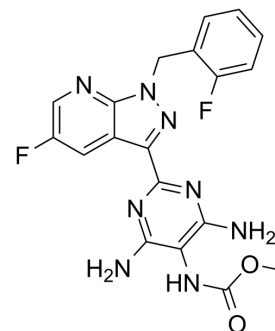


## Vericiguat

<b>Cat. No.:</b>	HY-16774		
<b>CAS No.:</b>	1350653-20-1		
<b>Molecular Formula:</b>	C <sub>19</sub> H <sub>16</sub> F <sub>2</sub> N <sub>8</sub> O <sub>2</sub>		
<b>Molecular Weight:</b>	426.38		
<b>Target:</b>	Guanylate Cyclase		
<b>Pathway:</b>	GPCR/G Protein		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	1 year
		-20°C	6 months



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 60 mg/mL (140.72 mM; Need ultrasonic)					
		<b>Solvent</b>	<b>Mass</b>	<b>1 mg</b>	<b>5 mg</b>	<b>10 mg</b>
	<b>Preparing Stock Solutions</b>	<b>Concentration</b>				
		<b>1 mM</b>		2.3453 mL	11.7266 mL	23.4533 mL
<b>5 mM</b>			0.4691 mL	2.3453 mL	4.6907 mL	
	<b>10 mM</b>		0.2345 mL	1.1727 mL	2.3453 mL	
Please refer to the solubility information to select the appropriate solvent.						
<b>In Vivo</b>	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (5.86 mM); Clear solution					

### BIOLOGICAL ACTIVITY

<b>Description</b>	Vericiguat (BAY1021189) is a potent, orally available and soluble guanylate cyclase stimulator.
<b>In Vitro</b>	<p>Vericiguat (0.01 μM to 100 μM) stimulates recombinant sGC concentration dependently, by 1.7-fold to 57.6-fold. When combined with the NO donor diethylamine/nitric oxide complex (DEA/NO), vericiguat and DEA/NO have a synergistic effect on the enzyme activity over a wide range of concentrations. At highest concentrations of vericiguat (100 μM) and DEA/NO (100 nM), the specific activity of sGC is 341.6-fold above baseline. Vericiguat stimulates the sGC reporter cell line concentration dependently, with an EC<sub>50</sub> of 1005±145 nM. Vericiguat inhibits phenylephrine-induced contractions of rabbit saphenous artery rings, rabbit aortic rings, and canine femoral vein rings concentration dependently, with IC<sub>50</sub> values of 798, 692, and 3072 nM, respectively. Vericiguat inhibits the U46619-induced contractions of porcine coronary artery rings concentration dependently, with an IC<sub>50</sub> of 956 nM<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## In Vivo

Vericiguat (compound 24) (oral administration; 3 mg/kg, 10 mg/kg; once daily; 21 days) maintains heart and kidney function in a model of hypertension-induced end-organ damage in L-NAME-treated renin transgenic rats. Additionally, Vericiguat-treated group substantially reduces overall mortality when compared to the control group<sup>[1]</sup>.

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Animal Model:	L-NAME-treated renin transgenic rats <sup>[1]</sup>
Dosage:	3 mg/kg, 10 mg/kg
Administration:	Oral administration; 3 mg/kg, 10 mg/kg; once daily; 21 days
Result:	<p>Resulted in a significant attenuation of blood pressure increase, however the overall rise of blood pressure increase was not halted in the 3/10 mg/kg treatment groups.</p> <p>Resulted a significant and dose-dependent reduction of heart hypertrophy, in both the right and left ventricle.</p> <p>With respect to kidney damage, Vericiguat Led to a significant reduction in kidney injury molecule Kim-1 and osteopontin expression which are used as biomarkers for renal injury and dysfunction.</p> <p>Resulted in a significant and dose-dependent increase in survival rates. The rat survival rate was 70% and 90%, respectively in the 3 and 10 mg/kg qd treatment groups. In contrast, the survival rate in the placebo group was only 25% after 21 days.</p>

## CUSTOMER VALIDATION

- Eur J Pharmacol. 2023 May 25;175789.
- J Chromatogr A. 2023 Sep 19;1709:464401.
- PLoS One. 2023 Aug 11;18(8):e0286767.
- Mediat Inflamm. 16 Jun 2022.
- Preprints. 2021, 2021090151.

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## REFERENCES

[1]. Follmann M, et al. Discovery of the Soluble Guanylate Cyclase Stimulator Vericiguat (BAY 1021189) for the Treatment of Chronic Heart Failure. J Med Chem. 2017 Jun 22;60(12):5146-5161.

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

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