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PIWIL4 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO2292a

Product Information

Application	WB, IHC, FC, E
Primary Accession	Q7Z3Z4
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	10G9B11
Isotype	IgG1
Calculated MW	96589
Description	PIWIL4 belongs to the Argonaute family of proteins, which function in development and maintenance of germline stem cells
Immunogen	Purified recombinant fragment of human PIWIL4 (AA: 304-434) expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	143689
Other Names	Piwi-like protein 4, PIWIL4, HIWI2, PIWI
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 FC~~1/200 - 1/400 E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	PIWIL4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIWIL4
Synonyms	HIWI2, PIWI
Function	Plays a central role during spermatogenesis by repressing transposable elements and preventing their mobilization, which is essential for the germline integrity (By similarity). Acts via the piRNA metabolic process, which mediates the repression of transposable elements during meiosis by forming

complexes composed of piRNAs and Piwi proteins (By similarity). The PIWIL4-piRNA pathway acts in the nucleus and mediates silencing of active transposons: engages with nascent transposable element transcripts and governs the piRNA-directed DNA methylation and subsequent repression of transposons (By similarity). In contrast to PIWIL1 and PIWIL2, does not show endonuclease activity (By similarity). Directly binds piRNAs, a class of 24 to 30 nucleotide RNAs that are generated by a Dicer-independent mechanism and are primarily derived from transposons and other repeated sequence elements (By similarity). Associates with secondary piRNAs antisense and PIWIL2/MILI is required for such association (By similarity). The piRNA process acts upstream of known mediators of DNA methylation (By similarity). Plays a key role in the piRNA amplification loop, also named ping-pong amplification cycle, by acting as a 'slicer-incompetent' component that loads cleaved piRNAs from the 'slicer-competent' component PIWIL2 and target them on genomic transposon loci in the nucleus (By similarity). May be involved in the chromatin-modifying pathway by inducing 'Lys-9' methylation of histone H3 at some loci (PubMed:17544373). In addition to its role in germline, PIWIL4 also plays a role in the regulation of somatic cells activities (By similarity). Plays a role in pancreatic beta cell function and insulin secretion (By similarity). Involved in maintaining cell morphology and functional integrity of retinal epithelial through Akt/GSK3alpha/beta signaling pathway (PubMed:28025795). When overexpressed, acts as an oncogene by inhibition of apoptosis and promotion of cells proliferation in tumors (PubMed:22483988).

Cellular Location

Nucleus. Cytoplasm Note=Probable component of the meiotic nuage, also named P granule, a germ-cell-specific organelle required to repress transposon activity during meiosis. PIWIL2/MILI is required for nuclear localization (By similarity). {ECO:0000250|UniProtKB:Q8CGT6}

Tissue Location

Ubiquitously expressed (PubMed:17544373, PubMed:22483988, PubMed:25038252, PubMed:28025795, PubMed:28711973) Detected in retina, retinal pigment epithelia cells (RPE) (at protein level) (PubMed:28025795).

References

1.FEBS Lett. 2012 May 7;586(9):1356-62. 2.Hum Reprod. 2010 Dec;25(12):2955-61.

Images

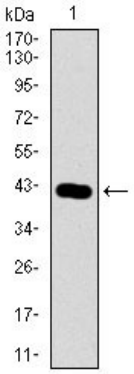

Figure 1: Western blot analysis using PIWIL4 mAb against human PIWIL4 recombinant protein. (Expected MW is 40.8 kDa)

Figure 2: Western blot analysis using PIWIL4 mAb against HEK293 (1) and PIWIL4 (AA: 304-434)-hIgGFc transfected HEK293 (2) cell lysate.

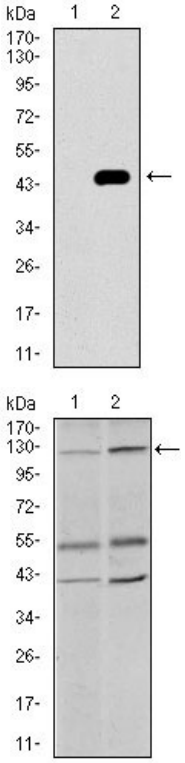

Figure 3: Western blot analysis using PIWIL4 mouse mAb against PC-3 (1) and PANC-1 (2) cell lysate.

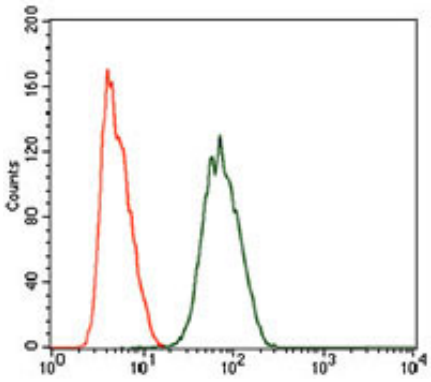

Figure 4: Flow cytometric analysis of HeLa cells using PIWIL4 mouse mAb (green) and negative control (red).

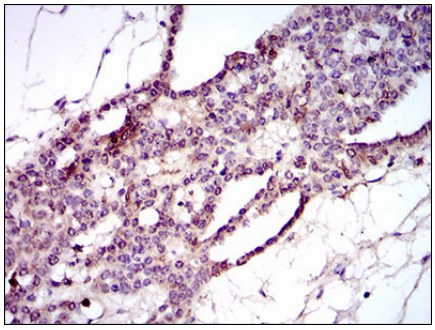

Figure 5: Immunohistochemical analysis of paraffin-embedded ovarian cancer tissues using PIWIL4 mouse mAb with DAB staining.

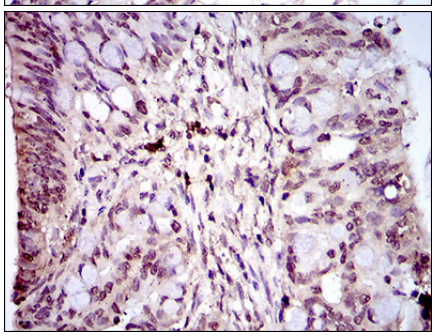

Figure 6: Immunohistochemical analysis of paraffin-embedded rectum cancer tissues using PIWIL4 mouse mAb with DAB staining.