SANTA CRUZ BIOTECHNOLOGY, INC.

PADI4 siRNA (h): sc-61283

BACKGROUND

The protein arginine deiminase (PAD) family of proteins are also often referred to as peptidylarginine deiminases. They catalyze the deimination of arginine residues of proteins. In the presence of calcium, the proteins in the PAD familiy act as catalysts for the posttranslational modification reaction that converts methylarginine to citrulline. The PAD proteins are cytoplasmic proteins primarily detected in eosinophils and neutrophils. The gene encoding for PADI4 is believed to be a rheumatoid arthritis susceptibility locus. By increasing the citrullination of proteins in rheumatoid arthritis synovial tissues, it may play a role in the pathogenesis of the disease.

REFERENCES

1. Hagiwara, T., et al. 2005. Deimination of Histone H2A and H4 at Arginine 3 in HL-60 granulocytes. Biochemistry 44: 5827-5834.
2. Barton, A., et al. 2005. Investigation of polymorphisms in the PADI4 gene in determining severity of inflammatory polyarthritis. Ann. Rheum. Dis. 64: 1311-1315.
3. Cantaert, T., et al. 2005. Functional haplotypes of PADI4: relevance for rheumatoid arthritis-specific synovial intracellular citrullinated proteins and anti-citrullinated protein antibodies. Ann. Rheum. Dis. 64: 1316-1320.
4. Kubota, K., et al. 2005. Determination of sites citrullinated by peptidylarginine deiminase using 180 stable isotope labeling and mass spectrometry. Rapid Commun. Mass Spectrom. 19: 683-688.
5. Nakayama-Hamada, M., et al. 2005. Comparison of enzymatic properties between hPADI2 and hPADI4. Biochem. Biophys. Res. Commun. 327: 192-200.
6. Yamada, R., et al. 2005. Citrullinated proteins in rheumatoid arthritis. Front. Biosci. 10: 54-64.
7. Chang, X., et al. 2005. Localization of peptidylarginine deiminase 4 (PADI4) and citrullinated protein in synovial tissue of rheumatoid arthritis. Rheumatology 44: 40-50.
8. Chang, X., et al. 2005. The inhibition of antithrombin by peptidylarginine deiminase 4 may contribute to pathogenesis of rheumatoid arthritis. Rheumatology 44: 293-298.

CHROMOSOMAL LOCATION

Genetic locus: PADI4 (human) mapping to 1p36.13.

PRODUCT

PADI4 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PADI4 shRNA Plasmid (h): sc-61283-SH and PADI4 shRNA (h) Lentiviral Particles: sc-61283-V as alternate gene silencing products.

For independent verification of PADI4 (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-61283A, sc-61283B and sc-61283C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PADI4 siRNA (h) is recommended for the inhibition of PADI4 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 µM in 66 µl. 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

PADI4 (A-11): sc-365369 is recommended as a control antibody for monitoring of PADI4 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 PADI4 gene expression knockdown using RT-PCR Primer: PADI4 (h)-PR: sc-61283-PR (20 µl, 585 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Sharma, P., et al. 2018. Arginine citrullination at the C-terminal domain controls RNA polymerase II transcription. Mol. Cell 73: 84-96.

RESEARCH USE

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