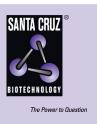
SANTA CRUZ BIOTECHNOLOGY, INC.

PIWI (dC-19): sc-22681



BACKGROUND

The PIWI family is an evolutionarily conserved gene family that plays an essential role in stem cell self-renewal, gametogenesis, and RNA interference in diverse organisms. In the Drosophila ovary, PIWI is required for the asymmetric division of Germ-line stem cells (GSCs) to produce and maintain a daughter GSC, but is not essential for the further differentiation of the committed daughter cell. PIWI is a highly basic nucleoplasmic protein present in both somatic and germline cells, with the highly conserved C-terminal region essential for its function. Removing PIWI protein from single germline stem cells significantly decreases the rate of their division, suggesting that PIWI has a second role as a cell-autonomous promoter of germline stem cell division. Consistent with its dual function, over-expression of PIWI in somatic cells causes an increase both in the number of germline stem cells and the rate of their division. Thus, PIWI is a key regulator of stem cell division; its somatic expression modulates the number of germline stem cells and the rate of their division, while its germline expression also contributes to promoting stem cell division in a cell-autonomous manner.

REFERENCES

- Cox, D.N., Chao, A., Baker, J., Chang, L., Qiao, D. and Lin, H. 1998. A novel class of evolutionarily conserved genes defined by PIWI are essential for stem cell self-renewal. Genes Dev. 12: 3715-3727.
- Cox, D.N., Chao, A. and Lin, H. 2000. PIWI encodes a nucleoplasmic factor whose activity modulates the number and division rate of germline stem cells. Development 127: 503-514.
- Kuramochi-Miyagawa, S., Kimura, T., Yomogida, K., Kuroiwa, A., Tadokoro, Y., Fujita, Y., Sato, M., Matsuda, Y. and Nakano, T. 2001. Two mouse PIWIrelated genes: MIWI and MILI. Mech. Dev. 108: 121-133.
- Qiao, D., Zeeman, A.M., Deng, W., Looijenga, L.H. and Lin, H. 2002. Molecular characterization of HIWI, a human member of the PIWI gene family whose overexpression is correlated to seminomas. Oncogene 21: 3988-3999.
- Kennerdell, J.R., Yamaguchi, S. and Carthew, R.W. 2002. RNAi is activated during *Drosophila* oocyte maturation in a manner dependent on aubergine and spindle-E. Genes Dev. 16:1884-1889.

SOURCE

PIWI (dC-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of PIWI of *Drosophila melanogaster* origin.

PRODUCT

Each vial contains 200 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22681 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **D0 NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

PIWI (dC-19) is recommended for detection of PIWI of *Drosophila melanogaster* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of PIWI: 97 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluo-rescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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

MONOS Satisfation Guaranteed

Try **PIWI (G-1): sc-390946**, our highly recommended monoclonal alternative to PIWI (dC-19).