SANTA CRUZ BIOTECHNOLOGY, INC.

CRP siRNA (h): sc-40815

BACKGROUND

Pentraxins, which include C-reactive protein (CRP) and serum amyloid P component (SAP), are prototypic acute phase proteins. CRP and SAP are produced by liver epithelial cells and are characterized by a cyclic pentameric structure and calcium-dependent ligand binding. IL-6 is the major inducer of human CRP gene, and IL-1 and steroids can enhance this induction. Testosterone is required for the expression of CRP transgene *in vivo,* whereas testosterone is not required for expression of the SAP gene. During the acute-phase response, cytokine C5a acts with IL-6 and/or IL-1β to promote upregulation of the CRP and SAP genes. Both Stat3 and C/EBP are involved in mouse SAP gene expression, but only Stat3 is involved in mouse CRP gene expression. SAP binds to a variety of molecules, including autoantigens and chromatin. Both CRP and SAP also bind to Fc γ R and opsonize particles for phagocytosis by human polymorphonuclear leukocytes. Opsonization of zymosan by CRP is mediated through Fc γ RI, while Fc γ RII and Fc γ RIII are receptors for SAP. Therefore, CRP and SAP play critical roles in the host defense system.

REFERENCES

1. Alles, V.V., et al. 1994. Inducible expression of Ptx3, a new member of the pentraxin family, in human mononuclear phagocytes. Blood 84: 3483-3493.
2. Introna, M., et al. 1996. Cloning of mouse Ptx3, a new member of the pentraxin gene family expressed at extrahepatic sites. Blood 87: 1862-1872.
3. Jensen, L.E., et al. 1997. Acute phase proteins in salmonids: evolutionary analyses and acute phase response. J. Immunol. 158: 384-392.
4. Szalai, A.J., et al. 1998. Testosterone and IL-6 requirements for human C-reactive protein gene expression in transgenic mice. J. Immunol. 160: 5294-5299.
5. Szalai, A.J., et al. 2000. Complement-dependent acute-phase expression of C-reactive protein and serum amyloid P-component. J. Immunol. 165: 1030-1035.
6. Ochrietor, J.D., et al. 2000. Role of Stat3 and C/EBP in cytokine-dependent expression of the mouse serum amyloid P-component (SAP) and C-reactive protein (CRP) genes. Cytokine 12: 888-899.
7. Bharadwaj, D., et al. 2001. Serum amyloid P component binds to Fc γ R and opsonizes particles for phagocytosis. J. Immunol. 166: 6735-6741.

CHROMOSOMAL LOCATION

Genetic locus: CRP (human) mapping to 1q23.2.

PRODUCT

CRP 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 CRP shRNA Plasmid (h): sc-40815-SH and CRP shRNA (h) Lentiviral Particles: sc-40815-V as alternate gene silencing products.

For independent verification of CRP (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-40815A, sc-40815B and sc-40815C.

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

CRP siRNA (h) is recommended for the inhibition of CRP 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

CRP (26D7): sc-69770 is recommended as a control antibody for monitoring of CRP 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CRP gene expression knockdown using RT-PCR Primer: CRP (h)-PR: sc-40815-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.