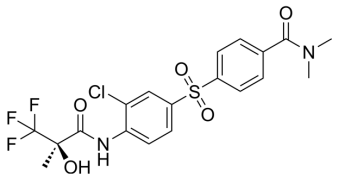
AZD7545

Cat. No.:	HY-16082
CAS No.:	252017-04-2
Molecular Formula:	$C_{19}H_{18}ClF_3N_2O_5S$
Molecular Weight:	478.87
Target:	PDHK
Pathway:	Metabolic Enzyme/Protease
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 : ≥ 46 mg/mL (96.06 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.0882 mL	10.4412 mL	20.8825 mL
5 mM	0.4176 mL	2.0882 mL	4.1765 mL
10 mM	0.2088 mL	1.0441 mL	2.0882 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 (5.22 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.22 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.22 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AZD7545 is a potent, competitive, selective PDHK2 (pyruvate dehydrogenase kinase 2) inhibitor with IC_{50}s of 36.8 nM, 6.4 nM for PDHK1 and PDHK2, respectively[1].

IC_{50} & Target

IC50: 6.4 nM (PDHK2), 36.8 nM (PDHK1)[1]

In Vitro

AZD7545 (10 μM; 90 hours for $BRAF^{V600E}$ human melanoma cells and 120 hours for $NRAS^{mut}$ human melanoma cells)

specifically suppresses growth of cells harboring BRAF and NRAS mutations as well as in inhibitor-resistant human melanoma[2].

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

Cell Proliferation Assay[2]

Cell Line:	Human melanoma cells lines of $BRAF^{V600E}$ (A375, IGR37) and $NRAS^{mut}$ (SKMel30, IPC298, MelJuso)
Concentration:	10 μM
Incubation Time:	90 hours ($BRAF^{V600E}$ human melanoma cells) and 120 hours ($NRAS^{mut}$ human melanoma cells)
Result:	Mediated growth suppression of $BRAF^{V600E}$ mutant and $NRAS^{mut}$ human melanoma cells.

In Vivo

A single dose of AZD7545 (Oral administration; 10 mg/kg once a day (08:00 h) or Twice a day (08:00 and 18:00 h); for 7 days) to Wistar rats increases the proportion of liver PDH in its active, dephosphorylated form in a dose-related manner. A single dose of 10 mg/kg also significantly elevates muscle PDH activity in obese Zucker (fa/fa) rats[3].

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

Animal Model:	Obese male (fa/fa) Zucker rats [3]
Dosage:	10 mg/kg
Administration:	Oral administration; once a day (08:00 h) or Twice a day (08:00 and 18:00 h); for 7 days
Result:	Improved the control of blood glucose levels.

CUSTOMER VALIDATION

- Nat Aging. 2023 Jun 5.

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REFERENCES

[1]. Morrell JA, et al. AZD7545 is a selective inhibitor of pyruvate dehydrogenase kinase 2. Biochem Soc Trans. 2003 Dec;31(Pt 6):1168-70.

[2]. Cesi G et al. ROS production induced by BRAF inhibitor treatment rewires metabolic processes affecting cell growth of melanoma cells. Mol Cancer. 2017 Jun 8;16(1):102.

[3]. Mayers RM, et al. AZD7545, a novel inhibitor of pyruvate dehydrogenase kinase 2 (PDHK2), activates pyruvate dehydrogenase in vivo and improves blood glucose control in obese (fa/fa) Zucker rats. Biochem Soc Trans. 2003 Dec;31(Pt 6):1165-7.

Caution: Product has not been fully validated for medical applications. For research use only.

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