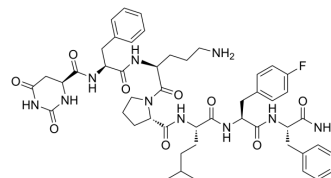


JPE-1375

Cat. No.:	HY-148141
CAS No.:	1254036-23-1
Molecular Formula:	C ₄₉ H ₆₃ FN ₁₀ O ₉
Molecular Weight:	955.08
Target:	Complement System
Pathway:	Immunology/Inflammation
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (104.70 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.0470 mL	5.2352 mL	10.4703 mL
	5 mM	0.2094 mL	1.0470 mL	2.0941 mL
	10 mM	0.1047 mL	0.5235 mL	1.0470 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

JPE-1375 is a complement C5a receptor 1 (C5aR1) antagonist. JPE-1375 effectively inhibits polymorphonuclear leukocyte mobilization (EC₅₀=6.9 μM) and reduces TNF levels (EC₅₀=4.5 μM) in mice. JPE-1375 can be used in studies of autoimmune and inflammatory diseases^[1].

IC₅₀ & Target

C5aR1^[1].

In Vivo

JPE-1375 (0.3, 1.0, 3.0 mg/kg; i.v.; single) inhibits PMN (polymorphonuclear leukocytes) mobilization and TNF with EC₅₀ values of 6.9 and 4.5 μM, respectively^[1].

JPE-1375 (1 mg/kg; i.v.; single) demonstrates a rapid distribution in the plasma, followed by elimination in mice^[1].

JPE-1375 (1 mg/kg; i.v.; single) shows a strong negative correlation between PMN mobilization and TNF production with plasma concentrations^[1].

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

Animal Model: C57BL/6J wild-type (10 to 12-week-old; C5a pharmacodynamic model)^[1].

Dosage: 0.3, 1.0, 3.0 mg/kg

Administration:	Intravenous injection; single.																						
Result:	Significantly decreased C5a-mediated PMN mobilization at 1 and 3 mg/kg doses, while no effect was observed at a 0.3 mg/kg dose. Showed a significant reduction in TNF plasma levels at 1 and 3 mg/kg dose with both compounds reducing C5a-mediated TNF by about 90%.																						
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Result:	Pharmacokinetic Parameters of JPE-1375 in C57BL/6J wild-type mice ^[1] . <table border="1"> <thead> <tr> <th></th> <th>IV (1 mg/kg)</th> </tr> </thead> <tbody> <tr> <td>$T_{1/2}$ (h)</td> <td>0.13</td> </tr> <tr> <td>C_{max} ($\mu\text{g/mL}$)</td> <td>7.18</td> </tr> <tr> <td>AUC_{0-t} ($\mu\text{g/mL}\cdot\text{h}$)</td> <td>2.40</td> </tr> <tr> <td>$AUC_{0-inf, obs}$ ($\mu\text{g/mL}\cdot\text{h}$)</td> <td>2.41</td> </tr> <tr> <td>$AUC_{0-t/0-inf, obs}$ ($\mu\text{g/mL}\cdot\text{h}$)</td> <td>1.00</td> </tr> <tr> <td>$AUMC_{0-inf, obs}$ ($\mu\text{g/mL}\cdot\text{h}^2$)</td> <td>0.13</td> </tr> <tr> <td>$MRT_{0-inf, obs}$ (h)</td> <td>0.05</td> </tr> <tr> <td>$V_{z, obs}$ ($(\mu\text{g})/(\mu\text{g/mL})$)</td> <td>2.38</td> </tr> <tr> <td>CL, obs ($(\mu\text{g})/(\mu\text{g/mL})/\text{h}$)</td> <td>12.47</td> </tr> <tr> <td>$V_{ss, obs}$ ($(\mu\text{g})/(\mu\text{g/mL})$)</td> <td>0.66</td> </tr> </tbody> </table>		IV (1 mg/kg)	$T_{1/2}$ (h)	0.13	C_{max} ($\mu\text{g/mL}$)	7.18	AUC_{0-t} ($\mu\text{g/mL}\cdot\text{h}$)	2.40	$AUC_{0-inf, obs}$ ($\mu\text{g/mL}\cdot\text{h}$)	2.41	$AUC_{0-t/0-inf, obs}$ ($\mu\text{g/mL}\cdot\text{h}$)	1.00	$AUMC_{0-inf, obs}$ ($\mu\text{g/mL}\cdot\text{h}^2$)	0.13	$MRT_{0-inf, obs}$ (h)	0.05	$V_{z, obs}$ ($(\mu\text{g})/(\mu\text{g/mL})$)	2.38	CL, obs ($(\mu\text{g})/(\mu\text{g/mL})/\text{h}$)	12.47	$V_{ss, obs}$ ($(\mu\text{g})/(\mu\text{g/mL})$)	0.66
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REFERENCES

[1]. Cui CS, et al. In Vivo Pharmacodynamic Method to Assess Complement C5a Receptor Antagonist Efficacy. ACS Pharmacol Transl Sci. 2021 Dec 21;5(1):41-51.

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

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