

**Maternal germline-specific genes in the Asian malaria mosquito *Anopheles stephensi*: characterization and application for disease control**

James K. Biedler\*, Yumin Qi\*, David Pledger<sup>§1</sup>, Anthony James<sup>§</sup>, Zhijian Tu\*

\*Department of Biochemistry and Fralin Life Science Institute, Virginia Tech, Blacksburg, VA 24061 USA

<sup>§</sup>Department of Molecular Biology and Biochemistry, University of CA, Irvine, CA 92697 USA

<sup>1</sup> Shadow Editing  
#50 Street 350  
Phnom Penh, Cambodia 12304  
[dave@shadowediting.com](mailto:dave@shadowediting.com)

**DOI: 10.1534/g3.114.015578**

### Files S1-S3

Available for download as Excel files at <http://www.g3journal.org/lookup/suppl/doi:10.1534/g3.114.015578/-/DC1>

**File S1** Raw and RPKM normalized mapped RNA-Seq read counts for transcripts

**File S2** EdgeR differentially expressed genes

**File S3** Gene Ontology terms associated with germline-specific genes

File S4

Plasmid sequences for transgenic constructs

Nos/anti-myd88

CCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCCTATTGGGCGCTCTCCGCTTCTCGCTC  
ACTGACTCGCTGCGCTCGGTCGTTCCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAG  
GGGATAACGCACGAAAGAACATGTGAGCAAAAAGGCCAGCAAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTCC  
ATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAAACCCGACAGGACTATAAAGATACCA  
GGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCCGG  
AAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGAAC  
CCCCGTTACGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCA  
GCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTAC  
ACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAC  
AAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGAT  
CTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTACGTTAAGGGATTTTGGTATGAGATTATCAAAAAGGATCTTACCT  
AGATCCTTTTAAATAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCA  
GTGAGGCACCTATCTCAGCGATCTGTCTATTTGCTTATCCATAGTTGCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAG  
GGCTTACCATCTGGCCCCAGTGTGCAATGATACCCGAGACCCACGCTCACCAGCTCCAGATTTATCAGCAATAAACACAGCCAGC  
CGGAAGGCGCGAGCAGAAAGTGGTCTGCACTTTTCCGCTCCACTCCAGTATTAATTGTTGCCGGAAGCTAGAGTAAGT  
AGTTCCGCAAGTAAAGTTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGCTCGTGGTGTATGGTTCATTTC  
AGCTCCGGTCCCAACGATCAAGGCGAGTTACATGATCCCCATGTTGTGCAAAAAAGCGGGTTAGCTCCTTCCGGTCTCCGATCG  
TTGTCAGAAGTAAGTTGGCCGAGTGTATCACTCATGTTTATGGCAGCACTGCATAATTCTTACTGTATGCCATCCGTAAGAT  
GCTTTTCTGTGACTGGTGTACTCAACCAAGTCAATCTGAGAATAGTGTATGCGGCGACCGAGTTGCTTGGCCGGCGTCAATA  
CGGGATAATACCGGCCACATAGCAGAACCTTAAAAGTGTCTCATTTGAAAAACGTTCTTCCGGGCGAAAACTCTCAAGGATCT  
TACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCAACTGATCTTACGATCTTTTACTTTACCAGCGTTTCTGGGT  
GAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGACACGAAATGTTGAATACTATACTTCTCTTTTTTCA  
ATATTATTGAAGCATTATCAGGGTATTGTCTCATGAGCGGATACATATTTGAATGATTTAGAAAAATAAACAATAGGGGTTCC  
CGCGCACATTTCCCGAAAAGTGCCACCTGACGTCTAAGAAACCTATTATCATGACATTAACCTATAAAAAATAGGCGTATCACG  
AGGCCCTTTCGTCCTCGCGCTTTCCGGTGTGACGGTGAACCTCTGACACATGCAGCTCCCGGAGACGGTACAGCTTGTCTGTA  
AGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGGTGAGCGGGTGTGGCGGGTGTGGGGGCTGGCTTAACTATGCGGCAT  
CAGAGCAGATTTACTGAGAGTGCACCATATGCGGTGTGAATACCGCAGATGCGTAAGGAGAAAAATACCGCATCAGGCGCC  
ATTCGCCATTGAGGCTGCGCAACTGTTGGGAAGGGGATCGGTGCGGGCTCTTCCGCTATTACGCCAGCTGGCGAAAGGGGAT  
GTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCAGTACGACGTTGTAACGACGCGCCAGTGCCAAGCTTTGTTT  
AAAAATATAACAAATTTGTGATCCCACAAAATGAAGTGGGGCAAAATCAATAATTAATAGTGTCCGTAACCTTGTGGTCTTCAA  
CTTTTTGAGGAACAGTGGACGGCAAATCCGTGACTATAACACAAGTTGATTAATAATTTTAGCCAACACGTCGGGCTGCGTGT  
TTTTTCCGACGCGTCTGTGTACAGTGTGATTAAGTGTGATTAACCTGTTGAAATAATTAATTTTGGTCTTCTTAAATCTGT  
GATGAAATTTTTAAAATAACTTTAAATTTCTTATTGGTAAAAAATGCCACGTTTTGCAACTGTGAGGGTCTAATATGAGGTCAA  
CTCAGTAGGAGTTTTATCCAAAAAGAAAAATGATTACGCTGTGTACACGAACGCGTATTAACGAGAGTGCAAAAGTATAAGAGG  
GTTAAAAATATATTTTACGCACCATATACGCATCGGGTGTATCGTTAATATGGATCAATTTGAACAGTTGATTAACGTGTCTCT  
GCTCAAGTCTTTGATCAAAACGCAAATCGACGAAAATGTGTGCGACAATATCAAGTCGATGAGCGAAAAACTAAAAAGGCTAGAA  
TACGACAATCTCACAGACAGCGTTGAGATATACGGTATTCACGACAGCAGGCTGAATAAAAAAATTAGAACTATTATTTAAC  
CCTAGAAAAGATAATCATATTGTGACGTACGTTAAAGATAATCAGCTAAAATGACGCATGTGTTTTATCGGTCGTATATCGAG  
GTTTTATTTAATTTGAATAGATATTAAGTTTTATTATTACACTTACATACTAATAATAAATTAACAAACAATTTATTTATGTT  
TATTTATTTATTAATAAAAAAACAATACTAAAAATTTCTTATTAAGTAACAAAACCTTTTAAACATTTCTCTTTTACAAAAATAA  
CTTATTTTGTACTTTAAAAACAGTCATGTTGTATTATAAAAAAAGTAATTAGCTTAACTTATACATAATAGAAAACAATTTACTTAT  
TAGTCAGTCAGAAACAACCTTTGGCACATATCAATATTATGCTCTGACAAAATAACTTTTTTGCATTTTTTGCACGATGCATTTGCCTT  
TCGCCTATTTTAGAGGGGAGTAAGTACAGTAAGTACGTTTTTCTTACTGGCTCTTCACTGCTCATGTATGATGACAGGCAC  
TTCATTTGGCAAAATATTAGAGATATTATCGCGCAAATATCTCTTCAAAGTAGGAGCTTCTAAACGCTTACGCATAAACGATGACG  
TCAGGCTCATGTAAGGTTTTCTATAAATTTTTGCGACTTTGAACCTTTTCTCCCTTGTACTGACATTAATGGCTGTATATAATAA  
AGAATTTATGCAGGCAATGTTTATCATTCCGTACAATAATGCCATAGGCCACCTATTCGTTCTTACTGAGGTCATCAGAGAACA  
CATTGGTCTAGCGTGTCCACTCCGCTTTAGTTTGATTATAATACATAACCATTTGCGGTTTACCGTACTTTCTGTTGATAGAAGC  
ATCTCATCACAAGATGATAAATAGTATACCATCTTAGCTGGCTTCCGTTTATATGAGACGAGAGTAAGGGGTCGTCAAAACAAA  
ACATCGATGTTCCACTGGCTGGAGCGACTGTTTTTCACTTCCGGTATCTCGCGTTTTGTTGATCGCAGCGTTCCACAATGG  
TTAATTCGAGCTCCCGGGGATCTAATTCATTAAGAGCTAATCAATTAGAGCTAATCAATTAAGTCAAGCTTATCGATTTCC  
GAACCTCAGCTCCCGGAGTATAAATAGAGGCGCTTCTGCTACGAGCGACAATCAATTAACAAAGCAAAGTGAACACGTCGC  
TAAGCGAAAGCTAAGCAAATAAACAAAGCGCAGCTGAACAAGCTAAACAATCGGGGTACCGCTAGAGTTCGACGTTACCGCGGGCC  
CGGGATCCACCGGTGCCACCATGGTGCCTCCTCAAGAACGTCATCAAGGAGTTCATGCGCTTCAAGGTGCGCATGGAGGGCA

CCGTGAACGGCCACGAGTTCGAGATCGAGGGCGAGGGCGAGGGCCGCCCTACGAGGGCCACAACACCGTGAAGCTGAAGGTG  
ACCAAGGGCGGCCCTGCCCTTCGCCTGGGACATCTGTCCCCAGTTCAGTACGGCTCCAAGGTGTACGTGAAGCACCCCGC  
CGACATCCCCGACTACAAGAAGCTGTCTTCCCCGAGGGCTTCAAGTGGGAGCGGTGATGAACCTCGAGGACGGCGCGTGGT  
GACCGTGACCCAGGACTCCTCCTGCAGGACGGCTGCTTCATCTACAAGGTGAAGTTCATCGGCGTGAACCTCCCCCTCCGACGGCC  
CCGTAATGCAGAAGAAGACCATGGGCTGGGAGGCTCCACCGAGCGCTGTACCCCGCGACGGCGTGTGAAGGGCGAGATCC  
ACAAGGCCCTGAAGCTGAAGGACGGCGGCCACTACCTGGTGGAGTTCAGTCCATCTACATGGCCAAGAAGCCCGTGCAGCTGC  
CCGGCTACTACTCGTGGACTCCAAGCTGGACATCACCTCCACAACGAGGACTACACCATCGTGGAGCAGTACGAGCGCACCGA  
GGCCCGCCACCACCTGTTCTGTAGCGGGCGGACTAGATCATAATCAGCCATACCACATTTGTAGAGGTTTTACTTGTCTTTAAA  
AAACCTCCCACACCTCCCCCTGAACCTGAAACATAAAAATGAATGCAATTGTTGTTAACTTGTATTGCAGCTTATAATGGTTA  
CAAATAAAGCAATAGCATCACAATTTCAAAAATAAAGCATTTTTTCTACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGT  
ATCTTAAAGCTTATCGAATACGCGTACGGCGCGCTCGGTAAGGTGCAATTGTGGTGCATTGCGCAAAACATAAATCATAGTCA  
ACGTTGGCACAGCACCATCGCCGCCACCGGCTACTACGGTGTGTACCACGGTGACACATCCTCCAGTGCAGATTGGATGGGATT  
GCTCTATGTATTAGCTGGGGATAGATTTGATGCAGCGACGGTCATGGCAATGATCAGCACTAATTATGAGGGTATTCTTCTGTCT  
GTCGTCTTACTGTACAACCTCACACAATCAATGCACATTCTGTTGCAGACAAGACATGCGACACAACAAGAAGTGCAGAT  
TAAAAAAAAGCTCCACCGTATGGGTTATTCCAGTTCACAAATTCGAGTGATACAACCTTAAGGGCTGTGAAATATCGCACCTTAC  
AATAGTAACCCCTGGCCGTGCTTACTGTTGCACCTTTTTCTCCACAGATGCTAATATCCAAAATGTTGAAGTGCTTAATTTTTATT  
CTAATTTTGTACGCAAAAACGAGCTACGGACTGTCAATTGAATGCGTACATATTTGACAGTGCAGACGGCGGTAATGATGATGA  
TGCTGTGCAATCAACTACCCGATGTTATGATGATTCACTGCTTGTCCACCGTGAAGCCACGACCAGCCGCAAAGCTGCGCGATG  
CATCAAACATGGAATTCGCTAGCCACAACAAAAACCAACTATATGCACACTGCTGCCGTATACCCACATCGCGCACGTAAAGTA  
AACATACACGCACACAAAAGCCATACCTGGTCACTGTTCAACGGCTGCACACAGCCGAAGATGTTCCGCGCAGATAGATGA  
ATTTGTTTTATTTAATTTACACTACAATGAAATGGGGATTTTTATCACCTCCAGCAGCAGCGATTCAATCGTTAGCCGACCC  
ACCGGAACAGGGCCAGAGTCCATAACATAATAGTTTACAGGGTACAATTTCCCGGCACACACTTTCCAGCACCAGCACTCAC  
CACCCGCAATACCACAATACTGTGTTCAAACACCAATACCAATACTCGAACCATCCAATTTTACCTTTCCAATCAGCTTCTGTTGC  
GTGAAAGAACGTGCGACGAAACAAAGGACCGACACGGTAGTAAGTCTACAATAAAACAACAACAGCAAAGTGTAAAGATCCC  
ACTGATTGGAATGAACAAAACGAGAGCGTACGCACCCACGGCCGTGGTCAACCTTACTTTATAAAATCTACGGAAAAACTTGC  
ACGACGTGCGCTTCTGCCCTTTATGCGCTGGCTGTGTGTGTGTGTTTTTTTTCTGCTCGGAAGACAATGGAAAACATCATCG  
CTGAACGAAAACGTCAAAACCGTGCCTTCCATCACTTAACGAAAACAATGTCAACCGTGCAGAAATCGCACGTTTTTAAAGAAA  
CCTTTTACGGTGGAAAAACGGGAAAGAAAATTTCCGAATGGAAGAAATGGTTTTCGCGATCTTCTGAATAGTGGGGCTGGAA  
GTTGCATTTTCTATGATTCACAAACCCCTTTTTATTGTATGCTTTAGTGGTGTGTTGTTGCGGGCGGAAATGGTTGAGATGGACT  
TCAATTGCAAGCTGGTAGTGGTAATTTGTGTTTATGTCGAGCGCAATGGAGTGTGTTTACTTGTAGCAGTGTACTAAGGTCCTTGCT  
GGTACCATCTCAAATACCACGCATACATACGCGCAACTGTTTATGCGACCGTGCACGCGTTTGTGAGTCTTTTACACCAAAAT  
GTCCATCGCTGGTGGTGGTGGCAAGTGGCGTAAGCTCGCGGATCGACTCACTGTAACGCCGTTGCTGACTTCTGTTGTTGA  
TCTGCAATTAAGCATCTTTGAATTAAGTTTTGTGTTGCTTTGAGCGTGAAATTAATAACCTGGCCAGTTTTGCAACATCCTTGATAG  
GCCCCACAACATCCTTTATGTGAAGAAGTCCCTTTTCCACTAGTCTAGGTTAGAAGTGCACCGAAATCGGACCGAGCTTTGA  
CCGTTTTGATCGTCCATTGTTGTGATACAGGATTGAATATCTACTCTGCGAGCTTTAAAGGTAAGAAGATCGTTTCGATTAGGCGC  
TAATTGGGATTTGTTGGAGCAAGAGTGTGATCTGAAGTGCACCGTATGCTGGATGGAAGTATTTGATCGCCATGTCTAAGG  
AGTCAATATGAACAATGAAGGACCACCAATATCAACTGATACATTTTATTGTAATAATTGTATCATTGTTATTGGTGGTCTTTGGG  
GTTCATAATTTTACTGAGTCTTTGTGCCTATTGGATTACGCAAGAATGGCGATTGCGGCACAACCTGCGCATCTCCAACACGATAT  
GGAATACGGTTTTGTTGGTGGTGTGCTGTAGTGCCCAATTAACATTTGTAACACTACAGTAACCTGAAACAAGTGATACCTATTGTTA  
TAATACGTGCAGCTAAGAAGTAAAAATGCCAGTTTTGTTCAACAACGATACAACGTAATCGACATTTTGTAAATATGTGATAT  
GAATATTAAGTGATTTTCAAGTATGTAATTAATTTGTGATCCAAATACGAGCATTATGAGTGGTTTTCTATATGTTACAATGGAT  
TAAGTTGTACCACTACGTGCACGGTGTATGTGATACATGATTTTTTGAACATAACTGTATCACACAGCGCAATTGCACGTTGTTG  
GCAATATAGTATCAGATGAAACCCATAAATTTGAAGAAATTAATAACTATAGCTTTTCTATGAACGTTACATTAATACATTAATTT  
TTTTTCTATTAGATGGAAGACGCCAAAAACATAAAGAAGGCCCGCCATTCTATCCGCTGGAAGATGGAACCGCTGGAGA  
GCAACTGCATAAAGGCTATGAAGAGATACGCCCTGGTTCTGGAACAATTTGCTTTTACAGATGCACATATCGAGGTGGACATCACTT  
ACGCTGAGTACTTCGAAATGTCGGTTCGGTGGCAGAAGCTATGAAACGATATGGGCTGAATACAATCACAGAATCGTCGTATG  
CAGTGAAAACTCTTCAATTTTATGCGGGTGTGGGCGGTTATTTATCGGAGTTGCAGTTGCGCCCGCAACGACATTTATA  
ATGAACGTGAATTGCTCAACAGTATGGGCATTTGCGAGCCTACCGTGGTGTGTTTCCAAAAAGGGGTTGCAAAAAATTTGAAAC  
GTGCAAAAAAAGCTCCAATCATCAAAAAATTTATCATGGATTCTAAAACGGATTACCAGGGATTTTCACTGATGTACACGTT  
CGTCACATCTCATCTACCTCCCGTTTTAATGAATACGATTTTGTGCCAGAGTCTTCGATAGGACAAGACAATTGCACTGATCAT  
GAACTCCTCTGGATCTACTGGTCTGCCTAAAGGTGTGCTCTGCTCATAGAAGTGCCTGCGTGAGATTCTCGCATGCCAGAGATC  
CTATTTTTGGCAATCAATCATTCCGGTACTGCGATTTTAAAGTGTGTTCCATTCATCACGGTTTTGGAATGTTTACTACTCGG  
ATATTTGATATGTGGATTTGAGTCTTAATGTATAGATTTGAAGAAGAGCTGTTTCTGAGGAGCCTTCAAGATTACAAGATTC  
AAAGTGCCTGCTGGTGGCAACCTATTCTCCTTCTCGCCAAAAGCACTCTGATTGACAATAACGATTTTACTAATTTACAGAAA  
TTGCTTCTGAGCTACCTCTAAGGAAGTCCGGGAAGCGGTTGCCAAGAGTTCCATCTGCCAGGATTCAGGCAAGGATTA  
TGGCTCACTGAGACTCACATAGCTATTCTGATTACACCCGAGGGGATGATAAACCCGGGCGGGTAAAGTTTGTCCGATA  
TTTTGAAGCGAAGGTTGTGGATCTGGATACCGGAAAAACGCTGGGCGTTAATCAAAGAGGCGAACTGTGTGTGAGAGGTCCTATG  
ATTATGTCGGTTATGTAACAATCCGGAAGCGACCAACGCTTATTGACAAGGATGGATGGCTACATCTGAGACATAGCTT

ACTGGGACGAAGACGAACACTTCTTCATCGTTGACCGCCTGAAGTCTCTGATTAAGTACAAAGGCTATCAGGTGGCTCCCGCTGA  
ATTGGAATCCATCTTGTCTCAACACCCCAACATCTTCGACGACAGGTGTGCGAGGTCTCCCGACGATGACGCCGGTGAACCTCCCG  
CCGCGTGTGTTTTGGAGCACGAAAAGACGATGACGGAAGAGATCGTGGATTACGTCGCCAGTCAAGTAACAACCGCGA  
AAAAGTTGCGCGGAGGAGTTGTGTTTTGGGACGAAGTACCGAAAGTCTTACCGGAAAACCTCGACGCAAGAAAAATCAGAGAG  
ATCCTCATAAAGGCCAAGAAGGGCGGAAAAGATCGCCGTGAAGCGGCCGACCGGTGACAGATGATAAGATACATTGATGAGTT  
TGGACAAACCACAAGTGAATGCAGTGAAGAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTAAG  
CTGCAATAAACAAGTTAACAACAACAATTGCATTATTTATGTTTCAGGTTACGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGT  
AAAACCTTACAAATGTGGTAGCCGGCTAATCTTAAGTTAATTTAATTAAGTCGACGATGTAGGTACAGGTCTCGAAGCCGCG  
GTGCGGGTGCCAGGGCGTGCCTTGGGCTCCCCGGGCGGTACTCCACCTCACCCATCTGGTCCATCATGATGAACGGGTCGAGG  
TGCGGTGATTTGATCCCGGCGAACGCGCGGCGCACCGGGAAGCCCTCGCCCTCGAAACCGCTGGGCGCGGTGGTACCGGTGAG  
CACGGGACGTGCGACGGCGTGGGCGGTGCGGATACGCGGGGCGAGCTGACGCGGTTCTCGACGGTACGCGGGCATGTCGA  
CAGATCTGACAATGTTAGTGCAGAGACTCGGCTACGCTCGTGACTTTGAAGTTGACCAACAATGTTTATTCTTACCTTAATAG  
TCCTCTGTGGCAAGGTCAAGATTCTGTTAGAAGCAATGAAGAACCTGGTTGTTCAATAACATTTTGTGCTAATATTTCACTAC  
CGTTGACGTTGGCTGCATTCATGTACCTCATCTATAACGCTTCTTCTGTATCGCTCTGGACGTCATCTTCACTTACGTGATCTGA  
TATTTCACTGTGAGAATCCTACCAACAAGCTCGTATCGCTTTCGAGAAGAGCAGAGAGGATATGCTCATCGTCTAAAGAACTAC  
CCATTTTATTATATATTAGTACGATATCTATAACAAGAAAATATATATAATAAGTTATCACGTAAGTAGAACATGAAATAACAA  
TATAATTATCGTATGAGTTAAATCTTAAAAGTCACGTAAAAGATAATCATGCGTCATTTTGACTCACGCGGTGCTTATAGTTCAAAA  
TCAGTGACACTTACCGCATTGACAAGCACGCCTCACGGGAGCTCAAAGCGGCGACTGAGATGTCCTAAATGCACAGCGACGGATT  
CGCGCTATTTAGAAAGAGAGCAATATTTCAAGAATGCATGCGTCAATTTTACGCAGACTATCTTTCTAGGGTTAAAAAGATTT  
GCGCTTACTCGACCTAACTTTAAACACGTCATAGAATCTTCGTTTGACAAAAACCACTTTGCGCAAGCTGTGTGACGCGACG  
CGCGCTAAAGAAATGGCAACCAAGTCGCGCGAGCGTCACTCTAGAGGATCCCGGGTACCGAGCTCGAATTCTGTAATCATGTCA  
TAGCTGTTTCTGTGTGAAATTTATCCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGC  
CTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCGCTTCCAGTCGGGAAA

**VgR2/anti-dah**

CCTGTGCTGCCAGTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGGCGTTTGCCTATTGGGCGCTTCCGCTTCTCGCTC  
ACTGACTCGCTGCGCTCGGTGTTCCGGTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAG  
GGGATAACGCAGGAAAGAATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTGTGGCGTTTTTC  
CATAGGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACC  
AGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCTGCCGTTACCGGATACCTGTCGCGCTTCTCCCTCGG  
GAAGCGTGGCGCTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCCGTTAGGTGCTTCCGCTCAAGCTGGGCTGTGTGCACGA  
ACCCCCGTTACGCCCCAGCTGCGCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATGCCACTGG  
CAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCT  
ACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAA  
ACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTG  
ATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCTAGATTATCAAAAAGGATCTTAC  
CTAGATCCTTTAAATTAATAAGTAAATCAATCTAAAGTATATAGAGTAACTGGTCTGACAGTTACCAATGCTTAAT  
CAGTGAGGCACCTATCTCAGCGATCTGTCTATTTGTTTCCATAGTTGCTGACTCCCGTCTGTAGATAACTACGATACGGGA  
GGGCTTACCATCTGGCCCCAGTGTGCAATGATACCGCGAGACCCAGCTCACCGGCTCCAGATTTATCAGCAATAAACAGCCA  
GCCGGAAGGGCCGAGCGCAGAAGTGGTCTGCAACTTTATCCGCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAA  
GTAGTTCCGAGTTAATAGTTTGGCAACGTTGTTGCCATTGTACAGGCATCGTGGTGTACGCTCGTCTTGGTATGGCTTCAT  
TCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCATGTTGTGCAAAAAAGCGGGTTAGTCTCTTCCGGTCTCCGAT  
CGTTGTGAGAAGTAAGTTGGCCGAGTGTATCACTCACTGTTATGGCAGCACTGCATAATTTCTTACTGTACATCCCATCCGTAA  
GATGCTTTTCTGTGACTGGTGTAGTACTCAACCAAGTCATTCTGAGAATGTGTATGCGGCGACCGAGTTGCTCTTGGCCGCGTCA  
ATACGGGATAATACCGCGCCACATAGCAGAATTTAAAGTGCTCATCATTTGAAAAACGTTCTTCCGGGGCAAAAACCTCAAGGA  
TCTTACCCTGTTGAGATCCAGTTGATGTAACCCACTCGTGCACCAACTGATCTTACGATCTTTTACTTTACCAGCGTTTTCTGG  
GTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGACACGGAATGTTGAATACTCACTCTTCTTTTTT  
CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTAGAAAAATAACAATAAGGGGT  
TCCGCGCACATTTCCCGAAAAGTGCCACCTGACGCTAAGAAACCAATTATTATCATGACATTAACCTATAAAAATAGGCGTATCAC  
GAGGCCCTTCTGCTCGCGCTTTCGGTGTAGCAGGTGAAAACCTCTGACACATGCAGTCCCGGAGACGGTACAGCTTGTCTG  
TAAGCGGATGCCGGGAGCAGACAAGCCGTCAGGGCGCGTACGCGGGTGTGGCGGGTGTGGGGCTGGCTTAACTATGCGGC  
ATCAGAGCAGATTGACTGAGAGTGACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGGGC  
CCATTGCCATTAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTTCTCGCTATTACGCCAGCTGGCGAAAGGGGG  
ATGTGCTCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCAGTACGACGTTGTAACGACGCGCCAGTCCAAGCTTTGT  
TAAAAATAACAACAAATTTGATCCCAAAAATGAAGTGGGCAAAAATCAAATAATTAATAGTGTCCGTAACCTTGTGGTCTTC  
AAATTTTTGAGAACACAGTTGGACGGCAAACTCCGTGACTATAACACAAGTTGATTTAATAATTTTAGCCAACAGCTGCGGTGCGT  
GTTTTTTGCCGACGCGTCTGTGTACAGTTGATTAACCTGGTCAATTAAGTGTGAAATAATTTAATTTTTGTTTCTTCTTAACTCT  
GTGATGAAATTTTTAAATAAATTTAAATTTCTTATTGGTAAAAATGCCACGTTTTGCACTTGTGAGGGTCTAATATGAGGTCA

AACTCAGTAGGAGTTTTATCCAAAAAGAAAACATGATTACGTCTGTACACGAACGCGTATTAACGCAGAGTGCAAAGTATAAGA  
GGGTTAAAAAATATATTTTACGCACCATATACGCATCGGGTTGATATCGTTAATATGGATCAATTTGAACAGTTGATTAACGTGTCT  
CTGCTCAAGTCTTTGATCAAAACGCAAAATCGACGAAAATGTGTCCGACAATATCAAGTCGATGAGCGAAAAACTAAAAAGGCTAG  
AATACGACAATCTCACAGACAGCGTTGAGATATACGGTATTCACGACAGCAGGCTGAATAATAAAAAAATTAGAACTATTATTTA  
ACCTAGAAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATGCGTAAAAATTGACGCATGTGTTTTATCGGTCTGTATATCG  
AGGTTATTTATTAATTTGAATAGATATTAAGTTTTATTATTTTACACTTACATACTAATAATAAAATCAACAAACAATTTATTTATG  
TTTATTTATTTATTAAAAAAACAACAACTCAAAATTTCTTCTATAAAGTAACAAAACCTTTTAAACATTCTCTTTTACAAAAATAA  
ACTTATTTTGTACTTTAAAAACAGTCATGTTGTATTATAAATAAGTAATTAGCTTAACTTACATAATAGAAAACAAATTATACTTA  
TTAGTCAGTCAGAAAACAACTTTGGCACATATCAATATTATGCTCTCGACAAAATAACTTTTTTGCATTTTTTGCACGATGCATTTGCCT  
TTCGCCTTATTTAGAGGGGAGTAAGTACAGTAAAGTACGTTTTTTTACTACTGGCTCTTCAGTACTGTCATCTGATGTACCAGGCA  
CTTCATTTGGCAAAATATTAGAGATATTATCGCGCAAAATCTCTTCAAAGTAGGAGCTTCTAAACGCTTACGCATAAACGATGAC  
GTCAGGCTCATGTAAGGTTTCTCATAAATTTTTGCGACTTTGAACCTTTTCTCCCTGCTACTGACATTATGGCTGTATATAATAA  
AAGAATTTATGACGGCAATGTTTATCATTCCGTACAATAATGCCATAGGCCACTATTGCTTCTCTACTGCAGGTCATCACAGAAC  
ACATTTGGTCTAGCGTGTCCACTCCGCTTTAGTTTGATTATAATACATAACCATTGCGGTTTACCGTACTTTCTGTTGATAGAAG  
CATCCTCATCACAAGATGATAATAAGTATACCATCTTAGCTGGCTTCCGTTTTATGAGACGAGAGTAAGGGGTCGGTCAAAAACA  
AACATCGATGTTCCACTGGCCTGGAGCGACTGTTTTTCACTTCCGGTATCTCGCGTTTGTGATCGCACGGTCCCAACATG  
GTTAATTCGAGCTCGCCCGGGGATCTAATCAATTAGAGACTAATCAATTAGAGCTAATCAATTAGGATCCAAGCTTATCGATTT  
CGAACCTCGACCGCCGGAGTATAAATAGAGGCGCTTCGCTACGGAGCGACAATCAATCAACAAGCAAAGTGAACACGTCG  
CTAAGCGAAAGTAAAGCAAATAACAAGCGCAGCTGAACAAGCTAAACAATCGGGTACCGCTAGAGTCGACGGTACCGCGGGC  
CCGGATCCACCGTCCGACCATGGTGCCTCTCAAGAAGCTCATCAAGGAGTTTCAAGGCTTCAAGGTCGCGATGGAGGCGC  
ACCGTGAACGGCCACGAGTTTCGAGATCGAGGGCGAGGGCGAGGGCCGCCCCCTACGAGGGCCACAACACCGTGAAGCTGAAGGT  
GACCAAGGGCGGGCCCCCTGCCCTTCCGCTGGGACATCCTGTCCCCCAGTCCAGTACGGCTCCAAGGTGTACGTGAAGCACCCC  
GCCGACATCCCCGACTACAAGAAGCTGTCTTCCCCGAGGGCTTCAAGTGGGAGCGCGTATGAACCTCGAGGACGGCGGGCTG  
GTGACCGTGACCCAGGACTCCTCCCTGCAGGACGGCTGCTTCACTACAAGGTGAAGTTCATCGGCGTGAACCTCCCTCCGACG  
GCCCGTAATGCAGAAGAAGACCATGGGCTGGGAGGCTCCACCGAGCGCTGTACCCCGCGACGGCGTGTGAAGGGCGAG  
ATCCACAAGGCCCTGAAGCTGAAGGACGGCGGCCACTACCTGGTGGAGTTCAGTCCATCTACATGGCCAAGAAGCCGTGCAG  
CTGCCCGGCTACTACTACGTGGACTCCAAGCTGGACATCACCTCCACAACGAGGACTACACCATCGTGGAGCAGTACGAGCGCA  
CCGAGGGCCGCCACCCTGTTCTGTAGCGGCCGCGACTTAGATCATAATCAGCCATACCACATTTGTAGAGGTTTTACTTGCT  
TTAAAAACCTCCACACCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTTGTTGTTGTTAACTGTTTATTGCAGCTTATAAT  
GGTTACAAATAAAGCAATAGCATCACAATTTCAAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTTGCCAACTCATC  
AATGTATCTTAAAGCTTATCGATACGCGTACGGCGCCCTGTGACAGCTTGACGTATTGACATTTGTTTTGTTACAGTTCTGATAC  
TTGCCCAATAAACAATCACCGCACAGGCTGTAAGAAGCGCTTTTAAAGAGCGTTTAAATCAGTTTGTAGTTGCTATGTTTCTTACTAC  
AAGGCTTAATAAAGCTGTGCGTGCCGTTTTGTGAAGTTTTTGAAGCTGCAAGTAAAGCAACCGACAAGCCAACAAAATG  
GAGGATTTTTACAGTAACATGTTGTTCTGGCTTACGACATTCGTATCATGCCAGCGATCTAATGGGCTACTGATTTACTGATA  
CCACGTAGCTGGATCTATCTCACTATGGGGGAACGCTCTGGATGGGATTGATACCAATCTGGCGAGAGGAGGCCAGCTATC  
GCCGTGGCCACCGAATTAACAAAATTATGTATTAATTTTTTAAAGTGCATTTTCAAACCTAGCGCATGATTTTTGTATCGATTT  
GGTTTGATTTACGGACAAACCTGATTGAGGACGATCGGCTAATTTCTCGGTTCTTATTGAGGACGCGTATTGGATGTAGTTTGT  
ATGGTTTAAATTCGTGATCCAGTCACAGTATCTTACCACGAGCTTTAGAAGGCCTCAAGCTACTATGAGGCCGATTGGCAAAGG  
TTGATGGTTCGAGGACGATGAGCGGCCGCTGCTTACACAGCAGGACTAGATATCAATGCCGTCTGGAACGTCTCCCTGACTATC  
TACTTAGAAATCCAGGCACAAATCAAGTCAAGTTGTAGAGCCAAGTTTTGGTAGATGGAGATGCTCTTACGAATAATCGTTGCTTCA  
TAAATGGTGAAGTAAAGGGTCCCGCTCCAGGAGCCATCGTAGTCCGACCCTCATTTCTCGAGGTGCCAGTTAGGAAGCCCA  
CTGTAATGGTATCTCTACCTGTACCTGTCCGCCACCAGATATCGGCCAGAGTACGCAGTTCAAGCGAATGAGCGTTGACTCGAG  
GACTGGACTGAACCCGTTATACCGTTCCCGGTGGATTGTAGTTGAGCATTTTTTATGTTCTTGTGGCTTGCAGACAGGTCGAT  
GAAGTGACATGCAGGTGAAACGGCTGATTGAGTTGGTCTTCGAGATGTGAAACCATGATGTTTTAGTCTCAGGAAAAGCGAC  
CTTGTGAGGTTACTCCCGTCCCTAGCATCGAACCGCGTAGCGAGGAAACTGATATTCGTGGACTGTATGAATTTGCAGATG  
ATCGTCCGGGAATTTTATGTTGGAGGTTCTTTGTGAATGCAGGCCCTTGTGAGCTCGGAGTACCTTACTTCTGCTCGCGGACT  
ATTTATCCCATCAAAGGACAGGAAGGACACTAGGACATGTTTTCTGGTCTTAAACGCCAAACACCTTAAACCAAGAACTAGGCG  
TATCGTCCGGACCATTTCTTATTGTATACGTTTATAGTTTCAATGTGAAGTAAGGTATATACAGGGAATCCCGTAAGCCAGTAAG  
GTGATCAATACTGAACTGAAAAATCCAAAGCCTCAGAAGCAATATTTTACGCCCTATCTGCAGTGTGTTGATTTGGTATAAAA  
TAAAAACCTCTTCTGTTTTAGATGGACATGCTGGGCATGGCATTATTAAGGACTTGTACTACAAAACATTTGTTCTTTGTAATGA  
AATTTTGAAGAAAAAAGGTAAGTAATATACTCAAAGAATGCATGACGAAAAGAAAGATTATCCTTCTATCCTAAGTATCCTAA  
GTGGATAACCGATCAATCCCAATGTAGTGGCCATTTTGAACCCGAAACCTCGCGACGCGTCTAGTGCTATAATCCGGACCACA  
GCAAACGAGCGATTGGCTTAGTTCTATTCCAGCAGCCTTTTCTTCCGTCGTCTTGTTCGTGACGCTTGGCGACTTTTGTGTA  
TTTTGTTCTATTGACTGTTCTATTGTAAGTGAATGTAGAAGAATGTGCAGTGCATCGTAAGCTAGCATTATTGCCCTCAC  
ATCCGCTAGCTGGCTGAAACTGAGCTAGACAAAGGATCAATGCRGACGACACGCGTTAGGGTATACCGATCGTGGCTT  
ATTTCTGATGAGTGAAGTACTACAGCAGCGCGCTGTTTTTGCACAAAACAAATGGAGGCTAATGTCTTGTATTGATCCAC  
TTGCCGAGGTAAGTCTAGGTTAGAAGTGACCGAAATCGGACCGAGCTTTGACCGTTTTGATCGTCAATTGTTGTGATA  
CAGGATTGAATATCTACTCTGCGAGCTTTAAAGGTAAGAAGATCGTTGATTAGGCGCTAATGGGATTTGTGGGAGCAAGAGTG

TTGATCTGAAGTGC GAACCGTATGCTGGATGGAAGTATTTGATCGCCATGTCTAAGGAGTCAATATGAACAATGATATGGAAGC  
AACTACGTCTTCAACATTTTCATTGTAATAATTGTTGAAACGCAGTTGCTTCCCTATTGGGGTTCATAATTTCTACTGAGTCTTTGTGC  
CTATTGGATTACGCAAGAATGGCGATTGCTTTCCACCTCAGAGTCAATACACGATATGGAATACGGTTTGATTTACTCTCGAAG  
GCGAAAGGCAATTACATTTGTAACACAGTAACCTGAAACAAGTGATACCTATTGTTATAATACGTGACGTAAGAAGTGAAGAA  
TGCCAGTTTTGTTCAACAACGATACAACGTAATCGACATTTTGTTAAATATGTGATATGAATATTAAGTGATTTTCAGTTATGTAAT  
TATAATTGTGATCCAAATACGAGCATTATGAGTGGTTTCTCTATATGTTACAATGGATTAAGTTGTACCACTGCGTTCTAAGTCCAA  
TCGATTACATGATTTTTGAACATAACTGTAATCGAGTGGACGGAAGAACCGCTGTTGGCAATATAGTCATCGAGTTAAACCCATAA  
ATTTGTAAGAAATTTAAATGCATAGCTTTCTATGAACGTTACATTAATACATTAATTTTTTTTCATTCTAGATGGAAGACGCCAAA  
AACATAAAGAAAGGCCCGCGCCATTCTATCCGCTGGAAGATGGAACCGCTGGAGAGCAACTGCATAAGGCTATGAAGAGATAC  
GCCCTGGTTCTGGAACAATTGCTTTACAGATGCACATATCGAGGTGGACATCACTTACGCTGAGTACTTCAAAATGTCGGTTCG  
GTTGGCAGAAGCTATGAAACGATATGGGCTGAATACAATCACAGAATCGTCGATGCAGTGAAGTCTCTTCAATCTTTATGC  
CGGTGTTGGGCGCTTATTTATCGGAGTTGCAGTTGCGCCCGCAACGACATTTATAATGAACGTGAATTGCTCAACAGTATGGG  
CATTTCCGACGCTACCGTGGTGTTCGTTTCAAAAAGGGGTTGCAAAAAATTTGAACTGCAAAAAAAGCTCCCAATCATCCAAA  
AAATTTATCATGGATTCTAAAACGGATTACCAGGGATTTTCAGTCGATGTACACGTTTCGTACATCTCATCTACCTCCCGTTTTA  
ATGAATACGATTTTGTGCCAGAGTCTTCGATAGGGACAAGACAATTTGCACTGATCATGAACCTCTGGATCTACTGGTCTGCCT  
AAAGGTGTCGCTCTGCCTCATAGAAGTGCCTGCGTGAGATTCTCGCATGCCAGAGATCCTATTTTTGGCAATCAAATCATTCCGGA  
TACTGCGATTTTAAAGTGTGTTCCATTCCATCACGGTTTTGGAATGTTTACTACACTCGGATATTTGATATGTGGATTTTCAGTCTGC  
TTAATGTATAGATTTGAAGAAGAGCTGTTTCTGAGGAGCCTTCAGGATTACAAGATTCAAAGTGCCTGCTGGTGCCAACCCCTATT  
CTCCTTCTCGCAAAAAGCACTCTGATTGACAAAACGATTTATCTAATTTACACGAAATTTGCTTCTGGTGGCGTCCCTCTCTAAG  
GAAGTCGGGGAAGCGGTTGCAAGAGGTTCCATCTGCCAGGTACAGGCAAGGATATGGGCTCACTGAGACTACATCAGCTATT  
CTGATTACACCCGAGGGGATGATAAACCCGGCGCGGTGCGTAAAGTTGTTCCATTTTTGAAGCGAAGGTTGGATCTGGATA  
CCGGGAAAACGCTGGGCGTTAATCAAAGAGGGCAACTGTGTGTGAGAGGTCCTATGATTATGTCGGTATGTAACAATCCGG  
AAGCGACCAACGCCTTGATTGACAAGGATGGATGGCTACATTCTGGAGACATAGCTTACTGGGACGAAGCAACACTTCTTCAT  
CGTTGACCGCTGAAGTCTCTGATTAAGTACAAAGGCTATCAGGTGGCTCCCGCTGAATTGGAATCCATCTTGTCCAACACCCCA  
ACATCTTCGACGCAGGTGTCGACGCTTCCCGACGATGACGCCGTTGAACTCCCGCCGCGTGTGTTTTGGAGCACGGAAA  
GACGATGACGGAAAAGAGATCGTGGATTACGTGCCAGTCAAGTAAACCCGCAAAAAGTTGCGCGGAGGAGTTGTGTTTTGT  
GGACGAAGTACCGAAAGGCTTACCGGAAAACCTGACGCAAGAAAAATCAGAGAGATCCTCATAAAGGCCAAGAAGGGCGGAA  
AGATCGCCGTGAAGCGGCCGACCCGGTCAGACATGATAAGATACATTGATGAGTTGGACAAACCACAAGTGAATGCAGTGA  
AAAAATGCTTTATTTGTGAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAAT  
TGCAATCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGCCGGCT  
TAATTTAAGTTAATTTAATTAAGTCGACGATGTAGGTACGGTCTCGAAGCCGCGGTGCGGGTGCCAGGGGCTGCCCTTGGG  
CTCCCGGGGCACTCCACCTCACCCATCTGGTCCATCATGATGAACGGGTCGAGGTGGCGGTAGTTGATCCCGGCAACGCG  
CGGCGACCCGGGAAGCCCTCGCCCTCGAAACCGCTGGGCGCGGTGTTACGCTGAGCACGGGACGTGCGACGGCGTGGCGGG  
TGCGGATACGCGGGGACGCTCAGCGGTTCTCGACGGTCACGGCGGGCATGTGACAGATCTGACAATGTTCAAGTGCAGAGAC  
TCGGCTACGCCTCGTGACTTTGAAGTTGACCAACAATGTTTATTCTTACCTAATAGTCTCTGTGGCAAGGTCAAGATTCTGTT  
AGAAGCCAATGAAGAACCTGGTTGTTCAATAACATTTTGTTCGTTAATTTTACTACCGCTTGACGTTGGCTGCACTTCATGTAC  
CTCATCTATAAAGCCTTCTTGTATCGCTCTGGACGTCATCTTCACTACGTGATCTGATTTTCACTGTCAGAATCCTCACCAACA  
AGCTCGTACGCTTTCGAGAAGAGCAGAGAGGATATGCTCATCGTCTAAAGAAGTACCCATTTTATTATATATTAGTCACGATATC  
TATAACAAGAAAATATATATAATAAGTTATCACGTAAGTAGAACATGAAATAACAATATAATTATCGTATGAGTTAAATCTTAA  
AAGTCACGTAAGGATAATCATGCGTCAATTTGACTCACGCGGTGTTATAGTTCAAATCAGTGACACTTACCGCATTGACAAGC  
ACGCCTCACGGGAGCTCAAGCGGGGACTGAGATGTCCTAAATGCACAGCGACGGATTTCGCGCTATTTAGAAAGAGAGCAAT  
ATTTCAAGAATGCATGCGTCAATTTACGCAGACTATCTTCTAGGGTTAAAAAGATTTGCGCTTACTCGACCTAAACTTTAAAC  
ACGTCATAGAATCTTCGTTGACAAAAACCATTTGGCCAAGTGTGTGACGCGACGCGCTAAAGAATGGCAAACCAAGTC  
CGCGAGCGTCACTAGAGGATCCCGGGTACCGAGTCTGAATTCGTAATCATGTCATAGCTGTTTCTGTGTGAAATTTGTTAT  
CCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTA  
TTGCGTTGCGCTCACTGCCGCTTTCCAGTCGGGAAA

File S5

Primers and Probes used for RT-PCR, qRT-PCR, and ddPCR

**RT-PCR**

***chorion peroxidase (AAEL004386)***

Forward

AAGGAGAAACCAGAAGCCATGT

Reverse

CGTGCTTCGTTGTAACCAC

***myd88***

Forward

TGGGACATCCTGGACGATAC

Reverse

TCCGATTCGTTCACTTTCTTG

***cortex***

Forward

GACCTCGATAGCGTTCAATCC

Reverse

AAGCGTCGTCACGATACAATC

***nanos***

Forward

CGATAGTGCCATCATGACGTCGG

Reverse

CGCGCCAATTGTCTTGTACCAG

**Droplet Digital PCR**

***myd88***

Forward

TGGGACATCCTGGACGATAC

Reverse

TCCGATTCGTTCACTTTCTTG

Probe

5'FAM-TGCTCAGCGTCTTGCTCAAACA-3'BHQ-1

***dah***

Forward

TGTTTATCCTGCTGACAATCAAC

Reverse

CTGTCGATCAGGTTCACTG

Probe

5'FAM-CAGAAAGCGCTCTACACATCGTACATT-3'BHQ-1

***rpS4***

Forward

TCTAAAGTACGCACTGACCAACAG

Reverse

CGTAGATCAGGCGGAAGTATTC

Probe

5'HEX-CCGGTTTCATGGATGTGATCAAC-3'BHQ-1

***proteasome subunit beta type II***

Forward

CTTTAATGGGAATTCGCGG

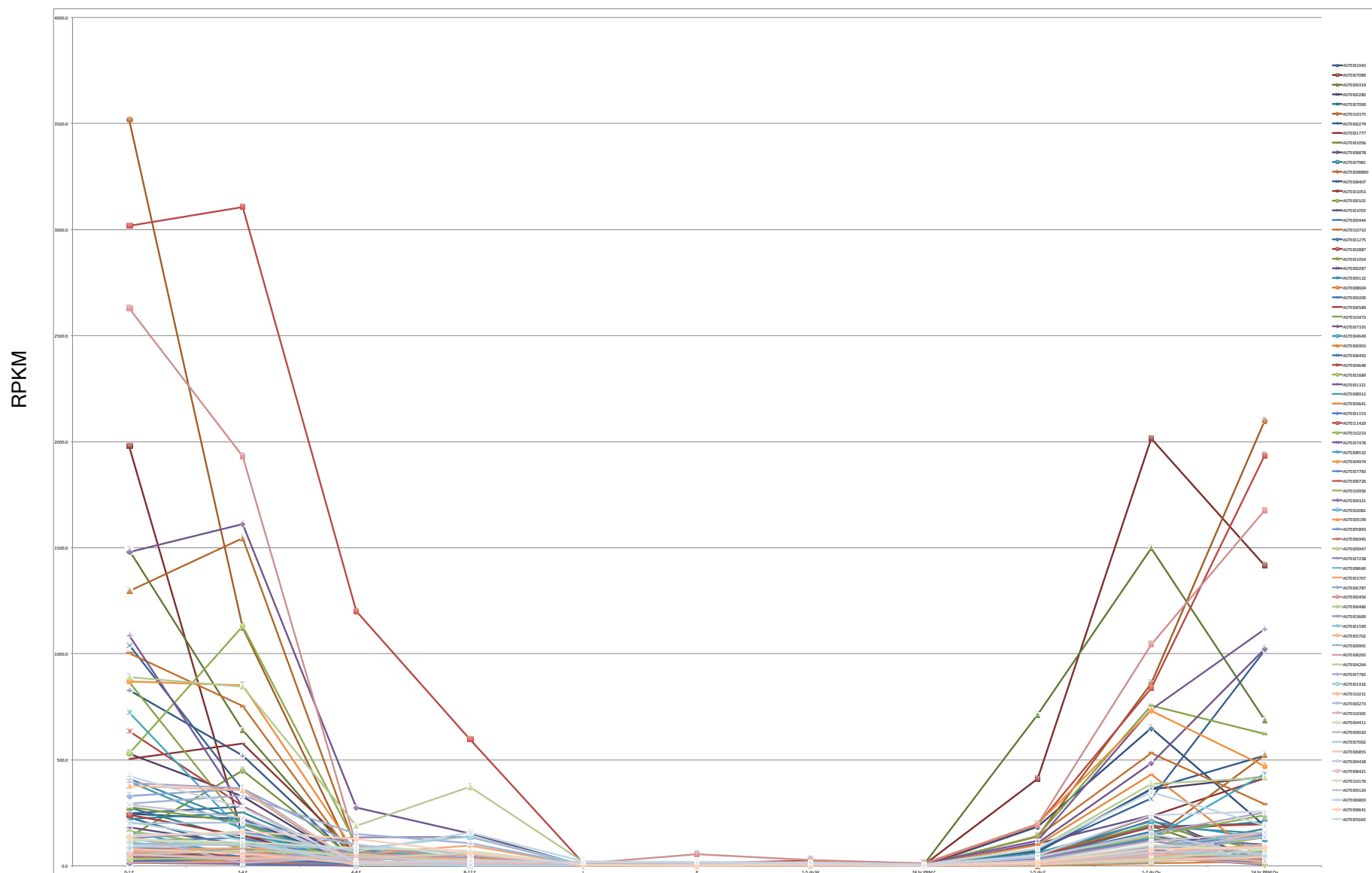
Reverse



GGTGGCCATCATCAGGTTAT  
Probe  
5'HEX-CATGGTGCTGAAGGACGACG-3'BHQ-1

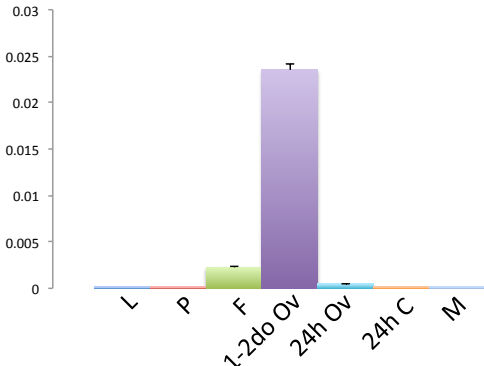
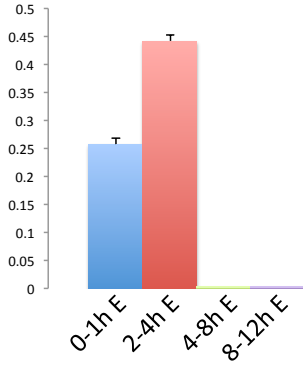
**Primers used for RT-qPCR assay in S7**

ASTEI01053\_F  
CTTACGCTGCAGATCCTG  
ASTEI01053\_R  
CTCTGGTGAGCAAGAAAGAC  
ASTEI09200\_F  
ACAAATATTGCAGACGATCG  
ASTEI09200\_R  
TTCACCTTCGGTCGAAAG  
ASTEI00456\_F  
GAGCGTGACGACAGCTATG  
ASTEI00456\_R  
AGACACACGATCCAGCAG  
ASTEI07783\_F  
GTATACATTCCGCTGTGACG  
ASTEI07783\_R  
GCTGGAAGCTATTATGCAAG  
ASTEI01055\_F  
GCCTTCAATGTTTCATACACC  
ASTEI01055\_R  
CGTTATGAGATCTGGCACTG  
RPS4\_F  
GTAACCGTCTAAAGTACGCACTG  
RPS4\_R  
GGTCTTGTGGATGTTGATCAC

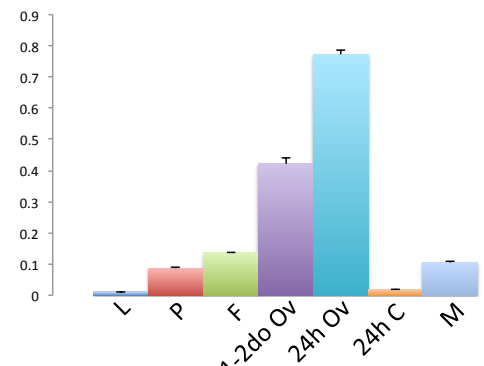
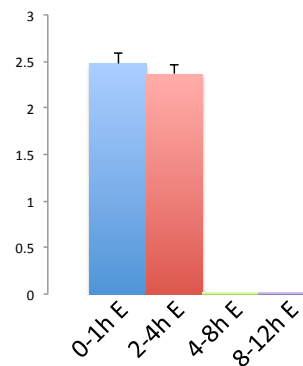


**Figure S1** RPKM expression profile of 79 germ-line-specific genes. Shown are the RPKM expression profiles of 79 germ-line-specific genes meeting the FDR 0.001 cutoff from EdgeR differential gene expression analysis. Genes were filtered by performing four pairwise comparisons of expression between 0-1 day old ovaries and larvae, pupae, male, and 24 hr post-bloodmeal carcass (ovaries removed). Samples are 0-1 hr embryo (0-1 E), 2-4 hr embryo (2-4 E), 4-8 hr embryo (4-8 E), 8-12 hr embryo (8-12 E), larvae (L), pupae (P), 1-5 day old male (1-5 do M), 1-5 day old female (1-5 do F), 1-2 day old ovaries (1-2 do Ov), 24 hr post-bloodmeal ovaries (24 hr PBM Ov), 24 hr post-bloodmeal carcass, ovaries removed (24 hr PBM C).

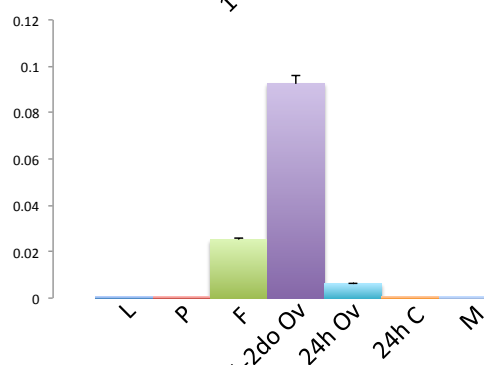
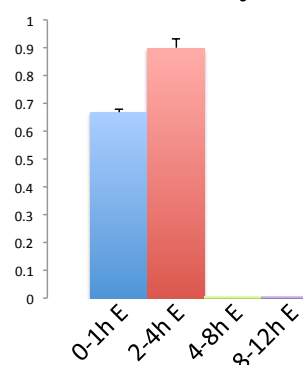
ASTEIO1053



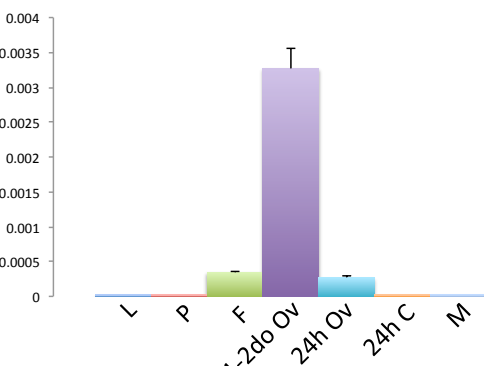
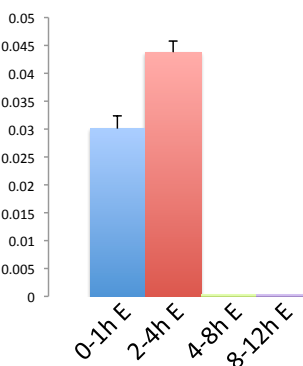
ASTEIO0456



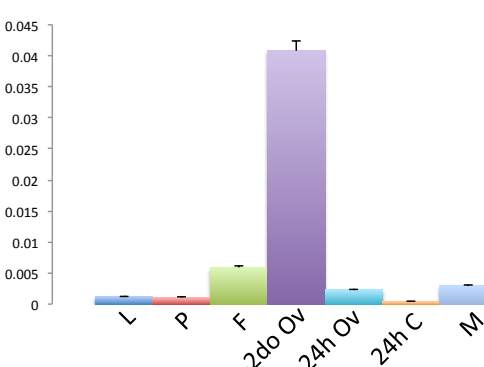
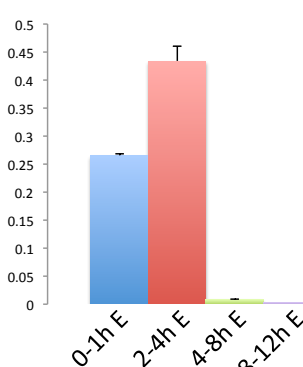
ASTEIO1055



ASTEIO9200



ASTEIO7783



**Figure S2** RT-qPCR of five previtellogenic ovary-expressed genes.

Shown are the expression profiles including 11 samples of various life stages and tissues. Values represent the relative transcript level of the gene of interest normalized by the reference gene *rpS4*. Samples are labelled: 0-1h E (0-1 h embryo); L (larvae); P (pupae); F (1-5 day old post-emergence females); 1-2do Ov (1-2 day old previtellogenic ovaries); 24h Ov (24h PBM ovaries); 24h C (24h PBM carcass without ovaries); M (1-5 day post-emergence males). Values represent the mean of 3 technical replicates plus/minus the standard error. Post-embryonic samples are shown separate from embryonic samples to emphasize the predominant expression in the previtellogenic ovary samples. Note: four of the five genes show higher transcript levels in the 2-4hr embryo than in the 0-1hr embryo, indicating possible early zygotic transcription. However, only one of these four genes (ASTEI07783) shows the same trend according to the RNA-Seq values.