium channels, exists as two enantiomers that have opposite actions (Hess et al.; Nowycky et al.; O'Neill et al.; Ravens et al.; Yamamoto et al.). (+)-Bay K8644 is an L-type channel blocker that has negative inotropic and vasodilatory effects (Artigas et al.; Franckowiak et al.; Ravens et al.).

Alternative Names:	(+)-Bay-K 8644; (+)-Bay-R 4407; (R)-(+)-Bay K 8644; NI 105; R 4407
CAS Number:	98791-67-4
Chemical Formula:	$C_{16}H_{15}F_3N_2O_4$
Molecular Weight:	356.3 g/mol
Purity:	≥ 95%
Chemical Name:	R-(+)-1,4-Dihydro-2,6-dimethyl-5-nitro-4-[2-(trifluoromethyl)phenyl]-3-pyridinecarboxylic acid methyl ester
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 140 mM · Absolute ethanol ≤ 140 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 281 µL of fresh DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported; however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

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Published Applications

REPROGRAMMING
· When combined wit BIX01294 (Catalog #72042), enables reprogramming of mouse embryonic fibroblasts after transduction with OCT4 and KLF4 only (Shi et al.).
DIFFERENTIATION
· Increases neuronal differentiation from neural stem and progenitor cells (NSCs) derived from the brains of postnatal mice (D'Ascenzo et al.).

References

Artigas P et al. (2003) Effects of the enantiomers of BayK 8644 on the charge movement of L-type Ca channels in guinea-pig ventricular myocytes. J Membr Biol 193(3): 215–27.
D'Ascenzo M et al. (2006) Role of L-type Ca2+ channels in neural stem/progenitor cell differentiation. Eur J Neurosci 23(4): 935–44.
Franckowiak G et al. (1985) The optical isomers of the 1,4-dihydropyridine BAY K 8644 show opposite effects on Ca channels. Eur J Pharmacol 114(2): 223–6.
Hess P et al. (1984) Different modes of Ca channel gating behaviour favoured by dihydropyridine Ca agonists and antagonists. Nature 311(5986): 538–44.
Nowycky MC et al. (1985) Long-opening mode of gating of neuronal calcium channels and its promotion by the dihydropyridine calcium agonist Bay K 8644. Proc Natl Acad Sci USA 82(7): 2178–82.
O'Neill SK & Bolger GT. (1988) Enantiomer selectivity and the development of tolerance to the behavioral effects of the calcium channel activator BAY K 8644. Brain Res Bull 21(6): 865–72.
Ravens U & Schöpper H-P. (1990) Opposite cardiac actions of the enantiomers of Bay K 8644 at different membrane potentials in guinea-pig papillary muscles. Naunyn Schmiedebergs Arch Pharmacol 341(3).
Shi Y et al. (2008) Induction of pluripotent stem cells from mouse embryonic fibroblasts by Oct4 and Klf4 with small-molecule compounds. Cell Stem Cell 3(5): 568–74.
Yamamoto H et al. (1984) Bay K8644 differentiates between potential and receptor operated Ca2+ channels. Eur J Pharmacol 102(3-4): 555–7.

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).