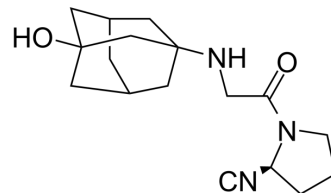


## Vildagliptin

<b>Cat. No.:</b>	HY-14291		
<b>CAS No.:</b>	274901-16-5		
<b>Molecular Formula:</b>	C <sub>17</sub> H <sub>25</sub> N <sub>3</sub> O <sub>2</sub>		
<b>Molecular Weight:</b>	303.4		
<b>Target:</b>	Dipeptidyl Peptidase; Ferroptosis; Apoptosis		
<b>Pathway:</b>	Metabolic Enzyme/Protease; Apoptosis		
<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>	H <sub>2</sub> O : 50 mg/mL (164.80 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
			10 mg	
<b>Preparing Stock Solutions</b>	<b>1 mM</b>	3.2960 mL	16.4799 mL	32.9598 mL
	<b>5 mM</b>	0.6592 mL	3.2960 mL	6.5920 mL
	<b>10 mM</b>	0.3296 mL	1.6480 mL	3.2960 mL
Please refer to the solubility information to select the appropriate solvent.				
<b>In Vivo</b>	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (329.60 mM); Clear solution; Need ultrasonic and warming and heat to 60°C			

### BIOLOGICAL ACTIVITY

<b>Description</b>	Vildagliptin (LAF237) is a potent, stable, selective dipeptidyl peptidase IV (DPP-IV) inhibitor with an IC <sub>50</sub> of 3.5 nM in human Caco-2 cells. Vildagliptin possesses excellent oral bioavailability and potent antihyperglycemic activity <sup>[1]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	IC <sub>50</sub> : 3.5 nM (DPP-IV, in human Caco-2 cells) <sup>[1]</sup>
<b>In Vitro</b>	Vildagliptin promotes beta cell survival by inhibiting cell apoptosis. Vildagliptin also promotes cell proliferation <sup>[2]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
<b>In Vivo</b>	Vildagliptin (35 mg/kg; once daily by oral gavage) increases plasma active GLP-1 levels in islets of db/db mice <sup>[2]</sup> . Vildagliptin (10 μmol/kg; orally) significantly decreases glucose excursions and stimulate insulin secretion in obese male Zucker rats <sup>[1]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male db/db mice (BKS) and wildtype mice <sup>[2]</sup>
Dosage:	35 mg/kg
Administration:	Oral gavage; once daily; for 6 weeks
Result:	Increased plasma active GLP-1 levels (22.63±1.19 vs. 11.69±0.44).

Animal Model:	Obese male Zucker rats <sup>[1]</sup>
Dosage:	10 µmol/kg (Pharmacokinetic Analysis)
Administration:	Orally
Result:	Significantly decreased glucose excursions and stimulate insulin secretion.

## CUSTOMER VALIDATION

- Cancer Lett. 2018 Apr 28;420:26-37.
- Cell Rep. 2023 Feb 28.
- Int J Mol Sci. 2022, 23(22), 14101
- J Biol Chem. 2018 Dec 7;293(49):18864-18878.

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## REFERENCES

[1]. Villhauer EB, et al. 1-[[[3-hydroxy-1-adamantyl]amino]acetyl]-2-cyano-(S)-pyrrolidine: a potent, selective, and orally bioavailable dipeptidyl peptidase IV inhibitor with antihyperglycemic properties. J Med Chem. 2003 Jun 19;46(13):2774-89.

[2]. Wu YJ, et al. Dipeptidyl peptidase-4 inhibitor, vildagliptin, inhibits pancreatic beta cell apoptosis in association with its effects suppressing endoplasmic reticulum stress in db/db mice. Metabolism. 2015 Feb;64(2):226-35.

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

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