Nonapeptide-1

Cat. No.:	HY-P0097
CAS No.:	158563-45-2
Molecular Formula:	$C_{61}H_{87}N_{15}O_9S$
Molecular Weight:	1206.5
Sequence:	Met-Pro-Phe-Arg-Trp-Phe-Lys-Pro-Val-NH2
Sequence Shortening:	MPFRWFKPV-NH2
Target:	Melanocortin Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	Sealed storage, away from moisture and light Powder -80°C 2 years -20°C 1 year * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)

BIOLOGICAL ACTIVITY

Description

Nonapeptide-1 (Melanostatine-5), a peptide hormone, is a selective antagonist of MC1R (K_i: 40 nM). Nonapeptide-1 is a competitive α-MSH antagonist that potently inhibits intracellular cAMP and melanosome dispersion induced by α-MSH in melanocytes (IC_{50}: 2.5 nM and 11 nM, respectively). Nonapeptide-1 inhibits melanin synthesis, and can be used in the research of skin pigmentation and regulation of steroid production in the adrenal gland, skin cancer[1][2][3].

IC_{50} & Target

MC1R	MC3R	MC4R	MC5R
40 nM (Ki)	0.47 μM (Ki)	1.34 μM (Ki)	2.4 μM (Ki)

In Vitro

Nonapeptide-1 (153N-6) inhibits α-melanocyte hormone (α-MSH)-induced melanosome dispersion, with an IC_{50} value of 11 nM[1].

Nonapeptide-1 (0.1 nM-1 μM, 30 min) inhibits α-MSH-induced intracellular cAMP levels in melanocytes, with an IC_{50} of 2.5 nM[1].

Nonapeptide-1 (153N-6) shows highest affinity for MC1R (K_i: 40 nM) in COS-1 cells expressing human receptors, and is selective for MC1R over MC3R, MC4R, and MC5R (K_i: 0.47, 1.34, and 2.4 μM, respectively)[2].

Nonapeptide-1 (N-1A, 20 μM, 3 days) inhibits the basal melanin synthesis and reverses UVA-induced melanin increase in Human epidermal melanocytes (HEM cells) and HaCaT cells[3].

Nonapeptide-1 (20 μM, 3 days) competes with α-MSH and downregulates the expression of MC1R, tyrosinase, TRP1, TRP2, and MITF via binding to MC1R in HaCaT cells and HEM cells[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[3]

Cell Line:	HaCaT cells, Human epidermal melanocytes (HEM)
Concentration:	20 μM
Incubation Time:	3 days
Result:	Downregulated the expression of MC1R, tyrosinase, TRP1, TRP2, and MITF.

CUSTOMER VALIDATION

- Chem Rev. 2022 Apr;39(2):327-335.

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REFERENCES

[1]. Jayawickreme CK, et al. Discovery and structure-function analysis of alpha-melanocyte-stimulating hormone antagonists. J Biol Chem. 1994 Nov 25;269(47):29846-54.

[2]. Schiöth, H.B., et al. Characterization of the binding of MSH-B, HB-228, GHRP-6 and 153N-6 to the human melanocortin receptor subtypes. Neuropeptides 31(6), 565-571 (1997).

[3]. Jiaoquan Chen, et al. Effects of tea polyphenols on UVA-induced melanogenesis via inhibition of α-MSH-MC1R signalling pathway. Postepy Dermatol Alergol. 2022 Apr;39(2):327-335.

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