IDO5L

Cat. No.: HY-15683

CAS No.: 914471-09-3

Molecular Formula: $C_9H_7ClFN_5O_2$

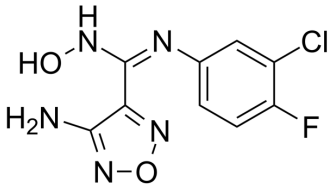
Molecular Weight: 271.64

Target: Indoleamine 2,3-Dioxygenase (IDO)

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 : ≥ 52 mg/mL (191.43 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.6813 mL	18.4067 mL	36.8134 mL
5 mM	0.7363 mL	3.6813 mL	7.3627 mL
10 mM	0.3681 mL	1.8407 mL	3.6813 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 (9.20 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.20 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.20 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

IDO5L is a potent indoleamine 2,3-dioxygenase (IDO) inhibitor with an IC_{50} of 67 nM.

IC_{50} & Target

IDO 67 nM (IC_{50})	IDO 19 nM (IC_{50}, in HeLa cell)

In Vitro

IDO5L (Compound 5l) is a potent (HeLa IC_{50}=19 nM) inhibitor of IDO[1]. IDO5L is one of the highest potent inhibitors of the

	IDO1 (IC_{50}=19 nM, in HeLa cell assay)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Testing of IDO5L in mice demonstrates pharmacodynamic inhibition of IDO, as measured by decreased kynurenine levels (>50%) in plasma and dose dependent efficacy in mice bearing GM-CSF-secreting B16 melanoma tumors. Initial oral pharmacokinetic studies show that IDO5L is rapidly cleared ($t_{1/2}$<0.5 h) and that oral administration will not be a suitable dosing method for in vivo studies. The measured plasma exposure (2.5 μM) of IDO5L during this period exceeded our calculated mouse protein binding adjusted B16 cellular IC_{50} ($PB_{adj}IC_{50}$=1.0 μM, murine cellular B16 IC_{50}=46 nM). Notably, kynurenine levels increase back to baseline after 4 h as IDO5L exposure levels decreased below the mouse $PB_{adj}IC_{50}$ from 1.0 to 0.1 μM[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [1]	Mice[1] A single subcutaneous 100 mg/kg dose of IDO5L is administered to naive C57BL/6 mice bearing GM-CSF-secreting B16 tumors. Blood is harvested from individual mice over 8 h. Kynurenine and IDO5L concentrations are measured by LCMS. Reductions of kynurenine levels by 50-60% are observed between 2 and 4 h, with maximum inhibition seen at 2.5 h. Tumors are allowed to grow until day 7 when 14 days of subcutaneous dosing of IDO5L at 25, 50, and 75 mg/kg b.i.d. is initiated. Dose dependent inhibition of tumor growth is correlated with increasing exposures of IDO5L in plasma. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Chem Sci. 2020, 11, 7429-7437.
- Chem Commun (Camb). 2020 Jan 30;56(9):1389-1392.
- Pharmaceuticals. 2022, 15(9), 1090.

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REFERENCES

[1]. Yue EW, et al. Discovery of potent competitive inhibitors of indoleamine 2,3-dioxygenase with in vivo pharmacodynamic activity and efficacy in a mouse melanoma model. J Med Chem. 2009 Dec 10;52(23):7364-7.

[2]. Huang X, et al. Synthesis of [(18) F] 4-amino-N-(3-chloro-4-fluorophenyl)-N'-hydroxy-1,2,5-oxadiazole-3-carboximidamide (IDO5L): a novel potential PET probe for imaging of IDO1 expression. J Labelled Comp Radiopharm. 2015 Apr;58(4):156-62.

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