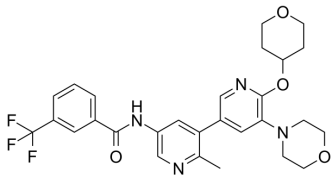
RAF709

Cat. No.:	HY-100510
CAS No.:	1628838-42-5
Molecular Formula:	$C_{28}H_{29}F_3N_4O_4$
Molecular Weight:	542.55
Target:	Raf
Pathway:	MAPK/ERK Pathway
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 (184.31 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.8431 mL	9.2157 mL	18.4315 mL
5 mM	0.3686 mL	1.8431 mL	3.6863 mL
10 mM	0.1843 mL	0.9216 mL	1.8431 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 (4.61 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.61 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.61 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

RAF709 is a potent, selective, and efficacious RAF inhibitor with IC_{50}s of 0.4 nM and 0.5 nM for BRAF and CRAF, respectively[1]. Antitumor efficacy[1].

IC_{50} & Target

CRAF	Braf
0.5 nM (IC_{50})	0.4 nM (IC_{50})

In Vitro

RAF709 stabilizes BRAF-CRAF dimers with an EC_{50} of 0.8 μM. In cellular assays, the dose-response of pMEK and pERK are

	measured in Calu-6 cells with EC_{50}=0.02 and 0.1 μM with minimal paradoxical activation and inhibition of proliferation with EC_{50}=0.95 μM[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	RAF709 proves to be soluble, kinase selective, and efficacious in a KRAS mutant xenograft model. RAF709 shows dose-proportional increases in plasma exposure and a corresponding dosedependent inhibition of pERK in Calu-6 tumors. Treatment with RAF709 results in dose-dependent antitumor activity with 10 mg/kg being subefficacious (%T/C=92%), 30 mg/kg results in measurable antitumor activity (%T/C=46%), and 200 mg/kg results in mean tumor regression of 92%, while the same high dose is not efficacious in the PC3, KRAS WT model[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Proc Natl Acad Sci U S A. 2019 Mar 5;116(10):4508-4517.
- Cancer Lett. 2022 Dec 7;555:216029.
- Endocrinology. 2023 Mar 17;bqad042.
- In Vitro Cell Dev Biol Anim. 2021 Oct 28.
- Research Square Print. December 21st, 2022.

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REFERENCES

[1]. Nishiguchi GA, et al. Design and Discovery of N-(2-Methyl-5'-morpholino-6'-((tetrahydro-2H-pyran-4-yl)oxy)-[3,3'-bipyridin]-5-yl)-3-(trifluoromethyl)benzamide (RAF709): A Potent, Selective, and Efficacious RAF Inhibitor Targeting RAS Mutant Cancers. J Med

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