ADWX 1

Cat. No.:	HY-P1409
Molecular Formula:	$C_{169}H_{281}N_{57}O_{46}S_7$
Molecular Weight:	4071.85
Sequence:	Val-Gly-Ile-Asn-Val-Lys-Cys-Lys-His-Ser-Arg-Gln-Cys-Leu-Lys-Pro-Cys-Lys-Asp-Ala-Gly-Met-Arg-Phe-Gly-Lys-Cys-Thr-Asn-Gly-Lys-Cys-His-Cys-Thr-Pro-Lys (Disulfide bonds: Cys7-Cys27, Cys13-Cys32, Cys17-Cys34)
Sequence Shortening:	VGINVKCKHSRQCLKPCKDAGMRFGKCTNGKCHCTPK (Disulfide bonds: Cys7-Cys27, Cys13-Cys32, Cys17-Cys34)
Target:	Potassium Channel
Pathway:	Membrane Transporter/Ion Channel
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description

ADWX 1 is a new peptide inhibitor that is potent and selective for Kv1.3 with an IC_{50} value of 1.89 pM. ADWX 1 inhibits Kv1.3 channel activity specifically to inhibit both the initial calcium signaling and NF-κB activation. ADWX 1 ameliorates the disease in rats of experimental autoimmune encephalomyelitis (EAE) models. ADWX 1 can be used to study T cell-mediated autoimmune diseases[1][2].

IC_{50} & Target

Kv1.3	Kv1.1
1.89 pM (IC_{50})	0.65 nM (IC_{50})

In Vitro

ADWX 1 (1,10 nM, 1 h) inhibits IL-2 and IFN-γ productions, and inhibits humans $CD4^+$ $CCR7^-$ T_{EM} cells activation selectively[2].
ADWX 1 (1,10 nM, 50 min) reduces [Ca^{2+}] in activated $CD4^+$ $CCR7^-$ T_{CM} cells from EAE rats[2].
ADWX 1 (1,10 nM, 1 h) reduces NF-κB activation and suppresses Kv1.3 expression at both mRNA and protein levels preferentially in myelin basic protein (MBP) (HY-P77995)-stimulated $CD4^+$ $CCR7^-$ T cells from EAE rats[2].
ADWX 1 (1,10 nM, 3 days) suppresses Th17 activation but not differentiation in $CD4^+$ $CCR7^-$ T cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

RT-PCR[2]

Cell Line:	$CD4^+$ $CCR7^-$ T cells from EAE rats
Concentration:	1, 10 nM
Incubation Time:	1 h
Result:	Suppressed Kv1.3 gene mRNA expression preferentially.

Western Blot Analysis[2]

Cell Line:	$CD4^+$ $CCR7^-$ T cells from EAE rats
Concentration:	1, 10 nM

Incubation Time:	1 h
Result:	Suppressed Kv1.3 protein expression preferentially.

In Vivo

ADWX 1 (100 μg/kg/day, s.c., 3 days) ameliorates the disease through the inhibition of IL-2 and IFN-γ productions and CCR7$^-$ T_{EM} proliferation in experimental autoimmune encephalomyelitis (EAE) of Sprague-Dawley rats[2].
ADWX 1 (5/10 mg/kg, s.c., 2 weeks) induces no pathological changes in the behavior or tissues of the rats (acute toxicity assay)[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Stable symptoms of acute experimental autoimmune encephalomyelitis (EAE) were induced by immunizing Sprague-Dawley rats[2].
Dosage:	100 μg/kg/day, 3 days
Administration:	subcutaneous injection (s.c.)
Result:	Reduced neurological scores compared with vehicle-treated rats on days 10, 11, 12, 13 and 14. Reduced in inflammatory infiltrates and demyelination in the affected spinal cord significantly. Inhibited IL-2 and IFN-γ productions. Inhibited the T cell proliferation triggered by high and low concentrations of myelin antigen in a dose-dependent manner. Decreased CD4$^+$ CCR7$^-$ T_{EM} cells.

REFERENCES

[1]. Han S, et al. Structural basis of a potent peptide inhibitor designed for Kv1.3 channel, a therapeutic target of autoimmune disease. J Biol Chem. 2008 Jul 4;283(27):19058-65.

[2]. Li Z, et al. Selective inhibition of CCR7(-) effector memory T cell activation by a novel peptide targeting Kv1.3 channel in a rat experimental autoimmune encephalomyelitis model. J Biol Chem. 2012 Aug 24;287(35):29479-94.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA