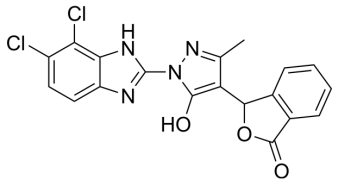
RU.521

Cat. No.:	HY-114180
CAS No.:	2262452-06-0
Molecular Formula:	$C_{19}H_{12}Cl_2N_4O_3$
Molecular Weight:	415.23
Target:	Cyclic GMP-AMP Synthase
Pathway:	Immunology/Inflammation
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 : 83.33 mg/mL (200.68 mM; Need ultrasonic)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.4083 mL	12.0415 mL	24.0830 mL
5 mM	0.4817 mL	2.4083 mL	4.8166 mL
10 mM	0.2408 mL	1.2042 mL	2.4083 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: ≥ 2.08 mg/mL (5.01 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.01 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.01 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

RU.521 (RU320521) is a potent and selective cyclic GMP-AMP synthase (cGAS) inhibitor and inhibits cGAS-mediated interferon upregulation. RU.521 suppresses dsDNA-activated reporter activity with an IC_{50} of 0.7 μM. RU.521 reduces constitutive expression of interferon in macrophages from a mouse model of Aicardi-Goutières syndrome (AGS)[1].

IC_{50} & Target

IC50: 0.7 μM (dsDNA)[1]

In Vitro

RU.521 (0.1 nM-1000 μM; 72 h) suppresses dsDNA-induced signaling in macrophage cells[1].

	RU.521(0-100 μM; 24 h) selectively inhibits cGAS-mediated signaling[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	RU.521 (5 mg/kg ; i.p. once) reduces symptoms from sepsis in mice[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male 8-week-old male mice with LPS injection[2]
Dosage:	5 mg/kg
Administration:	Intraperitoneal injection; 5 mg/kg once
Result:	Increased cardiac function and reduced the inflammatory responses, oxidative stress and apoptosis in hearts of mice.

CUSTOMER VALIDATION

- Nat Commun. 2023 May 23;14(1):2950.
- Neuron. 2022 Nov 4;S0896-6273(22)00961-8.
- Mol Cell. 2023 Jan 14;S1097-2765(22)01217-5.
- Proc Natl Acad Sci U S A. 2022 Oct 25;119(43):e2207280119.
- Cell Death Discov. 2022 May 11;8(1):258.

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REFERENCES

[1]. Xu Q, et al. Small molecule inhibition of cyclic GMP-AMP synthase ameliorates sepsis-induced cardiac dysfunction in mice. Life Sci. 2020 Nov 1;260:118315.

[2]. Vincent J, et al. Small molecule inhibition of cGAS reduces interferon expression in primary macrophages from autoimmune mice. Nat Commun. 2017 Sep 29;8(1):750.

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