S3 Appendix. Alignment of miR-71a/2a/2b/2e miRNA cluster fragment containing miR-2a, miR-2b and miR-2e.

sec. struc. – secondary structure. Mature miRNA sequences are in bold type and underlined.

```
miRNA name          miR-2a
sec. struc.         ))))))))))))))))...)))...))))))              .....(((((((((.
C. sinensis         TCACAGCCAGTATTGATGAACGGGGCGAAGGACGCACGTCCACCACTGCGTTAGGTGGTG 60
O. felineus         TCACAGCCAGTATTGATGAACGGGGCGAAGGACGCACGTCCACCACTGCGTTAGGTGGTG 60
O. viverrini        TCACAGCCAGTATTGATGAACGGGGCGAAGGACGCACGTCCACCACTGCGTTAGGTGGTG 60
S. japonicum        TCACAGCCAGTATTGATGAACGGGGTAATAGGCGCACGTCCACCACTGC---AGGTGGTG 57
S. mansoni          TCACAGCCAGTATTGATGAACGGTGTGAAAAGGCGCACGTCCACCACTGC---AGGTGGTG 57
                    ********************** *  *  * *****************   ********

miRNA name                                                  miR-2b
sec. struc.         ...((((((((((.(((((.((((......--.)))).)))))).)))..))))))).
C. sinensis         CGCGTCCCAAAGGACTGTGAGGCAGTGCCGT--CCTGTATCACAGCCCTGCTTGGGACAC 118
O. felineus         CGCGTCCCAAGGGACTGTGAGGCAGTGCCAT--CCTGTATCACAGCCCTGCTTGGGACAC 118
O. viverrini        CGCGTCCCAAAGGACTGTGAGGCAGTGCCAT--CCTGTATCACAGCCCTGCTTGGGACAC 118
S. japonicum        CGCGTCTCAAAGGACTGTGAGCCAACGTAATTACT-GTATCACAGCCCTGCTTGGGACAC 116
S. mansoni          CGCGTCTCAAGGGACTGTGAAACATCGTAACCATTTGTATCACAGCCCTGCTTGGGACAC 117
                    ****** *** ********  **  *        ***********************

miRNA name
sec. struc.         ..)))))))))                 .....(((..(((((((((((.(((((...((((
C. sinensis         AGGCCACCTAATTAAGCGTCGAAACCTCCCACCGTTCTTACCAACTTTGACTGCGTTATA 178
O. felineus         AGGCCACCTAATTAATCGTCGAAACCTCCCACCGTTCTTACCAACTTTGACTGCGTTATA 178
O. viverrini        AGGCCACCTAATTAAGCGTCGAAACCTCCCACCGTTCTTACCAACTTTGACTGCGTTATA 178
S. japonicum        AGCCTACCTGCTTAGTCATCATACTGTCCCACCGCTCTTACCAACTTAGACTGAGTTATA 176
S. mansoni          AGCCTACCTGCTAAGACATCTCTTTGTCCCATCGCTCTTACCAACTTTGACTGAGTTATA 177
                    ** * ****  * *  * **      ***** ** ************ ***** ******

miRNA name                          miR-2e
sec. struc.         (.((......)----).)))))...)))))).))).)))))
C. sinensis         CTGTTCCATTG----CTGTGTATCACAGTCCAAGCTTTGGT 215
O. felineus         CTGTTCCATTG----CTGTGTATCACAGTCCAAGCTTTGGT 215
O. viverrini        CTGTTCCATTG----CTGTGTATCACAGTCCAAGCTTTGGT 215
S. japonicum        CTGCTACTGTAAGCTTTGTATATCACAGTCCAAGCTTTGGT 217
S. mansoni          CTGCTTTTGTAAGCCTTGTATATCACAGTCCAAGCTTTGGT 218
                    *** *    *       *** *********************
```

Supplemental file 11: alignment of miR-71b/2f/2d/2c miRNA cluster fragmen containing miR-71a, miR-2f and miR-2d
sec. struc. – secomd structure
Mature miRNA sequences including miR-2f are in bold type and underlined

```
miRNA name        miR-71b
sec. struc.       ((((((((((.((((.((((.((((.((-------((.....))))..)))).)))))))
C. sinensis       TGAAAGACTTGAGTAGTGAGACGCTCAT-------TTGCTCATGGATTCGGCGCCTCATA 53
O. felineus       TGAAAGACTTGAGTAGTGAGACGCTCAT-------TTACTCGCGGATTCCGCGCCTCATA 53
O. viverrini      TGAAAGACTTGAGTAGTGAGACGCTCAT-------TTGCTCACGGTTTCGGCGCCTCATA 53
S. japonicum      TGAAAGACTTGAGTAGTGAGACGCTTATAGCGTTGTTGTCTGCGG-TTCGGCGCCTCATA 59
S. mansoni        TGAAAGACTTGAGTAGTGAGACGCTTACAGCGTGGTTTTTCCC--TTCGGCGCCTCATA 58
                  ************************ *        **         *** **********

miRNA name
sec. struc.       ))))))))))))))))..)
C. sinensis       CTGAGTCTTTCGTGATGTGCCGGCTGATGCGTC-GTCCCCAGTCC--AATGCT---TGAT 107
O. felineus       CTGAGTCTTTCGTGATGTGCCGGCTGATGCGTC-GTCCCCAGTCC--AATGCT---TGAT 107
O. viverrini      CTGAGTCTTTCGTGATGTGCCGGCTGATGCGTC-GTCCCCAGTCC--AATGCT---TGAT 107
S. japonicum      CTAAGTCTTTCCCGGCTCACTGGCCTAACCGTCTGATGTGAATTTGTAATGCTGCACGAT 119
S. mansoni        CTGAGTCTTTCCCGGCTCACTGGCCTAACCGTCTGAGAAGGATTCGTAATGCTGCACGAT 118
                  ** ********  *     * ***  *  **** *       *    ******    ***

miRNA name                                                                miR-2f
sec. struc.             ...((..((.(((...((((..(((((.(((..((((((....))..))))..)))
C. sinensis       GTCCGGTATTGATTCTGGCTGAGATAGCGGCTGGGATTAGCTGCGCAAGCAAAGCCTATC 167
O. felineus       GTCCGGTATTGATTCTGGCTGAGATAGCGGCTGGGATTAGCTGCGCAAGCAAAGCCTATC 167
O. viverrini      GTCCGGTATTGATTCTGGCTGAGATAGCGGCTGGGATTAGCTGCGCAAGCAAAGCCTATC 167
S. japonicum      ACCTGGTGTTGATTCTGGCTGAGTTCGTGGCAGGA------TAAA-GGTT--TGCCTGTC 170
S. mansoni        ACCTGGTGTTGATTCTGGCTGAGATTGAGGCAGGAA---AATAAACAATTGTTGCCTGTC 175
                    * *** *************** * * *** **       *           **** **

miRNA name        miR-2f
sec. struc.       .)))))..))))...))).))...)).....
C. sinensis       ACAGCCAATATTGATGCCCGACAGCATGCACCTGACATCTAGCGTCTCTTTGGAAGTGCC 227
O. felineus       ACAGCCAATATTGATGCCCGACAGCATGCACCTGACATCTAGCGTTTTTTTGGAAGTACC 227
O. viverrini      ACAGCCAATATTGATGCCCGACAGCATGCACCTGACATCTAGCGTTTCTTTAGAAGTACC 227
S. japonicum      ACAGCCAATATTGATACCCGGTGTTGGGCACTTAACTTCTA----------AGATGCCGC 220
S. mansoni        ACAGCCAATATTGATACCCGGGCGTTGGGCACTTGACTTCTA----------AGATGTAAC 225
                  *************** ****       **** * ** ****           ** *   *

miRNA name                                                                miR-2d
sec. struc.       .....(((((((((((((...((.(((((((...--((((....)))))..-------...
C. sinensis       AGCACCGGGTTTGTCATCGATGGCCTGTGATTTT--GAGCACATGTTTCT-------AAT 278
O. felineus       AGCACCGGGTTTGTCATCGGTGGCCTGTGATTTT--GAGCACATGTTTCT-------AAT 278
O. viverrini      AGCACCCGGTTTGTCATCGATGGCCTGTGATTTT--GAGCACATGTTTCT-------AAT 278
S. japonicum      CGCGACCAGTTCGTCATCCATGGATTGTGATTTTCGGACTCCATGTTTCATTAAGTGAAT 280
S. mansoni        CGCGACCAGTTCGTCATCCTTGGATTGTGATTTTCCGAAATAAAATTTTATGAATAGAAT 285
                   **  *  *** ******  ***  *********  **    *  ***         ***

miRNA name        miR-2d
sec. struc.       )))))))..))......)))))
C. sinensis       ATCACAGTCCTGCTTAGGTGA 299
O. felineus       ATCACAGTCCTGCTTAGGTGA 299
O. viverrini      ATCACAGTCCTGCTTAGGTGA 299
S. japonicum      ATCACAGTCCTGCTTAGGTGA 301
S. mansoni        ATCACAGTCCTGCTTAGGTGA 306
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