SANTA CRUZ BIOTECHNOLOGY, INC.

PIWIL2 siRNA (m): sc-62457

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The Power to Question

BACKGROUND

PIWIL2 (PIWI-like protein 2), also known as HILI and cancer/testis antigen 80 (CT80), is a 973 amino acid protein that belongs to the argonaute family. PIWIL2 contains one PAZ domain and one PIWI domain. PIWIL2 is a cytoplasmic protein that is expressed in adult testis and in most tumors. It regulates spermatogenesis and primordial germ cell production and has an essential role in meiotic differentiation of spermatocytes and in self-renewal of spermatogonial stem cells. Expression of PIWIL2 can modulate expression of genes involved in stem cell proliferation (such as PDGFR-b), in energy metabolism (such as Glut1), in cell-cell interaction (such as Integrin a6, GJA7, THY-1 and CD9), and in germ cell differentiation (such as STRA8). It may also play a role as a regulatory factor of Stat3/Bcl-$x_{S/L}$/CCND1 pathway. Repression of PIWIL2 can inhibit tumor cell growth. PIWIL2 acts as an oncogene by inhibition of apoptosis and promotion of proliferation in tumors.

REFERENCES

1. Sasaki, T., et al. 2003. Identification of eight members of the Argonaute family in the human genome small star, filled. Genomics 82: 323-330.
2. Kuramochi-Miyagawa, S., et al. 2004. Mili, a mammalian member of PIWI family gene, is essential for spermatogenesis. Development 131: 839-849.
3. Lee, J.H., et al. 2005. Stem cell protein PIWIL2 modulates expression of murine spermatogonial stem cell expressed genes. Mol. Reprod. Dev. 73: 173-179.
4. Lee, J.H., et al. 2006. Stem-cell protein PIWIL2 is widely expressed in tumors and inhibits apoptosis through activation of Stat3/Bcl-x_L pathway. Hum. Mol. Genet. 15: 201-211.
5. Nayernia, K., et al. 2006. Derivation of male germ cells from bone marrow stem cells. Lab. Invest. 86: 654-663.
6. Aravin, A., et al. 2006. A novel class of small RNAs bind to MILI protein in mouse testes. Nature 442: 203-207.

CHROMOSOMAL LOCATION

Genetic locus: Piwil2 (mouse) mapping to 14 D2.

PRODUCT

PIWIL2 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 PIWIL2 shRNA Plasmid (m): sc-62457-SH and PIWIL2 shRNA (m) Lentiviral Particles: sc-62457-V as alternate gene silencing products.

For independent verification of PIWIL2 (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-62457A, sc-62457B and sc-62457C.

PROTOCOLS

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

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

PIWIL2 siRNA (m) is recommended for the inhibition of PIWIL2 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

PIWIL2 (D-5): sc-377347 is recommended as a control antibody for monitoring of PIWIL2 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 PIWIL2 gene expression knockdown using RT-PCR Primer: PIWIL2 (m)-PR: sc-62457-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.