**Table S1** Primers for Real-time PCR

|  |  |
| --- | --- |
| **Name** | [**miScript Primer Assay**](https://www.qiagen.com/cn/shop/pcr/primer-sets/miscript-primer-assays/?catno=MS00011270) |
| mmu-miR-103-3p | AGCAGCAUUGUACAGGGCUAUGA |
| mmu-miR-107-3p | AGCAGCAUUGUACAGGGCUAUCA |
| mmu-miR-21a-3p | CAACAGCAGUCGAUGGGCUGUC |
| mmu-miR-146a-5p | UGAGAACUGAAUUCCAUGGGUU |
| mmu-miR-339-5p | UCCCUGUCCUCCAGGAGCUCACG |
| mmu-miR-222-3p | AGCUACAUCUGGCUACUGGGU |
| mmu-miR-27a-3p | UUCACAGUGGCUAAGUUCCGC |
| mmu-miR-25-5p | AGGCGGAGACUUGGGCAAUUGC |
| mmu-miR-181a-2-3p | ACCGACCGUUGACUGUACCUUG |
| LNA™ emu-miR-10 | CACCCUGUAGA**C**CCGA**G**UUUGA |
| LNA™ emu-miR-277  | UAAAUGCAUUUU**C**UGGCCC**G**UA  |
| LNA™ emu-miR-71 | UGAAAGA**C**GAUGGUA**G**UGAGA |

The different oligonucleotides of miRNAs between *E. multilocularis* and mouse were LNA-modified and highlighted (bold/underlined).

**Table S2** Primers for stem-loop RT-PCR

|  |  |  |  |
| --- | --- | --- | --- |
| **miRNA Name** | **RT Primer** | **Forward primer** | **Reverse primer** |
| emu-miR-10 | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTCAAAC | GCGGCGGCACCCTGTAGACCCG | ATCCAGTGCAGGGTCCGAGG |
| emu-let-7 | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACAGACAT | GCGGCGGTGAGGTAGTGTTTCG | ATCCAGTGCAGGGTCCGAGG |
| emu-miR-71 | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTCTCAC | GCGGCGGTGAAAGACGATGGTAG | ATCCAGTGCAGGGTCCGAGG |
| emu-miR-2b | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTGTCCC | GCGGCGGTATCACAGCCCTGCTTG | ATCCAGTGCAGGGTCCGAGG |
| emu-miR-4989 | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTCTCAG | GCGGCGGAAAATGCACCAACTATC | ATCCAGTGCAGGGTCCGAGG |
| emu-miR-2c-3p | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTTCATC | GCGGCGGTCACAGCCAATATTG | ATCCAGTGCAGGGTCCGAGG |
| emu-miR-277 | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTACGGG | GCGGCGGTAAATGCATTTTCTG | ATCCAGTGCAGGGTCCGAGG |

**Table S3** Summary of two small RNA libraries

|  |  |  |
| --- | --- | --- |
| Type | Uninfected serum | Infected serum |
| Total reads | 23,584,745 | 23,900,492 |
| High quality | 23,476,069 | 23,781,374 |
| 3'adapter\_null | 110,748 (0.47%) | 88,947 (0.37%) |
| Insert null | 2,878 (0.01%) | 2,807 (0.01%) |
| 5'adapter contaminants | 9,633 (0.04%) | 8,249 (0.03%) |
| Smaller than 18nt | 108,285 (0.46%) | 183,697 (0.77%) |
| Poly A | 2 (0.00%) | 5 (0.00%) |
| Clean reads | 23,244,523 (99.01%) | 23,497,669 (98.81%) |

**Table S4** The detail of differentially expressed miRNAs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| miRNA name | Uninfected serum Reads | Infected serum Reads | Log2 Ratio (Infected serum/Uninfected serum) | *p*-value |
| mmu-miR-103-3p | 24691 | 114946 | 2.19 | 0 |
| mmu-miR-107-3p | 22451 | 112920 | 2.3 | 0 |
| mmu-miR-146b-5p |

|  |
| --- |
| 4354 |

 | 8991 | 1.01 | 0 |
| mmu-miR-27a-3p | 2453 | 7282 | 1.54 | 0 |
| mmu-miR-339-5p | 660 | 3226 | 2.26 | 0 |
| mmu-miR-21a-3p | 184 | 3661 | 4.28 | 0 |
| mmu-miR-5100 | 571 | 51 | -3.52 | 3.12E-112 |
| mmu-miR-204-5p | 186 | 853 | 2.17 | 1.18E-99 |
| mmu-miR-181a-2-3p | 1405 | 517 | -1.47 | 1.11E-98 |
| mmu-miR-23b-3p | 34 | 415 | 3.58 | 1.86E-81 |
| mmu-miR-25-5p | 248 | 0 | -8.99 | 6.80E-49 |
| mmu-miR-877-5p | 250 | 48 | -2.41 | 3.65E-35 |
| mmu-miR-133b-3p | 0 | 163 | 8.32 | 1.69E-34 |
| mmu-miR-365-3p | 1 | 142 | 7.12 | 2.07E-33 |
| mmu-miR-542-3p | 192 | 28 | -2.81 | 4.49E-32 |
| mmu-miR-222-3p | 0 | 136 | 7.06 | 3.07E-30 |
| mmu-miR-222-5p | 68 | 0 | -8.12 | 3.07E-30 |
| mmu-miR-30c-2-3p | 107 | 2 | -5.77 | 2.72E-27 |
| mmu-miR-410-3p | 40 | 195 | 2.25 | 2.94E-25 |
| mmu-miR-219c-3p | 86 | 0 | -7.46 | 7.97E-21 |
| mmu-miR-574-5p | 13 | 106 | 3 | 3.62E-19 |
| mmu-miR-33-5p | 0 | 77 | 7.24 | 1.01E-18 |
| mmu-miR-199a-5p | 0 | 71 | 7.12 | 1.64E-17 |
| mmu-miR-592-5p | 0 | 70 | 7.1 | 2.62E-17 |
| mmu-miR-18a-3p | 0 | 69 | 7.08 | 4.20E-17 |
| mmu-miR-15b-3p | 188 | 61 | -1.65 | 4.69E-17 |
| mmu-miR-345-3p | 126 | 30 | -2.1 | 6.66E-16 |
| mmu-miR-503-3p | 61 | 0 | -6.96 | 1.07E-15 |
| mmu-miR-674-3p | 16 | 98 | 2.58 | 1.60E-15 |
| mmu-miR-181c-3p | 266 | 117 | -1.22 | 2.44E-15 |
| mmu-miR-3061-3p | 21 | 106 | 2.3 | 8.59E-15 |
| mmu-miR-7a-5p | 0 | 57 | 6.8 | 1.33E-14 |
| mmu-miR-3473f | 0 | 56 | 6.78 | 2.17E-14 |
| mmu-miR-3068-3p | 25 | 109 | 2.09 | 1.24E-13 |
| mmu-miR-5126 | 54 | 4 | -3.79 | 1.13E-12 |
| mmu-miR-450b-5p | 47 | 0 | -6.59 | 1.19E-12 |
| mmu-miR-7646-5p | 44 | 0 | -6.49 | 5.59E-12 |
| mmu-miR-3095-3p | 40 | 0 | -6.35 | 4.55E-11 |
| mmu-miR-3102-5p.2-5p | 39 | 0 | -6.32 | 7.72E-11 |
| mmu-let-7i-3p | 99 | 29 | -1.8 | 1.00E-10 |
| mmu-miR-140-5p | 76 | 17 | -2.19 | 1.19E-10 |
| mmu-miR-345-5p | 38 | 0 | -6.28 | 1.31E-10 |
| mmu-miR-191-3p | 67 | 13 | -2.4 | 1.75E-10 |
| mmu-miR-5132-5p | 37 | 0 | -6.24 | 2.24E-10 |
| mmu-miR-7237-3p | 35 | 0 | -6.16 | 6.58E-10 |
| mmu-miR-185-3p | 34 | 0 | -6.12 | 1.13E-09 |
| mmu-miR-193b-5p | 34 | 0 | -6.12 | 1.13E-09 |
| mmu-miR-503-5p | 34 | 0 | -6.12 | 1.13E-09 |
| mmu-miR-200b-3p | 33 | 0 | -6.08 | 1.95E-09 |
| mmu-miR-3470a | 150 | 67 | -1.19 | 4.66E-09 |
| mmu-miR-149-5p | 59 | 13 | -2.21 | 1.14E-08 |
| mmu-miR-361-3p | 29 | 0 | -5.89 | 1.77E-08 |
| mmu-miR-369-3p | 29 | 0 | -5.89 | 1.77E-08 |
| mmu-miR-130b-5p | 28 | 0 | -5.84 | 3.10E-08 |
| mmu-miR-339-3p | 14 | 58 | 2.02 | 1.26E-07 |
| mmu-miR-3074-5p | 69 | 25 | -1.5 | 2.30E-06 |
| mmu-miR-26b-3p | 86 | 39 | -1.17 | 1.23E-05 |
| mmu-miR-449a-5p | 65 | 27 | -1.3 | 3.79E-05 |
| mmu-miR-1247-5p | 52 | 21 | -1.34 | 0.000161 |

**Table S5** The fold changes of nine host miRNAs **i**n the sera of mice infected with *E. multilocularis* 4-week post-infection

|  |  |  |
| --- | --- | --- |
| miRNA Name | Sequencing (fold change) |  qPCR (fold change) |
| mmu-miR-21a-3p |

|  |  |
| --- | --- |
| 19.472 |  |

 | 5.23 ± 0.22 |
| mmu-miR-107-3p |

|  |  |
| --- | --- |
| 4.922 |  |

 |

|  |  |
| --- | --- |
| 4.85 ± 0.36 |  |

 |
| mmu-miR-339-5p |

|  |  |
| --- | --- |
| 4.784 |  |

 |

|  |  |
| --- | --- |
| 4.19 ± 0.38 |  |

 |
| mmu-miR-103-3p |

|  |  |
| --- | --- |
| 4.556 |  |

 |

|  |  |
| --- | --- |
| 4.49 ± 0.28 |  |

 |
| mmu-miR-27a-3p |

|  |  |
| --- | --- |
| 2.905 |  |

 |

|  |  |
| --- | --- |
| 1.02 ± 0.36 |  |

 |
| mmu-miR-146a-5p |

|  |  |
| --- | --- |
| 2.021 |  |

 |

|  |  |
| --- | --- |
| 4.16 ± 0.41 |  |

 |
| mmu-miR-181a-2-3p |

|  |  |
| --- | --- |
| 0.360 |  |

 |

|  |  |
| --- | --- |
| 1.02 ± 0.25 |  |

 |
| mmu-miR-222-3p |

|  |  |
| --- | --- |
| 0.004 |  |

 |

|  |  |
| --- | --- |
| 0.50 ± 0.14 |  |

 |
| mmu-miR-25-5p |

|  |  |
| --- | --- |
| 0.002 |  |

 |

|  |  |
| --- | --- |
| 0.86 ± 0.20 |  |

 |

**Table S6** The fold changes of six host miRNAs in the mouse sera of 4, 8, and 12 weeks post infection

|  |  |
| --- | --- |
|  | Fold change  |
| miRNA | 4-week  | 8-week | 12-week  |
| mmu-miR-103-3p |

|  |
| --- |
| 2.53±0.68 |

 | 3.21±0.45\* | 4.74±1.52\*\* |
| mmu-miR-107-3p | 3.62±0.29 | 5.51±0.85\*\* | 5.67±1.11\*\* |
| mmu-miR-339-5p | 2.39±0.28 | 1.05±0.17 | 1.07±0.08 |
| mmu-miR-146a-5p |

|  |
| --- |
| 3.20±0.36 |

 |

|  |
| --- |
| 3.55±0.39\* |

 | 5.06±0.75\*\* |
| mmu-miR-21a-3p |

|  |
| --- |
| 2.81±0.48 |

 | 3.36±0.82\* | 3.73±0.84\*\* |
| mmu-miR-222-3p | 0.68±0.06 | 0.54±0.04\* |

|  |
| --- |
| 0.32±0.8\*\* |

 |

The fold changes were expressed as means ± SD (\*p < 0.05, \*\* p < 0.01) and the *p* values of the 8-week and 12-week were calculated by comparison with the 4-week.

**Table S7** The relative fold change values of emu-miR-10, emu-miR-227 and emu-miR-71 in infected serum compared to the background in uninfected serum

|  |  |
| --- | --- |
| miRNA Name | Fold change |
| Background | Infected sera |
| LNA™ emu-miR-10 |

|  |
| --- |
| 0.53±0.12 |

 |

|  |
| --- |
| 27.80±4.40\*\*\* |

 |
| LNA™ emu-miR-277  |

|  |
| --- |
| 1.36±0.21 |

 |

|  |
| --- |
| 5.92±1.63\* |

 |
| LNA™ emu-miR-71 |

|  |
| --- |
| 0.83±0.10 |

 |

|  |
| --- |
| 8.78±2.01\*\*\* |

 |

The fold changes were expressed as means ± SD (\**p* < 0.05, \*\*\* *p* < 0.001).

****

**Fig. S1** Composition of small RNA classes in two libraries constructed by using the uninfected- and infected-sera.