

# DDX21 siRNA (m): sc-142925

## BACKGROUND

DEAD-box proteins, characterized by the conserved motif Asp-Glu-Ala-Asp, are putative RNA helicases implicated in several cellular processes involving modifications of RNA secondary structure and ribosome/spliceosome assembly. Based on their distribution patterns, some members of this family may be involved in embryogenesis, spermatogenesis, and cellular growth and division. DDX21 (DEAD (Asp-Glu-Ala-Asp) box polypeptide 21), also known as GUA or GURDB, is a 783 amino acid protein that localizes to the nucleus and contains one helicase C-terminal domain and one helicase ATP-binding domain. Existing as multiple alternatively spliced isoforms, DDX21 functions as a component of the multi-protein B-WICH complex and acts as both a helicase that can unwind double-stranded RNA and as a foldase that can introduce secondary structures into single-stranded RNA. DDX21 exists as an autoantigen in people affected by watermelon stomach disease which is often characterized by chronic gastrointestinal bleeding.

## REFERENCES

- Schmid, S.R., et al. 1992. D-E-A-D protein family of putative RNA helicases. *Mol. Microbiol.* 6: 283-291.
- Valdez, B.C., et al. 1996. A nucleolar RNA helicase recognized by autoimmune antibodies from a patient with watermelon stomach disease. *Nucleic Acids Res.* 24: 1220-1224.
- Valdez, B.C., et al. 2000. Mouse RNA helicase II/Gu: cDNA and genomic sequences, chromosomal localization, and regulation of expression. *Genomics* 66: 184-194.
- Zhu, K., et al. 2001. Human RNA helicase II/Gu gene: genomic organization and promoter analysis. *Biochem. Biophys. Res. Commun.* 281: 1006-1011.

## CHROMOSOMAL LOCATION

Genetic locus: Ddx21 (mouse) mapping to 10 B4.

## PRODUCT

DDX21 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DDX21 shRNA Plasmid (m): sc-142925-SH and DDX21 shRNA (m) Lentiviral Particles: sc-142925-V as alternate gene silencing products.

For independent verification of DDX21 (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-142925A, sc-142925B and sc-142925C.

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

## APPLICATIONS

DDX21 siRNA (m) is recommended for the inhibition of DDX21 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  $\mu$ M in 66  $\mu$ 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

DDX21 (F-5): sc-376758 is recommended as a control antibody for monitoring of DDX21 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DDX21 gene expression knockdown using RT-PCR Primer: DDX21 (m)-PR: sc-142925-PR (20  $\mu$ l, 425 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Zhang, Z., et al. 2011. DDX1, DDX21, and DHX36 helicases form a complex with the adaptor molecule TRIF to sense dsRNA in dendritic cells. *Immunity* 34: 866-878.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.