**Supplemental Table 1. Primer information in this study.**

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| **Primers for generating SARS-CoV-2 RNA fragments** |
| **Fragment** | **Primer** | **Primer sequence** |
| F1 | Forward | TATGTACACACCGCATACAG |
|  | Reverse | CGCGGGTGATAAACATGTTA |
| F2 | Forward | ACCCAGGAGTCAAATGGAAA |
|  | Reverse | ACTGACTAGAGACTAGTGGC |
| F3 | Forward | GAGGCTGGATTTTTGGTACT |
|  | Reverse | CATGAATAGCAACAGGGACT |
| F4 | Forward | AATAGGGGCTGAACATGTCA |
|  | Reverse | ATCTGAAGGAGTAGCATCCT |
| F5 | Forward | AAAGAGATGGCAACTAGCAC |
|  | Reverse | AGGACAAGCAAAAGCAAATT |
| F6 | Forward | AACACTTTGCTTCACACTCAA |
|  | Reverse | CACATGGGGATAGCACTACT |
| **Primers for piRNAs** |
| **piRNA ID (piRNAQuest)** | **Primer sequence** | **Label** |
| mmu\_piRNA\_553635 | AACAAGTGAAGAAGAGCAAGAAGGA | O1-2 |
| mmu\_piRNA\_443751 | TATTTAAACTGTCTTATGTGTCTCCA | O1-3 |
| mmu\_piRNA\_923720 | AACACGCTTTCCAGAGTTGTTGTAC | O1-7 |
| mmu\_piRNA\_555154 | AACAAGTGAAGACCCAGTCCCTAC | S1 |
| mmu\_piRNA\_801725 | AACAAGTGTGAAGGTGTCTTTGTCA | S2 |
| mmu\_piRNA\_562740 | AACAAGTGAAGTCTGCCTGTGAAG | S3 |
| mmu\_piRNA\_498273 | AACACGCTCCTGAAGAAGAATCAC | S4 |
| mmu\_piRNA\_233057 | AACAAGGTGAAGTCTGCCTGTGA | S5 |
| mmu\_piRNA\_858506 | AACAAGTTCAAGGCCAGCAGC | O3-1 |
| mmu\_piRNA\_561925 | AAGCGCCTTGAAGTAACTGTGTATA | O3-2 |
| mmu\_piRNA\_443463 | AACACGCTATTGTGTGAATTTGGTT | O3-3 |
| mmu\_piRNA\_443462 | TATTGTGTGAATTTGGTTTTGTCATT | O3-4 |
| mmu\_piRNA\_443460 | TATTGTGTGAATTTGGTTTTGTCAGG | O3-5 |
| mmu\_piRNA\_88635 | ATTGTGTGAATTTGGTTTTGTCCTGG | O3-6 |
| mmu\_piRNA\_88634 | ATTGTGTGAATTTGGTTTTGTCATGG | O3-7 |
| mmu\_piRNA\_88633 | ATTGTGTGAATTTGGTTGTGTCATGG | O3-8 |
| mmu\_piRNA\_86326 | AACAAGATGTTCTTCAGGCTCCC | O3-9 |
| mmu\_piRNA\_104250 | AACACGCCAGAAGATCAGGAACTAA | E1 |
| mmu\_piRNA\_181390 | AAGCGACCGAAGGTTTTACAAGATA | E2 |
| mmu\_piRNA\_466370 | TCAGGACCTCTAGAAGAACAATCAGT | E4 |
| mmu\_piRNA\_419319 | AACGGCTAGTTTTTCTGTTCAATGG | G1 |
| mmu\_piRNA\_419318 | ACGCCGTAGTTTTTCTGTTAAGTGA | G2 |
| mmu\_piRNA\_865863 | AACACGCTTCCAAACAGAAAATGC | G3 |
| mmu\_piRNA\_475430 | AACACGCTCCAAACAGAAGAACTAG | G4 |
| mmu\_piRNA\_475429 | AACACGCTCCAAACAGAAAAGCTTA | G5 |
| mmu\_piRNA\_700126 | AACAAGTGCTTCTTTCAGACTTCCC | M1 |
| mmu\_piRNA\_379382 | AACAAGTAGCAATTCCACCGGTG | M2 |
| mmu\_piRNA\_167046 | AACAAGCTGTACAAGCAAAGCTCTT | M3 |
| mmu\_piRNA\_142622 | AACAAGCCTGTATGCAGCAAAATG | M4 |
| mmu\_piRNA\_432244 | AACACGCTATGAGGACTTTGAAAGT | O6-1 |
| mmu\_piRNA\_25718 | AAGCGACCAATTTGCTTTTGCTTTA | O7-1 |
| mmu\_piRNA\_867226 | AACAAGTTCCAGAAGAGCCAGGT | O7-2 |
| mmu\_piRNA\_320536 | AACAAGTACACTCTTGGTAGTGGGG | O7-3 |
| mmu\_piRNA\_934618 | AACAAGTTTTAGCCTTTCTGCCGTT | G6 |
| mmu\_piRNA\_292200 | AACACGCTAAGGAATAGCAGAATGC | G7 |
| mmu\_piRNA\_934618 | AACAAGTTTTAGCCTTTCTGCCGTT | O7-4 |
| mmu\_piRNA\_292200 | AACACGCTAAGGAATAGCAGAATGC | O7-5 |
| mmu\_piRNA\_658285 | AACAAGTGCAGCTACAGTTGTGTG | O8-1 |
| mmu\_piRNA\_718264 | AACAATTGGACTTCCCTATGGTCGT | N1 |
| mmu\_piRNA\_153125 | AACAAGCTCCATGAGCAGTGC | N2 |
| mmu\_piRNA\_288153 | ACCACCGTAAGATGGTATTTCTAGC | N3 |
| mmu\_piRNA\_312079 | AACACGCTAATTTCCTTGGGTTTGT | N4 |
| mmu\_piRNA\_657627 | AACACGCTGCAGCAGATTTCTTATT | N5 |
| mmu\_piRNA\_521705 | AACAAGTCTGCAGCAGGAAGAG | N6 |
| mmu\_piRNA\_647225 | AACAAGTGCAAACCACACAAGG | G8 |
| mmu\_piRNA\_679242 | AACAAGTGCCTTGTGTGGTGAAG | G9 |
| mmu\_piRNA\_865467 | AACACGCTTCATTCTGCACAATGT | O10-1 |
| mmu\_piRNA\_811305 | AACACGCTGTGCTATGTAGTTCTG | O10-2 |
| mmu\_piRNA\_402005 | AACAAGTAGGGAGAGCTGCCC | U6 |
| mmu\_piRNA\_43308 | AACAAGAGAAAAAGTGGTGGCTCTT | U7 |
| RT universal primer  | CAGTGCAGGGTCCGAGGTCAGAGCCACCTGGGCAATTTTTTTTTTTVN |  |
| PCR general reverse primer | CAGTGCAGGGTCCGAGGT |  |
| U6 forward primer | CTCGCTTCGGCAGCAC |  |
| U6 reverse primer | AACGCTTCACGAATTTGCGT |  |
| **Primers for SARS-CoV-2 genomic regions** |
| **Target viral gene** | **Primer** | **Primer sequence** |
| N1 | Forward | GACCCCAAAATCAGCGAAAT |
|  | Reverse | TCTGGTTACTGCCAGTTGAATCTG |
| N2 | Forward | TTACAAACATTGGCCGCAAA |
|  | Reverse | GCGCGACATTCCGAAGAA |
| N3 | Forward | GGGAGCCTTGAATACACCAAAA |
|  | Reverse | TGTAGCACGATTGCAGCATTG |
| S | Forward | ACAGGCACAGGTGTTCTTAC |
|  | Reverse | GATCACGGACAGCATCAGTAG |
| E | Forward | ACAGGTACGTTAATAGTTAATAGCGT |
|  | Reverse | ATATTGCAGCAGTACGCACACA |
| Sg-E | Forward | CGATCTCTTGTAGATCTGTTCTC |
| β-actin | Forward | CACCATTGGCAATGAGCGGTT |
|  | Reverse | AGGTCTTTGCGGATGTCCACGT |
| **Primers for ACE2 mRNA**  |
|  | Forward | TCCATTGGTCTTCTGTCACCCG |
|  | Reverse  | AGACCATCCACCTCCACTTCTC |