SANTA CRUZ BIOTECHNOLOGY, INC.

CCDC98 siRNA (h): sc-105186

BACKGROUND

Coiled-coil domain-containing protein 98 (CCDC98), also known as FAM175A and ABRA1, is a 409 amino acid member of the FAM175 family. Functioning as a breast cancer-1 (BRCA1) interacting protein, CCDC98 colocalizes with BRCA1 to play a role in DNA repair. BRCA1 is a protein that is recruited to DNA breaks and participates in checkpoint regulations, specifically during S phase and at the G_2/M transition. CCDC98 acts upstream of BRCA1 and regulates BRCA1 in DNA repair and checkpoint regulations in a phosphorylation-dependent manner. Moreover, CCDC98 has been shown to be necessary for the formation of BRCA1 foci in response to ionizing radiation.

REFERENCES

1. Kim, H., et al. 2007. CCDC98 is a BRCA1-BRCT domain-binding protein involved in the DNA damage response. Nat. Struct. Mol. Biol. 14: 710-715.
2. Liu, Z., et al. 2007. CCDC98 targets BRCA1 to DNA damage sites. Nat. Struct. Mol. Biol. 14: 716-720.
3. Wang, B., et al. 2007. Ubc13/Rnf8 ubiquitin ligases control foci formation of the Rap80/Abraxas/Brca1/Brcc36 complex in response to DNA damage. Proc. Natl. Acad. Sci. USA 104: 20759-20763.
4. Wang, B., et al. 2007. Abraxas and RAP80 form a BRCA1 protein complex required for the DNA damage response. Science 316: 1194-1198.
5. Novak, D.J., et al. 2008. Analysis of the genes coding for the BRCA1-interacting proteins, RAP80 and Abraxas (CCDC98), in high-risk, non-BRCA1/2, multiethnic breast cancer cases. Breast Cancer Res. Treat. 117: 453-459.
6. Yan, J., et al. 2008. RAP80 and RNF8, key players in the recruitment of repair proteins to DNA damage sites. Cancer Lett. 271: 179-190.
7. Rodriguez, M.C., et al. 2008. BRCT domains: phosphopeptide binding and signaling modules. Front. Biosci. 13: 5905-5915.
8. Kim, H., et al. 2008. New players in the BRCA1-mediated DNA damage responsive pathway. Mol. Cells 25: 457-461.
9. Osorio, A., et al. 2009. Evaluation of the BRCA1 interacting genes RAP80 and CCDC98 in familial breast cancer susceptibility. Breast Cancer Res. Treat. 113: 371-376.

CHROMOSOMAL LOCATION

Genetic locus: FAM175A (human) mapping to 4q21.23.

PRODUCT

CCDC98 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 CCDC98 shRNA Plasmid (h): sc-105186-SH and CCDC98 shRNA (h) Lentiviral Particles: sc-105186-V as alternate gene silencing products.

For independent verification of CCDC98 (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-105186A, sc-105186B and sc-105186C.

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

CCDC98 siRNA (h) is recommended for the inhibition of CCDC98 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

CCDC98 (A-3): sc-376951 is recommended as a control antibody for monitoring of CCDC98 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 CCDC98 gene expression knockdown using RT-PCR Primer: CCDC98 (h)-PR: sc-105186-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.