Product Data Sheet

Product Name: H-Val-Tyr-OH
Cat. No.: GA23027

Chemical Properties

Cas. No.	3061-91-4		
Formula	$C_{14}H_{20}N_2O_4$	M.Wt	280.32
Solubility	DMSO : 100 mg/mL (356.74 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	H-Val-Tyr-OH		

Protocol

Cell experiment [1]:

Cell lines	RAW 264.7 cells
Preparation Method	RAW 264.7 cells were cultured in DMEM medium containing 10% fetal bovine serum (FBS) and 10% heat-inactivated fetal bovine serum and 100U/ml penicillin–streptomycin at 37℃ and 5% CO_2. Cells were incubated in 100μM of H-Val-Tyr-OH for 1h and then stimulated with 1μg/ml of LPS for 4h. Subsequently, western blot analysis was carried out.
Reaction Conditions	100μM; 5h
Applications	H-Val-Tyr-OH treatment reduced the phosphorylation level of IκBα in LPS-stimulated RAW 264.7 cells.

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Animal experiment [2]:

Animal models	Male Tsukuba Hypertensive Mouse (THM)
Preparation Method	Male THMs (11 weeks of age), which were housed in an air-ventilated cabinet under specific pathogen-free conditions at 23±1°C and 55±5% humidity under controlled lighting from 08:00 to 20:00. Mice had free access to food (NMF) and autoclaved water. A single oral dose of 0.1mg/g H-Val-Tyr-OH, dissolved in 1ml saline solution, was administered to THM by intubation with a nutritional catheter. Control mice were given the same volume of saline solution alone. Systolic blood pressure (SBP) and heart rate (HR) were measured 0, 1, 3, 6, 9, 12 and 24h after administration.
Dosage form	0.1mg/g for once; p.o.
Applications	H-Val-Tyr-OH treatment resulted in a prolonged reduction of blood pressure for up to 9h in THM, without affecting HR.

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References:
[1] Yasir M, Park J, Han E T, et al. Investigating Natural Product Inhibitors of IKKα: Insights from Integrative In Silico and Experimental Validation[J]. Molecules, 2025, 30(9): 2025.
[2] Matsui T, Hayashi A, Tamaya K, et al. Depressor effect induced by dipeptide, Val-Tyr, in hypertensive transgenic mice is due, in part, to the suppression of human circulating renin–angiotensin system[J]. Clinical and experimental pharmacology and physiology, 2003, 30(4): 262-265.

Background

H-Val-Tyr-OH is a dipeptide that inhibits the angiotensin converting enzyme (ACE) with an IC_{50} value of 26μM [1]. H-Val-Tyr-OH specifically inhibits angiotensin I (Ang I)-evoked contraction through ACE inhibition, without affecting angiotensin II receptor[2]. H-Val-Tyr-OH has been widely used as an internal standard to develop infrared spectroscopy and nuclear magnetic resonance methods for the identification of related compounds[3].

In vitro, H-Val-Tyr-OH treatment (100μM) for 5h reduced the phosphorylation level of IκBα in lipopolysaccharide (LPS)-stimulated RAW 264.7 cells, and inhibited the activation of the NF-κB signaling pathway[4].

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In vivo, H-Val-Tyr-OH treatment via oral administration at a single dose of 0.1mg/g resulted in a prolonged reduction of blood pressure for up to 9h in hypertensive mice [5].

References:

[1] Matsufuji H, Matsui T, Ohshige S, et al. Antihypertensive effects of angiotensin fragments in SHR[J]. Bioscience, biotechnology, and biochemistry, 1995, 59(8): 1398-1401.
[2] Vercruysse L, Morel N, Van Camp J, et al. Antihypertensive mechanism of the dipeptide Val-Tyr in rat aorta[J]. Peptides, 2008, 29(2): 261-267.
[3] Koleva B B, Kolev T M, Spiteller M. Spectroscopic and structural elucidation of l-tyrosine-containing dipeptides valyl-tyrosine and tyrosyl-alanine: Solid-state IR-LD spectroscopy, quantum chemical calculations and vibrational analysis[J]. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 2007, 68(5): 1187-1196.
[4] Yasir M, Park J, Han E T, et al. Investigating Natural Product Inhibitors of IKKα: Insights from Integrative In Silico and Experimental Validation[J]. Molecules, 2025, 30(9): 2025.
[5] Matsui T, Hayashi A, Tamaya K, et al. Depressor effect induced by dipeptide, Val-Tyr, in hypertensive transgenic mice is due, in part, to the suppression of human circulating renin–angiotensin system[J]. Clinical and experimental pharmacology and physiology, 2003, 30(4): 262-265.

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