SANTA CRUZ BIOTECHNOLOGY, INC.

XPC siRNA (m): sc-37806

BACKGROUND

Xeroderma pigmentosum (XP) is an autosomal recessive disorder characterized by a genetic predisposition to sunlight-induced skin cancer due to deficiencies in the DNA repair enzymes. The most frequent mutations are found in the XP genes of group A through G and group V, which encode nucleotide excision repair (NER) proteins. NER provides versatile DNA repair mechanisms to ensure the proper functioning of all cells. The majority of patients with XP carry mutations in either the XPA or XPC genes, which encode proteins involved in the recognition of damaged DNA. The gene encoding human XPC maps to chromosome 3p25.1. XPC forms a complex with Cen2 and the human homolog of yeast Rad23B (HR23B), both of which stabilize XPC; it also excises thymine dimers from damaged DNA. Specifically, the carboxy terminus of XPC is required for HR23B and DNA binding and, subsequently, mutations leading to carboxy terminal truncations result in nonfunctional XPC proteins.

REFERENCES

1. Legerski, R.J., et al. 1994. Assignment of Xeroderma pigmentosum group C (XPC) gene to chromosome 3p25. Genomics 21: 266-269.
2. Tateishi, S., et al. 1995. Separation of protein factors that correct the defects in the seven complementation groups of Xeroderma pigmentosum cells. J. Biochem. 118: 819-824.
3. Reardon, J.T., et al. 1996. Overproduction, purification and characterization of the XPC subunit of the human DNA repair excision nuclease. J. Biol. Chem. 271: 19451-19456.
4. Araki, M., et al. 2001. Centrosome protein Centrin-2/Caltractin-1 is part of the Xeroderma pigmentosum group C complex that initiates global genome nucleotide excision repair. J. Biol. Chem. 276: 18665-18672.
5. Sugasawa, K., et al. 2002. A molecular mechanism for DNA damage recognition by the Xeroderma pigmentosum group C protein complex. DNA Repair 1: 95-107.
6. Uchida, A., et al. 2002. The carboxy-terminal domain of the XPC protein plays a crucial role in nucleotide excision repair through interactions with transcription factor IIH. DNA Repair 1: 449-461.

CHROMOSOMAL LOCATION

Genetic locus: Xpc (mouse) mapping to 6 D1.

PRODUCT

XPC siRNA (m) 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 XPC shRNA Plasmid (m): sc-37806-SH and XPC shRNA (m) Lentiviral Particles: sc-37806-V as alternate gene silencing products.

For independent verification of XPC (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37806A, sc-37806B and sc-37806C.

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

XPC siRNA (m) is recommended for the inhibition of XPC expression in mouse 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

XPC (D-10): sc-74410 is recommended as a control antibody for monitoring of XPC 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 XPC gene expression knockdown using RT-PCR Primer: XPC (m)-PR: sc-37806-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.