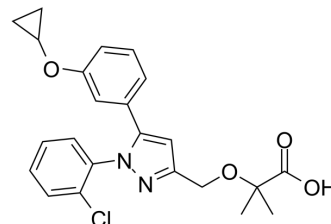


## VB124

<b>Cat. No.:</b>	HY-139665		
<b>CAS No.:</b>	2230186-18-0		
<b>Molecular Formula:</b>	C <sub>23</sub> H <sub>23</sub> ClN <sub>2</sub> O <sub>4</sub>		
<b>Molecular Weight:</b>	426.89		
<b>Target:</b>	Monocarboxylate Transporter		
<b>Pathway:</b>	Membrane Transporter/Ion Channel		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 100 mg/mL (234.25 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	<b>Preparing Stock Solutions</b>	1 mM	2.3425 mL	11.7126 mL	23.4252 mL
		5 mM	0.4685 mL	2.3425 mL	4.6850 mL
10 mM		0.2343 mL	1.1713 mL	2.3425 mL	
Please refer to the solubility information to select the appropriate solvent.					
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: 2.5 mg/mL (5.86 mM); Suspended solution; Need ultrasonic</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (5.86 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (5.86 mM); Clear solution</li> </ol>				

### BIOLOGICAL ACTIVITY

<b>Description</b>	VB124 is an orally active, potent, and selective MCT4 inhibitor. VB124 can specifically inhibit lactate efflux with IC <sub>50</sub> s of 8.6 nM and 19 nM for lactate import and export in MDA-MB-231 cells, respectively. VB124 is highly selective for MCT4 over MCT1. VB124 can be used for the research of cardiac hypertrophy, heart failure, and metabolism <sup>[1]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	IC <sub>50</sub> : 8.6 nM (lactate import in MDA-MB-231 cells expressing MCT4); 19 nM (lactate export in MDA-MB-231 cells expressing MCT4); 24 μM (lactate export in BT20 cells expressing MCT1) <sup>[1]</sup>

<b>In Vitro</b>	<p>VB124 (10 <math>\mu</math>M) inhibits the cell proliferation of MDA-MB-231 cells, and the cell proliferation rate is less than 50%<sup>[1]</sup>. VB124 is highly selective for MCT4 over MCT1, showing very little MCT1 inhibitory activity (lactate export IC<sub>50</sub>=24 <math>\mu</math>M) in MCT1-expressing BT20 cells<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
<b>In Vivo</b>	<p>VB124 (30 mg/kg; p.o.; daily for 28 days) attenuates isoproterenol-induced cardiac hypertrophy in mice<sup>[1]</sup>. VB124 (30 mg/kg; twice per day for 180 days) has no effect on the body, heart, liver, or lung weight of mice, suggesting no overt toxicities<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1" data-bbox="347 449 1516 688"> <tr> <td data-bbox="347 449 618 516">Animal Model:</td> <td data-bbox="618 449 1516 516">12 weeks old C57BL/6 mice<sup>[1]</sup></td> </tr> <tr> <td data-bbox="347 516 618 583">Dosage:</td> <td data-bbox="618 516 1516 583">30 mg/kg</td> </tr> <tr> <td data-bbox="347 583 618 630">Administration:</td> <td data-bbox="618 583 1516 630">Oral gavage; daily for 28 days (dissolved in 0.5% methylcellulose and 0.1% Tween-20)</td> </tr> <tr> <td data-bbox="347 630 618 688">Result:</td> <td data-bbox="618 630 1516 688">Prevented cardiac hypertrophy in mice.</td> </tr> </table>	Animal Model:	12 weeks old C57BL/6 mice <sup>[1]</sup>	Dosage:	30 mg/kg	Administration:	Oral gavage; daily for 28 days (dissolved in 0.5% methylcellulose and 0.1% Tween-20)	Result:	Prevented cardiac hypertrophy in mice.
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Dosage:	30 mg/kg								
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Result:	Prevented cardiac hypertrophy in mice.								

## REFERENCES

[1]. Cluntun AA, et.al. The pyruvate-lactate axis modulates cardiac hypertrophy and heart failure. Cell Metab. 2021 Mar 2;33(3):629-648.e10.

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

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