MR 409

Cat. No.:	HY-P3304
CAS No.:	1445155-39-4
Molecular Formula:	$C_{153}H_{252}N_{44}O_{43}$
Molecular Weight:	3395.91
Sequence:	{Asn-Me}-Tyr-{D-Ala}-Asp-Ala-Ile-Phe-Thr-Asn-Ser-Tyr-Arg-{Orn}-Val-Leu-{Abu}-Gln-Leu-Ser-Ala-Arg-{Orn}-Leu-Leu-Gln-Asp-Ile-{Nle}-Asp-Arg-NHMe
Sequence Shortening:	{N-Me}-Y-{D-Ala}-DAIFTNSYR-{Orn}-VL-{Abu}-QLSAR-{Orn}-LLQDI-{Nle}-DR-NHMe
Target:	Others
Pathway:	Others
Storage:	Sealed storage, away from moisture and light, under nitrogen 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, under nitrogen)

BIOLOGICAL ACTIVITY

Description

MR 409 is a selected growth hormone-releasing hormone (GHRH) agonist. MR 409 has remarkable neuroprotective effects through enhancing endogenous neurogenesis in cerebral ischemic mice. MR 409 also inhibits the in vivo growth of lung cancer[1][2][3][4].

In Vitro

One week post-myocardial infarction (MI), MR 409 (MR-409) significantly reduces plasma levels of IL-2, IL-6, IL-10 and TNF-α compared to placebo[1].

MR 409 (MR-409; 1 μM) suppresses p53 expression in bovine pulmonary arterial endothelial cells (BPAECs)[2].

MR 409 (1 μM) induces the activation of JAK2, STAT3 and ERK1/2[2].

MR 409 (MR-409; 1 and 5 μM) decreases LPS-induced PGE_2 and 8-iso-$PGF_{2\alpha}$ levels, in a dose-dependent manner[3].

MR 409 (1 and 5μM) decreases LPS-induced lactate dehydrogenase (LDH) activity and nitrite production, without showing a dose-dependent effect[3].

MR 409 (1 and 5 μM) decreases LPS-induced gene expression of COX-2, NF-κB and iNOS in colon specimens, without a dose-dependent effect[3].

MR 409 (MR-409) can stimulate endogenous neurogenesis and improve the tMCAO-induced loss of neuroplasticity. MR 409 also enhances the proliferation and inhibits apoptosis of neural stem cells treated with oxygen and glucose deprivation-reperfusion[4].

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

Western Blot Analysis[2]

Cell Line:	BPAEC
Concentration:	1 μM
Incubation Time:	24, 48 and 72 hours
Result:	Significantly suppressed p53 expression levels after 48 and 72 hours of treatment.

In Vivo

MR 409 (MR-409) inhibits the in vivo growth of lung cancer xenografted into nude mice[3].
MR 409 (5 μg; s.c. treated daily for 4 weeks) reduces nociceptive response in mice[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Adult C57/BL6 male mice (5 weeks old, weight 20-22 g)[3]
Dosage:	5 μg
Administration:	Treated daily by subcutaneous (s.c.) administration of 0.1 mL solution
Result:	Showed maximal antinociceptive effects at 2 weeks. Sustained a moderate analgesic effect at 4 weeks.

REFERENCES

[1]. Rosemeire M Kanashiro-Takeuchi, et al. New therapeutic approach to heart failure due to myocardial infarction based on targeting growth hormone-releasing hormone receptor. Oncotarget. 2015;6(12):9728-39.

[2]. Mohammad A Uddin, et al. GHRH antagonists support lung endothelial barrier function. Tissue Barriers. 2019;7(4):1669989.

[3]. Lucia Recinella, et al. Protective effects of growth hormone-releasing hormone analogs in DSS-induced colitis in mice. Sci Rep. 2021 Jan 28;11(1):2530.

[4]. Yueyang Liu, et al. Agonistic analog of growth hormone-releasing hormone promotes neurofunctional recovery and neural regeneration in ischemic stroke. Proc Natl Acad Sci U S A. 2021 Nov 23;118(47):e2109600118.

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