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HIWI2 / PIWIL4 Antibody
Rabbit Polyclonal Antibody
Catalog # ALS15562

Specification

HIWI2 / PIWIL4 Antibody - Product Information

Application	**IHC**
Primary Accession	Q7Z3Z4
Reactivity	**Human, Mouse, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Calculated MW	**97kDa KDa**

HIWI2 / PIWIL4 Antibody - Additional Information

Gene ID 143689

Other Names
Piwi-like protein 4, PIWIL4, HIWI2, PIWI

Reconstitution & Storage
Short term 4°C, long term aliquot and store at -20°C, avoid freeze thaw cycles.

Precautions
HIWI2 / PIWIL4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

HIWI2 / PIWIL4 Antibody - 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 and governs the methylation and subsequent repression of transposons (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). Does not show endonuclease activity (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:<a

href="http://www.uniprot.org/citations/17544373" target="_blank">17544373). In addition to its role in germline, PIWIL4 also plays a role in the regulation of somatic cells activities. 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:25038252, PubMed:17544373, PubMed:28025795, PubMed:28711973, PubMed:22483988) Detected in retina, retinal pigment epithelia cells (RPE) (at protein level) (PubMed:28025795).

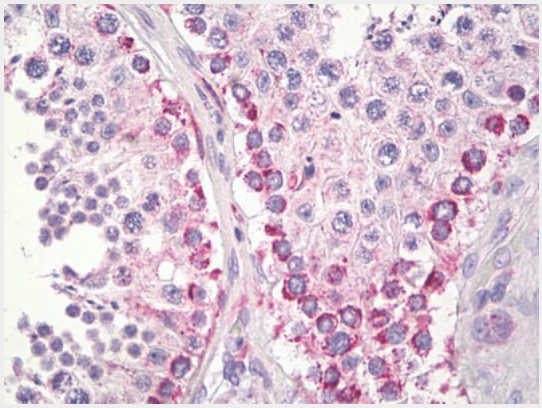
Volume
50 µl

HIWI2 / PIWIL4 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

HIWI2 / PIWIL4 Antibody - Images



Anti-HIWI2 / PIWIL4 antibody IHC staining of human testis, spermatogonia.

HIWI2 / PIWIL4 Antibody - Background

Plays a central role during spermatogenesis by repressing transposable elements and preventing

their mobilization, which is essential for the germline integrity. Acts via the piRNA metabolic process, which mediates the repression of transposable elements during meiosis by forming complexes composed of piRNAs and Piwi proteins and governs the methylation and subsequent repression of transposons. 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. Associates with secondary piRNAs antisense and PIWIL2/MILI is required for such association. The piRNA process acts upstream of known mediators of DNA methylation. Participates in a piRNA amplification loop. Besides their function in transposable elements repression, piRNAs are probably involved in other processes during meiosis such as translation regulation (By similarity). May be involved in the chromatin-modifying pathway by inducing 'Lys-9' methylation of histone H3 at some loci.

HIWI2 / PIWIL4 Antibody - References

Sasaki T.,et al.Genomics 82:323-330(2003).
Ota T.,et al.Nat. Genet. 36:40-45(2004).
Bechtel S.,et al.BMC Genomics 8:399-399(2007).
Sugimoto K.,et al.Biochem. Biophys. Res. Commun. 359:497-502(2007).