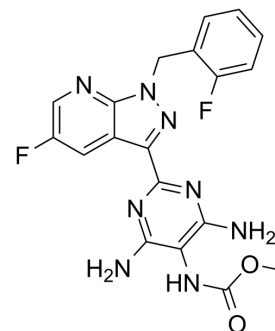


## Vericiguat

Cat. No.:	HY-16774		
CAS No.:	1350653-20-1		
Molecular Formula:	C <sub>19</sub> H <sub>16</sub> F <sub>2</sub> N <sub>8</sub> O <sub>2</sub>		
Molecular Weight:	426.38		
Target:	Guanylate Cyclase		
Pathway:	GPCR/G Protein		
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 : 60 mg/mL (140.72 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM	2.3453 mL	11.7266 mL	23.4533 mL
		5 mM	0.4691 mL	2.3453 mL	4.6907 mL
10 mM		0.2345 mL	1.1727 mL	2.3453 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 (5.86 mM); Clear solution				

### BIOLOGICAL ACTIVITY

Description	Vericiguat (BAY1021189) is a potent, orally available and soluble guanylate cyclase stimulator.
In Vitro	<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>

## 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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