

## Product datasheet for **MR224497**

### Piwil4 (NM\_177905) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Piwil4 (NM_177905) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Piwil4
Synonyms:	9230101H05Rik; Miwi2
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)



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**ORF Nucleotide Sequence:**

>MR224497 representing NM\_177905  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGCATCGC**C

ATGCGCCTGCGCATTCTGGGGTCCACCGGCCCTGCCACCCACGCTCGGGTTGCTGTTTGTAGTAACT  
 ATCTTGGGAAGCTTGAATACTCCCAAACCTCCGAGTCACAGCCACACCGTCTCTTTTGCCAAAGAGAAAAC  
 ACTCCTGTTGAGGCTCACCAGCCCTGGAAGCCGCTGGCACCCAGGAACATGAGTGGACGGGCCCGTGTG  
 AGAGCGGAGGCATCACCAGTGGCCACAGTGTAGGGAAGTGGGGCGGTCTCAAGAGACCTCATGGTTA  
 CATCTGCCAGTCTGGGGACAGCGAGGCCGAGGTGGGACAAGTGTATTTCACAGCCATATGAACCTGG  
 TGTCTCTTCTGGTGTGGTGGACGTACCTTCATGGAAAGAAGAGGCAAAGGCAGACAGGACTTCGAAGAG  
 TTGGGTGTCTGTACCAGGAAAAGTTGACCCACGTAAGATTGTAAAACAGGTTCTAGCGGAATACCTG  
 TCGCGGTGTTACAAATCTCTTTAATTTAGATTTGCCCCAGGATTGGCAGCTGTACCAGTACCATGTCAC  
 GTACAGCCAGATTTAGCCTCTAGGAGGCTGAGGATTGCTTTGCTTTATAATCACAGCATACTCTCAGAC  
 AAGGCAAAAGCATTGACGGTGCCAGCCTTTCTCTCAGAAAAGCTGGACCAGAAGGTCACAGAACTGA  
 CAAGTGAACACAAAGAGGTGAGACTATAAAGATAACGCTCACCCTAACGAGCAAGCTCTTCCCAAACCTC  
 CCCTGTGTGCAATTCAGTCTTCAATGTCATCTTCAGAAAGATCTTGAAAACTTGAGTATGTACCAAATT  
 GGACGGAACCTTCTATAAGCCTTCAGAACCAGTGGAGATCCCTCAGTACAACAAGCTCCTATTCAATGCTG  
 ACGTGAACATAAAGTCTCCGCAATGAGACCGTCTGGACTTCATGACTGATCTCTGCCTCAGAAGTGG  
 CATGCTTGTCTCACCGAGATGTGCCACAAACAAGTGGGGCTCGTTGCCTTACCAGATAACAACAAC  
 AAAACATATCGTATCGATGACATTGACTGGTCTGTGAAGCCACACAGGCCTTTCAGAAGCGGGACGGCT  
 CAGAGTACATATGTGGATTACTACAAGCAGCAATATGATATCACCTTATCTGACCTAAATCAGCAGT  
 GCTTGTTAGTCTGTTGAAAAGAAAAGAGAAATGATAACTCTGAGCCTCAGATGGTCCACCTGATGCCAGAG  
 CTCTGCTTTCTCACAGGCCTGAGCAGCCAAAGCAACCTCAGATTTCCGCCTGATGAAGGCAGTAGCTGAAG  
 AGACTCGGCTCAGTCTGTGGGAAGGCAGCAGCAGCTGGCCCGACTCGTGGATGACATCCAGAGAACCTT  
 ACCTTCTTCTCAAGAAGTCTCTCTCATACTTCTTGCCTTTGTGGGCCCCAGAGCCAGGAGGACTTAGC  
 AGTGCTATACCACTGAGCACTGTGCTTCCCTTTGCCAGCAGCTGTTAACTGCCCTGAGCCTCTCCCGG  
 GAATCCCTCTGCCCCACCTCAAGCCTCCCTCCTTCTGTTCTTGTGTCAACCTGCATTTGCTGCTGACTG  
 GTCCAAAGATATGCGATCTTCAAAGTTTTGAGTCTCAGCCTTGAATAGATGGTTGATCGTGTGCTGT  
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 ACGTGGGCTACCCAAAATCATAAAAGTGGACGAGACCCAGCAGCGTTCCTTCGAGCCATCCAGGTGCA  
 CGCGACCCCGATGTTCAAGTGGTGTGATGTGCATTTCTGCCTTCTAATCAGAAGAACTATTACGACTCCATT  
 AAAAGTATTTGAGCTCTGACTGCCAGTGCCAAGCCAGTGTGTGCTGACCCGGACCTTGAATAAGCAGG  
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 GTGGTGGTCGTGGGTTTGTAGCCAGCATTAAATCCAGGATCACAGGTGGTTTTCCCGCTGTGCTCTC  
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 GTTTTGGAATATGAAGTCCACAGCTACTGAAAAGTGTAAACAGAGTGGCGCTCGGATGCCAGGTATGACT  
 TCTACCTGATCAGCCAGACTGCTAACCGGGGACTGTTAGTCCCACCCACTACAACGTTATCTATGATGA  
 CAATGCCTTGAAGCCTGACCACATGCAGCGACTGACCTTCAAACCTGTGCCATCTCTACTACAACCTGGCAG  
 GGCTTAATCAGTGTCCCGCACCATGCCAATATGCACACAAGCTGACCTTCTGGTGGCACAAGTGTCC  
 ACAAGGAACCAAGTCTGGAATTAGCCAATAATCTTTTCTACCTC

**ACGCGT**ACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAATGATATCTGGATT  
 ACAAGGATGACGACGATAAGGTTTAA

Protein Sequence: >MR224497 representing NM\_177905  
 Red=Cloning site Green=Tags(s)

MRLRILGVHRALPTHARVAVCSNYLGKLEYSQTPSHSHTVSFAKEKTL LRLTSPGKPLAPRNMGRARV  
 RARGITTGHSAREVGRSSRDLMVTSASPGDSEAGGTSVISQPYELGVSSGDGGRTFMERRGKGRQDFEE  
 LGVCTREKLTHVKDCKTGSSGIPVRLVTNLFNLDLPQDWQLYQYHVTYSPDLASRRRLIALLYNHSLSD  
 KAKAFDGLFLSEKLDQKVTELTSETQRGETIKITLTLT SKLFPNSPVCIQFFNVIFRKILKNLSMYQI  
 GRNFYKPEPVEIPQYNKLLFNADVNYKVLRNETHVDFMTDLCLRTGMSCFTEMCHKQLVGLVVLTRYNN  
 KTYRIDDDIDWSVKPTQAFQKRDGSEVTYVDYKQYDITLSDLNQPVLVSL LKRKRNDNSEPQMVHLMPE  
 LCFLTGLSSQATSDFRMLKAVAEETRLSPVGRQQQLARLVDDIQRTPSSQEVLSHTSLPLWAPEPGLS  
 SAIPLSTVLPFAQQLLTALSLSPGIPLPHLKPPSFLFCQPAFAADWSKDMRCKVLS SQPLNRWLIVCC  
 NRAEHLIEAFLSCLRRVGGSMGFNVGYPKIIKVDETPA AFLRAIQVHGDPDVQLVMCILPSNQKNYYDSI  
 KKYLSDDCPVPSQCVLTRLNKQGTMLSVATKIAMQMTCKLGGELWSVEIPLKSLM VVGIDICRDALNKN  
 VVVVGFVASINSRITRWF SRCVLQRTAADICLKVCMTGALNRWYRHNHDLPARIVVYRDVGVNGQLKA  
 VLEYEVPQLLKS VTECGSDARYDFYLISQTANRGTVSPHYNVIYDDNALKPDHMQR LTFKLCHLYYNNWQ  
 GLISVPAPCQYAHKLTFLVAQSVHKEPSLELANNLFYL

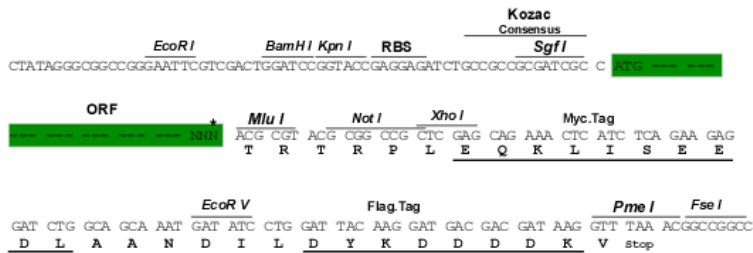
TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Chromatograms: [https://cdn.origene.com/chromatograms/ja1658\\_e09.zip](https://cdn.origene.com/chromatograms/ja1658_e09.zip)

Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



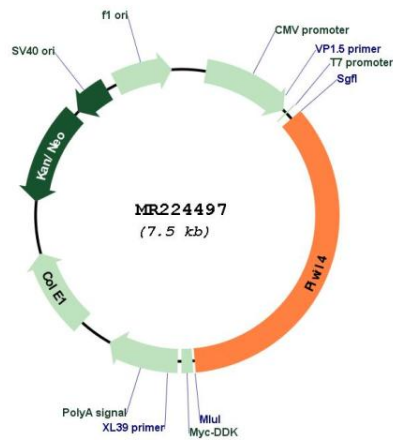
\* The last codon before the Stop codon of the ORF

ACCN:	NM_177905
ORF Size:	2634 bp
OTI Disclaimer:	The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. <a href="#">More info</a>
OTI Annotation:	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
Components:	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
Reconstitution Method:	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
RefSeq:	<a href="#">NM_177905.3</a> , <a href="#">NP_808573.2</a>
RefSeq Size:	2637 bp
RefSeq ORF:	2637 bp
Locus ID:	330890
UniProt ID:	<a href="#">Q8CGT6</a>
Cytogenetics:	9 A2
MW:	99.1 kDa

**Gene Summary:**

Plays a central role during spermatogenesis by repressing transposable elements and preventing their mobilization, which is essential for the germline integrity (PubMed:17395546, PubMed:18381894, PubMed:18922463, PubMed:26669262, PubMed:22020280). 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 (PubMed:17395546, PubMed:18381894, PubMed:18922463, PubMed:26669262, PubMed:22020280). 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 (PubMed:17395546, PubMed:18381894, PubMed:18922463, PubMed:26669262, PubMed:22020280). The piRNA process acts upstream of known mediators of DNA methylation (PubMed:17395546, PubMed:18381894, PubMed:18922463, PubMed:26669262, PubMed:22020280). Does not show endonuclease activity (PubMed:22020280). 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 (PubMed:22020280). 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 (By similarity). [UniProtKB/Swiss-Prot Function]

**Product images:**



Circular map for MR224497