SANTA CRUZ BIOTECHNOLOGY, INC.

PIWIL4 (10G9B11): sc-517215

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

PIWIL4 (PIWI-like protein 4), also known as HIWI2 is a 852 amino acid protein that belongs to the argonaute family. PIWIL4 contains one PAZ domain and one PIWI domain and is essential for the maintenance of germline stem cells. PIWIL4 is a cytoplasmic protein that is expressed in adult testis. 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. PIWIL4-null mice are of normal size and weight and have the expected life span. Homozygous PIWIL4-null females are fertile and have no obvious defects. However, PIWIL4-deficient males are infertile and show a meiotic progression defect in early prophase of meiosis I and progressive loss of germ cells with age. Mutant males show elevated expression of LINE-1 and intracisternal A particle (IAP) element transcripts in germ cell lineages. The gene encoding PIWIL4 maps to human chromosome 11q21.

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-XL 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: PIWIL4 (human) mapping to 11q21.

SOURCE

PIWIL4 (10G9B11) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 304-434 of PIWIL4 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

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

APPLICATIONS

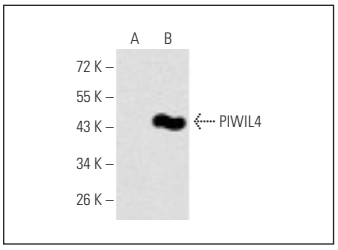
PIWIL4 (10G9B11) is recommended for detection of PIWIL4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PIWIL4 siRNA (h): sc-62458, PIWIL4 shRNA Plasmid (h): sc-62458-SH and PIWIL4 shRNA (h) Lentiviral Particles: sc-62458-V.

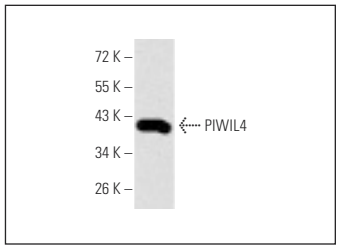
Molecular Weight of PIWIL4: 97 kDa.

Positive Controls: human PIWIL4 (304-434)-hIgGFc transfected HEK293 whole cell lysate.

DATA



PIWIL4 (10G9B11): sc-517215. Western blot analysis of PIWIL4 expression in non-transfected (**A**) and human PIWIL4 (304-434)-hIgGFc transfected (**B**) HEK293 whole cell lysates.



PIWIL4 (10G9B11): sc-517215. Western blot analysis of PIWIL4 expression in human PIWIL4 recombinant protein.

RESEARCH USE

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