10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

PIWIL4 Polyclonal Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP58529

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	Q7Z3Z4
Reactivity	Rat, Dog, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	96589
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human PIWIL4
Epitope Specificity	751-852/852
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus. Cytoplasm. Note=Probable component of the meiotic nuage, also named P granule, a germ-cell-specific organelle required to repress transposon during meiosis. PIWIL2/MILI is required for nuclear localization.
SIMILARITY	Belongs to the argonaute family. Piwi subfamily.Contains 1 PAZ domain.Contains 1 Piwi domain.
SUBUNIT	Interacts with PRMT5 and WDR77. Interacts (when methylated on arginine residues) with TDRD1, TDRKH/TDRD2 and TDRD9.
Post-translational modifications	Arginine methylation by PRMT5 is required for the interaction with Tudor domain-containing protein (TDRD1, TDRKH/TDRD2 and TDRD9) and subsequent localization to the meiotic nuage, also named P granule.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	PIWIL4 belongs to the Argonaute family of proteins, which function in development and maintenance of germline stem cells. Plays a central role during spermatogenesis by repressing transposable elements and prevent 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 govern 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 to a piRNA amplification loop. Besides their function in transposable elements repression, piRNAs are probably involved in other processes during meiosis such as translation regulation. May be involved in the chromatin-modifying pathway by inducing 'Lys-9' methylation of histone H3 at some loci.

Additional Information

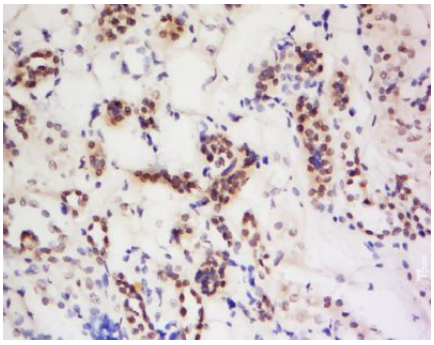
Gene ID	143689
Other Names	Piwi-like protein 4, PIWIL4, HIWI2, PIWI
Target/Specificity	Expressed in testis. According to PubMed:17544373, it is ubiquitously expressed.
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Format	0.01M TBS(pH7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glyce
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

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).

Images



Tissue/cell: human kidney tissue; 4% Paraformaldehyde-fixed and paraffin-embedded;
Antigen retrieval: citrate buffer (0.01M, pH 6.0), Boiling bathing for 15min; Block endogenous peroxidase by 3% Hydrogen peroxide for 30min; Blocking buffer (normal goat serum,C-0005) at 37℃ for 20 min;
Incubation: Anti-PIWIL4 Polyclonal Antibody, Unconjugated(AP58529) 1:200, overnight at 4°C, followed by conjugation to the secondary antibody(SP-0023) and DAB(C-0010) staining