ST034307

Cat. No.: HY-101279

CAS No.: 133406-29-8

Molecular Formula: $C_{10}H_4Cl_4O_2$

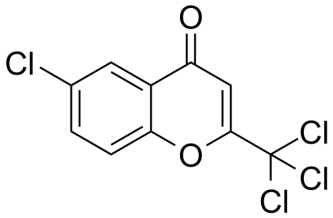
Molecular Weight: 297.95

Target: Adenylate Cyclase

Pathway: GPCR/G Protein

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 : 16.67 mg/mL (55.95 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.3563 mL	16.7813 mL	33.5627 mL
	5 mM	0.6713 mL	3.3563 mL	6.7125 mL
	10 mM	0.3356 mL	1.6781 mL	3.3563 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.67 mg/mL (5.60 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.67 mg/mL (5.60 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ST034307 is a potent and selective adenylyl cyclase 1 (AC1) inhibitor, with IC_{50} of 2.3 μM.

IC_{50} & Target

IC50: 2.3 μM (AC1)[1]

In Vitro

ST034307 reveals selective inhibition of AC1 and potentiates AC8 activity to a nonsignificant small extent. ST034307 potentiates phorbol 12-myristate 13-acetate (PMA)-stimulated cAMP production by AC2. ST034307 significantly inhibits the forskolin- or isoproterenol-stimulated AC1 activity in HEK cells stably expressing AC1. In contrast, ST034307 has no significant effects in the wild-type HEK cells. ST034307 significantly inhibits the Ca^{2+}/calmodulin-stimulated cAMP accumulation in the hippocampal homogenates. ST034307 dose-dependently inhibits both the development and the maintenance of MOR-mediated sensitization of AC1[1].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	ST034307 (0.25 μg) causes a significant relief of CFA-induced inflammatory pain in mice. ST034307 exhibits an estimated median effective dose (E_{50}) value for analgesia of 0.28 μg in the mouse pain model[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Cell viability assays are conducted with HEK-AC1 cells following plating and compound incubation protocols identical to the procedures described in "cAMP accumulation in cells." Cell viability is measured as a percentage of vehicle using 2% Triton X-100 as a control. The CellTiter-Glo Luminescent Cell Viability Assay kit from Promega is used to assess cell viability according to the manufacturer's instructions. Luminescence counts are measured using Synergy 4. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2022 Jul 22;13(1):4255.

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REFERENCES

[1]. Brust TF, et al. Identification of a selective small-molecule inhibitor of type 1 adenylyl cyclase activity with analgesic properties. Sci Signal. 2017 Feb 21;10(467).

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