FR 180204

Cat. No.: HY-12275

CAS No.: 865362-74-9

Molecular Formula: $C_{18}H_{13}N_7$

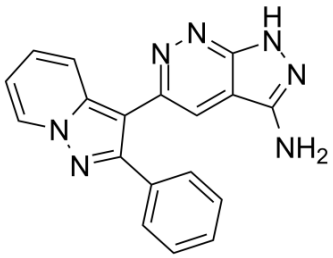
Molecular Weight: 327.34

Target: ERK; Apoptosis

Pathway: MAPK/ERK Pathway; Stem Cell/Wnt; Apoptosis

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 : ≥ 50 mg/mL (152.75 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.0549 mL	15.2746 mL	30.5493 mL
5 mM	0.6110 mL	3.0549 mL	6.1099 mL
10 mM	0.3055 mL	1.5275 mL	3.0549 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: ≥ 2.5 mg/mL (7.64 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.64 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

FR 180204 is an ATP-competitive and selective ERK inhibitor. FR 180204 inhibits ERK1 and ERK2 with IC_{50}s of 0.51 μM (K_i=0.31 μM) and 0.33 μM (K_i=0.14 μM), respectively[1].

IC_{50} & Target

ERK2	ERK1	ERK2	ERK1
0.14 μM (Ki)	0.31 μM (Ki)	0.33 μM (IC_{50})	0.51 μM (IC_{50})

In Vitro

In AP-1-transfected cells, FR180204 dose-dependently inhibits AP-1 transactivation with IC_{50} of 3.1 μM[1]. FR 180204 inhibits spontaneous mesothelioma cell growth[3].

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

In Vivo	FR180204 (100 mg/kg, i.p., b.i.d.) significantly decreases the severity of symptoms and body weight loss in collagen-induced arthritis mice[2]. In a mouse model of dengue virus (DENV) infection, FR180204 limits hepatocyte apoptosis, reduces DENV-induced liver injury, and improves clinical parameters[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [1]	Nunc-Immuno MaxiSorp plates are coated with 20 μg/mL MBP solution in phosphate-buffered saline (PBS). After washing with PBS containing 0.05% Tween 20 (T-PBS), blocking buffer (T-PBS containing 3% BSA) is added to each well and the plates are incubated for 10 min at room temperature. After washing with T-PBS, chemical compounds, ATP and recombinant ERK2 diluted in assay dilution buffer (20 mM Mops, pH 7.2, 25 mM β-glycerol phosphate, 5 mM EGTA, 1 mM sodium orthovanadate, 1 mM dithiothreitol, and 50 μg/mL BSA) and are added to each well. Vehicle groups (containing 0.1% DMSO) and kinase-withdrawal groups are used for the control and basal determinations. After incubation for 1 h at room temperature, plates are washed twice with T-PBS. Anti-phospho MBP antibody (0.2 μg/mL) is added to each well, and the plates are incubated for 1 h at room temperature. After washing, anti-mouse HRP-conjugated polyclonal antibodies are added and the plates are incubated for 30 min. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	In brief, mice are randomized and grouped by body weight immediately before treatment. Bovine CII is dissolved in 0.1mol/Lacetic acid at the concentration of 10 mg/mL and then emulsified in an equal volume of Freund's complete adjuvant H37Rv. Apart from a naive group, each mouse is immunized with 25 μL of the CII emulsion into the tail base, followed by a boost injection 3 weeks after primary injection (day 0). FR180204 and methylprednisolone are ground and suspended in 0.1% methylcellulose solution to a volume of 5 mL/kg. Drugs are given by twice daily intraperitoneal injection from days 0 to 12 in accordance with pharmacokinetic studies with superior area under the curve and Cmax values of i.p. versus s.c. or p.o. administration. The initial administration is 30 min before the boost CII injection. The clinical score of arthritis is obtained by summing the visual severity grade of each limb, scored as follows: 0, no arthritis; 1, one swollen digit; 2, two or more swollen digits or swelling of the entire paw without ankylosis; 3, gross swelling with ankylosis of the paw. Body weight is measured on day 12. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Death Differ. 2019 Mar;26(3):426-442.
- J Pharmacol Exp Ther. 2020 Jul;374(1):104-112.
- ACS Comb Sci. 2019 Dec 9;21(12):805-816.
- J Cardiovasc Transl Res. 2020 Apr;13(2):215-224.
- Inflammation. 2018 Jun;41(3):751-759.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Ohori M, et al. Identification of a selective ERK inhibitor and structural determination of the inhibitor-ERK2 complex. Biochem Biophys Res Commun. 2005 Oct 14;336(1):357-63.

[2]. Ohori M, et al. FR180204, a novel and selective inhibitor of extracellular signal-regulated kinase, ameliorates collagen-induced arthritis in mice. Naunyn Schmiedebergs Arch Pharmacol. 2007 Jan;374(4):311-6.

[3]. Honda M, et al. Mesothelioma cell proliferation through autocrine activation of PDGF-ββ receptor. Cell Physiol Biochem. 2012;29(5-6):667-74

[4]. Sreekanth GP, et al. Role of ERK1/2 signaling in dengue virus-induced liver injury. Virus Res. 2014 Aug 8;188:15-26

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com