PR-39

Cat. No.:	HY-P1259
CAS No.:	139637-11-9
Molecular Formula:	$C_{229}H_{346}N_{70}O_{40}$
Molecular Weight:	4719.74
Sequence Shortening:	RRRPRPPYLPRPRPPPFFPPRLPPRIPPGFPPRFPPRFP-NH2
Target:	Proteasome; Bacterial
Pathway:	Metabolic Enzyme/Protease; Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	PR-39, a natural proline- and arginine-rich antibacterial peptide, is a noncompetitive, reversible and allosteric proteasome inhibitor. PR-39 reversibly binds to the α7 subunit of the proteasome and blocks degradation of NF-κB inhibitor IκBα by the ubiquitin-proteasome pathway. PR-39 stimulates angiogenesis, inhibits inflammatory responses and significant reduces myocardial infarct size in mice[1][2].
In Vitro	PR-39, shown to selectively affect proteasomemediated protein degradation in vivo, alters the shape of the 20S and 26S cylinder and affects the binding of 19S caps in a reversible manner. PR-39 specifically blocks degradation of IκBα and HIF-1α by the proteasome[1]. PR-39 (100 nM) blocks TNF-α-induced (1 ng/mL; for 20 minutes) activation of VCAM-1 (2 hours) and ICAM-1 (8 hours) expression in human umbilical vein endothelial cells (HUVEC)[2]. PR-39 (10 μM) does not affect the ability to proliferate of ECV304 cell. PR39 is able to inhibit IκBα degradation without significantly affecting overall protein degradation in cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	PR-39 (10 mg/kg, intravenously; 1 hour before Caerulein of 50μg/kg, ip) blocks IκBα degradation and NF-κB-dependent transcription in the mouse pancreas after induction of acute pancreatitis[2]. PR-39 (1 μg/kg/day; 7-day intraperitoneal infusion) demonstrates significantly small infarct in C57BL/6 mice[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Maria Gaczynska, et al. Proline- and arginine-rich peptides constitute a novel class of allosteric inhibitors of proteasome activity. Biochemistry. 2003 Jul 29;42(29):8663-70.

[2]. Y Gao, et al. Inhibition of ubiquitin-proteasome pathway-mediated I kappa B alpha degradation by a naturally occurring antibacterial peptide. J Clin Invest. 2000 Aug;106(3):439-48.

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

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