

PIWI-L2 Antibody

Catalog # ASC11402

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q8TC59
Other Accession	NP_00129193 , 24431985
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	109849
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	PIWI-L2 antibody can be used for detection of PIWI-L2 by Western blot at 1 μ g/mL.

Additional Information

Gene ID	55124
Other Names	Piwi-like protein 2, Cancer/testis antigen 80, CT80, PIWIL2, HILI
Target/Specificity	PIWIL2; At least three isoforms of PIWI-L2 are known to exist; this antibody will only detect the two longest isoforms. PIWI-L2 antibody is predicted to not cross-react with other PIWI protein family members.
Reconstitution & Storage	PIWI-L2 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	PIWI-L2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIWIL2
Synonyms	HILI
Function	Endoribonuclease that plays a central role during spermatogenesis by repressing transposable elements and preventing their mobilization, which is essential for the germline integrity (By similarity). Plays an essential role in meiotic differentiation of spermatocytes, germ cell differentiation and in self-renewal of spermatogonial stem cells (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 govern the methylation and subsequent repression of transposons (By similarity). During piRNA biosynthesis, plays a key role in the piRNA amplification loop, also named ping-pong amplification cycle, by acting as a 'slicer-competent' piRNA endoribonuclease that cleaves primary piRNAs, which are then loaded onto 'slicer-incompetent' PIWIL4 (By similarity). PIWIL2 slicing produces a pre-miRNA intermediate, which is then processed in mature piRNAs, and as well as a 16 nucleotide by-product that is degraded (By similarity). Required for PIWIL4/MIWI2 nuclear localization and association with secondary piRNAs antisense (By similarity). Besides their function in transposable elements repression, piRNAs are probably involved in other processes during meiosis such as translation regulation (By similarity). Indirectly modulates expression of genes such as PDGFRB, SLC2A1, ITGA6, GJA7, THY1, CD9 and STRA8 (By similarity). When overexpressed, acts as an oncogene by inhibition of apoptosis and promotion of proliferation in tumors (PubMed:[16377660](#)). Represses circadian rhythms by promoting the stability and activity of core clock components BMAL1 and CLOCK by inhibiting GSK3B-mediated phosphorylation and ubiquitination-dependent degradation of these proteins (PubMed:[28903391](#)).

Cellular Location	Cytoplasm {ECO:0000250 UniProtKB:Q8CDG1}. Note=Present in chromatoid body. Probable component of the meiotic nuage, also named P granule, a germ-cell-specific organelle required to repress transposon activity during meiosis {ECO:0000250 UniProtKB:Q8CDG1}
Tissue Location	Expressed in adult testis and in most tumors.

Background

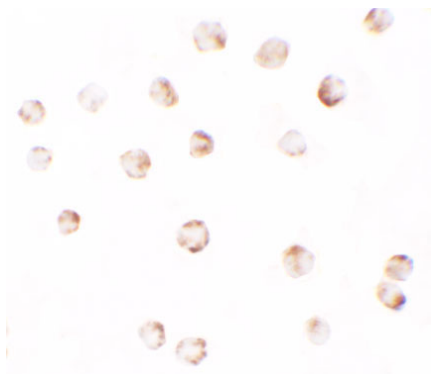
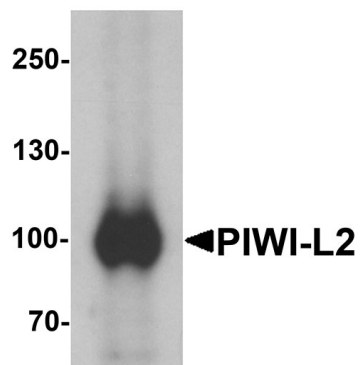
PIWI-L2 Antibody: PIWI-L2 is a member of the PIWI subfamily of Argonaute proteins, evolutionarily conserved proteins containing both PAZ and Piwi motifs that are crucial for the biogenesis and function of small non-coding RNAs and play important roles in stem cell self-renewal, RNA silencing, and translational regulation in diverse organisms. PIWI-L2 has been implicated in multiple roles including stem cell self-renewal and is highly expressed in many breast cancers. In these tumors, PIWI-L2 silences the expression of STAT3, a regulator of Bcl-XL and cyclin D1, allowing the proliferation and survival of breast cancer stem cells. Recent studies have shown that overexpression of PIWI-like proteins are potential biomarkers for colon and other cancers.

References

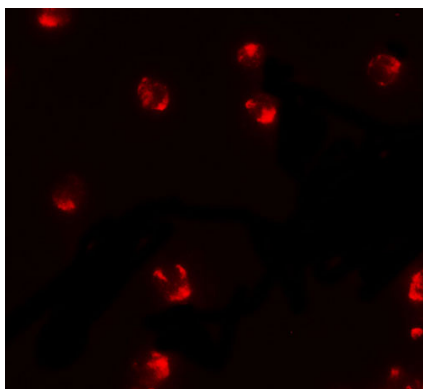
- Kuramochi-Miyagawa S, Kimura T, Yomogida K, et al. Two mouse piwi-related genes: miwi and mili. *Mech. Dev.* 108:121-33
- Thomson T and Lin H. The biogenesis and function PIWI proteins and piRNAs: progress and prospect. *Annu. Rev. Cell Dev. Biol.* 2009; 25:355-76.
- Lee JH, Jung C, Javadian-Elyaderani P, et al. Pathways of proliferation and antiapoptosis driven in breast cancer stem cells by stem cell protein Piwil2. *Cancer Res.* 2010; 70:4569-79.
- Li L, Yu C, Gao H, et al. Argonaute proteins: potential biomarkers for human colon cancer. *BMC Cancer* 2010; 10:38

Images

Western blot analysis of PIWI-L2 in HepG2 cell lysate with PIWI-L1 antibody at 1 µg/mL.



Immunocytochemistry of PIWI-L2 in HepG2 cells with PIWI-L2 antibody at 2.5 $\mu\text{g/ml}$.



Immunofluorescence of PIWI-L2 in HepG2 cells with PIWI-L2 antibody at 5 $\mu\text{g/ml}$.

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