

Apelin siRNA (h): sc-44741

BACKGROUND

Apelin (APEL), an endogenous ligand for APJ, is an alternate co-receptor with CD4 for HIV-1 infection. This secreted protein inhibits HIV-1 entry into cells that coexpress APJ and CD4. By proteolytic processing of the peptide precursor, several different active peptides may be produced. Apelin-36, one such inotropic peptide, is being investigated as a potential plasma marker of cardiopulmonary disease. Apelin is highly expressed in brain, mainly in the thalamus, frontal cortex, hypothalamus and midbrain. Apelin is also secreted by the mammary gland into the colostrum and milk. Oral intake of Apelin (in milk and colostrum) may be important in the modulation of the immune responses in neonates and newborns. Apelin has also been found to be a potent stimulator of cardiac contractility and may function in the regulation of the cardiovascular system.

REFERENCES

1. Tatemoto, K., et al. 1998. Isolation and characterization of a novel endogenous peptide ligand for the human APJ receptor. *Biochem. Biophys. Res. Commun.* 251: 471-476.
2. Habata, Y., et al. 1999. Apelin, the natural ligand of the orphan receptor APJ, is abundantly secreted in the colostrum. *Biochim. Biophys. Acta* 1452: 25-35.
3. Lee, D.K., et al. 2000. Characterization of Apelin, the ligand for the APJ receptor. *J. Neurochem.* 74: 34-41.
4. Cayabyab, M., et al. 2000. Apelin, the natural ligand of the orphan seven-transmembrane receptor APJ, inhibits human immunodeficiency virus type 1 entry. *J. Virol.* 74: 11972-11976.

CHROMOSOMAL LOCATION

Genetic locus: APLN (human) mapping to Xq26.1.

PRODUCT

Apelin siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Apelin shRNA Plasmid (h): sc-44741-SH and Apelin shRNA (h) Lentiviral Particles: sc-44741-V as alternate gene silencing products.

For independent verification of Apelin (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44741A, sc-44741B and sc-44741C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Apelin siRNA (h) is recommended for the inhibition of Apelin expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Apelin (2A1-2D5): sc-293441 is recommended as a control antibody for monitoring of Apelin gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Apelin gene expression knockdown using RT-PCR Primer: Apelin (h)-PR: sc-44741-PR (20 μ l, 467 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Than, A., et al. 2014. Apelin attenuates oxidative stress in human adipocytes. *J. Biol. Chem.* 289: 3763-3774.
2. Cui, J., et al. 2017. miR-497 accelerates oxidized low-density lipoprotein-induced lipid accumulation in macrophages by repressing the expression of Apelin. *Cell Biol. Int.* 41: 1012-1019.
3. Wang, Y., et al. 2019. Apelin promotes hepatic fibrosis through ERK signaling in LX-2 cells. *Mol. Cell. Biochem.* 460: 205-215.
4. Zhang, H., et al. 2021. Apelin rejuvenates aged human mesenchymal stem cells by regulating autophagy and improves cardiac protection after infarction. *Front. Cell Dev. Biol.* 9: 628463.

RESEARCH USE

For research use only, not for use in diagnostic procedures.