

Supplemental Figure S3: Alignment of Solexa sequence signatures from ovary to miRBase precursors. The top

mmu-let-7a(mmu-let-7a-1)
TTCACGTGGGATGAGGTAGTAGTTGTATAGTTTTAGGGTCACACCCACCACTGGGAGATAACTATACAATCTACTGTCTTTCTAAGGTGAT
.(((((((.....)).(.....))....))))))))))))).)))))).))). (-43.50)

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mmu-let-7a(mmu-let-7a-2)
CTGCATGTTCCACAGGTTCAGGTAAGTGGTTGTATAGTTTAGAGTTACATCAAGGGAGATAACTGTACAGCCTCCTAGCTTTCTTGGAAGTTGCAC
(((((((.....)))))))). (-41.00)
*****TGAGGTAGTAGGTTGTATAGTT*****
...TGAGGTAGTAGGTTGTATAGTT... 6333*
...TGAGGTAGTAGGTTGTATAGT... 2079
...TGAGGTAGTAGGTTGTATAGTTT... 710
...TGAGGTAGTAGGTTGTATAG... 526
...TGAGGTAGTAGGTTGTAT... 171
...TGAGGTAGTAGG... 96
...TGAGGTAGTAGGTTGTATA... 131
...TGAGGTAGTAGGTTGT... 44
...TGAGGTAGTAGGTTGTA... 50
...TGAGGTAGTAGGTT... 20
...TGAGGTAGTAGGT... 14
...TGAGGTAGTAGGTTG... 11
...TGAGGTAGTAGGTTGTATAGTTTA... 10
-----
...TGAGGTAGTAGGTTGTATAGTTaA... 60
...TGAGGTAGTAGaTTGTATAGTTaA... 37
...TGAGGTAGgAGGTTGTATAGTTTA... 14
-----
mmu-let-7b(mmu-let-7b)
GCAGGGTGAGGTAGTAGGTTGTGTGGTTTCAGGGCAGTGATGTTGCCCTCCGAAGATAACTATACAACCTACTGCCTTCCCTGA
(((((((.....)))))))). (-49.00)
*****TGAGGTAGTAGGTTGTGTGGTT*****
...TGAGGTAGTAGGTTGTGTGGTT... 69913*
...TGAGGTAGTAGGTTGTGTGGTTT... 26321
...TGAGGTAGTAGGTTGTGTGGT... 18889
...TGAGGTAGTAGGTTGTGTGG... 6375
...TGAGGTAGTAGGTTGTGTG... 1573
...TGAGGTAGTAGGTTGTGT... 692
...TGAGGTAGTAGGTTGTG... 569
...TGAGGTAGTAGG... 96
...TGAGGTAGTAGGTTGT... 44
...TGAGGTAGTAGGTT... 20
...TGAGGTAGTAGGT... 14
...TGAGGTAGTAGGTTG... 11
...GAGGTAGTAGGTTGTGTGGTT... 40
...TGAGGTAGTAGGTTGTGTGGTTTC... 26
...GAGGTAGTAGGTTGTGTGGTT... 20
...GAGGTAGTAGGTTGTGTGGT... 11
...GAGGTAGTAGGTTGTGTGGTTT... 11
...TGAGGTAGTAGGTTGTGTGGTTN... 10
...TGAGGTAGTAGGTTNTGTGG... 10
-----
...TGAGGTAGTAGGTTGTGTGGTTa... 9142
...TGAGGTAGTAGGTTGTGTGGTTTT... 2679
...TGAGGTAGTAGGTTGTGTGGTTaT... 2429
...TGAGGTAGTAGGTTGTGTGGTaT... 2011
...TGAGGTAGTAGGTTGTGTGGTa... 1882
...TGAGGTAGTAGGTTGTGTGGTaa... 1816
...TGAGGTAGTAGGTTGTGTGGTTaa... 1054
...TGAGGTAGTAGGTTGTGTGGTTTa... 469
...TGAGGTAGTAGGTTGTGTGGa... 467
...TGAGGTAGTAGGTTGTGTGa... 421
...TGAGGTAGTAGGTTGTGTGGTg... 367
...TGAGGTAGTAGGTTGTGcGGTT... 231
...TGAGGTAGTAGGTTGTGTGGaa... 225
...TGAGGTAGTAGGTTGTGTGt... 208
...TGAGGgAGTAGGTTGTGTGGTT... 202
...TGAGGTAGgAGGTTGTGTGGTT... 136
...TGAGGTAGTAGGTTGTGTGGgT... 131
...TGAGGTAGTAGGTTGTtGGTT... 120
...TGAGGTAGTAGGTTGTGTGGTTc... 117
...TGAGGTAGTAGGTTGTGTGGTag... 115
...TGAGGTAGTAGGTTGgGTGGTT... 113
...TGAGGgAGTAGGTTGTGTGGTTT... 95
...TGAGGTAGTAGGTTGTGTtGGTT... 89
...TGAGGTAGTAGGgGTGTGGTT... 88
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.....TGAGGTAGTAGGTTGTGgGGTT.....	85
.....TGAGGTAGTAGGTTGTGTGGTg.....	85
.....TGAGGTAGTAGGTTGTGTGtTT.....	81
.....TGAGGTAGTAGGTTGTGTGGTTag.....	78
.....TGAGGTAGTAGGTTGcGTGGTT.....	77
.....TGAGGTAGTAGGTTGTGTGGTaaa.....	66
.....TGAGGgAGTAGGTTGTGTGGT.....	65
.....TGAGGTAGTAGGTTGTGTGGTTTt.....	64
.....TGAGGcAGTAGGTTGTGTGGTT.....	60
.....TGAGGTAGTAGGTTGTcTGGTT.....	59
.....TGAGGTAGTAGGTTGTGcGGTTT.....	57
.....TGAGGTAGTAGGTTGTGTGGg.....	56
.....TGAGGTAGTAGGTTGTGTGGTga.....	55
.....TGAGGTAGTAGGTTGTGTGGTga.....	53
.....TGAGGTAGTAGGTTGTGTGGTaaT.....	52
.....TGAGGTAGTAGGTTGTGTGGTTTaA.....	51
.....TGAGGTAGTAGGcTGTGTGGTT.....	50
.....TGAGGTAGTAGGTTGTGTGGTTTat.....	50
.....TGAGGTAGTAGGTTGTGTGGTgT.....	50
.....TGAGGTAGTAGGTTGTGTGtT.....	43
.....TGAGGTAGTAGGTTGTGTGGTTgT.....	39
.....TGAGGTAGTAGGTTGgGTGGTTT.....	39
.....TGAGGTAGTAGGTTGcGTGGTTT.....	35
.....TGAGGTAGgAGGTTGTGTGGTTT.....	35
.....TGAGGTAGTAGGTTGTGcGGT.....	35
.....TGAGGTAGTAGGTTGTGTGGgT.....	35
.....TGAGGTAGTAGGTTGTGTGGaT.....	35
.....cTGAGGTAGTAGGTTGTGTGGTT.....	34
.....TGAGGTAGTAGGTTGTGTGGTTaaA.....	34
.....TGAGGTAGTAGGTTGTGTGGTTaC.....	32
.....TGAGGTAGTAGGTTGTGTGGaaa.....	31
.....TGAGGTAGTAGGgTGTGTGGTTT.....	30
.....TGAGGTAGTAGGTTGTGgGGTTT.....	30
.....TGAGGTAGTAGtTTGTGTGGTT.....	29
.....TGAGGTAGTAGGTTGTGTGGTTTtA.....	28
.....TGAGGgAGTAGGTTGTGTGGTTa.....	27
.....TGAGGTAGgAGGTTGTGTGGT.....	27
.....TGAGGTAGTAGGTTGTGTGGTc.....	25
.....TGAGGTAGTAGGTTGTGgGGT.....	24
.....TGAGGTAGTgGGTTGTGTGGTT.....	24
.....TGAGGTAGTAGGTTGTGtGT.....	24
.....TGAGGgAGTAGGTTGTGTGG.....	23
.....TGAGGTAGTAGGTTGTGTGGcT.....	23
.....TGAGGTAGTAGGTTGTG- GtT.....	23
.....TGAGGTAGTAGGtCGTGTGGTT.....	22
.....TGAGGTAGTAGGTTGTGTGtTTT.....	21
.....TGAGGcAGTAGGTTGTGTGGTTT.....	21
.....TGAGGTAGTAGGTTGTGTGGTaTT.....	21
.....TGAGGTAGgAGGTTGTGgGGTT.....	20
.....CTATACAACCTACTGCCTTCct.....	20
.....TGAGGTAGTAGtTTGTGTGGTTT.....	20
.....TGAGGTAGTAGGTTtGTGTGGTT.....	20
.....TGAGGTgGTAGGTTGTGTGGTT.....	19
.....TGAGGTAGTAGGTTGtTTGGTTT.....	19
.....TGAGGTAGTAGGTTGTtTGGT.....	19
.....TGAGGTAGTAGGTTGTGtTGGTT.....	18
.....TGAGGTAGTAGGTTGgGTGGT.....	18
.....TGAGGTAGTAGGTTGTGTGGTAc.....	18
.....TGAGGcAGTAGGTTGTGTGGT.....	18
.....TGAGGTAGTAGGTTGTGTGGTaTa.....	17
.....TGAGGTAGTAGGTTGTGtT.....	17
.....TGAGGTAGTAGGTTGcGTGGT.....	17
.....TGAGGTAGTAGGcTGTGTGGT.....	17
.....TGAGGTAGTAGGTTGTGTGGcTT.....	17
.....TGAGGTAGTAGGTTGTGTGaa.....	17
.....TGgGGTAGTAGGTTGTGTGGTT.....	17
.....TGAGGTAGTAGGtgGTGTGGTT.....	16
.....cGAGGTAGTAGGTTGTGTGGTT.....	16
.....TGAGGTAGTAGGTTGTGTGGTTaat.....	16
.....TGAGGTAtTAGGTTGTGTGGTT.....	16
.....TGcGGTAGTAGGTTGTGTGGTT.....	15
.....TGAGGTAGcAGGTTGTGTGGTT.....	15
.....TGAGGTAGTAGgTGTGTGGT.....	15

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CTGAGGTAGTAGGTTGTGTGTTTT	15
...TGAGGTAGTAGGTTGTcTGTTTT	14
...TGAGGTAGTAGGTTGTGTGTTaTt	14
...TGAGGgAGgAGGTTGTGTGTTTT	14
...TGAGGTAGTAGGTTGTGTGgaaT	14
...TGAGGTAGTAGGTTGaGTGTTTT	14
...TGAGGTAGTAGGTTGTGTGgag	14
...aGAGGTAGTAGGTTGcGTGTTTT	13
...TGAGGaAGTAGGTTGTGTGTTTT	13
...TGAGGgAGTAGGTTGTGTGgT	13
...TGAGGTgGTAGGTTGTGTGTTTT	13
...TGAGGTAGTAGGTTGTaTGTTTaC	13
...TGAGGTAGTgGGTTGTGTGTTTT	12
...TGAGGTAGTAGGTTGTGTGTTTTg	12
...TGAGGTAGTAGGTTGTGgGTTTa	12
...TGAGGTAGgAGGTTGTGTGTTTa	11
...gGAGGTAGTAGGTTGTGTGTTTT	11
...TGAGGTAGTcGGTTGTGTGTTTT	11
...tTGAGGTAGTAGGTTGTGTGTT	11
...TGAGGTAGTAGGTTGTcTGTT	11
...TGAGGTAGTAGGTTtTGTT	11
...TGAGGTAGgAGGTTGTGTtGTT	11
...TtAGGTAGTAGGTTGTGTGTT	11
...TGAGGTAGTAGGTTGTGTGgc	11
...TGAGGTAGTAGGTTGgGTGTTa	11
...TGAGGTAGTAGGTTGTGa	11
...TGAGGTAGTAtGTTGTGTGTTTT	11
...TaAGGTAGTAGGTTGTGTGTTTT	10
...TGAGGTAGTAGGTTGTGTGaaa	10
...TGAGGTAGTAGGgTGTGTGTTa	10
...TGAGGTAGTAGGTTGTGgT	10
...TGAGGTAGTAGGtgGTGTGTTTT	10
...TGAGGTAGTAGGTTGTGTGTTcT	10
...TGAGGgAGTAGGgTGTGTGTTTT	10
...TGAGGTAGTAGGcTGTGTGTTTT	10
...TGAGGTAGTAGGTTGTGcGTTa	10
...TGAGGTAGTAGGTTGT-TGTTTT	10
...TGAGGTAGTAGGTTaTGTGTTTT	10
...TGAGGTAGTAGGaTGTGTGTTTT	10
...TGAGGqAGTAGGTTGTGTGTTTTt	10

mmu-let-7c(mmu-let-7c-1)

TGTTGTGCATCCGGGTTGAGGTAGTAGGTTGTATGGTTTAGAGTTACACCCTGGGAGTTAACTGTACAACCTTCTAGCTTTCCTTGGAGCACACT
 .(((((((.(((((((..(((.((((.(((((((((((((((((..((.(..(.....).).)))))))))(((((((.)))))).).)))))))). (-43.30)

*****TGAGGTAGTAGGTTGTATGGTT*****	37686*
.....TGAGGTAGTAGGTTGTATGGTT.....	10612
.....TGAGGTAGTAGGTTGTATGGT.....	4359
.....TGAGGTAGTAGGTTGTATGGTTT.....	2148
.....TGAGGTAGTAGGTTGTATGG.....	171
.....TGAGGTAGTAGGTTGTAT.....	96
.....TGAGGTAGTAGGTTGTATG.....	159
.....TGAGGTAGTAGGTTGT.....	44
.....GAGGTAGTAGGTTGTATGGTT.....	108
.....TGAGGTAGTAGGTTGTAT.....	50
.....TGAGGTAGTAGGTTGTATGGTTA.....	107
.....TGAGGTAGTAGGTT.....	20
.....TGAGGTAGTAGGT.....	14
.....TGAGGTAGTAGGTTG.....	11
.....GAGGTAGTAGGTTGTATGGTTT.....	14
.....TTGAGGTAGTAGGTTGTATGGT.....	25
.....GAGGTAGTAGGTTGTATGGT.....	12
.....AGGTAGTAGGTTGTATGGTT.....	7
.....GGTAGTAGGTTGTATGGTT.....	5

.....TGAGGTAGTAGGTTGTATGGTTa.....	7896
.....TGAGGTAGTAGGTTGTATGGTa.....	5010
.....TGAGGTAGTAGGTTGTATGGTaA.....	1171
.....TGAGGTAGTAGGTTGTATGGa.....	872
.....TGAGGTAGTAGGTTGTATGGTaT.....	513
.....TGAGGTAGTAGGTTGTATGGTTaA.....	449
.....TGAGGTAGTAGGTTGTATGGTTa.....	421

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.....TGAGGTAGTAGGTTGTATGGaa.....	284
.....TGAGGgAGTAGGTTGTATGGTT.....	246
.....TGAGGTAGgAGGTTGTATGGTT.....	195
.....TGAGGTAGTAGGTTGTATGGTg.....	166
.....TGAGGTAGTAGGTTGTATGa.....	123
.....TGAGGTAGTAGGTTGgATGGTT.....	101
.....TGAGGTAGTAGGTTGTATGGgT.....	100
.....TGAGGTAGTAGGTTGTATGGTg.....	87
.....TGAGGTAGTAGGgTGTATGGTT.....	81
.....TGAGGTAGTAGGTTGTAcGGTT.....	76
.....TGAGGTAGTAGGTTGcATGGTT.....	71
.....TGAGGgAGTAGGTTGTATGGT.....	66
.....TGAGGTAGTAGGcTGTATGGTT.....	61
.....TGAGGTAGTAGGTTGTATGGg.....	51
.....TGAGGcAGTAGGTTGTATGGTT.....	47
.....TGAGGTAGTAGGTTGTATGGTga.....	45
.....TGAGGTAGTAGGTTGTATGGTgT.....	40
.....TGAGGTAGTAGGTTGTATGGaaa.....	34
.....TgGGTAGTAGGTTGTATGGTT.....	33
.....TGAGGTAGTAGGTTGgATGGT.....	31
.....cTGAGGTAGTAGGTTGTATGGTT.....	29
.....TGAGGTAGgAGGTTGTATGGT.....	29
.....TGAGGTAGTAGGTTGTATGGcT.....	27
.....GAGGTAGTAGGTTGTATGGTTa.....	26
.....TGAGGgAGTAGGTTGTATGGTTa.....	25
.....TGAGGcAGTAGGTTGTATGGT.....	23
.....TGAGGTgTAGGTTGTATGGTT.....	23
.....TGAGGTAGTAGGTTGTATGGTaaA.....	23
.....TGAGGgAGTAGGTTGTATGGTTT.....	23
.....TGAGGTAGTAGGTTGTATGGTT-AG.....	22
.....TGAGGTAGTAGGTTtTATGGTT.....	22
.....TGAGGTAGTgGGTTGTATGGTT.....	22
.....TGAGGTAGTAGGTTGTATGGTc.....	21
.....TGAGGTAGTAGGTTGTATGGTTc.....	21
.....TGAGGTAGTAGtTGTATGGTT.....	20
.....TGAGGTAGTAGGTTGTATGGaT.....	20
.....TGAGGgAGTAGGTTGTATGGTa.....	20
.....TGAGGTAGTAGGTTcTATGGTT.....	19
.....TGAGGTAGcAGGTTGTATGGTT.....	19
.....TGAGGTAGgAGGTTGTATGGTTT.....	19
.....TGAGGTAGTAGGgTGTATGGT.....	18
.....TGAGGTAGTAGGTTGTATGGTTga.....	18
.....TT-AGGTAGTAGGTTGTATGGTT.....	18
.....TGAGGgAGTAGGTTGTATGGgT.....	18
.....TGAGGTAGTAGGcTGTATGGT.....	18
.....cGAGGTAGTAGGTTGTATGGTT.....	18
.....TGAGGTAGgAGGTTGTATGGTTa.....	18
.....TGAGGTAGTAGGtgGTATGGTT.....	17
.....TGAGGTAGTAGGTTGTATGGga.....	17
.....TGAGGgAGTAGGTTGTATGG.....	17
.....TGAGGTAGTAGGTTGTATGGc.....	17
.....TGAGGTAGTAGGTTGTATGGTTaAa.....	17
.....TGAGGTAGTAGGTTGTATGGTAc.....	16
.....TGAGGTAGTAGGTTGTATGGag.....	16
.....TGAGGTAGTAGGTTGTAgGGTT.....	15
.....TgcGGTAGTAGGTTGTATGGTT.....	15
.....TGAGGTAGTAGaTTGTATGGTT.....	14
.....TGAtGTAGTAGGTTGTATGGTT.....	14
.....TGAGGTAGTAGGTTGgATGGTTT.....	14
.....TGAGGTAGTAGGTTGTATGaa.....	14
.....TGAGGTAGTAGGgTGTATGGTTa.....	13
.....TGAGGaAGTAGGTTGTATGGTT.....	13
.....TGAGGTAGTAGGTTcTATGGT.....	13
.....TGAGGTAGTAGGTTaTATGGTT.....	13
.....TGAGGTAtAGGTTGTATGGTT.....	13
.....TGAGGTAGTAGGaTGTATGGTT.....	13
.....TGAGGTcGTAGGTTGTATGGTT.....	12
.....TGAGGTAGTAaGTTGTATGGTT.....	12
.....TGAGtTAGTAGGTTGTATGGTT.....	12
.....TGAGGTAGTAGGTTGTATGGTTTAA.....	12
.....TGAGGgAGTAGGgTGTATGGTT.....	12
.....TGAGGTAGTAtGTTGTATGGTT.....	11
.....TGAGGTAGTcGGTTGTATGGTT.....	11

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mmu-let-7d(mmu-let-7d)
AATGGGTTCCTAGGAAGAGGTAGTAGGTTGCATAGTTTTAGGGCAGAGATTTTGCCACAAGGAGTTAACTATACGACCTGCTGCCCTTTCCTTAGGGCCTTATT
(((((((.((((((.((((((((((((((.((((((..(((((((.)))))).)))))))))..)))))))))..))))))
(-49.82)
*****AGAGGTAGTAGGTTGCATAGTT*****
.....AGAGGTAGTAGGTTGCATAGTT.....
17723*
.....AGAGGTAGTAGGTTGCATAGT.....
2150
.....AGAGGTAGTAGGTTGCATAGTTT.....
1554
.....AGAGGTAGTAGGTTGCATAG.....
1110
.....CTATACGACCTGCTGCCCTTTC.....
620
.....AGAGGTAGTAGGTTGC.....
439
.....AGAGGTAGTAGGTTGCAT.....
399
.....AGAGGTAGTAGGTTGCATA.....
252
.....CTATACGACCTGCTGCCCTTTC.....
```

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110AGAGGTAGTAGGTTG.....

80AGAGGTAGTAGGTTGCA.....

70TATACGACCTGCTGCCTTTCT.....

55AGAGGTAGTAGGTTGCATAGTTTT.....

48AAGAGGTAGTAGGTTGCATAGTT.....

32AGAGGTAGTAGGTT.....

32AAGAGGTAGTAGGTTGCATAGT.....

27CTATACGACCTGCTGCCTTT.....

20AGAGGTAGTAGGT.....

13CTATACGACCTGCTGCCTT.....

11GAGGTAGTAGGTTGCATAGTT.....

11 -----

.....AGAGGTAGTAGGTTGCATAGTTa.....

733AGAGGTAGTAGGTTGCATAGTa.....

98AGAGGTAGTAGGTTGCATAa.....

94AGAGGTAGTAGGTTGCATt.....

89AGAGGTAGTAGGTTGCcTAGTT.....

76AGAGGTAGTAGGTTGCgTAGTT.....

66AGAGGgAGTAGGTTGCATAGTT.....

65CTATACGACCTGCTGCCTTTCa.....

60AGAGGTAGTAGGTTGCATAGTTg.....

55AGAGGTAGTAGGTTGCATgGTT.....

54AGAGGTAGTAGGgTGCATAGTT.....

41AGAGGTAGTAGGTTGCATAGa.....

41AGAGGTAGTAGGTTGCATtA.....

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.....TGAGGTAGGAGGTTGTATA.....	201
.....TGAGGTAGGAGGTTGTAT.....	84
.....TGAGGTAGGAGG.....	46
.....TGAGGTAGGAGGTTGT.....	40
.....TGAGGTAGGAGGTTGTATAGTTGA.....	26
.....CTATACGGCCTCCTAGCTTCC.....	16
.....TGAGGTAGGAGGTTG.....	12
.....TGAGGTAGGAGGTTGTATAGTTa.....	746
.....TGAGGTAGGAGGTTGTATAa.....	183
.....TGAGGTAGGAGGTTGTATAGTTgt.....	105
.....TGAGGTAGGAGGTTGTATAGTa.....	101
.....TGAGGTAGGAGGTTGTATAGa.....	82
.....TGAGGTAGGAGGTTGTATAGTTaA.....	50
.....TGAGGTAGGAGGTTGTATt.....	49
.....TGAGGTAGGAGGTTGTATAGTaa.....	48
.....TGAGGTAGGAGGTTGTAA.....	46
.....TGAGGTAGGAGGTTGTATAt.....	41
.....TGAGGTAGGAGGTTGTATAGTaT.....	37
.....TGAGGTAGGAGGTTGTATAaa.....	35
.....TGAGGTAGGAGGgTGTATAGTT.....	22
.....TGAGGgAGGAGGTTGTATAGTT.....	20
.....TGAGGTAGGAGaTTGTATAGTT.....	18
.....TGAGGTAGGAGGTTGTAAa.....	18
.....TGAGGTAGGAGGTTGTgTAGTT.....	17
.....TGAGGTAGGAGGTTGTATtA.....	15
.....TGAGGTAGGAGGTTGTATtt.....	14
.....TGAGGTAGGAGGTTGTATAGaa.....	14
.....TGAGGTAGGAGGTTGTAcAGTT.....	14
.....TGAGGTAGGAGGTTGTAAaAa.....	13
.....TGAGGTAGGAGGTTGgATAGTT.....	13
.....TGAGGTAGGAGGTTGTATAGTTc.....	11
.....TGAGGTAGGAGGTTGTATAGTg.....	10
.....TGAGGcAGGAGGTTGTATAGTT.....	10
.....TGAGGTAGGAGGcTGTATAGTT.....	10

$$\text{mmu-let-7f}(\text{mmu-let-7f-1})$$

ATCAGAGTGAGGTAGTAGATTGTAAGTTGTGGGGTAGTGATTTTACCCTGTTTAGGAGATAACTATACAATCATTTGCCTTCCTTGAG
(((((((.....)))))))). (-44..40)

*****TGAGGTTAGTAGATTGTATAGTT*****	9228*
.....TGAGGTTAGTAGATTGTATAGTT.....	1818
.....TGAGGTTAGTAGATTGTATAGT.....	408
.....TGAGGTTAGTAGATTGTATAG.....	165
.....TGAGGTTAGTAGATTGTAT.....	93
.....TGAGGTTAGTAGATTGTATAGTTG.....	117
.....TGAGGTTAGTAGATTGTA.....	33
.....TGAGGTTAGTAGA.....	24
.....TGAGGTTAGTAGATTGT.....	22
.....TGAGGTTAGTAGATTGTATAGTT.....	6
.....TGAGGTTAGTAGAT.....	6
.....TGAGGTTAGTAGATTG.....	5

.....TGAGGTAGTAGATTGTATAGTTa.....	1138
.....TGAGGTAGTAGATTGTATAGTa.....	78
.....TGAGGgAGTAGATTGTATAGTT.....	56
.....TGAGGTAGTAGATTGTATAGa.....	35
.....TGAGGTAGTAGATTGTATAa.....	29
.....TGAGGTAGTAGATTGTATAGTaa.....	26
.....TGAGGTAGTAGATTGTATAtTT.....	25
.....TGAGGTAGTAGATTGTgTAGTT.....	19
.....TGAGGTAGTAGATTGTAA.....	16
.....TGAGGTAGTAGATTGTATAGTTaT.....	14
.....TGAGGTAGTAGATTGTATAGgt.....	13
.....TGAGGTAGTAGATTGTATAGTg.....	12
.....TGAGGTAGTAGATTGgATAGTT.....	12
.....TGAGGTAGTAGATTGTATt.....	12
.....TGAGGTAGTAGATTGtcTAGTT.....	11

$$\text{mmu-let-7f}(\text{mmu-let-7f-2})$$

TGTGGGATGAGGTAGTAGATTGTATAGTTTTAGGGTCATACCCCATCTTGGAGATAACTATACAGTCTACTGTCTTTCCCACG

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.(((((((.(.((((((((((((((((((...((....)).((((....))))))))))))))))))))).)))))))). (-40.70)

mmu-let-7i(mmu-let-7i)

CTGGCTGAGGTAGTAGTTTGTGCTGTTGGTCGGTGTTGACATTGCCCGCTGTGGAGATAACTGC CAA GCTACTGCCTTGCTAG

(((((.((((((((((((((((((.(((((. ((((.))))))).))) .)))) .)))))).)))) . (-42..10)

*****TGAGGTAGTAGTTTGTGCTGTT*****

.....TGAGGTAGTAGTTTGTGCTGTTt.....	4978
.....TGAGGTAGTAGTTTGTGCTGTTa.....	1763
.....TGAGGTAGTAGTTTGTGCTGTTtt.....	186
.....TGAGGTAGTAGTTTGTGCTGa.....	119
.....TGAGGTAGTAGTTTGTGCTGTTaa.....	105
.....TGAGGTAGTAGTTTGTGCTGTa.....	98
.....TGAGGTAGTAGTTTGTGCTGTaa.....	97
.....TGAGGTAGTAGgTTTGTGCTGTT.....	56
.....TGAGGTAGTAGTTTGTGCTGTTat.....	54
.....TGAGGTAGTAGTTTGTGCTGTaT.....	44
.....TGAGGTAGTAGTTTGTGCTGaa.....	30
.....TGAGGTAGTAGTTTGTGCTGTTta.....	29
.....TGAGGgAGTAGTTTGTGCTGT.....	22
.....TGAGGgAGTAGTTTGTGCTGTT.....	21
.....TGAGGTAGTAGTTTGTGCTt.....	20
.....TGAGGTAGTAGTTTGTGCTtt.....	20
.....TGAGGTAGTAGgTTTGTGCTGT.....	18
.....TGAGGTAGTAGTTTGTGCTtt.....	17
.....TGAGGTAGTAGTTTGTGtTGTT.....	16
.....TGAGGgAGTAGTTTGTGCTGTTt.....	14
.....TGAGGTAGTAGgTTTGTGCTGTTt.....	13
.....TGAGGTAGgAGTTTGTGCTGTT.....	12
.....TGAGGTAGTAGTTTGTtCTGTT.....	10

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mmu-mir-1(mmu-mir-1-2)
TCAGAGCACATCTCTTTATGTACCCATATGAACATTTCAGTGCTATGGAATGTAAGAAGTATGTTTTG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))) (-25..30)
*****TGAATGTAAGAAGTATGTAT*****
.....TGAATGTAAGAAGTATGTAT..... 613*
.....TGAATGTAAGAAGTATGT..... 89
.....TGAATGTAAGAAGTATGTA..... 51
.....TGAATGTAAGAAG..... 8
.....TGAATGTAAGAAGTATGTATT..... 7
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Supplement	Sequence	Count
1	TACAggACTGTGATAACTGAAt	30
2	TACAGTACTGgGATAACTGA	27
3	GTACAGTACTGTGtTAAGTGA	27
4	GTACAGTACTGTGATAACTtA	26
5	GTACAGTACTGTGATAACTGAg	26
6	TACAGgACTGTGATAACTGA	25
7	TACAGTACTGgGATAACTGAAt	24
8	GTACAGTACTGTGcTAAGTGA	23
9	GTACAGTACTGTGgTAAGTGA	21
10	TACAGTACTGTGATAACTGc	20
11	TACAGTACTGTGATAACTGcAt	20
12	GTACAGTACTGTGATAACTGAaaa	20
13	TACAGTACTGTGcTAAGTGAAt	18
14	GTACAggACTGTGATAACTGA	18
15	TACAGTACTGTGATAACTGAtA	18
16	TACAggACTGTGATAACTGAA	18
17	GTACAGTACTGTGATAACTGtA	16
18	GTACAGTACTGTGATAACTaA	15
19	TACAGTACTGTGATAACTGg	15
20	TACAGTACTGTGcTAAGTGA	15
21	GTACAGTACTGTGATAACTGg	14
22	GTACAGTACTGTGATAACTa	14
23	TACAGTACTGTGtTAAGTGA	14
24	TACAGTACTGgGATAACTGAA	14
25	TACAGTACTGTGATAACTGtAt	13
26	GG-ACAGTACTGTGATAACTGA	12
27	TACAGTACTGTGATAACTGAg	12
28	GTACAGTACTGTGATAAtTGA	12
29	GTACAGTACTGTGATAACgGA	12
30	TACAGTACTGTGATAACTGtA	11
31	GTACAGTACTGTtATAACTGA	11
32	TACAtTACTGTGATAACTGA	11
33	TACAGTACTGTGATAACTGAaCa	11
34	GTACAGTACTGgGATAACTGA	11
35	TACAggACTGTGATAACTGAAG	10
36	GTACAGTACTGTGATAcCTGA	10
37	GTACAGTACTGTtATAACTGAA	10
38	GTACAGTACTGcGATAACTGA	10
39	TACAgcACTGTGATAACTGA	10
40	TACAGTACTGTGtTAAGTGAAt	10

mmu-mir-101b(mmu-mir-101b)

ATCTGAGACTGAACTGCCCTTTTTTCGGTTATCATGGTACCGATGCTGTAGCTCTGAAAGGTACAGTACTGTGATAGCTGAAGAATGGCGGTGCCATC

.....((.(((((((.((((((((((((((((.(.....(((((((.(.(.....)).).))))))))).....)).).

(-39.70)

*****TACAGTACTGTGATAGCTGAA*****

TACAGTACTGTGATAGCTGAA	3109
TACAGTACTGTGATAGCTGAAG	2508
GTACAGTACTGTGATAGCTGA	2231
TACAGTACTGTGATAGCTGA	1445
GTACAGTACTGTGATAGCTGAA	1202*
TACAGTACTGTGATAGCTG	514
GTACAGTACTGTGATAGCTG	177
TACAGTACTGTGATAGCTGAAGA	168
GTACAGTACTGTGATAGCT	148
TACAGTACTGTGATAGCT	128
ACAGTACTGTGATAGCTGAAG	100
ACAGTACTGTGATAGCTGA	52
TACAGTACTGTGATAGCTGAAGAA	44
TACAGTACTGTGATAGCT	33
ACAGTACTGTGATAGCTGAA	31
ACAGTACTGTGATAGCTGAAGA	28
TACAGTACTGTGA	13
TACAGTACTGTG	9
GTACAGTACTGTGATA	9
GTACAGTACTGTGATAGC	15
GTACAGTACTGTG	6
TACAGTACTGTGATA	6
GTACAGTACTGTGA	5
GTACAGTACTGTGAT	5
TACAGTACTGTGAT	5

Supplemental Figure S3

.....TACAGTACTGTGATAGCTGAAGt.....	1060
.....TACAGTACTGTGATAGCTGAAt.....	612
.....TACAGTACTGTGATAGCTGAaa.....	445
.....GTACAGTACTGTGATAGCTGAAa.....	272
.....ACAGTACTGTGATAGCTGAAGt.....	207
.....GTACAGTACTGTGATAGCTGAt.....	169
.....TACAGTACTGTGATAGCTGt.....	162
.....GTACAGTACTGTGATAGCTGAAt.....	132
.....GTACAGTACTGTGATAGCTGt.....	115
.....TACAGTACTGTGATAGCTGAt.....	55
.....TACAGTACTGTGATAGCTGAt.....	52
.....GTACAGTACTGTGATAGCTGAaaA.....	51
.....TACAGTACTGTGATAGCTGAaaA.....	35
.....CAGTACTGTGATAGCTGAAGt.....	25
.....ACAGTACTGTGATAGCTGAAt.....	17
.....TACAGTACTGTGATAGCTGAAGt.....	15
.....ACAGTACTGTGATAGCTGAaa.....	15
.....TACAGTACTGTGATAGCTGttt.....	13
.....ACAGTACTGTGATAGCTGAAtt.....	13
.....ACAGTACTGTGATAGCTGAAAt.....	12
.....GTACAGTACTGTGATAGCTGAt.....	10
.....TACAGTACTGTGATAGCTGcAG.....	10
.....TACAGTACTGTGATAGCTGtAG.....	10

mmu-mir-103(mmu-mir-103-1)

TTCTTACTGCCCTCGGCTTCTTTACAGTGCCTGCTTGTTCATATGGATCAAGCAGCATTGTACAGGGCTATGAAGGCATTGAGAC
 .(((((((.(((.(((((((.(((.(((((((((((((((.(((.(.).).)))))))))))))).)))))).).)).)).)).). (-36.00)

*****AGCAGCATTGTACAGGGCTATGA*****	8408
.....AGCAGCATTGTACAGGGCTAT.....	5876*
.....AGCAGCATTGTACAGGGCTATGA.....	1627
.....AGCAGCATTGTACAGGGCTATG.....	514
.....AGCAGCATTGTACAGGGCTA.....	75
.....AGCAGCATTGTACAGGGCTATGAA.....	59
.....CAGCATTGTACAGGGCTATGA.....	35
.....AGCAGCATTGTACAGGGCT.....	21
.....CAGCATTGTACAGGGCTATG.....	9
.....AGCAGCATTGTAC.....	7
.....AGCAGCATTGTACAGG.....	6
.....AGCAGCATTGTACAGGGC.....	6
.....CAGCATTGTACAGGGCTAT.....	4
.....AGCAGCATTGTACAGG.....	

AGCAGCATTGTACAGGGCTATgt	1503
AGCAGCATTGTACAGGGCTATt	1415
AGCAGCATTGTACAGGGCTATa	1123
AGCAGCATTGTACAGGGCTATgAt	460
AGCAGCATTGTACAGGGCTAa	439
AGCAGCATTGTACAGGGCTATat	205
AGCAGCATTGTACAGGGCTATtt	195
AGCAGCATTGTACAGGGCTATAa	191
AGCAGCATTGTACAGGGCTATtA	146
AGCAGCATTGTACAGGGCTt	127
AGCAGCATTGTACAGGGCTcT	105
AGCAGCATTGTACAGGGCTtT	104
AGCAGCATTGTACcGGGCTAT	72
AGCAGCATTGTACAGGGCTATGc	64
AGCAGCATTGTACAGGGCTATGtt	54
AGCAGCATTGTACAGGGCgAT	46
AGCAGCATTGTACAGGGCTATGg	45
AGCAGCATTGTACAGGGCTAaT	36
AGCAGCATTGTACAGGGCTAaa	28
AGCAGCATTGTACAGGGCTgT	28
AGCAGCATTGTACAGGGCTATGtA	27
AGCAGCATTGTACAGGGgTAT	25
AGCAGCATTGTACAGGGaTAT	25
AGCAGCATTGTACAGGGCTAg	24
AGCAGCATTGTACAtGGCTAT	24
AGCAGCATTGTACAGGgtTAT	23
AGCAGCATTGTACAGGGCTgTGA	21
AGCAGCATTGTACAGGGCTAc	19
AGCAGCATTGTACTGGGCTAT	19

Supplemental Figure S3

.....AGCAGCATTGTACAGGGCTcTGA.....	19
.....AGCAGCATTGTACAGGGCTtTGA.....	18
.....AGCAGCATTGTACAGtGCTAT.....	17
.....AGCAGCATTGTACAGGGCgATGA.....	17
.....AGCAGCATTGTACAGGGCTtTt.....	17
.....AGCAGCATTGTACAGGGCTATtTt.....	17
.....AGCAGCATTGgACAGGGCTAT.....	16
.....AGCAGCATTGTACAGGGCTATGAg.....	16
.....AGCAGCATTGTACgGGGCTAT.....	14
.....AGCAGCATTGTACAGGGCTcTG.....	14
.....AGCAGCATTGTACAGGGCTtA.....	13
.....cAGCAGCATTGTACAGGGCTAT.....	13
.....AGCAGCATTGTAAaAGGGCTAT.....	11
.....AGCAGCATTGTACAGGGCTATGAtt.....	10
.....AGCAGCATTGTACAGGGaTATGA.....	10
.....AGCAGCATTGTACcGGGCTATGA.....	10
.....AGCAGCATTGTACAGGGCTATGtTt.....	10
.....AGCAGCATTGTACAGGGCTcTt.....	10
.....AGCAGCATTGTACAGGGCTATtAt.....	10

mmu-mir-103(mmu-mir-103-2)

*****AGCAGCATTGTACAGGGCTATGA*****	
.....AGCAGCATTGTACAGGGCTAT.....	8408
.....AGCAGCATTGTACAGGGCTATGA.....	5876*
.....AGCAGCATTGTACAGGGCTATG.....	1627
.....AGCAGCATTGTACAGGGCTA.....	514
.....AGCAGCATTGTACAGGGCTATGAAA.....	224
.....AGCAGCATTGTACAGGGCTATGAA.....	75
.....CAGCATTGTACAGGGCTATGA.....	59
.....AGCAGCATTGTACAGGGCT.....	35
.....CAGCATTGTACAGGGCTATG.....	21
.....AGCAGCATTGTAC.....	9
.....AGCAGCATTGTACAGGG.....	7
.....AGCAGCATTGTACAGGGC.....	6
.....CAGCATTGTACAGGGCTAT.....	6
.....AGCAGCATTGTACAGG.....	4

mmu-mir-105(mmu-mir-105)

TGCATTTTAGCCAAGTGCTCAGATGCTTGTGGTGGCTGCTTATGCCACCAAGAATGCTTGAGCATGTGCTATGGTACTTAC
(((.....(((((((((.....((((.....((((.....)))))).).....)))))).)).... (-28..40)
*****CCAAAGTGCTCAGATGCTTGTGGT*****

mmu-mir-106a(mmu-mir-106a)

```

.....aGAGTTCTACaG..... 21
.....caGAGTTCTACaG..... 11

```

mmu-mir-106b(mmu-mir-106b)

CTTGCTGGGACTAAAGTGTGCAGTGCAGATAGTGGTCCTCTCTGTGCTACCGCACTGTGGGTACTTGTCTGCCAGCAGG
(((((((..(((((.....(((..(.....).)))))).))))))..).))))))) (-43.60)

```
*****TAAAGTGCTGACAGTGCAGAT*****
.....TAAAGTGCTGACAGTGCAGATA.....281
.....TAAAGTGCTGACAGTGCAGAT.....159*
.....CCGCACTGTGGGTACTTGCTGC.....150
.....CCGCACTGTGGGTACTTGCT.....29
.....CCGCACTGTGGGTACTTGCTG.....25
.....TAAAGTGCTGACAGTGCAGA.....25
.....CCGCACTGTGGGTACTTGCT.....13
.....TAAAGTGCTGACAGTGCAG.....10
```

.....TAAAGTGCTGACAGTGCAGATT..... 45
.....TAAAGTGCTGACAGTGCAGATAT..... 35

Supplemental Figure S3

```

.....CCGCACTGTGGGTACTTGCTGt..... 33
.....CCGCACTGTGGGTACTTGCTGCaT..... 27
.....TAAAGTGCTGACAGTGCAGATAa..... 25
.....CCGCACTGTGGGTACTTGCTGa..... 23

```

mmu-mir-107(mmu-mir-107)

```

TTCTCTGTGCTTTTACAGTCTTTTACAGTGTTCGCTTGTGGCATGGAGTTCAAGCAGCATTGTACAGGGCTATCAAAGCACAGAGAGC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AGCAGCATTGTACAGGGCTATCA***** (-41.10)
.....AGCAGCATTGTACAGGGCTAT..... 8408
.....AGCAGCATTGTACAGGGCTATCA..... 5901*
.....AGCAGCATTGTACAGGGCTATC..... 4940
.....AGCAGCATTGTACAGGGCTA..... 514
.....AGCAGCATTGTACAGGGCT..... 35
.....AGCAGCATTGTACAGGGCTATCAA..... 37
.....AGCAGCATTGTAC..... 9
.....AGCAGCATTGTACAGGG..... 7
.....AGCAGCATTGTACAGGGC..... 6
.....CAGCATTGTACAGGGCTAT..... 6
.....AGCAGCATTGTACAGG..... 4
.....AGCAGCATTGTACAGGGCTATCt..... 917
.....AGCAGCATTGTACAGGGCTATCat..... 105
.....AGCAGCATTGTACAGGGCTATCg..... 66
.....AGCAGCATTGTACcGGGCTATC..... 26
.....AGCAGCATTGTACAGGGCTATCtt..... 22
.....AGCAGCATTGTACAGGGCTATCc..... 17
.....AGCAGCATTGTACAGGGCTcTC..... 17
.....AGCAGCATTGTACAGGGCTcTCA..... 13
.....AGCAGCATTGTACcGGGCTATCA..... 13
.....AGCAGCATTGTACAGGGCgATCA..... 12
.....AGCAGCATTGTACAGGGCTtTCA..... 10

```

mmu-mir-10a(mmu-mir-10a)

```

GACCTGTCTGTCTTCTGTATATACCCTGTAGATCCGAATTTGTGTAAGGAATTTTGTGGTCACAAATTCGTATCTAGGGGAATATGTAGTTGACATAAACTCC
GCTCA
....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
..... (-32.39)
*****TACCCTGTAGATCCGAATTTGTG*****
*****
.....TACCCTGTAGATCCGAATTTGT.....
..... 896
.....TACCCTGTAGATCCGAATTTGTG.....
..... 63*
.....ACCCTGTAGATCCGAATTTGT.....
..... 58
.....TACCCTGTAGATCCGAATTTG.....
..... 48
.....TACCCTGTAGATCCGAAT.....
..... 36
.....ACCCTGTAGATCCGAATTTGTG.....
..... 23
.....ATACCCTGTAGATCCGAATTTGT.....
..... 14
.....TACCCTGTAGATCCGAATTT.....
..... 13
.....TACCCTGTAGATCCGAA.....
..... 11
.....TACCCTGTAGATCCGAATT.....

```

Supplemental Figure S3

[illegible]

Supplemental Figure S3

```

GATGCTGCCTTGAGTC
((.((((((...)))))).))..(((((((((.((((((.(((..((((((((..((...))...)))))).))..))..)))))).))..
))...)))))))). (-49.80)
*****TCAGCTGAGGTTCCCTCTGTC***

*****
-----

mmu-mir-1191(mmu-mir-1191)
TGAACCAAGCCTGGTCTACATAGCAACATCTAAGCCAGCCAGGGCTACATAGTGAGAACCTGCCTCAAAAGCAAACAGCAGTCTTACTATGTAGCCCTAGATGG
CCTAGAACTCCCTAT
(((((((((.((((((.((((((.((((((.(((..((((((((..((...))...)))))).))..))..)))))).))..))..
))...)))))))). (-47.16)
*****CAGTCTTACTATGTAGCCCTA****

*****
-----

mmu-mir-1192(mmu-mir-1192)
CCTTCCAAACAGTAAAAACAAACAAACAAACAGACCAAAATTTGTCATTGTTGTTTCGATTGCTCTTTTGTGTTGTTGCTTTTGTGTTTGTAGACAGGGTCTGG
CTTGATAGCTCATGC
(((((((.((((((.((((((.((((((.(((..((((((((..((...))...)))))).))..))..)))))).))..))..
((...)))).... (-31.90)
*****AAACAAACAAACAGACCAAAATT*****

*****
-----

mmu-mir-1193(mmu-mir-1193)
CTGAAGGGACAATGATGCCACTGTTCTCGGGGTAGCTGTGTGGATGGTAGACCGGTGACGTACACTTCATTTATGCTGTAGGTCACCCGTTTTACTATCCACCA
ACACCCAGACCATCTG
.....(((((((.((((((.((((((.((((((.(((..((((((((..((...))...)))))).))..))..)))))).))..))..
))...)))).... (-45.30)
*****TAGGTCACCCGTTTTACTATC****

*****
-----

mmu-mir-1194(mmu-mir-1194)
ACACCTTCTGCTGGAGACAATATAAGGACATTGGAAGAAGGGAGTCTAGCTCTTGCTCCTTTGCCTGCTTGCTGCGTGAGAATGAGTAAGTCTAGATCCTTGA
CTTCATTACAGCTG
...(((((((.((((((.((((((.((((((.(((..((((((((..((...))...)))))).))..))..)))))).))..))..
))...)))).... (-41.40)
*****GAATGAGTAAGTCTAGATCCT****

*****
.....TAAGGACATTGGAAGAAGGGAG.....

..... 31
.....TAAGGACATTGGAAGAAGGGAGT.....

..... 28
.....TAAGGACATTGGAAGAAGGGAGTCT.....

..... 16
.....TAAGGACATTGGAAGAAGGGAGTC.....

..... 11
-----

```

Supplemental Figure S3

```
-----
mmu-mir-1195(mmu-mir-1195)
TAGAGGCAGGCAGATCTCTGTGAGTTCGAGGCCAGCCTGCTCAACAGAATGAGTTCTAGGGCAGCCAGGAACACACAGAGAAACCCTGTCTCAAGAAGGTAAAAA
GTAAAAAAAAAAAAAAAA
..((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
.....
..... (-46.80)
*****TGAGTTCGAGGCCAGCCTGCTCA*****
*****
.....
..AAAAAAAAAA..... 345
-----

mmu-mir-1196(mmu-mir-1196)
TGCTGGTCTTGAACCTCACAGAAATCTACCTGCCTCTGCCTTCCAAGTACTGGGCAGTGTGCCACCAAACCCTACATTTTTGCTGGGCTGGGGGTGAGGGTGGTT
TTTTTTTTTTTAAA
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))). (-30.20)
*****AAATCTACCTGCCTCTGCCT*****
*****
-----

mmu-mir-1197(mmu-mir-1197)
GTGAGCTGGAATCAGCCAGCGTTACCTCAAGGTATTTGAAGATGCGGTTGACCATGGTGTGTACGCTTTATTTATGACGTAGGACACATGGTCTACTTCTTCTCA
ATATCACATCTCGCC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))). (-37.20)
*****TAGGACACATGGTCTACTTCT*****
*****
-----

mmu-mir-1198(mmu-mir-1198)
TTTTTTTTCTTTTGTATTGTTGTTGTGACAGTTGTCTGTTATGTGTTCTGGCTGGCTTGGTACTCATGTGTAGCCCAAGCTAGCCTCTAACTCATGGCAGTC
ATCCTGTCTCAGTCTC
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))). (-45.70)
*****TATGTGTTCTGGCTGGCTTGG*****
*****
.....TATGTGTTCTGGCTGGCTTGG.....
..... 36*
-----

mmu-mir-1199(mmu-mir-1199)
AGCCTGCGCCGGAGCCGGGTCTGAGTCCCGGTCGCGCGGGCGAGGAATCATTGAGTTGCGCGTGCGGCCGGTGCTCAGTCGGCCCGGCTCCGGTACTCCGCTG
CCGCGCGCCCTGGA
..((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
....)))). (-72.50)
*****TCTGAGTCCCGGTGCGCGCG*****
*****
.....GGGGTaTGAAtTctCGGT.....
..... 106
-----
```

Supplemental Figure S3

```
mmu-mir-122(mmu-mir-122)
AGCTGTGGAGTGTGACAATGGTGTTTGTGTCCAAACCATCAAACGCCATTATCACACTAAATAGCT
(((((((.(((((((.((((((((((((((((((((((((((((((((((((((((((((((((((((
(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.((((
*****TGGAGTGTGACAATGGTGTTTG*****
....TGGAGTGTGACAATGGTGTTT..... 43
....TGGAGTGTGACAATGGTGTTTG..... 31*
....TGGAGTGTGACAATGGTGTTTGT..... 16
....TGGAGTGTGACAATGGTGTTT..... 10
```

```
mmu-mir-124(mmu-mir-124-1)
AGGCCTCTCTCTCCGTGTTACAGCGGACCTTGATTAAATGTCCATACAATTAAGGCACGCGGTGAATGCCAAGATGGGGCTG
.(((((((.(((.(((((((.(((.(((((((.....)))))))).)))..))))).))))).))))).))))) (-35.92)
*****TAAAGCACGCGGTGAATGCC*****
*****.TAAAGCACGCGGTGAATGCCA.....7
.....TAAAGCACGCGGTGAATGCCAA.....6
.....TAAAGCACGCGGTGAATGC.....4
```

```
mmu-mir-124(mmu-mir-124-2)
ATCAAGATCAGAGACTCTGCTCTCCGTGTTACAGCGGACCTTGATTTAATGTCATACAATTAAGGCACGCGGTGAATGCCAAGAGCGGAGCCTACGGCTGCAC
TGAA
.((((((.(((((((((((((((.(((((((.(((.(((((((.....)))))))).)))..)))))))).))...)))).))
)). (-45.70)
*****TAAGGCACGCGGTGAATGCC*****
```

```

***
.....TAAGGCACGCGGTGAATGCCA.....
..... 7 .....TAAGGCACGCGGTGAATGCCAA.....
..... 6 .....TAAGGCACGCGGTGAATGC.....
..... 4 -----
.....AgGAGtGGAGCCTgCGGCT.....
..... 52 .....CAgGAGtGGAGCCTgCGGCT.....
..... 26 .....AgGAGtGGAGCCTgCGGC.....
..... 20 .....CCAgGAGtGGAGCCTgCGGC.....
..... 13 .....GAGtGGAGCCTgCGGCT.....
..... 13 .....CAgGAGtGGAGCCTgCGGC.....
..... 12 .....aCCAgGAGtGGAGCCT.....
..... 11

```

```
mmu-mir-124(mmu-mir-124-3)
CTCTGCGTGTTACACGCGGACCTTGATTTAATGTCTATACAATTAAGGCACGCGGTGAATGCCAAGAG
(((((((((((((((.....)))))))))))))..)))..)))))))))..))) (-25.80)
*****TAAGGCACGCGGTGAATGCC*****
.....TAAGGCACGCGGTGAATGCCA..... 7
.....TAAGGCACGCGGTGAATGCCAA.... 6
.....TAAGGCACGCGGTGAATGC..... 4
```

mmu-mir-125a-3p(mmu-mir-125a)

.....TCCCTGAGACCCCTTTAACCTGT.....	2535
.....TCCCTGAGACCCCTTTAACCTGTG.....	392
.....TCCCTGAGACCCCTTTAACCTG.....	194
.....TCCCTGAGACCCCTTTAAC.....	152
.....TCCCTGAGACCCCTTTAACCT.....	146
.....TCCCTGAGACCCCTTTAACCTGTGA.....	114
.....TCCCTGAGACCCCTTTAACC.....	83
.....ACAGGTGAGGTTCTTGGGAG.....	24
.....TCCCTGAGACCCCTTTAA.....	17
.....ACAGGTGAGGTTCTTGGGAGC.....	16
.....TCCCTGAGACCC.....	6
.....TCCCTGAGACC.....	3
.....TCCCTGAGACCCCT.....	2
.....CCTGAGACCCCTTTAACCTGT.....	5
.....TCCCTGAGACCCCTTTA.....	5

mmu-mir-125a-5p(mmu-mir-125a)

.....TCCCTGAGACCCCTTTAACCTGT.....	2535
.....TCCCTGAGACCCCTTTAACCTGTG.....	392
.....TCCCTGAGACCCCTTTAACCTG.....	194
.....TCCCTGAGACCCCTTTAAC.....	152
.....TCCCTGAGACCCCTTTAACCT.....	146
.....TCCCTGAGACCCCTTTAACCTGTGA.....	114*
.....TCCCTGAGACCCCTTTAACCC.....	83
.....ACAGGTGAGGTTCTTGGGAG.....	24
.....TCCCTGAGACCCCTTTAA.....	17
.....ACAGGTGAGGTTCTTGGGAGC.....	16
.....TCCCTGAGACCC.....	6
.....TCCCTGAGACC.....	3
.....TCCCTGAGACCCCT.....	2
.....CCTGAGACCCCTTTAACCTGT.....	5
.....TCCCTGAGACCCCTTTA.....	5

.....TCCCTGAGACCCCTTTAACCTGTa.....	58
.....TCCCTGAGACCCCTTTAACCTGa.....	55
.....TCCCTGAGACCCCTTTAACCTGTgt.....	50
.....TCCCTGAGACCCCTTTAACCTGTaA.....	27
.....TCCCTGAGACCCCTTTAACCTGTt.....	18

mmu-mir-125b-3p(mmu-mir-125b-1)

TCCCTGAGACCCTAACTTGTGA	2788
TCCCTGAGACCCTAACTTGTG	1094
TCCCTGAGACCCTAACTTGT	797
TCCCTGAGACCCTAAC	56
CCCTGAGACCCTAACTTGTGA	33
TCCCTGAGACCCTAACTTGTGAT	48
TCCCTGAGACCCTAACTTG	30
ACGGGTTAGGCTCTTGGGAG	19
TCCCTGAGACCC	6
TCCCTGAGACCCTAACTT	10
CCTGAGACCCTAACTTGTGA	9
CCCTGAGACCCTAACTTGTG	7
ACGGGTTAGGCTCTTGGGAGC	7
TCCCTGAGACC	3
TCCCTGAGACCCT	2

Supplemental Figure S3

mmu-mir-125b-5p(mmu-mir-125b-1)
 TGCCTCCCTCAGTCCCTGAGACCCTAACTTGTGATGTTTACCGTTTAAATCCACGGGTTAGGCTCTTGGGAGCTG
 ((((((.....)))))).....) (-30.70)
 *****TCCCTGAGACCCTAACTTGTGA*****
TCCCTGAGACCCTAACTTGTGA..... 2788*
TCCCTGAGACCCTAACTTGTG..... 1094
TCCCTGAGACCCTAACTTGT..... 797
TCCCTGAGACCCTAAC..... 56
CCCTGAGACCCTAACTTGTGA..... 33
TCCCTGAGACCCTAACTTGTGAT..... 48
TCCCTGAGACCCTAACTTG..... 30
ACGGGTTAGGCTCTTGGGAG..... 19
TCCCTGAGACCC..... 6
TCCCTGAGACCCTAACTT..... 10
CCTGAGACCCTAACTTGTGA..... 9
CCCTGAGACCCTAACTTGTG..... 7
ACGGGTTAGGCTCTTGGGAGC..... 7
TCCCTGAGACC..... 3
TCCCTGAGACCCT..... 2
ACGGGTTAGGCTCTTGGGAGt... 39
ACGGGTTAGGCTCTTGGGAGa... 25

mmu-mir-125b-5p(mmu-mir-125b-2)
 GCCTAGTCCCTGAGACCCTAACTTGTGAGGTATTTAGTAACATCACAAGTCAGGTTCTTGGGACCTAGGC
 ((((((.....)))))).....) (-36.30)
 *****TCCCTGAGACCCTAACTTGTGA*****
TCCCTGAGACCCTAACTTGTGA..... 2788*
TCCCTGAGACCCTAACTTGTG..... 1094
TCCCTGAGACCCTAACTTGT..... 797
TCCCTGAGACCCTAAC..... 56
CCCTGAGACCCTAACTTGTGA..... 33
TCCCTGAGACCCTAACTTG..... 30
TCCCTGAGACCC..... 6
TCCCTGAGACCCTAACTT..... 10
CCTGAGACCCTAACTTGTGA..... 9
CCCTGAGACCCTAACTTGTG..... 7
ACAAGTCAGGTTCTTGGGA..... 17
ACAAGTCAGGTTCTTGGGAC..... 15
TCCCTGAGACC..... 3
TCCCTGAGACCCT..... 2
TCCCTGAGACCCTAACTTGTgt..... 406
TCCCTGAGACCCTAACTTGTGAa..... 405
TCCCTGAGACCCTAACTTGTGAa..... 163
TCCCTGAGACCCTAACTTGTGc..... 45
TCCCTGAGACCCTAACTTGTa..... 42
TCCCTGAGACCCTcACTTGTGA..... 25
CCCTGAGACCCTAACTTGTGAa..... 22
TCCCTGAGACCCTAACTTGTaA..... 18
TCCCTGAGACCCTAACTTGA..... 14
TCCCTGAGACCCTAACTTGTt..... 14
ACAAGTCAGGTTCTTGGGAa..... 12
CCCTGAGACCCTAACTTGTGAa..... 12
ACAAGTCAGGTTCTTGGGAt..... 10
TCCCTGAGACCCTAACTTGTcGA..... 10

mmu-mir-126-3p(mmu-mir-126)
 TGACAGCACATTATTACTTTTGGTACGCGCTGTGACACTTCAAACCTCGTACCGTGAGTAATAATGCGCGGTCA
 ((((((.....)))))).....) (-32.30)
 *****TCGTACCGTGAGTAATAATGCG*****
TCGTACCGTGAGTAATAATGCG..... 78*
CGTACCGTGAGTAATAATGCG..... 57
CATTATTACTTTTGGTACGC..... 45
CATTATTACTTTTGGTACGCG..... 40
TCGTACCGTGAGTAATAATGC..... 30
CGTACCGTGAGTAATAATGC..... 14
GTACCGTGAGTAATAATGC..... 5
GTACCGTGAGTAATAATGCG..... 5
TCGTACCGTGAGTAATAAT..... 5

Supplemental Figure S3

.....	TCACAGTGAACCGGTCTCTTT.....	554*
.....	TCACAGTGAACCGGTCTCTTTT.....	363
.....	TCACAGTGAACCGGTCTCTTTT.....	64
.....	TCACAGTGAACCGGTCTCTT.....	26
.....	TCACAGTGAACCGGTCTCT.....	7

.....	TCACAGTGAACCGGTCTCTTTa.....	122
.....	TCACAGTGAACCGGTCTCTTTTa.....	23
.....	TCACAGTGAACCGGTCTCTTTaT.....	22
.....	TCACAGTGAACCGGTCTCTTTaa.....	17
GTTaGGATTCGGcGC.....	TCACAGTGAACCGGTCTCTTa.....	14
.....	TCACAGTGAACCGGTCTCTTa.....	10

```
mmu-mir-128(mmu-mir-128-2)
CAGTGGGAAGGGGGCCGATGCACGTGAAGAGAGTGAGTAGCAGGTCTCACAGTGAACCGGTCTTTCCCTACTG
(((((((.((((((((((..((((((-.(---(.)))))))))...)))))))))...))))))))) (-37..20)
*****TCACAGTGAACCGGTCTCTTT*****
.....TCACAGTGAACCGGTCTCTTT.....554*
.....TCACAGTGAACCGGTCTCTT.....26
.....TCACAGTGAACCGGTCTCT.....7
```

```
mmu-mir-129-3p(mmu-mir-129-2)
TGCCTTTCGCGAATCTTTTTGCGGTCTGGGCTTGTGTACATAACTCAATAGCCGGAAGCCTTACCCCAAAAAGCATTCGCGGAGGGCG
.(((((((((((((((((((.(.((..((((((((((.....))))))...)))))).)).)))))))).))))))))).... (-48.20)
*****AAGCCCTTACCCCAAAAAGCAT*****
.....CTTTTTGCGGTCTGGGCTTGC..... 22
.....CTTTTTGCGGTCTGGGCTTG..... 21
.....AAGCCCTTACCCCAAAAAGCAT..... 10*
.....CTTTTTGCGGTCTGGGCTT..... 3
```

```

mmu-mir-129-5p(mmu-mir-129-1)
TGGATCTTTTTGCGGCTCTGGGCTTGCTGTTCTCTGCACAGTAGTCAGGAAGCCCTTACCCCAAAAAGTATCTA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CTTTTTGCGGCTCTGGGCTTGC*****
....CTTTTTGCGGCTCTGGGCTTGC.....22*
....CTTTTTGCGGCTCTGGGCTTGC.....21
....CTTTTTGCGGCTCTGGGCTT.....3
-----
....CTTTTTGCGGCTCTGGGCTTGt.....30
....CTTTTTGCGGCTCTGGGCTTGa.....20

```

```

mmu-mir-129-5p(mmu-mir-129-2)
TGCCTTTCGCGAATCTTTTTGCGGTCTGGGCTTGCTGTACATAACTCAATAGCCGGAAGCCTTACCCCAAAAAGCATTCGCGGAGGGCG
.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))) (-48.20)
*****CTTTTTCGCGGTCTGGGCTTG*****
.....CTTTTTCGCGGTCTGGGCTTG..... 22*
.....CTTTTTCGCGGTCTGGGCTTG..... 21
.....AAGCCCTTACCCCAAAAAGCAT..... 10
.....CTTTTTCGCGGTCTGGGCTT..... 3

```

```
mmu-mir-130a(mmu-mir-130a)
GAGCTCTTTTCACATTGTGCTACTGTCTAACGTGTACCAGCAGTGCATGTTAAAGGGGCATC
..(((((((.(((((((..(.((((((.)))))).)))).)))... (-22.50)
*****CAGTGCAATGTTAAAGGGGCAT*
.....CAGTGCAATGTTAAAGGGCAT.. 708*
.....CAGTGCAATGTTAAAGGGC... 59
.....CAGTGCAATGTTAAAGGGCA... 42
.....CAGTGCAATGTTAAAGGG.... 12
-----
.....CAGTGCAATGTTAAAGGGGCATt.. 70
.....CAGTGCAATGTTAAAGGGCAC.. 59
.....CAGTGCAATGTTAAAGGGGCATa.. 19
.....CAGTGCAATGTTAAAGGGCATta 12
```

[illegible]

Supplemental Figure S3

```

.....TGTGACTGGTTGACCAGAGGGGt..... 61
.....TGTGACTGGTTGACCAGAGGGt..... 25
.....TGTGACTGGTTGACCAGAGGGa..... 25
.....TGTGACTGGTTGACCAGAGa..... 25
.....TGTGACTGGTTGACCAGAGGGa..... 20
.....TGTGACTGGTTGACCAGAGGt..... 14
.....TGTGACTGGTTGACCAGAGGGat..... 14
.....TGTGACTGGTTGACCAGAGGa..... 14
.....TGTGACTGGTTGACCAGAGGGtT..... 12
.....TGTGACTGGTTGACCAGAGt..... 11
.....TGTGACTGGTTGACCAGAGGGaa..... 11
.....TGTGACTGGTTGACCAGAGGGGtt..... 11
.....TGTGACTGGTTGACCAGAGGGGat..... 10

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-----
mmu-mir-135a(mmu-mir-135a-1)
AGGCCTCACTGTTCTCTATGGCTTTTATTCCCTATGTGATTCTATTGCTCGCTCATATAGGGATTGGAGCCGTGGCGTACGGTGAGGATA
...((((((((((.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TATGGCTTTTATTCCCTATGTGA*****
.....TATGGCTTTTATTCCCTATGT..... 7
-----
.....TTGGAGgCGTGG-GT..... 372
.....TTGGAGgCGTGGg..... 15

```

```

-----
mmu-mir-135a(mmu-mir-135a-2)
AGATAAATTCACCTAGTGCTTTATGGCTTTTATTCCCTATGTGATCGTAATAAAGTCTCATGTAGGGATGGAAGCCATGAAATACATTGTGAAAATTCA
.(((...((((...(((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
(-34.80)
*****TATGGCTTTTATTCCCTATGTGA*****
.....TATGGCTTTTATTCCCTATGT..... 7
-----
.....TGTAGGGATGGAAGCCATGAat..... 19

```

```

-----
mmu-mir-135b(mmu-mir-135b)
CGCTCTGCTGTGGCCTATGGCTTTTATTCCCTATGTGATTGCTGCTCCGAACCTCATGTAGGGCTAAAAGCCATGGGCTACAGTGAGGGGCAAGCTCC
.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
(-49.70)
*****TATGGCTTTTATTCCCTATGTGA*****

```

```

-----
mmu-mir-136(mmu-mir-136)
GAGGACTCCATTGTGTTTGTATGATGATTCTTAAGCTCCATCATCGTCTCAAATGAGTCTTC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
****ACTCCATTGTTTGTATGATGG*****
.....CATCATCGTCTCAAATGAGTCT... 63
...ACTCCATTGTTTGTATGATGGA..... 44
...ACTCCATTGTTTGTATGAT..... 11
.....ATCATCGTCTCAAATGAGTCT... 11
-----
.....TcGcTgTGATGATGGATT..... 1186
.....TcGcTgTGATGATGGAT..... 772
.....TcGcTgTGATGATGGATTc..... 628
.....TTcGcTgTGATGATGGATT..... 76
.....TTcGcTgTGATGATGGAT..... 58
.....TTcGcTgTGATGATGGA..... 29
.....cGcTgTGATGATGGATTc..... 15
.....TTcGcTgTGATGATGGATTc..... 14
.....cGcTgTGATGATGGATT..... 13
.....aTGTTgTGATGATGG..... 11

```

```

-----
mmu-mir-137(mmu-mir-137)
CTTCGGTGACGGGTATTCTTGGGTGATAATACGGATTACGTTGTTATTGCTTAAGAATACGCGTAGTCGAGG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TTATTGCTTAAGAATACGCGTAG*****

```

mmu-mir-138(mmu-mir-138-1)

(-45 . 60)

*****AGCTGGTGTTGTGAATCAGGCCG*****

mmu-mir-138(mmu-mir-138-2)

CAGCTGGTGTGTGAATCAGGCCGACGAGCAGCGCATCCTCTTACCCGGCTATTTACGACACCAGGGTTG

*AGCTGGTGTTGTGAATCAGGCCG*****

..CAGtCCGACGAtC..	9975
..AGtCCGACGAtC..	3437
..taCAGtCCGACGA..	770
..TCAGtCCGACGAtC..	226
..aCAGtCCGACGA..	152
..taCAGGCCGACGAtC..	111
..cTCAGtCCGACGAtC..	104
..taCAGtCCGACGAGC..	99
..tTCAGtCCGACGAtC..	94
..ATCAGtCCGACGAtC..	56
..CAGtCCGACGACc..	48
..aCAGGCCGACGAtC..	37
..caCAGtCCGACGA..	24
..CAGtCCGACGAtCA..	23
..aCAGtCCGACGAtCA..	22
..CAGcCCGACGAtC..	19
..AGtCCGACGAtCA..	12
..aCAGtCCGACG..	12
..tcCAGtCCGACGA..	11
..AGtCCGACGACc..	10

mmu-mir-139-3p(mmu-mir-139)

GTGTATTCTACAGTGCACGTGTCTCCAGTGTGGCTCGGAGGCTGGAGACGCGGCCCTGTTGGAGTAAC

```
..(((((((((((.(.(.((((((((((((((.(.....).))))))))).. (-34.90)
```

*****TGGAGACGCGGCCCTGTTGGAG*****	16
.....TGGAGACGCGGCCCTGTTGGAGT.....	16
.....TCTACAGTGCACGTGTCTCCAGT.....	10
.....TGGAGACGCGGCCCTGTTGGA.....	8
.....TCTACAGTGCACGTGTCTCCA.....	7*
.....TGGAGACGCGGCCCTGTTGGAG.....	

mmu-mir-139-5p(mmu-mir-139)

GTGTATTCTACAGTGCACGTGTCTCCAGTGTGGCTCGGAGGCTGGAGACGCGGCCCTGTTGGAGTAAC

```

*****TCTACAGTGCACGTGTCTCCAG*****
.....TGGAGACGCGGCCCTGTTGGAAGT.... 16
.....TCTACAGTGCACGTGTCTCCAAGT..... 16
.....TGGAGACGCGGCCCTGTTGGA..... 10
.....TCTACAGTGCACGTGTCTCCA..... 8
.....TGGAGACGCGGCCCTGTTGGA..... 7

```

.....TTCTACAGTcCgACG..... 172
.....TTCTACAGTcCg..... 10

mmu-mir-140(mmu-mir-140)

CCTGCCAGTGGTTTTACCTATGGTAGGTTACGTCATGCTGTTCTACCACAGGGTAGAACCACGGACAGG

(((((.(((((((.(((((((..(((.....))))))))).)))))))).))))) (-39.30)

*****CAGTGGTTTTACCCTATGGTAG*****

.....	..ACCACAGGGTAGAACCACGGA.....	5097
.....	..ACCACAGGGTAGAACCACGGAC.....	2835
.....	..TACCACAGGGTAGAACCACGGA.....	2150
.....	..TACCACAGGGTAGAACCACGGAC.....	810
.....	..ACCACAGGGTAGAACCACGG.....	771
.....	..TACCACAGGGTAGAACCACGG.....	694
.....	..ACCACAGGGTAGAACCACGGACA.....	385

Supplemental Figure S3

Suppl. Seq. Length	Count
.....CCACAGGGTAGAACCACGGAC....	134
.....CCACAGGGTAGAACCACGGA....	88
.....TACCACAGGGTAGAACCACGGACA...	72
.....TACCACAGGGTAGAACCACG.....	67
.....CCACAGGGTAGAACCACGGACA...	40

.....ACCACAGGGTAGAACCACGGAt....	1201
.....ACCACAGGGTAGAACCACGGAA....	985
.....ACCACAGGGTAGAACCACGGAct...	566
.....TACCACAGGGTAGAACCACGGAA....	247
.....ACCACAGGGTAGAACCACGGAAa....	224
.....ACCACAGGGTAGAACCACGGAAt...	203
.....TACCACAGGGTAGAACCACGGAt....	168
.....ACCACAGGGTAGAACCACGGAtt...	147
.....ACCACAGGGTAGAACCACGGt....	105
.....ACCACAGGGTAGAACCACGGACAa....	96
.....TACCACAGGGTAGAACCACGGAct...	68
.....TACCACAGGGTAGAACCACGGt....	61
.....ACCACAGGGTAGAACCACGGAg....	61
.....ACCACAGGGTAGAACCACGGcC....	57
.....CCACAGGGTAGAACCACGGAt....	53
.....ACCACAGGGTAGAACCACGGAta....	48
.....CCACAGGGTAGAACCACGGAct....	44
.....TACCACAGGGTAGAACCACGGAAa....	40
.....CCACAGGGTAGAACCACGGAA....	40
.....ACCACAGGGTAGAACCACGGc....	38
.....ACCACAGGGTAGAACCcCGGA....	34
.....ACCACAGGGTAGAACCACGGtt....	29
.....TACCACAGGGTAGAACCACGGAAt....	28
.....ACCACAGGGTAGAACCACGGttt....	26
.....ACCACAGGGTAGAACCACGGAG-AG...	23
.....ACCACAGGGgAGAACCACGGAG....	22
.....TACCACAGGGTAGAACCACGGtt....	22
.....ACCACAGGGTAGAACCcCGGAC....	22
.....ACCACAGGGTAGAACCACGGtaA....	19
.....ACCACAGGGTAGAACCACGGAGc....	18
.....TACCACAGGGTAGAACCACGGc....	17
.....ACCACAGGGTAGAACCACGGAAaA....	16
.....ACCACAGGGTAGAACCACGGcCt....	15
.....ACCACAGGGTAGAACCACGGtA....	15
.....CCACAGGGTAGAACCACGGAAa....	14
.....ACCACAGGGgAGAACCACGGAG....	14
.....ACCACAGGGTAGAACCACGGAgA....	13
.....ACCACAGGGTAGAACCACGGAAAt....	13
.....ACCACAGGGTAGAACCACGGACAt....	13
.....ACCACAGGGTAGAACCACGGActt....	11
.....CCACAGGGTAGAACCACGGAtt....	11
.....ACCACAGGGTAGAACCACGGAAaAa....	11
.....TACCACAGGGTAGAACCACGgA....	11
.....TACCACAGGGTAGAACCACGGcC....	11
.....ACCACAGGGTAGAACCACGGtC....	10
.....TACCACAGGGgAGAACCACGGAG....	10
.....TACCACAGGGTAGAACCACGGACAa....	10
.....TACCACAGGGTAGAACCACGGAG....	10

```
mmu-mir-142-5p(mmu-mir-142)
ACCCATAAAGTAGAAAGCACTACTAACAGCACTGGAGGGTGTAGTGTTTCCTACTTTATGGATG
..(((((((((((.((((((((((..(..)..)..)))))))))).)))))))))... (-27.50)
***CATAAAGTAGAAAGCACTACT*****
.CCCATAAAGTAGAAAGCACT..... 17
.CCCATAAAGTAGAAAGCACTA..... 15
..CATAAAGTAGAAAGCACTA..... 6
..CATAAAGTAGAAAGCACTACT..... 5*
```

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Supplemental Figure S3

.....GGTGCAAGTGTGCATCTCTGGaT.....	39
.....TGAGATGAAGCAATGTAGCTC....	37
.....TGAGATGAAGCACTGcAGCT....	37
.....TGAGATGAAGCACTGTAGCTttt..	33
.....TGAGATGAAGCACTGgAGCT....	32
.....TGAGATGAAGCACTGTAtCTC....	32
.....GGTGCAAGTGTGCATCTCTGGTa.....	32
.....TGAGATGAAGCACTGTAGCTCtAt..	31
.....TGAGATGAAGCACTGTAGCTtA...	30
.....TGAGATGAAGCACTGTAtCT....	30
.....TGAGATGAAGCACTGTAGCag....	26
.....TGAGATGAAGCACTGTAGCT-AG..	24
.....GGTGCAAGTGTGCATCTCTGGTat.....	23
.....TGAGATGAAGCACTGTAGCTCAaa..	23
.....TGAGATGAAGCACTGTAGCTCg...	23
.....TGAGATGAAGCACTGTAGaTC....	22
.....TGAGATGAAGCACTGTAGCTCtc..	22
.....TGAGATGAAGtACTGTAGCTC....	21
.....TGAGATGAAGCACTGTAGCc....	21
.....TGAGATGAAtCACTGTAGCTC....	18
.....TGAGATGAAGCACTGTAGCaaA...	18
.....TGAGATGAAGCACTGTAGt.....	18
.....TGAGATGAAGCACTGTAGCcC....	18
.....GGTGCAAGTGTGCATCTCTGga.....	18
.....TGAGATGAAGCACTGTgGCTC....	18
.....TGAGATGAAGCAATGTAGCT....	18
.....GATGAAGCACTGTAGCTCAGGaa..	18
.....TGAGATGAAGCACTGTAGtTC....	17
.....TGAGATGAAGCACcGTAGCTC....	17
.....CTGAGATGAAGCACTGTAGCTa....	17
.....TGAGATGAAGCACTGTAGaT....	16
.....GGTGCAAGTGTGCATCTCTGGTtt.....	16
.....TGAGATGAAGCACTGTAGgTC....	15
.....TGAGATGAAGCACTGTAcCTC....	14
.....TGAGATGAAGCACTGTAGCT-AGa..	14
.....TGAGATGAAGCACT-TAGCTC....	14
.....GGTGCAAGTGTGCATCTCTGGTct.....	14
.....TGAGATGAAGCACTGTAGCTaC...	14
.....TGAGATGAAGCACTGTAGCaTt...	14
.....TGAGATGAAGCACTGgAGCTCt...	14
.....TggGATGAAGCACTGTAGCTC....	14
.....TGAGATGAAGCACTGcAGCTCt...	13
.....CTGAGATGAAGCACTGTAGCTCt...	13
.....TGAGATGAAGCACTGTAcCT....	13
.....TGAGgTGAAGCACTGTAGCTC....	13
.....TGAGATGAAGCACTGTcGCTC....	13
.....TggGATGAAGCACTGTAGCT....	13
.....TGAGATGAAGCACTGaAGCTC....	13
.....TGAGATGAAGCACTGTAGCgCt...	12
.....TGAGATGAAGCACTGTAGCTCAaaa..	12
.....TGAGATGAAGCACgGTAGCTC....	12
.....TGAGATGAAGCgCTGTAGCT....	12
.....TGAGATGAAGCACTGTcGCT....	12
.....TGAGATGAAGCACTGcAGC....	12
.....TGAGATGAAGCACTGTAAga....	12
.....gGAGATGAAGCACTGTAGCTC....	12
.....TGAGATGAAGCACcGTAGCT....	11
.....TGAGATGAAGCACTGTAGCTC....	11
.....TGAGATGAAGCACTGTAtCTCt...	11
.....TGAGATGAAGCACTGTAGCga....	11
.....TGAGgTGAAGCACTGTAGCT....	11
.....GGTGCAAGTGTGCATCTCTGGTaA.....	11
.....TGAGATGAAGCACTaTAGCTC....	11
.....TGAGATGAAGCACTGTAGCTCAaG..	10
.....TGAGATGAAGCACTGttGCTC....	10
.....GGTGCAAGTGTGCATCTCTGGaaA.....	10
.....TGAGATGAAGCACTGTAGtTct...	10
.....TGAGATGAAGCACTGTAAat....	10
.....cGAGATGAAGCACTGTAGCTC....	10
.....ATGAAGCACTGTAGCTCAGGaa..	10
.....TGAGATGAAGCACTcTAGCTC....	10
.....TGAGAgGAAGCACTGTAGCT....	10
.....TGAGATGAAGCACTtTAGCTCt...	10

Supplemental Figure S3

[illegible]

Supplemental Figure S3

.....CTAGACTGAGGCTCCTTGAGt.....	137
.....CTAGACTGAGGCTCCTTGAGGAaa...	134
.....CTAGACTGAGGCTCCTTGAGGtaa...	98
.....CTAGACTGAGGCTCCTTGAGaa...	92
.....CTAGACTGAGGCTCCTTGAGgttt...	85
.....CTAGACTGAGGCTCCTTGAGGAtt...	85
.....CTAGACTGAGGCTCCTTGAGGAct...	63
.....CTAGACTGAGGCTCCTTGAGGAg...	45
.....CTAGACTGAGGCTCCTTGAGaaAa...	39
.....CTAGACTGAGGCTCCTTGAGGc....	35
.....TCGAGGAGCTCACAGTCTAGTAa....	34
.....AGACTGAGGCTCCTTGAGGAct...	24
.....CTAGACTGAGGCTCCTTGAGGt-AG...	22
.....AtaAGACTGAGGCT.....	20
.....CTAGACTGAGGCTCCTTGAGgtta...	19
.....CTAGACTGAGGCTCCTTGAGG-CA...	18
.....CTAGACTGAGGCTCCTTGAGGAgT...	17
.....CTAGACTGAGGCTCCTTGAGat....	17
.....taAGACTGAGGCTt.....	17
.....CTAGACTGAGGCTCCTTGAGGA-AG...	16
.....CTAGACTGAGGCTCCTTGaa.....	15
.....CTAGACTGAGGCTCCTTGAGGAaaAa...	14
.....CTAGACTGAGGCTCCTTGAGGga...	12
.....CTAGACTGAGGCTCCTTGAGtA....	12
.....CTAGACTGAGGCTCCTTGAGtAa....	12
.....CTAGACTGAGGCTCCTTGAGtAt....	12
.....CTAGACTGAGGCTCCTTGAGaAt....	11
.....aAGACTGAGGCTt.....	11
.....CTAGACTGAGGCTCCTTGAGGAtA....	10

mmu-mir-152(mmu-mir-152)

CCGGGCCTAGGTTCTGTGATACTCCGACTCGGGCTCTGGAGCAGTCAGTGCATGACAGAACTTGGGCCCCGG

*****TCAGTGCATGACAGAACTTGG*****

.....TCAGTGCATGACAGAACTTGG.....	23340*
.....TCAGTGCATGACAGAACTTGGG.....	553
.....TCAGTGCATGACAGAACTTG.....	296
.....AGTGCATGACAGAACTTGG.....	158
.....TCAGTGCATGACAGAACT.....	147
.....TCAGTGCATGACAGAACTT.....	89
.....TCAGTGCATGACAGAAC.....	47
.....TCAGTGCATGACAGAA.....	19
.....GTCAGTGCATGACAGAACTTGG.....	12

.....	TCAGTGCATGACAGAACTTGGt.....	8863
.....	TCAGTGCATGACAGAACTTGGa.....	1895
.....	TCAGTGCATGACAGAACTTGGtt.....	444
.....	TCAGTGCATGACAGAACTTGGgt.....	243
.....	TCAGTGCATGACAGAACTTGGta.....	203
.....	TCAGTGCATGACAGAACTTGT.....	114
.....	TCAGTGCATGACAGAACTTGGaa.....	109
.....	TCAGTGCATGACAGAACTTGGGa.....	71
.....	AGTGCATGACAGAACTTGGt.....	63
.....	TCAGTGCATGACAGcACTTGG.....	55
.....	TCAGTGCATGACAGAACTTGa.....	55
.....	TCAGTGCATGACAGAACTTGGttt.....	50
.....	TCAGgGCATGACAGAACTTGG.....	48
.....tcTACAgTCCGACTC.....	TCAGTGCATGACAGgACTTGG.....	39
.....TACAgTCCGACg.....	TCAGTGCATGACAGAACTTGGc.....	37
.....GTtcTACAgTCCGACTC.....	TCAGgGCATGACAGAACTTGGt.....	36
.....cTACAgTCCGACTC.....	TCAGTGCATGACAGAAtTTGG.....	35
.....TACAgTCCGACTC.....	TCAGTGCATGACAGAACTTGGtaa.....	34
.....	TCAGTGCATGACAGAAcTGG.....	33
.....	TCAGTGCATGACAGAACTTGGt.....	32
.....	TCAGTGCATGACAGAACTTGG.....	31
.....	TCAGTGCATGACAGtACTTGG.....	30
.....	TCAGTGCATGACAGAACTTGGat.....	29
.....	TCAGTGCATGACAGAACTTGGaaa.....	28
.....	TCAGTGCATGACAGcACTTGGt.....	23

Supplemental Figure S3

```

.....TCAGTGCATGACAGAACTTGGGtt... 22
.....TACAgTCCGACgC..... 21
.....TCAGTGCATGACgGAACCTTGG..... 19
.....AGTGCATGACAGAACTTGGa..... 17
.....cTACAgTCCGAC..... 17
.....TCAGTGCATGACAGAACTTGGtat... 16
.....TCAGTGCATGACAGAcCTTGG..... 16
.....GTCAGTGCATGACAGAACTTGGa..... 15
.....TCAGcGCATGACAGAACTTGG..... 15
.....TCAGTGCATGACAGgACTTGGt..... 15
.....TCAGTGCATGACAGAACTgGG..... 15
.....gCAGTGCATGACAGAACTTGG..... 15
.....TCAGTGCATGACcGAACCTTGG..... 14
.....TCAGTGCATGACAGAAtTGGt..... 12
.....ACAgTCCGACTC..... 10
.....TCAGTGCATGACAGtACTTGGt..... 10
.....TCAGTGCATtACAGAACTTGG..... 10

```

mmu-mir-153(mmu-mir-153)

```

CGGTGTCATTTTTGTGACGTTGCAGCTAGTAATATGAGCCCAGTTGCATAGTCACAAAAGTGATCATTG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAGGTTATCCGTGTTGCCTTCG*****TTGCATAGTCACAAAAGTGATC*****

```

mmu-mir-154(mmu-mir-154)

```

GAAGATAGGTTATCCGTGTTGCCTTCGCTTTATTCGTGACGAATCATACACGGTTGACCTATTTTT
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAGGTTATCCGTGTTGCCTTCG*****
....TAGGTTATCCGTGTTGCCTTCG..... 19*

```

mmu-mir-155(mmu-mir-155)

```

CTGTTAATGCTAATTGTGATAGGGGTTTTGGCCTCTGACTGACTCCTACCTGTTAGCATTAAACAG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
***TTAATGCTAATTGTGATAGGGGT*****

```

mmu-mir-15a(mmu-mir-15a)

```

CCCTTGGAGTAAAGTAGCAGCACATAATGGTTTGTGGATGTTGAAAAGGTGCAGGCCATACTGTGCTGCCTCAAAATACAAGGA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAGCAGCACATAATGGTTTGTG*****
.....TAGCAGCACATAATGGTTTGT..... 26
.....TAGCAGCACATAATGGTTTGT..... 18*
.....gACAcAAgGGTTTGT..... 13

```

mmu-mir-15b(mmu-mir-15b)

```

CTGTAGCAGCACATCATGGTTTACATACTACAGTCAAGATGCGAATCATTATTTGCTGCTCTAG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
***TAGCAGCACATCATGGTTTACA*****
...TAGCAGCACATCATGGTTTACA..... 15*

```

mmu-mir-16(mmu-mir-16-1)

```

ATGTCAGCGGTGCCTTAGCAGCACGTAATATTGGCGTTAAGATTCTGAAATTACCTCCAGTATTGACTGTGCTGCTGAAGTAAGGTTGGCAA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAGCAGCACGTAATATTGGCG*****
.....TAGCAGCACGTAATATTGGCG..... 35*
.....CCAGTATTGACTGTGCTGCTGA..... 48
.....CCAGTATTGACTGTGCTGCTGAA..... 45
.....TAGCAGCACGTAATATTGGCGT..... 16
.....CCAGTATTGACTGTGCTGCTG..... 14
.....TAGCAGCACGTAATATTGGC..... 5

```

mmu-mir-16(mmu-mir-16-2)

Supplemental Figure S3

AACATTCAACGCTGCTG	32
AACATTCAACGCTGTCGG	29
AACATTCAACGCTG	21
ACCACCGACCGTTTGACTGTAT	25
AACATTCAACGCTGCTG	11
ACATTCAACGCTGTCGGTGAGTTT	8
ACATTCAACGCTGTCGGTGAGTT	8
ACATTCAACGCTGTCGGTGAGT	7

AACATTCAACGCTGTCGGTa	203
AACATTCAACGCTGTCGGTGAGa	121
AACATTCAACGCTGTCGGTAa	118
AACATTCAACGCTGTCGGTgt	117
AACATTCAACGCTGTCGGTt	76
AACATTCAACGCTGTCGGTGgGTTT	55
AACATTCAACGCTGTCGGTGgGTT	43
AACATTCAACGCTGTCGGTGg	37
AACATTCAACGCTGTCGGTGAA	33
AACATTCAACGCTGTCGGTat	29
AACATTCAACGCTGTCGGTGAg	29
AACATTCAACGCTGTCGGgGA	28
AACATTCAACGCTGTCGGTGcGTTT	25
AACATTCAACGCTGTCGga	25
AACATTCAACGCTGTCGGTGgGT	20
ACCACCGACCGTTTGACTGTAt	20
AACATTCAACGCTGTCGGTGAGTa	19
AACATTCAACGCTGTCGGTGgtGT	18
AACATTCAACGCTGTCGGTGAGgTT	18
AACATTCAACGCTGTCGGTGAGTTa	17
AACATTCAACGCTGTCGGgGAGT	17
AACATTCAACGCTGTCGGTGcGT	17
AACATTCAACGCTGTCGGgGAGTTT	15
AACATTCAACGCTGTCGGgGAGTT	15
AACATTCAACGCTGTCGga	14
ACCACCGACCGTTTGACTGTACT	14
AACATTCAACGCTGTCGGTGtGTT	14
AACATTCAACGCTGTCGg	14
AACATTCAACGCTGTCGGTGAGgT	14
AACATTCAACGCTGTCGGTGc	13
AACATTCAACGCTGTCGGg	13
AACATTCAACGCTGTCGGgGAG	13
AACATTCAACGCTGTCGGTGgG	13
AACATTCAACGCTGTCGGTtt	13
AACATTCAACGCTGTCGGTGtGTTT	12
AACATTCAACGCTGTCGGTGat	12
AACATTCAACGCTGTCGGcGAGT	11
AACATTCAACGCTGTCGGTta	10
AACATTCAACGCTGTCGGcGA	10
AACATTCAACGCTGTCGGTGcGTT	10
AACATTCAACGCTGTCGGTGAGc	10
AACATTCAACGCTGTCGGcG	10

mmu-mir-181b(mmu-mir-181b-1)	
AGGTCACAATCAACATTCATTGCTGTCGGTGGGTTGAACTGTGTAGAAAAGCTCACTGAACAATGAATGCAACTGTGGCC	
((	

Supplemental Figure S3

.....AACATTCATTGCTGTCGGTGGGg.....	45
.....AACATTCATTGCTGTCGGTGGGta.....	37
.....AACATTCATTGCTGTCGGTGGGgT.....	28
.....AACATTCATTGCTGTCGGTt.....	25
.....AACATTCATTGCTGTCGGTGa.....	23
.....AACATTCATTGCTGTCGGTa.....	19
.....AACATTCATTGCTGTCGGTGga.....	18
.....AACATTCATTGCTGTCGGa.....	15
.....AACATTCATTGCTGTCGGTGgt.....	12
.....AACATTCATTGCTGTCGGTGGGaT.....	12

mmu-mir-181b(mmu-mir-181b-2)	
TTGATGGCTGCACTCAACATTCATTGCTGTCGGTGGGTTTGAATGTCAACCAACTACTGATCAATGAATGCAAACCTGCGGGCCAAAAA	
.....((((((((.....((((((((.....((((((((.....))))))))))))))))))))))))))))))))))))))..... (-33.50)	
*****AACATTCATTGCTGTCGGTGGGT*****	
.....AACATTCATTGCTGTCGGTGGGTT.....	493
.....AACATTCATTGCTGTCGGTGGGT.....	162*
.....AACATTCATTGCTGTCGGTG.....	149
.....AACATTCATTGCTGTCGGT.....	142
.....AACATTCATTGCTGTCGGTGG.....	133
.....AACATTCATTGCTGTCGGTGGG.....	119
.....AACATTCATTGCTGTCGGTGGGTTT.....	64
.....AACATTCATTGCTGTCGGTGGGTT.....	13
.....AACATTCATTGCTGTCGG.....	12
.....AACATTCATTGCTGT.....	11
.....AACATTCATTGCTG.....	10
.....AACATTCATTGCTGTCGGTGGGT.....	10
.....AACATTCATTGCTGTC.....	10

.....AACATTCATTGtTGTGTCGGTGGGTTT.....	75
.....AACATTCATTGCTGTCGGTGGGTaT.....	32

mmu-mir-181c(mmu-mir-181c)	
GCCAAGGGTTTGGGGGAACATTC AACCTGTCGGTGAGTTTGGGCAGCTCAGACAAACCATCGACCGTTGAGTGGAACCCCGAGGCCTGGA	
.....((((((((.....((((((((.....((((((((.....))))))))))))))))))))))))))))))))))))))..... (-45.30)	
*****AACATTC AACCTGTCGGTGAGT*****	
.....AACATTC AACCTGTCGGTGAGTTT.....	343
.....AACATTC AACCTGTCGGTGAGTT.....	241
.....AACATTC AACCTGTCGGTGAGT.....	77
.....AACATTC AACCTGTCGGTGAGT.....	76*
.....AACATTC AACCTGTCGGTGAG.....	59
.....AACATTC AACCTGTCGGTGAG.....	28
.....AACATTC AACCTGTCGGTGAG.....	18
.....AACATTC AACCTGTCGGTGAG.....	14
.....AACATTC AACCTGTCGGTGA.....	13
.....AACATTC AACCTGTCGGTGA.....	6

.....AACATTC AACCTGTCGGTGAGTTt.....	36
.....AACATTC AACCTGTCGGTGAGTTt.....	27
.....AACATTC AACCTGTCGGTGAGTTTt.....	19

mmu-mir-181d(mmu-mir-181d)	
ACAATTAACATTCATTGTTGTCGGTGGGTTGTGAGGAGGCAGCCAGACCCACCGGGGATGAATGTCACTGT	
.....((((((((.....((((((((.....((((((((.....))))))))))))))))))))))))))))))))))))))..... (-27.60)	
*****AACATTCATTGTTGTCGGTGGGT*****	
.....AACATTCATTGTTGTCGGTGGGT.....	1161*
.....AACATTCATTGTTGTCGGTGGGT.....	974
.....AACATTCATTGTTGTCGGTGGG.....	579
.....AACATTCATTGTTGTCGGTGG.....	484
.....AACATTCATTGTTGTCGGTG.....	129
.....AACATTCATTGTTGTCGGT.....	26

.....AACATTCATTGTTGTCGGTGGGa.....	222
.....AACATTCATTGTTGTCGGTGGGTa.....	98
.....AACATTCATTGTTGTCGGTGGGTaT.....	56
.....AACATTCATTGTTGTCGGTGT.....	32
.....AACATTCATTGTTGTCGGTGGa.....	32
.....AACATTCATTGTTGTCGGTGGt.....	29
.....AACATTCATTGTTGTCGGTGGGaT.....	29
.....AACATTCATTGTTGTCGGTGGGaa.....	27

Supplemental Figure S3

.....AACATTCATTGTTGTCGGTGGGg.....27
AACATTCATTGTTGTCGGTGa.....15
AACATTCATTGTTGTCGGTGGGTTa.....14
CCACCGGGGGATGAATGTCat.....14
AACATTCATTGTTGTCGGTGGGgT.....12
AACATTCATTGTTGTCGGTGgaa.....11

```

mmu-mir-182(mmu-mir-182)
ACCAATTTTGGCAATGGTAGAACTCACACCGGTAAAGGTAATGGGACCCGGTGGTTCTAGACTTGCCAACTATGGT
(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.(((((((.
*****TTTGGCAATGGTAGAACTCACACCG*****
-----
.....ATGGTAGAgCTCgC..... 14

```

```

mmu-mir-185(mmu-mir-185)
AGGGATTGGAGAGAAAGGCAGTTCCTGATGGTCCCTCCCAGGGGCTGGCTTTCCTCTGGTCCTT
(((((((.(((.((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TGGAGAGAAAGGCAGTTCCTGA***** (-38.00)
*****TGGAGAGAAAGGCAGTTCCTGA..... 1576*
.....TGGAGAGAAAGGCAGTTCCTGAT..... 131
.....TGGAGAGAAAGGCAGTTCCTG..... 53
.....TGGAGAGAAAGGCAGTTCCT..... 34
.....AGGGGCTGGCTTTCCTCTGGT..... 29
.....TGGAGAGAAAGGCAGTTC..... 11
-----
.....TGGAGAGAAAGGCAGTTCCTGAa..... 144
.....TGGAGAGAAAGGCAGTTCCTGt..... 53
.....TGGAGAGAAAGGCAGTTCCTGc..... 15
.....TGGAGAGAAAGGCAGTTCCTGAa..... 12
.....TGGAGAGAAAGGCAGTTCCTGAaT..... 12
.....TGGAGAGAAAGGCAGTTCCTGAq..... 10

```

```
mmu-mir-186(mmu-mir-186)
ACTTTCCAAAGAATTCTCCTTTTGGGCTTTCTCATTTTATTTTAAGCCCTAAGGTGAATTTTTTGGGAAGT
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CAAGAATTCTCCTTTTGGGCT***** (-33..44)
.....CAAGAATTCTCCTTTTGGGCTT..... 276
.....CAAGAATTCTCCTTTTGGGCT..... 167*
.....CAAAGAATTCTCCTTTTGGGC..... 67
.....CAAAGAATTCTCCTTTTGGGCTTT..... 48
.....CAAGAATTCTCCTTTTGGG..... 46
.....AAAGAATTCTCCTTTTGGGCTT..... 26
.....CCAAGAATTCTCCTTTTGGG..... 19
.....CAAAGAATTCTCCTTTTGG..... 11
.....CCAAGAATTCTCCTTTTGGGCT..... 11
.....AAAGAATTCTCCTTTTGGGCT..... 10
-----
.....CAAAGAATTCTCCTTTTGGGCa..... 22
.....CAAAGAATTCTCCTTTTGGGCTaT..... 13
.....CAAAGAATTCTCCTTTTGGGCaT..... 11
```

mmu-mir-187(mmu-mir-187)
TCAGGCTACAACACAGGACCCGGGCGCTGCTCTGACCCCTCGTGTCTTGTGTTGCAGCCGG

[illegible]

Supplemental Figure S3

.....CAACGGAATCCCAAAAGCAGCTGta.....	23
.....CAACGGAATCCCAAAAGCAGCTaT.....	16
.....CAACGGAATCCCAAAAGCAGCTGc.....	10

[illegible]

```

mmu-mir-193(mmu-mir-193)
GAGAGCTGGGTCTTTGCGGGCAAGATGAGAGTGTCAGTTCAACTGGCCTACAAAGTCCCAGTCCCTC
(((((.....(((.....(((.....)))))).)))).)))))..))) (-32.00)
*****AACTGGCCTACAAAGTCCCAGT*****
.....AACTGGCCTACAAAGTCCCAGT..... 41*
.....TGGGTCTTTGCGGGCAAGATGA..... 26

```

```

mmu-mir-193b(mmu-mir-193b)
GGCCCAAGATCGGGGTTTTGAGGGCGAGATGAGTTGTGTTTTATCCAAGTGGCCACAAAGTCCCGCTTTTGGGGTCA
(((((((((((.(((.((((.(((.(.((.(.....).)).)).)).)).)).)).)).)).)).)).). (-36.00)
*****AAGTGGCCCAAAAGTCCCGCT*****
          CGGGGTTTTGAGGGCGAGATGA..... 58
          AAGTGGCCCAAAAGTCCCGCT..... 37*
-----
          TGAGgTTGTcTTTT..... 11

```

```
mmu-mir-194(mmu-mir-194-1)
ATCGGGTGTAAACAGCAACTCCATGTGGACTGTGCTCGGATTCAGTGAGCTGCTGTTACTTCTGAT
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))) ( -34.10)
*****TGTAACAGCAACTCCATGTGGA*****
.....TGTAACAGCAACTCCATGTGGA..... 5*
```

```

mmu-mir-194(mmu-mir-194-2)
GTGGGCTCCCACCCTCTGTACACGCAACTCCATGTGGAAGTGCCCACTGGTTCCAGTGGGGCTGCTGTTATCTGGGGTGCGCGCTAG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TGTAAACAGCAACTCCATGTGGA*****
.....TGTAAACAGCAACTCCATGTGGA..... 14
.....TGTAAACAGCAACTCCATGTGGA..... 5*

```

[illegible]

Supplemental Figure S3

```

.....CCCAGTGTTCAGACTACCTG..... 2
.....ACAGTAGTCTGCACATTGGTTAG... 1
-----
-----
mmu-mir-199a-3p(mmu-mir-199a-2)
TGGAAGCTTCAGGAGATCCTGCTCCGTCGCCCCAGTGTTCAGACTACCTGTTCAGGACAATGCCGTTGTACAGTAGTCTGCACATTGGTTAGACTGGGCAAGGGC
CAGCA
.....(((((((((.....ACAGTAGTCTGCACATTGGTTA*****
))))). (-43.40)
*****
*****
.....ACAGTAGTCTGCACATTGGTT.....
..... 4801
.....ACAGTAGTCTGCACATTGGTTA.....
..... 1537*
.....ACAGTAGTCTGCACATTGGT.....
..... 606
.....TACAGTAGTCTGCACATTGGTT.....
..... 281
.....CAGTAGTCTGCACATTGGTTA.....
..... 226
.....CAGTAGTCTGCACATTGGTT.....
..... 187
.....CCCAGTGTTCAGACTACCTGTT.....
..... 122
.....ACAGTAGTCTGCACATTGG.....
..... 71
.....TACAGTAGTCTGCACATTGGT.....
..... 56
.....TACAGTAGTCTGCACATTGGTTA.....
..... 37
.....CCCAGTGTTCAGACTACCTGT.....
..... 37
.....ACAGTAGTCTGC.....
..... 25
.....CAGTAGTCTGCACATTGGT.....
..... 18
.....CCCAGTGTTCAGACTACCTGTTT.....
..... 19
.....CCCAGTGTTCAGACTACCT.....
..... 13
.....ACAGTAGTCTGCACAT.....
..... 9
.....TACAGTAGTCTGCACATTGG.....
..... 8
.....ACAGTAGTCTGCA.....
..... 6
.....ACAGTAGTCTGCACATT.....
..... 5
.....TACAGTAGTCTGC.....

```

Supplemental Figure S3

```

..... 5
.....CAGTAGTCTGCACATTGG.....

..... 4
.....ACAGTAGTCTGCAC.....

..... 3
.....ACAGTAGTCTGCACA.....

..... 2
.....ACAGTAGTCTGCACATTG.....

..... 2
.....AGTAGTCTGCACATTGGTTA.....

..... 2
.....AGTAGTCTGCACATTGGTT.....

..... 2
.....CCCAGTGTTTCAGACTACC.....

..... 2
.....CCCAGTGTTTCAGACTACCTG.....

..... 2
.....ACAGTAGTCTGCACATTGGTTAG.....

..... 1
-----
-----
mmu-mir-199a-3p(mmu-mir-199b)
CCAGAGGATACCTCCACTCCGTCTACCCAGTGTTTAGACTACCTGTTCAGGACTCCCAAATTGTACAGTAGTCTGCACATTGGTTAGGCTGGGCTGGGTTAGACC
CTCGG
...((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))).. (-42.90)
*****ACAGTAGTCTGCACATTGGTTA*****
*****
.....ACAGTAGTCTGCACATTGGTT.....

..... 4801
.....ACAGTAGTCTGCACATTGGTTA.....

..... 1537*
.....ACAGTAGTCTGCACATTGGT.....

..... 606
.....TACAGTAGTCTGCACATTGGTT.....

..... 281
.....CAGTAGTCTGCACATTGGTTA.....

..... 226
.....CAGTAGTCTGCACATTGGTT.....

..... 187
.....ACAGTAGTCTGCACATTGG.....

..... 71
.....CCCAGTGTTTAGACTACCTGTT.....

..... 236
.....TACAGTAGTCTGCACATTGGT.....

..... 56
.....TACAGTAGTCTGCACATTGGTTA.....

..... 37
.....ACAGTAGTCTGC.....

```

Supplemental Figure S3

```

..... 25
.....CAGTAGTCTGCACATTGGT.....
..... 18
.....ACAGTAGTCTGCACAT.....
..... 9
.....TACAGTAGTCTGCACATTGG.....
..... 8
.....CCCAGTGTTTAGACTACCTGT.....
..... 29
.....ACAGTAGTCTGCA.....
..... 6
.....CCCAGTGTTTAGACTACCTGTTT.....
..... 20
.....ACAGTAGTCTGCACATT.....
..... 5
.....TACAGTAGTCTGC.....
..... 5
.....CAGTAGTCTGCACATTGG.....
..... 4
.....ACAGTAGTCTGCAC.....
..... 3
.....ACAGTAGTCTGCACA.....
..... 2
.....ACAGTAGTCTGCACATTG.....
..... 2
.....AGTAGTCTGCACATTGGTTA.....
..... 2
.....AGTAGTCTGCACATTGGTT.....
..... 2
.....ACAGTAGTCTGCACATTGGTTAG.....
..... 1
-----
.....CCCAGTGTTTAGACTACCTGTTa.....
..... 12
-----

```

```

mmu-mir-199a-5p(mmu-mir-199a-1)
GCCATCCCAGTGTTTCAGACTACCTGTTTCAGGAGGCTGGGACATGTACAGTAGTCTGCACATTGGTTAGGC
(((...(((((((...(((((((...))))))...))))))...))))))...))) (-28.21)
*****CCCAGTGTTTCAGACTACCTGTTT*****
.....ACAGTAGTCTGCACATTGGTT..... 4801
.....ACAGTAGTCTGCACATTGGTTA... 1537
.....ACAGTAGTCTGCACATTGGT..... 606
.....TACAGTAGTCTGCACATTGGTT..... 281
.....CAGTAGTCTGCACATTGGTTA... 226
.....CAGTAGTCTGCACATTGGTT..... 187
.....CCCAGTGTTTCAGACTACCTGTT..... 122
.....ACAGTAGTCTGCACATTGG..... 71
.....TACAGTAGTCTGCACATTGGT..... 56
.....TACAGTAGTCTGCACATTGGTTA... 37
.....CCCAGTGTTTCAGACTACCTGT..... 37
.....ACAGTAGTCTGC..... 25
.....CAGTAGTCTGCACATTGGT..... 18
.....CCCAGTGTTTCAGACTACCTGTTT..... 19*
.....CCCAGTGTTTCAGACTACCT..... 13
.....ACAGTAGTCTGCACAT..... 9

```

Supplemental Figure S3

.....TACAGTAGTCTGCACATTGG.....	8
.....ACAGTAGTCTGCA.....	6
.....ACAGTAGTCTGCACATT.....	5
.....TACAGTAGTCTGC.....	5
.....CAGTAGTCTGCACATTGG.....	4
.....ACAGTAGTCTGCAC.....	3
.....ACAGTAGTCTGCACA.....	2
.....ACAGTAGTCTGCACATTG.....	2
.....AGTAGTCTGCACATTGGTTA.....	2
.....AGTAGTCTGCACATTGGTT.....	2
.....CCCAGTGTTTCAGACTACC.....	2
.....CCCAGTGTTTCAGACTACCTG.....	2
.....ACAGTAGTCTGCACATTGGTTAG.....	1
.....ACAGTAGTCTGCACATTGGTTt.....	2770
.....ACAGTAGTCTGCACATTGGTTAa.....	575
.....ACAGTAGTCTGCACATTGGTTAt.....	347
.....ACAGTAGTCTGCACATTGGTTa.....	342
.....CAGTAGTCTGCACATTGGTTt.....	196
.....TACAGTAGTCTGCACATTGGTTt.....	191
.....ACAGTAGTCTGCACcTTGGTT.....	183
.....ACAGTAGTCTGCACATTGGTTg.....	131
.....CAGTAGTCTGCACATTGGTTAa.....	117
.....ACAGgAGTCTGCACATTGGTT.....	104
.....CAGTAGTCTGCACATTGGTTAt.....	98
.....ACAGTAGTCTGCACATTGGTAa.....	90
.....ACAGTAGTCTGCACATTGGgT.....	76
.....ACAGTAGTCTGCACATTGGTTtA.....	66
.....ACAGTAGTCTGCACATTGGTTt.....	60
.....ACAGTAGTCTGCACATTGGa.....	46
.....ACAGTAGTCTGccATTGGTT.....	45
.....CCCAGTGTTTCAGACTACCTGTTt.....	42
.....ACAGTAGTCTGCACgTTGGTT.....	36
.....ACAGgAGTCTGCACATTGGTTA.....	36
.....ACAGTAGTCTGCACtTTGGTT.....	32
.....TACAGTAGTCTGCACATTGGTa.....	31
.....CCCAGTGTTTCAGACTACCTGTTa.....	30
.....ACAGTAGTCTGCACcTTGGTTA.....	30
.....ACAGTAGTCTGcGATTGGTT.....	30
.....ACAGTAGTCTGCACATTgtTT.....	28
.....ACAGTAGTCTGCACATTGGTaT.....	27
.....ACAGTAGTCTGCACATTGa.....	27
.....ACAGTAGgCTGCACATTGGTT.....	21
.....ACAGTAGTCTGCACATTtGTT.....	19
.....ACAGTAGTCTGCACATTGgcT.....	19
.....ACAGTAGTCTGCAtATTGGTT.....	19
.....ACAGTAGTCTGCACgTTGGTTA.....	18
.....ACAGTAGTCTGCACATTGGTTc.....	17
.....ACAGgAGTCTGCACATTGGT.....	16
.....ACAGcAGTCTGCACATTGGTT.....	16
.....TACAGTAGTCTGCACATTGGTTAt.....	15
.....ACAGTAGTCTGCACATTgt.....	15
.....ACAGTAGTCTGCACcTTGGT.....	15
.....ACAGTAGTCTGctCATTGGTT.....	13
.....ACAGTAGTCTGCACATTGGTg.....	13
.....ACAGTaTCTGCACATTGGTT.....	13
.....CAGTAGTCTGCACATTGGTTt.....	13
.....TACAGTAGTCTGCACATTGGa.....	12
.....ACAGTAGTCTGCACATTGgg.....	12
.....TACAGTAGTCTGCACATTgtTT.....	12
.....ACAGTAGTCTGtACATTGGTT.....	12
.....CAGTAGTCTGCACATTGGTa.....	12
.....CAGTAGTCTGCACATTGGTTtA.....	12
.....ACAGTAGcCTGCACATTGGTT.....	12
.....ACAGTAGTCTGCACATTGGgTA.....	11
.....ACAGTAGTCTGCACtTTGGTTA.....	11
.....gCAGTAGTCTGCACATTGGTT.....	11
.....ACAGTAGTCTGccATTGGTTA.....	11
.....ACAGTAGTCTGCACATTgtT.....	11
.....ACAGTAGTCTtCACATTGGTT.....	11
.....TACAGTAGTCTGCACATTGGTaA.....	11
.....ACAGTAGTCTGCACAtcGGTT.....	10
.....ACAGTAGgCTGCACATTGGTTA.....	10

Supplemental Figure S3

```

.....ACAGTAGcCTGCACATTGGTTA... 10
.....CAGTAGTCTGCACATTGGTTg... 10
.....TACAGTAGTCTGCACATTGGTTAa... 10

-----
mmu-mir-199a-5p(mmu-mir-199a-2)
TGGAAGCTTCAGGAGATCCTGCTCCGTCGCCCCAGTGTTTCAGACTACCTGTTTCAGGACAATGCCGTTGTACAGTAGTCTGCACATTGGTTAGACTGGGCAAGGGC
CAGCA
.....((((.....((((((((((((((((.....((((((((((((((((((((.....((((.....)))))).....)))))).....)))))).....))))))
))))). (-43.40)
*****CCCAAGTGTTCAGACTACCTGTT*****
*****
.....ACAGTAGTCTGCACATTGGTT.....
..... 4801.....ACAGTAGTCTGCACATTGGTTA.....
..... 1537.....ACAGTAGTCTGCACATTGGT.....
..... 606.....TACAGTAGTCTGCACATTGGTT.....
..... 281.....CAGTAGTCTGCACATTGGTTA.....
..... 226.....CAGTAGTCTGCACATTGGTT.....
..... 187.....CCCAAGTGTTCAGACTACCTGTT.....
..... 122.....ACAGTAGTCTGCACATTGG.....
..... 71.....TACAGTAGTCTGCACATTGGT.....
..... 56.....TACAGTAGTCTGCACATTGGTTA.....
..... 37.....CCCAAGTGTTCAGACTACCTGT.....
..... 37.....ACAGTAGTCTGC.....
..... 25.....CAGTAGTCTGCACATTGGT.....
..... 18.....CCCAAGTGTTCAGACTACCTGTT.....
..... 19*.....CCCAAGTGTTCAGACTACCT.....
..... 13.....ACAGTAGTCTGCACAT.....
..... 9.....TACAGTAGTCTGCACATTGG.....
..... 8.....ACAGTAGTCTGCA.....
..... 6.....ACAGTAGTCTGCACATT.....
..... 5.....TACAGTAGTCTGC.....

```

Supplemental Figure S3

```

..... 5 ..... CAGTAGTCTGCACATTGG .....
..... 4 ..... ACAGTAGTCTGCAC .....
..... 3 ..... ACAGTAGTCTGCACA .....
..... 2 ..... ACAGTAGTCTGCACATTG .....
..... 2 ..... AGTAGTCTGCACATTGGTTA .....
..... 2 ..... AGTAGTCTGCACATTGGTT .....
..... 2 ..... CCCAGTGTTTCAGACTACC .....
..... 2 ..... CCCAGTGTTTCAGACTACCTG .....
..... 2 ..... ACAGTAGTCTGCACATTGGTTAG .....
..... 1

```

```
mmu-mir-199b(mmu-mir-199a-1)
GCCATCCCAGTGTTCAGACTACCTGTTCAGGAGGCTGGGACATGTACAGTAGTCTGCACATTGGTTAGGC
(((...(((((((.(((((((.(((((((...))))).))))).))))).))))).))))).))) (-28..21)
```

.....	ACAGTAGTCTGCACATTGGTTA	4801
.....	ACAGTAGTCTGCACATTGGTT	1537*
.....	ACAGTAGTCTGCACATTGGT	606
.....	TACAGTAGTCTGCACATTGGTT	281
.....	CAGTAGTCTGCACATTGGTTA	226
.....	CAGTAGTCTGCACATTGGTT	187
....CCCAGTGTTCAGACTACCTGTT		122
.....	ACAGTAGTCTGCACATTGG	71
.....	TACAGTAGTCTGCACATTGGT	56
.....	TACAGTAGTCTGCACATTGGTTA	37
....CCCAGTGTTCAGACTACCTGT		37
.....	ACAGTAGTCTGC	25
.....	CAGTAGTCTGCACATTGGT	18
....CCCAGTGTTCAGACTACCTGTTC		19
....CCCAGTGTTCAGACTACCT		13
.....	ACAGTAGTCTGCACAT	9
.....	TACAGTAGTCTGCACATTGG	8
.....	ACAGTAGTCTGCA	6
.....	ACAGTAGTCTGCACATT	5
.....	TACAGTAGTCTGC	5
.....	CAGTAGTCTGCACATTGG	4
.....	ACAGTAGTCTGCAC	3
.....	ACAGTAGTCTGCACA	2
.....	ACAGTAGTCTGCACATTG	2
.....	AGTAGTCTGCACATTGGTTA	2
.....	AGTAGTCTGCACATTGGTT	2
....CCCAGTGTTCAGACTACC		2
....CCCAGTGTTCAGACTACCTG		2
.....	ACAGTAGTCTGCACATTGGTTAG	1

mmu-mir-199b(mmu-mir-199a-2)
TGGAGCTTCAGGAGATCCTGCTCCGTCGCCCCAGTGTTACAGCTACCTGTTACGGACAATGCCGTTGTACAGTAGTCTGCACATTGGTTAGACTGGGCAAGGGC

CAGCA
(((.....(((.....(((((((((.(((.....(((((((((.(((((((((.(((.....((.....))).....)))))))))))).))))))))......)))).)))))))).))))))

Supplemental Figure S3

```

))))). (-43.40)
*****ACAGTAGTCTGCACATTGGTTA*****
*****
.....ACAGTAGTCTGCACATTGGTT.....
..... 4801
.....ACAGTAGTCTGCACATTGGTTA.....
..... 1537*
.....ACAGTAGTCTGCACATTGGT.....
..... 606
.....TACAGTAGTCTGCACATTGGTT.....
..... 281
.....CAGTAGTCTGCACATTGGTTA.....
..... 226
.....CAGTAGTCTGCACATTGGTT.....
..... 187
.....CCCAGTGTTTCAGACTACCTGTT.....
..... 122
.....ACAGTAGTCTGCACATTGG.....
..... 71
.....TACAGTAGTCTGCACATTGGT.....
..... 56
.....TACAGTAGTCTGCACATTGGTTA.....
..... 37
.....CCCAGTGTTTCAGACTACCTGT.....
..... 37
.....ACAGTAGTCTGC.....
..... 25
.....CAGTAGTCTGCACATTGGT.....
..... 18
.....CCCAGTGTTTCAGACTACCTGTTTC.....
..... 19
.....CCCAGTGTTTCAGACTACCT.....
..... 13
.....ACAGTAGTCTGCACAT.....
..... 9
.....TACAGTAGTCTGCACATTGG.....
..... 8
.....ACAGTAGTCTGCA.....
..... 6
.....ACAGTAGTCTGCACATT.....
..... 5
.....TACAGTAGTCTGC.....
..... 5
.....CAGTAGTCTGCACATTGG.....
..... 4
.....ACAGTAGTCTGCAC.....
..... 3
.....ACAGTAGTCTGCACA.....

```

Supplemental Figure S3

```

..... 2
.....ACAGTAGTCTGCACATTG.....

..... 2
.....AGTAGTCTGCACATTGGTTA.....

..... 2
.....AGTAGTCTGCACATTGGTT.....

..... 2
.....CCCAGTGTTTCAGACTACC.....

..... 2
.....CCCAGTGTTTCAGACTACCTG.....

..... 2
.....ACAGTAGTCTGCACATTGGTTAG.....

..... 1
-----
-----
mmu-mir-199b(mmu-mir-199b)
CCAGAGGATACCTCCACTCCGTCTACCCAGTGTTTAGACTACCTGTTTCAGGACTCCCAAATTGTACAGTAGTCTGCACATTGGTTAGGCTGGGCTGGGTTAGACC
CTCGG
...((((...((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))).. (-42.90)
*****ACAGTAGTCTGCACATTGGTTA*****

*****
.....ACAGTAGTCTGCACATTGGTT.....

..... 4801
.....ACAGTAGTCTGCACATTGGTTA.....

..... 1537*
.....ACAGTAGTCTGCACATTGGT.....

..... 606
.....TACAGTAGTCTGCACATTGGTT.....

..... 281
.....CAGTAGTCTGCACATTGGTTA.....

..... 226
.....CAGTAGTCTGCACATTGGTT.....

..... 187
.....ACAGTAGTCTGCACATTGG.....

..... 71
.....CCCAGTGTTTAGACTACCTGTT.....

..... 236
.....TACAGTAGTCTGCACATTGGT.....

..... 56
.....TACAGTAGTCTGCACATTGGTTA.....

..... 37
.....ACAGTAGTCTGC.....

..... 25
.....CAGTAGTCTGCACATTGGT.....

..... 18
.....ACAGTAGTCTGCACAT.....

..... 9
.....TACAGTAGTCTGCACATTGG.....

```

..... 8	 CCCAGTGTTTAGACTACCTGT
..... 29	 ACAGTAGTCTGCA
..... 6	 CCCAGTGTTTAGACTACCTGTTT
..... 20	 ACAGTAGTCTGCACATT
..... 5	 TACAGTAGTCTGC
..... 5	 CAGTAGTCTGCACATTGG
..... 4	 ACAGTAGTCTGCAC
..... 3	 ACAGTAGTCTGCACA
..... 2	 ACAGTAGTCTGCACATTG
..... 2	 AGTAGTCTGCACATTGGTTA
..... 2	 AGTAGTCTGCACATTGGTT
..... 2	 ACAGTAGTCTGCACATTGGTTAG
..... 1	

```

mmu-mir-19a(mmu-mir-19a)
GCAGCCCTCTGTTAGTTTTGCATAGTTGCACTACAAGAAGAATGTAGTTGTGCAAATCTATGCAAAACTGATGGTGGCCTGC
((((((( (((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TGTGCAAATCTATGCAAAACTGA***** (-39..10)
-----
.....CAGAAGATGTAGdT..... 17

```

```

mmu-mir-19b(mmu-mir-19b-2)
ACTTACGATTAGTTTTGCAGATTTGCAGTTCAGCGTATATGTGAATATATGGCTGTGCAAAATCCATGCAAAACTGATTGTGGGA
.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TGTGCAAAATCCATGCAAAACTGA***** (-41.20)
.....TGTGCAAAATCCATGCAAAACTGA..... 23*
.....TGTGCAAAATCCATGCAAAACT..... 10
.....TGTGCAAAATCCATGCAAAACTG..... 9
-----
.....TGTGCAAAATCCATGCAAAACTGt..... 30

```

[illegible]

Supplemental Figure S3

.....	TAACACTGTCTGGTAACGATGTT.....	236
.....	TAACACTGTCTGGTAACGATGT.....	103*
.....	TAACACTGTCTGGTAACGATG.....	22
.....	TAACACTGTCTGGTAACGAT.....	12
-----	-----	-----
.....	TAACACTGTCTGGTAACGATGTTa.....	28
.....	TAACACTGTCTGGTAACGATGTTt.....	26

```
mmu-mir-200b(mmu-mir-200b)
GCCGTGCCATCTTACTGGGCAGCATTGGATAGTGTCTGATCTCTAATACTGCCTGGTAATGATGACGGC
((((...(((((((...((((((...((((...))))))...))))))...)))))) (-31..20)
*****TAATACTGCCTGGTAATGATGA*****
.....TAATACTGCCTGGTAATGATGA.... 143*
.....TAATACTGCCTGGTAATGATGAC... 105
.....TAATACTGCCTGGTAATGATG.... 19
-----
.....TAATACTGCCTGGTAATGATGAct... 34
.....AATACTGCCTGGTAATGATGAct... 22
.....TAATACTGCCTGGTAATGATGAa... 17
.....ATACTGCCTGGTAATGATGAct... 12
.....TAATACTGCCTGGTAATGATGACa... 11
```

```
mmu-mir-200c(mmu-mir-200c)
CCCTCGTCTTACCCAGCAGTGTTGGGTGCTGGTTGGGAGTCTCTAATACTGCCGGGTAAATGATGGAGG
((.(((((((((((.(((((((.(((.(((.....)))))))))))))))))))))..)) (-31.60)
*****TAATACTGCCGGGTAAATGATGGA**
```

```
mmu-mir-201(mmu-mir-201)
TACCTTACTCAGTAAGGCATTGTTCTTCTATATTAATAAATGAACAGTGCCTTTCTGTGTAGGGTA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TACTCAGTAAGGCATTGTTCTT*****
.....TACTCAGTAAGGCATTGTTCT..... 10
.....TACTCAGTAAGGCATTGTTCT..... 10*
```

```

mmu-mir-202-3p(mmu-mir-202)
GTTCTTTTTTCTATGCATATACTTCTTTGTGGATCTGGTCTAAAGAGGTATAGCGCATGGGAAGATGGAGC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AGAGGTATAGCGCATGGGAAGA***** (-35..40)
.....TTCCTATGCATATACTTCTTT..... 261
.....TTCCTATGCATATACTTCTT..... 23
.....AGAGGTATAGCGCATGGGAAGA..... 16*
.....AGAGGTATAGCGCATGGGAAG..... 14
.....TTTCTATGCATATACTTCTTT..... 10
.....AGAGGTATAGCGCATGGGAA..... 5

```

```

mmu-mir-202-5p(mmu-mir-202)
GTTCTTTTTTCTATGCATATACTTCTTTGTGGATCTGGTCTAAAGAGGTATAGCGCATGGGAAGATGGAGC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TTCCTATGCATATACTTCTTT*****
.....TTCCTATGCATATACTTCTTT.....261*
.....TTCCTATGCATATACTTCTT.....23
.....AGAGGTATAGCGCATGGGAAGA.....16
.....AGAGGTATAGCGCATGGGAAG.....14
.....TTTCTATGCATATACTTCTTT.....10
.....AGAGGTATAGCGCATGGGAA.....5
-----
.....AGtGGTAgaAGCGCAT.....38
.....cAGtGGTAgaAGCGCAT.....28
.....TTTCTATGCATATACTTCTTTa.....11
.....cAGtGGTAgaAGCGCA.....11
.....AtGgATAGCGCAtttGGA.....10

```

mmu-mir-203(mmu-mir-203)
GCCTGGTCCAGTGGTTCTTGACAGTTC AACAGTTCTGTAGCACAA TTGTGAAATGTTTAGGACCACTAGACCCGGC

Supplemental Figure 33

((((.((((.((((((((.((((.((((.(((((.(...)).)))))))).)).)).)).)).)).)).)) (-35.60)

```
mmu-mir-204(mmu-mir-204)
TGGACTTCCTTTGTCATCCTATGCCTGAGAATATATGAAGGAGGCTGGGAAGGCCAAAGGGACGTTC A
((((((( ((((( (((((( (((((( (((((( (((((( (((((( (((((( (((((( (((((( ))) )
*****TTCCCTTTGTCATCCTATGCCT***** (-33..16)
```

```
mmu-mir-206(mmu-mir-206)
CCAGGCCACATGCTTCTTTATATCCTCATAGATATCTCAGCACTATGGAATGTAAAGGAAGTGTGTGGTTTTGG
(((((((((((((((((((((((.(.((((((.....)))))).)))))))))..))))))..)))))) (-31.80)
*****TGGAATGTAAAGGAAGTGTGTGC*****
```

mmu-mir-20b(mmu-mir-20b)
CCTAGTAGTGCCAAAGTGCTCATATGTCAGGTAGTTTTATACCACTCTACTGCAGTGTGAGCACTTCTAGTACTCCTGG
.(((.((((.(((((((((((.((((.(.....)))))))).)))))))))...))))).))) (-35.52)

*****CAAAGTGCTCATAGTGCAGGTAG*****

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Supplemental Figure S3

```

..... 33
.....TACAGCAGGCACAGACAGG.....

..... 21
.....TGCCTGTCTACACTTGCTGTGC.....

..... 18
-----
.....ACAGCAGGCACAGACAGGCAGTa.....

..... 62
.....ACAGCAGGCACAGACAGGCAGTt.....

..... 22
.....TACAGCAGGCACAGACAGGa.....

..... 11
-----
mmu-mir-215(mmu-mir-215)
AGCTCTCAGCATCAACGGTGTACAGGAGAATGACCTATGATTGACAGACCGTGCAGCTGTGTATGTCTGTCATTCTGTAGGCCAATATTCTGTATGTCACTGCT
ACTTAAA
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
..... (-37.30)
*****ATGACCTATGATTGACAGAC*****

*****
-----
mmu-mir-216a(mmu-mir-216a)
TTGGTTTAATCTCAGCTGGCAACTGTGAGATGTCCCTATCATTCTCACAGTGGTCTCTGGGATTATGCTAA
.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
..... (-30.00)
*****TAATCTCAGCTGGCAACTGTGA*****

-----
mmu-mir-216b(mmu-mir-216b)
TTGGCAGACTGGGAAATCTCTGCAGGCAAATGTGATGTCACTGAAGAAACCACACACTTACCTGTAGAGATTCTTCAGTCTGACAA
.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
..... (-37.90)
*****AAATCTCTGCAGGCAAATGTGA*****

-----
.....gTTCTaCAGTCcGAC... 645
.....TCTaCAGTCcGAC... 151
.....TTCTaCAGTCcGA... 36
.....TCTaCAGTCcGA... 29
.....TTCTaCAGTCcGAC... 28
.....AGAG-TTCTaCAGTC... 13
.....TTCTaCAGTCcGANNA... 12
-----
mmu-mir-217(mmu-mir-217)
AAACATAGTCATTACAGTTTTTGTATGTTGCAGATACTGCATCAGGAAGTACTGAGTAAAGACTTAATCCCCATCAGTTCCTAATGCATTGCCTTCAGCATCTAAA
CAA
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
).. (-37.10)
*****TACTGCATCAGGAAGTACTGGA*****

***
.....TACTGCATCAGGAAGTACTGG.....

.... 12
-----
mmu-mir-218(mmu-mir-218-1)
GTGATAATGGAGCGAGATTTTCTGTTGTGCTTATGCTGAGGTATGAGAAAAACATGGTTCCGTAAGCACCATGGAACGTCACGCAGCTTT
CTACA

```

. (((.(((.((((((((((.((((((((.((((.....))))).)))..)))).)))).).....

TTGTGCTTGATCTAACCATGT.....

..... 5*

mmu-mir-218(mmu-mir-218-2)
GACCAGTTGCCGCGGGGCTTTCCTTTGTGCTTGATCTAACCATGTGGTGGAACGATGGAACGGAACATGGTTCTGTCAAGCACCGCGAAAGCATCGTCTCTC

CTGCA
 ...(((.(.(((.(((((((.(((((((.(((((((.(.....((...))..)))))))).)))))))).)))))))).)))))))).))))..))..

))).. (-44.50)
*****TTGTGCTTGATCTAACCATGT*****

TTGTGCTTGATCTAACCATGT.....

..... 5*

mmu-mir-219(mmu-mir-219-1)
CCGTCCTCCGGGGCCGCGGCTCTCTGATTGTCCAAACGCAATTCTCGAGTCTCTGGCTCCGGCCGAGAGTTGCGTCTGGACGTCCCGAGCCGCCGCCCCCAACCTCGA

```

.))) (-60.00)
*****TGATTGTCCAACGCAATTCT*****

```

AGAGTTGCGTCTGGACGTCCCG.....

..... 23
.....TGATTGTCCAAACGCAATTCT.....

..... 5*
.....TGATTGTCCAAACGCAATTCTCG.....

mmu-mir-219(mmu-mir-219-2)
ACTCAGGGGCTTCGCCACTGATTGTCCAAACGCAATCTTGTACGAGTCTGCGCCAACCGAGAATTGTGGCTGGACATCTGTGGTTGAGCTCCGGG
.(((.(((((.(((.(.(((.(((.(.(((((((((...(.(...)))...)))))))).)))))).))))).)))))))))

(-48.40)
 *****TGATTGTCCAAACGCAATTCT*****
TGATTGTCCAAACGCAATTCT.....5*
AGAATTGTGGCTGGACATCTGT.....10

```
mmu-mir-22(mmu-mir-22)
ACCTGGCTGAGCCGCAAGTAGTTCTTCAGTGGCAAGCTTTATGTCTTGACCAGCTAAAGCTGCCAGTTGAAGAAGCTGTTGCCCTCTGCCCTGGC
(((((.(((.(.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AAGCTGCCAGTTGAAGAAGCTGT*****
.....AAGCTGCCAGTTGAAGAAGCTGT.....2913*
.....AAGCTGCCAGTTGAAGAAGCT.....694
.....AAGCTGCCAGTTGAAGAAGCTG.....120
.....AGTTCTTCAGTGGCAAGCTTT.....111
.....AAGCTGCCAGTTGAAGAAGCT.....78
```

Supplemental Figure S3

Supplemental Fig. 1	Sequence	Position
	AAGCTGCCAGTTGAAGAACTGTT	62
	AGTTCTTCAGTGGCAAGCTTTA	49
	AAGCTGCCAGTTGAAGAACTGta	60
	AAGCTGCCAGTTGAAGAAcA	38
	AAGCTGCCAGTTGAAGAACTtt	33
	AAGCTGCCAGTTGAAGAAAttt	30
	CAG-AGTTCTaCAGT	29
	AAGCTGCCAGTTGAAGAACTGTaa	27
	AAGCTGCCAGTTGAAGAACTa	23
	AAGCTGCCAGTTGAAGAACTGa	18
	AAGCTGCCAGTTGAAGcACTGT	17
	CAGTGGCagAGCaTT	16
	AAGCTGCCAGTTGAAGAACTaa	14
	AAGCTGCCAGTTGAAGAACTGTTt	12
	AAGCTGCCAGTTGAAGAACTt	12
	AAGCTGCCAGTTGAAGAAcAa	12

mmu-mir-220(mmu-mir-220)

mmu-mir-221(mmu-mir-221)

ATCCAGGTCTGGGGCATGAACCTGGCATACAATGTAGATTTCTGTGTTTGTTAGGCAACAGCTACATTGTCTGCTGGGTTTCAGGCTACCTGGAA
 .(((((((....(((.(((((((..(((.((((((((....(((((((.....))))).)))))))))))))).)).)).))))).)))))))))). (-44.00)

*****AGCTACATTGCTCTGCTGGGTTTC*****	1777
.....AGCTACATTGCTCTGCTGGGTTT.....	7472
.....AGCTACATTGCTCTGCTGGGTTTC.....	2826*
.....AGCTACATTGCTCTGCTGGGTT.....	483
.....ACCTGGCATAACAATGTAGATT.....	347
.....AGCTACATTGCTCTGCTGGGT.....	148
.....AGCTACATTGCTCTGCTGGGTTTCA.....	83
.....AGCTACATTGCTCTGCTGGG.....	63
.....ACCTGGCATAACAATGTAGATTTC.....	36
.....ACCTGGCATAACAATGTAGATT.....	28
.....AGCTACATTGCTCTGC.....	19
.....AACCTGGCATAACAATGTAGATT.....	12
.....ACCTGGCATAACAATGTAGATTTC.....	11

.....AGCTACATTGCTCTGCTGGGTTTt.....	1674
.....AGCTACATTGCTCTGCTGGGTTTa.....	491
.....AGCTACATTGCTCTGCTGGGTTTct.....	173
.....AGCTACATTGCTCTGCTGGGTTa.....	169
.....AGCTACATTGCTCTGCTGGGTTTt.....	117
.....AGCTACATTGCTCTGCTGGGTTTaT.....	70
.....AGCTACATTGCTCTGCTGGGTTaT.....	51
.....AGCTACATTGCTCTGCTGGGTTTtA.....	42
.....AGCTACATTGCTCTGCTGGGTTTaA.....	39
.....AGCTACATTGCTCTGCTGGGgTT.....	29
.....AGCTACATTGCTCTGCTGGGTTTg.....	16
.....AGCTACATTGCTCTGCTGGGTTaa.....	16
.....AGCTACATTGCTCTGCTGGGTTc.....	15
.....AGCTACATTGCTCTGCTGGGTTTCAa.....	14
.....AGCTACATTGCTCTGCTGGGTaT.....	12

mmu-mir-222(mmu-mir-222)

[illegible]

*****AGCTACATCTGGCTACTGGGT*****	
.....AGCTACATCTGGCTACTGGGTCTC.....	382
.....AGCTACATCTGGCTACTGGGTCT.....	154
.....AGCTACATCTGGCTACTGGGTCTCT.....	87
.....AGCTACATCTGGCTACTGGGT.....	27*
.....AGCTACATCTGGCTACTGGGTC.....	24
.....AGCTACATCTGGCTACTGGG.....	18

.....AGCTACATCTGGCTACTGGGTCTt.....	52
.....AGCTACATCTGGCTACTGGGTCTCa.....	23

..TGGCTCAGTTCAGCAGGAA..... 7

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Supplemental Figure S3

Supplemental Table 1	
.....CATTGCACCTTGCTCTCGGCTGA.....	29
.....CATTGCACCTTGCTCTCGGTCTGtt.....	29
.....CATTGCACCTTGCTCTCGGTCTGAat.....	29
.....CATTGCACCTTGCTCTCGGTCTGtA.....	21
.....CATTGCACCTTGCTCTCGGTCa.....	20
.....CATTGCACCTTGCTCTCGGTCTtA.....	20
.....CATTGCACCTTGCTtGGTCTGA.....	18
.....CATTGCACCTTGCTCTCGGTCTt.....	18
.....CATTGCACCTTGCTCTCGGTCTa.....	18
.....CATTGCACCTTGCTCTCGGTCgGA.....	15
.....CATTGCACCTTGCTCTCGGTCTGAtt.....	14
.....ATTGCACCTTGCTCTCGGTCTGt.....	13
.....CATTGCACCTTGCTCTtGTCTGA.....	13
.....CATTGCACCTTGCTCTCGGTCTtt.....	13
.....CATTGCACCTTGgCTCGGTCTGA.....	12
.....CATTGCACCTTGCTCTCGGtTGA.....	11
.....AGGCGGAGACTTGGGCAATTGCTt.....	11
.....CATTGCACCTTGCTCTGGcCTGA.....	11
.....tGACGgTGCCCTtGGC.....	10
.....CATTGCACCTTGCTCTGtTCTGA.....	10

mmu-mir-26a(mmu-mir-26a-1)

AAGGCCGTGGCCTCGTTCAAGTAAATCCAGGATAGGCTGTGCAGGTCCCCAAGGGCCCTATTCTTGTTACTTGCACGGGGACGC GGCGCTG
 .(((((((.((((((.(((((((.(((((((.(((... (...).).))))))))).)))))))).)))))))).)))))))). (-50..40)

*****TTCAAGTAATCCAGGATAGGCT*****	
.....TTCAAGTAATCCAGGATAGGCT.....	1739*
.....TTCAAGTAATCCAGGATAGGC.....	157
.....TTCAAGTAATCCAGGATAGG.....	42
.....TTCAAGTAATCCAGGATAG.....	9

TTCAAGTAATCCAGGATAGGCTt	1755
TTCAAGTAATCCAGGATAGGCTtT	1291
TTCAAGTAATCCAGGATAGGCTaT	438
TTCAAGTAATCCAGGATAGGCTa	431
TTCAAGTAATCCAGGATAGGCa	214
TTCAAGTAATCCAGGATAGGCTa	141
TTCAAGTAATCCAGGATAGGCTaa	137
TTCAAGTAATCCAGGATAGGCTtTt	112
TTCAAGTAATCCAGGATAGGCaT	56
TTCAAGTAATCCAGGATAGGCaa	53
cTTCAAGTAATCCAGGATAGGCT	37
TTCAAGTAATCCAGGATAGGCTtaa	20
TTCAAGTAATCCAGGATAGGCTc	18
TTCAAGTAATCCAGGATAGGCTtTa	14
TTCAAGTAATCCAGGATAGGa	12
TTCAAGTAATCCAGGAgAGGCT	12
TTCAAGTAATCCAGGATAGGCT-TG	12
TTCAAGTAATCCAGGATAGGCTaTt	11
TTCAAGTAATCCAGGATAGGCa	11

mmu-mir-26a(mmu-mir-26a-2)

```
*****TTCAAGTAATCCAGGATAGGCT*****
.....TTCAAGTAATCCAGGATAGGCT.....1739*
.....TTCAAGTAATCCAGGATAGGC.....157
.....TTCAAGTAATCCAGGATAGG.....42
.....TTCAAGTAATCCAGGATAG.....9
```

.....TTCAAGTAATCCAGGATAGGCT-TaT..... 11

mmu-mir-26b(mmu-mir-26b)

*****TTCAAGTAATTCAGGATAGGT*****	
.....TTCAAGTAATTCAGGATAGGTT.....	247
.....TTCAAGTAATTCAGGATAGGT.....	72*
-----TTCAAGTAATTCAGGATAGGTTt-----	41
-----TTCAAGTAATTCAGGATAGGTTa-----	13

[illegible]

*****ATGTATGTGTGCATGTACATGT*****

```

*****GGCAGAGGAGGGCTGTTCTTCCC*****
.....GGCAGAGGAGGGCTGTTCTT.....1900
.....GGCAGAGGAGGGCTGTTCTTC.....1041
.....GGCAGAGGAGGGCTGTTCT.....546
.....GGCAGAGGAGGGCTGTTCTTCC.....347
.....GGCAGAGGAGGGCTGTTCTTCCC.....206*
.....GGCAGAGGAGGGCTGTTCTTCCCT.....92
.....GGCAGAGGAGGGCTGTTCT.....78
.....GGCAGAGGAGGGCTGTTCTTCCCTT.....36
.....GAGAGGAGGGCTGTTCTTC.....21

```

GGCAGAGGAGGGCTGTTCTTt	614
GGCAGAGGAGGGCTGTTCTTa	554
GGCAGAGGAGGGCTGTTCTTCa	510
GGCAGAGGAGGGCTGTTCTTct	246
GGCAGAGGAGGGCTGTTCTTat	172
GGCAGAGGAGGGCTGTTCTTaa	138
GGCAGAGGAGGGCTGTTCTTCCa	130
GGCAGAGGAGGGCTGTTCTTtt	128
GGCAGAGGAGGGCTGTTCTTCCa	117
GGCAGAGGAGGGCTGTTCTTCaa	84
GGCAGAGGAGGGCTGTTCTaT	76
GGCAGAGGAGGGCTGTTCTTCCaT	75
GGCAGAGGAGGGCTGTTCTTta	70
GGCAGAGGAGGGCTGTTCTTCat	63
GGCAGAGGAGGGCTGTTCTTa	62
GGCAGAGGAGGGCTGTTCa	59
GGCAGAGGAGGGCTGTTCTTtat	53
GGCAGAGGAGGGCTGTTCTaa	52
GGCAGAGGAGGGCTGTTCTTttt	48
GGCAGAGGAGGGCTGTTCTTCCaT	43
GGCAGAGGAGGGCTGTTCTTctaT	38
GGCAGAGGAGGGCTGTTCTTctt	36
GGCAGAGGAGGGCTGTTCTTCCCTaT	36
GGCAGAGGAGGGCTGTTCTTcta	34
GGCAGAGGAGGGCTGTTCTCaa	31
GGCAGAGGAGGGCTGTTCTTCCCaTT	29
GGCAGAGGAGGGCTGTTCTTtaa	28
GGCAGAGGAGGGCTGTTCTTCCCa	22
GGCAGAGGAGGGCTGTTCTTCCCaT	22
GGCAGAGGAGGGCTGTTCTTCCaa	20
GGCAGAGGAGGGCTGTTaa	20
GGCAGAGGAGGGCTGTTaT	19
GGCAGAGGAGGGCTGTTCTTCCCTTt	18
GGCAGAGGAGGGCTGTTCTTCg	18
GGCAGAGGAGGGCTGTTCTTCCaTT	16
GGCAGAGGAGGGCTGTTt	16
GGCAGAGGAGGGCTGTTtaa	15
GGCAGAGGAGGGCTGTTCTTaat	14
GGCAGAGGAGGGCTGTTCTTCCCTa	14
GGCAGAGGAGGGCTGTTCTTaaa	14
GGCAGAGGAGGGCTGTTCTTatt	13
GGCAGAGGAGGGCTGTTCTTctt	13
GGCAGAGGAGGGCTGTTCTTCaaT	13
GGCAGAGGAGGGCTGTTCaT	13
GGCAGAGGAGGGCTGTTCTga	12
GGCAGAGGAGGGCTGTTCTTCCaaT	12
GGCAGAGGAGGGCTGTTa	12
GGCAGAGGAGGGCTGTTCTTCatT	11
CAGAGGAGGGCTGTTCTTCCCa	10
GGCAGAGGAGGGCTGTTCTTg	10

```
mmu-mir-299(mmu-mir-299)
AAGAAATGGTTTACCGTCCCACATACATTTTGAGTATGTATGTGGGACGGTAAACCGCTTCTT
(((((((.((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))) (-42.30)
*****TATGTGGGACGGTAAACCGCTT**
.....TATGTGGGACGGTAAACCGCTT... 36*
.....TATGTGGGACGGTAAACCGCT.... 10
```

```

mmu-mir-29a(mmu-mir-29a)
ACCCCTTAGAGGATGACTGATTTCTTTTGGTGTTTCAGAGTCAATAGAAATTTCTAGCACCATCTGAAATCGGTTATAATGATTGGGGA
.((((.....((((((((((((.....((((((((((((.....)))))))))))))))))))))))))))))))))))))))))).. (-35..14)
*****TAGCACCATCTGAAATCGGTTA*****
.....TAGCACCATCTGAAATCGGTTA..... 10417*
.....TAGCACCATCTGAAATCGGTT..... 2242
.....TAGCACCATCTGAAATCGGTTAT..... 130
.....CTAGCACCATCTGAAATCGGTT..... 126
.....TAGCACCATCTGAAATCGGT..... 124
.....TAGCACCATCTGAAATCGG..... 110
.....CTAGCACCATCTGAAATCGGTTA..... 50
.....TAGCACCATCTGAA..... 26
.....CTAGCACCATCTGAAATCGGT..... 25
.....TAGCACCATCTGAA..... 20
.....TAGCACCATCTGAAATC..... 17
.....CTAGCACCATCTGAAATCGG..... 15
.....ACCATCTGAAATCGGTTA..... 11
.....TAGCACCATCTGAAAT..... 10
.....TAGCACCATCTGAAATCG..... 10
-----
.....TAGCACCATCTGAAATCGGTTt..... 479
.....TAGCACCATCTGAAATCGGTTAa..... 81
.....TAGCACCATCTGAAATCGGTaA..... 35
.....TAGCACCATCTGAAATCGGgTA..... 25
.....TAGCACCATCTGAAATCGGTTg..... 15
.....TAGCACCATCTGAAATCGGTTc..... 12
.....TAGCACCATCTGAAATCGGcTA..... 12

```

```

mmu-mir-29b(mmu-mir-29b-1)
AGGAAGCTGCTTTCATATGCTGTTTAGATTAAATAGTGATTGTCTAGCACCATTGAAATCAGTGTTCT
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAGCACCATTGAAATCAGTGTT** (-26.42)
*****TAGCACCATTGAAATCAGTGTT... 204*
.....TAGCACCATTGAAATCAGTG... 45
.....TAGCACCATTGAAATCAGT... 20
.....TAGCACCATTGAAATCAGTG... 8
.....TAGCACCATTGAAA... 5
.....TAGCACCATTGAAAT... 5

```

```

mmu-mir-29b(mmu-mir-29b-2)
CTTCTGGAAGCTGGTTTCACATGGTGGCTTAGATTTTTCCATCTTTGTATCTAGCACCATTGAAATCAGTGTTTATAGGAG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
) (-31..24)
*****TAGCACCATTGAAATCAGTGTT*****
*****TAGCACCATTGAAATCAGTGTT*****204*
*****TAGCACCATTGAAATCAGTGTT*****45
*****TAGCACCATTGAAATCAGT*****20
*****TAGCACCATTGAAATCAGTGTTT*****25
*****TAGCACCATTGAAATCAGTG*****8
*****TAGCACCATTGAAA*****5
*****TAGCACCATTGAAAT*****5

```

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Supplemental Figure S3

.....TAGCACCATTGTGAAA.....	5
.....TAGCACCATTGTGAAAT.....	5

.....TAGCACCATTGTGAAATCGGTTt.....	23

```
mmu-mir-300(mmu-mir-300)
GCTACTTGAGAGAGGTTATCCTTTGTGTGTTTGTCTTACGCGAAATGAATATGCAAGGGCAAGCTCTCTTCGAGGAGC
(((.((((((((((.(.(.((((((((((((.(.(((...)))..)))))))))))))))))..))) (-35.50)
*****TATGCAAGGGCAAGCTCTCTTC*****
.....TATGCAAGGGCAAGCTCTCTTC..... 17*
```

```
mmu-mir-301b(mmu-mir-301b)
TTTCTGCTGGCTGCGGGTGCTCTGACTAGGTTGCACTACTGTGCTGTGAGAAGCAGTGCAATGGTATTGTCAAAGCATCTGGGACCAGCCTCGAAG
.(((.((((.(((((((.((((.....(((.(.(.(((.....)))..)).)))..)))..)))..))).).)))..))).
(-38.70)
*****CAGTGCAATGGTATTGTCAAAGC*****
```

```
mmu-mir-302a(mmu-mir-302a)
CCACCACATTAAACGTGGTTGTACTTGCTTTAGACCTAAGAAAGTAAGTGCTTCCATGTTTTGGTGATGG
(((.((((.(((((((.(((((((.(.....))).....))).....))).....))).....))) (-30..90)
*****TAAGTGCCTCCATGTTTTGGTGA***
```

```
mmu-mir-302b(mmu-mir-302b)
GTTCCCTTCAACTTTAACATGGGAATGCTTTCTGTCTCATCGAAGAGTAAGTGCTTCCATGTTTTAGTAGAAGT
.....(((.(((.(((((((.((((.....(((.....))).)))))).))))))))) ( -24.60)
*****TAAAGTGCCTCCATGTTTTAGTAG*****
```

```
mmu-mir-302c(mmu-mir-302c)
CCTCTGCTTTAACATGGGGGTACCTGCTGTGTAAACAAAAGCAAGTGCTTCCATGTTTCAGTGGGGG
((((((((( (((((((((( (((((((((( (((((((((( (((((((((( (((((((((( ))) (-28..40)
*****AAGTGCTTCCATGTTTCAGTGC***
```

Supplemental Figure S3

Supplemental Figure S3

Supplemental Figure S3

.....TGTAACATCCCCGACTGGAAGCaT.....	29
.....TGTAACATCCCCGACTTGGcAGa.....	27
.....TGTAACATtCCCCGACTGGAAGCT.....	22
.....TGTAACATCCCCGcCTGGAAGa.....	20
.....TGTAACATCCCCGACTGGAAGCTaT.....	18
.....TGTAACATCCCCGACTTGGtAGC.....	18
.....TGTAACATCCCCGACTGGAAGg.....	18
.....TGTAACATCCCCGcCTGGA.....	17
.....TGTAACATCCCCGACTGGAAGcc.....	17
.....TGTAACATCCCCGACTTGGtAGCT.....	17
.....TGTAACATCCCCGACTTGGAgA.....	15
.....TGTAACATCCCCGACTTGGAcGC.....	15
.....TGTAACATCCCCGAcgGGAAGC.....	14
.....TGTAACATCCCCGACTGGAAGaT.....	13
.....TGTAACATCCCCGACTGGAAGCTtT.....	13
.....TGTAACATCCCCGACTTGGcAG.....	12
.....TGTAACATCCCCGACTGGAg.....	12
.....TGTAACATCCCCGACTTGGAAaa.....	11
.....TGTAACATCCCCGACTTGGgAGCT.....	11
.....TGTAACATtCCCCGACTGGAAGC.....	10
.....TGTAACATtttCCGACTGGAAGCT.....	10

mmu-mir-30e(mmu-mir-30e)

*****TGTAACATCCTTGACTGGAAG*****	2524
.....TGTAACATCCTTGACTGGAAGCT.....	433
.....TGTAACATCCTTGACTGGAAGC.....	322
.....CTTTCAGTCGGATGTTTACAGC.....	167
.....CTTTCAGTCGGATGTTTAC.....	116
.....CTTTCAGTCGGATGTTTACAG.....	96
.....TGTAACATCCTTGACTGG.....	83
.....CTTTCAGTCGGATGTTTACA.....	71*
.....TGTAACATCCTTGACTGGAAG.....	66
.....CTTTCAGTCGGATGTTTA.....	39
.....TGTAACATCCTTGACTGGA.....	16
.....CTTTCAGTCGGATGTTT.....	31
.....GTAAGGTGTTGAGAGGAG.....	18
.....TGTAACATCCTTGACTGGA.....	17
.....TTTCAGTCGGATGTTTACAGC.....	15
.....TGTAACATCCTTGAC.....	13
.....TTTCAGTCGGATGTTTACAG.....	11
.....CTTTCAGTCGGATGT.....	5

.....TGTAACATCCTTGACTGGAAGCTt.....	366
.....CTTTCAGTCGGATGTTTACAGt.....	309
.....GTTGgGAG-AGCTTT.....	290
.....TGTAACATCCTTGACTGGAAGa.....	97
.....TGTAACATCCTTGACTGGAAGCa.....	55
.....TGTTGgGAG-AGCTTT.....	45
.....TGTAACATCCTTGACTGGAAGCTa.....	43
.....TGTAACATCCTTGACTGGAAGaa.....	22
.....TGTAACATCCTTGACTGGAAGCTaa.....	20
.....CTTTCAGTCGGATGTTTACAGCa.....	18
.....CTTTCAGTCGGATGTTTaa.....	17
.....TGTAACATCCTTGACTGGAAGCTtT.....	15
.....CTTTCAGTCGGATGTTTACAGa.....	11
.....CTTTCAGTCGGATGTTTACaa.....	11

mmu-mir-31(mmu-mir-31)

TTGCTCCTGTAAGTCTCGGAAGTGGAGAGGAGGCAAGATGCTGGCATAGCTGTTGAACTGAGAACCTGCTATGCCAACATATTGCCATCTTTCTGTCTGACAGCAGC

$$\begin{array}{l} \text{T} \\ .(((.((((\dots(((((((.((((.((((((((((.((((\dots)))\dots)))))))).)))\dots))))))\dots))))))\dots))) \end{array}$$

. (-48.80)

*****AGGCAAGATGCTGGCATAGCTG*****

*

. tGAACTGaAGAG

mmu-mir-32 (mmu-mir-32)

```

.....aTGTGTGcGATcTTTT.. 65
.....aTGTGTGcGATcTTT... 24

```

mmu-mir-320(mmu-mir-320)

```

***** AAAAGCTGGGTTGAGAGGGCGA *****
..... AAAAGCTGGGTTGAGAGGGCGA ..... 25287*
..... AAAAGCTGGGTTGAGAGGGCGAA ..... 5142
..... . AAAAGCTGGGTTGAGAGGGCGA ..... 1488
..... AAAAGCTGGGTTGAGAGGGCG ..... 979
..... . AAAGCTGGGTTGAGAGGGCGAA ..... 582
..... GAAAAGCTGGGTTGAGAGGGCGA ..... 279
..... . AAAAGCTGGGTTGAGAGGGCGAAA ..... 188
..... . . AAGCTGGGTTGAGAGGGCGA ..... 167
..... . . AAAGCTGGGTTGAGAGGGCG ..... 163
..... . . . AAGCTGGGTTGAGAGGGCGAA ..... 153
..... . . . AAAGCTGGGTTGAGAGGGCGAAA ..... 110
..... . . . . AAGCTGGGTTGAGAGGGCGAAA ..... 103
..... . . . . AAAAGCTGGGTTGAGAGGGC ..... 98
..... . . . . AAAAGCTGGGTTGAGAGG ..... 69
..... . . . . GAAAAGCTGGGTTGAGAGGGCG ..... 65
..... . . . . AAAAGCTGGGTTGAGAGGG ..... 55
..... . . . . AAAAGCTGGGTTGAGAGGGCGAAAA ..... 24

```

.	AAAAGCTGGGTTGAGAGGGCGAt	5874
.	AAAAGCTGGGTTGAGAGGGCGt	2061
.	AAAAGCTGGGTTGAGAGGGCGAAt	642
.	AAAAGCTGGGTTGAGAGGGCGc	490
.	. AAAGCTGGGTTGAGAGGGCGAt	430
.	AAAAGCTGGGTTGAGAGGGCGAtt	389
.	AAAAGCTGGGTTGAGAGGGCGg	317
.	AAAAGCTGGGTTGAGAGGGCGtt	266
.	. AAAGCTGGGTTGAGAGGGCGAAt	243
.	AAAAGCTGGGTTGAGAGGGCGAg	229
.	AAAAGCTGGGTTGAGAGGGCGtA	223
.	. AAGCTGGGTTGAGAGGGCGAAt	179
.	AAAAGCTGGGTTGAGAGGGCGcA	129
.	AAAAGCTGGGTTGAGAGGGCGct	128
.	. AAAGCTGGGTTGAGAGGGCGt	105
.	AAAAGCTGGGTTGAGAGGGCGgt	95
.	AAAAGCTGGGTTGAGAGGGCaA	94
.	. AAAGCTGGGTTGAGAGGGCGAtt	91
.	AAAAGCTGGGTTGAGAGGGCAt	87
.	AAAAGCTGGGTTGAGAGGGCGAtA	86
.	AAAAGCTGGGTTGAGAGGGCGAc	84
.	AAAAGCTGGGTTGAGAGGGCGgA	69
.	. AAGCTGGGTTGAGAGGGCGAt	54
.	. AAGCTGGGTTGAGAGGGCGAtt	54
.	AAAAGCTGGGTTGAGAGGGGa	54
.	AAAAGCTGGGTTGAGAGGGgGA	51
.	AAAAGCTGGGTTGAGcGGGCGA	50
.	GAAAAGCTGGGTTGAGAGGGCGt	49
.	AAAAGCTGGGTTGAGAGGGtGA	48
.	AAAAGCTGGGTTGAGAGGGCGttt	41
.	AAAAGCTGGGTTGAGAGGGGaGA	40
.	. AAAGCTGGGTTGAGAGGGCGAtA	40
.	AAAAGCTGGGTTGcGAGGGCGA	39
.	AAAAGCTGGGTTGtGAGGGCGA	39
.	AAAAGCTGGGTTGAGAGGGCGtAt	36
.	AAAAGCTGGGTTGAGAGGGt	33
.	AAAAGCTGGGTTGAGAGGGCGAAt	31

Supplemental Figure S3

.....AAAAGCTGGGTTGAGAGGGaa.....	30
.....AAGCTGGGTTGAGAGGGCGAAAt.....	30
.....AAAGCTGGGTTGAGAGGGCGc.....	29
.....AAAAGCTGGGTTGAGAGGGCa.....	28
.....AAAAGCTGGGTTGAGAGGGat.....	27
.....AAAAGCTGGGTTGAGgGGGCGA.....	27
.....AAAAGCTGGGgTGAGAGGGCGA.....	27
.....AAAAGCTGGGTTGAGAGGGttt.....	26
.....AAAAGCTGGGTTGAGAGGGCGAgA.....	26
.....AAAAGCTGGGTTGAGAGGaa.....	24
.....AAAAGCTGGGTTGAGAGGGtaA.....	24
.....AAAAGCTGGGTTGAGAGGGCGAAg.....	24
.....AAGCTGGGTTGAGAGGGCGAAtt.....	22
.....AAAGCTGGGTTGAGAGGGCGAAtt.....	21
.....AAAAGCTGGGTTGAGtGGGCGA.....	20
.....AAAAGCTGGGTTGgGAGGGCGA.....	20
.....AAAAGCTGGGTTGAGAGGGtat.....	18
.....AAAGCTGGGTTGAGAGGGCGtt.....	18
.....AAAGCTGGGTTGAGAGGGCGAAg.....	18
.....AAAAGCTGGGTTGAGAGGGatt.....	18
.....AAAGCTGGGTTGAGAGGGCGg.....	18
.....AAAAGCTGGGTTGAGAGGaaa.....	17
.....AAAAGCTGGGTTGAGAGGGgGt.....	17
.....AAAAGCTGGGTTGtGAGGGCGt.....	17
.....AAAAGCTGGGTTGAGAGGGaat.....	17
.....AAGCTGGGTTGAGAGGGCGAtt.....	16
.....AAAAGCTGGGTTGAGAGGGCaAt.....	16
.....AAAAGCTGGGTTGAGAGGGCtAt.....	16
.....AAAGCTGGGTTGAGAGGGCGtA.....	16
.....AAAAGCTGGGTTGAGAGGtaa.....	15
.....AAAAGCTGGGTTGAGAGGGtt.....	15
.....AAAAGCTGGGTTGAGAGGtat.....	15
.....AAAAGCTGGGTTGAGAGGGtGat.....	15
.....AAAAGCTGGGTTGAGAGGGCGtta.....	15
.....AAAAGCTGGGTTGAGcGGGCGAt.....	15
.....AAAGCTGGGTTGAGAGGGCGAg.....	14
.....AAAAGCTGGGTTGAGAGGa.....	14
.....AAAAGCTGGGTTGcGAGGGCGAt.....	14
.....GAAAAGCTGGGTTGAGAGGGCGc.....	14
.....AAAAGCTGGGTTGAGAGGGCGAAAt.....	14
.....AAAAGCTGGGTTGAGAGGGgGAt.....	13
.....AAAAGCTGtGTTGAGAGGGCGA.....	13
.....AAAAGCTGGGTTGAGAGGGta.....	13
.....AAAAGCTGGGTTGAGAGGGCGAtt.....	13
.....AAAGCTGGGTTGAGAGGGCGcA.....	12
.....AAAAGCTGGGTTGAGAGGGaGAt.....	12
.....AAAGCTGGGTTGAGAGGGCGAtAt.....	12
.....AAAAGCTGGGTTGcGAGGGCGAA.....	12
.....AAAGCTGGGTTGAGAGGGCGAc.....	12
.....AAAAGCTGGGTTGAGAGGAt.....	12
.....AAAAGCTGGGTTGAGAGGGCGAAc.....	11
.....AAAAGCTGGGTTGAGAGGGCGtAA.....	11
.....AAAAGCTGGGTTGAGAGGGCtA.....	11
.....AAAAGCTGGGTTGAGAGGGtGAA.....	11
.....AgAAGCTGGGTTGAGAGGGCGA.....	11
.....GAAAAGCTGGGTTGAGAGGGCGAt.....	11
.....AAGCTGGGTTGAGAGGGCGAct.....	10
.....AAAAGtTGGGTTGAGAGGGCGA.....	10
.....AAAGCTGGGTTGAGAGGGCGAtt.....	10
.....AAAGCTGGGTTGAGAGGGCGttt.....	10
.....AAAAGCTGGGTTGAGAGGGaGAA.....	10
.....AAAAGCTGGGTTGAtAGGGCGA.....	10
.....AAGCTGGGTTGAGAGGGCGAAAtA.....	10
.....AAAAGCTGGGTTGAGtGGGCGAA.....	10
.....AAAAGCTGGGTTGAGAGGGCatt.....	10
.....AAAAGCTGGGTTGAGAGGGCGcAt.....	10
.....AAAAGCTGGGTTGAGAGGGaG.....	10
.....AAAAGCTGGGTTGAGAGGGCaAA.....	10

mmu-mir-322(mmu-mir-322)

CCTCGTTGACTCCGAAGGGCTGCAGCAGCAATTCATGTTTTGGAGTATTGCCAAGGTTCAAAACATGAAGCGCTGCAACACCCCTTCGTGGGGAA

.....(((((((((((((.((((((.(((((((((((((((.)).))))))))))))).))))).)).))))))))).))... (-42.80)

*****CAGCAGCAATTCATGTTTTGGA*****

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Supplemental Figure S3

```
(-36.50)
*****AACACACCCAGCTAACCTTTT*****
.....AGAGGTTTTCTGGGTCTCTGTTT..... 120
.....AACACACCCAGCTAACCTTTT..... 27*
.....AGAGGTTTTCTGGGTCTCTGT..... 13
.....AGAGGTTTTCTGGGTCTCTGTT..... 11
-----

mmu-mir-33(mmu-mir-33)
CTGTGGTGCATTGTAGTTGCATTGCATGTTCTGGCAATACCTGTGCAATGTTTCCACAGTGCATCACGG
((((((((((((((.((((((((.....((.....)).)))))))))).).)))))))))) (-33.60)
*****GTGCATTGTAGTTGCATTGCA*****
.....GTGCATTGTAGTTGCATTGCA..... 709*
.....GTGCATTGTAGTTGCATTGC..... 387
.....GTGCATTGTAGTTGCATTGCAT..... 21
.....GTGCATTGTAGTTGCATTG..... 19
-----

.....GTGCATTGTAGTTGCATTGCAa..... 141
-----

mmu-mir-330(mmu-mir-330)
GACCCTTTGGCGATCTCTGCCTCTCTGGGCCTGTGTCTTAGGCTCTTCAAGATCCAACGAGCAAAGCACAGGGCCTGCAGAGAGGTAGCGCTCTGCTC
.....((((((.(((((((((((((((((((((((((.(((.(((.....)))))).)))))).)))))).).)))))).).)).)).).
(-41.92)
*****TCTCTGGGCCTGTGTCTTAGGC*****
.....CAAAGCACAGGGCCTGCAGAGA..... 46
.....GCAAAGCACAGGGCCTGCAGAGA..... 35
.....CAAAGCACAGGGCCTGCAGAGAG..... 30
.....CAAAGCACAGGGCCTGCAGAG..... 14
.....GCAAAGCACAGGGCCTGCAGAG..... 11
-----

.....CAAAGCACAGGGCCTGCAGAGAGt..... 10
-----

mmu-mir-331-3p(mmu-mir-331)
GAGTCTGGTTTTGTTTGGGTTTGTCTAGGTATGGTCCCAGGGATCCCAGATCAAACCAGGCCCTGGGCCTATCCTAGAACCAACCTAAACCCGT
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****GCCCCCTGGGCCTATCCTAGAA***** (-43.72)
.....GCCCCCTGGGCCTATCCTAGAA..... 7*
.....GGTTTTGTTTGGGTTTGT..... 7
.....TGGTTTTGTTTGGGTTTGT..... 5
.....GTTTTGTTTGGGTTTGT..... 5
-----

mmu-mir-331-5p(mmu-mir-331)
GAGTCTGGTTTTGTTTGGGTTTGTCTAGGTATGGTCCCAGGGATCCCAGATCAAACCAGGCCCTGGGCCTATCCTAGAACCAACCTAAACCCGT
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CTAGGTATGGTCCCAGGGATCC***** (-43.72)
.....GCCCCCTGGGCCTATCCTAGAA..... 7
.....GGTTTTGTTTGGGTTTGT..... 7
.....TGGTTTTGTTTGGGTTTGT..... 5
.....GTTTTGTTTGGGTTTGT..... 5
-----

.....GTCCgAcGGATC..... 18
-----

mmu-mir-335-3p(mmu-mir-335)
TCTTTTGGGCGGGGTCAAGAGCAATAACGAAAAATGTTTGTTTTTCGTAACACGTTTTTTCATTATTGCTCCTGACCCCTCTCATGGGTTATAGCCA
.....((((((.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
(-45.20)
*****TTTTTCATTATTGCTCCTGACC*****
.....TCAAGAGCAATAACGAAAAATG..... 11
.....TCAAGAGCAATAACGAAAAATGT..... 9
.....TCAAGAGCAATAACGAAAAAT..... 7
-----

mmu-mir-335-5p(mmu-mir-335)
```

Supplemental Figure S3

TCTTTTGGGCGGGGTCAAGAGCAATAACGAAAAATGTTTGTTTTTCGTAAACCGTTTTTCATTATTGCTCCTGACCCCTCTCATGGGTATAGCCA
.....(((.(.(((((((.(.(((((((.(.(((((((..(((.....)))))))))).)))))).)))))).)))))).))))..(((.....))).

*****TCAAGAGCAATAACGAAAAATGT*****	
.....TCAAGAGCAATAACGAAAAATG.....	11
.....TCAAGAGCAATAACGAAAAATGT.....	9*
.....TCAAGAGCAATAACGAAAAAT.....	7

```
*****TTCAGCTCCTATATGATGCCT*****
.....CGGCGTCATGCAGGAGTTGATT..... 46
.....CGGCGTCATGCAGGAGTTGAT..... 11
```

*****GAACGGCGTCATGCAGGAGTT*****
CGGCGTCATGCAGGAGTTGATT..... 46
CGGCGTCATGCAGGAGTTGAT..... 11

*****TCCAGCATCAGTGATTTTGTG*****

*****AACAAATATCCTGGTGCTGAGTG*****

Supplemental Figure S3

(-34.10)

*****TCCGTCTCAGTTACTTTATAGC*****	
TTATAAAGCAATGAGACTGATT	2070
TTATAAAGCAATGAGACTGAT	642
TTATAAAGCAATGAGACTGA	196
ATTATAAAGCAATGAGACTGA	8
TTATAAAGCAATGAGACTG	7
TTATAAAGCAATGAGA	6
TTATAAAGCAATGAGACT	5

```
mmu-mir-340-5p(mmu-mir-340)
CAATTGTACTCTGGTGTGATTATAAAGCAATGAGACTGATTGTCATATGTCGTTTGTGGGATCCGTCTCAGTTACTTTATAGCCATACCTGGTATCTTA
.....(((((((.((((.(.(((((((....(((((((.((((.((((.(.....)))))))))).)))))).)))))).)))))).)))))).)))).....
```

 $(-34, 10)$

*****TTATAAAGCAATGAGACTGATT*****	2070*
TTATAAAGCAATGAGACTGATT.	642
TTATAAAGCAATGAGACTGAT.	196
TTATAAAGCAATGAGACTGA.	8
ATTATAAAGCAATGAGACTGA.	7
TTATAAAGCAATGAGACTG.	6
TTATAAAGCAATGAGA.	5
TTATAAAGCAATGAGACT.	

TTATAAAGCAATGAGACTGATTt.	110
TTATAAAGCAATGAGACTGATTa.	87
TTATAAAGCAATGAGACTGATa.	61
TTATAAAGCAATGAGACTGATTtT.	22
TTATAAAGCAATGAGACTGaa.	13
TTATAAAGCAATGAGACTGt.	12

[illegible]

(-48.90)

```

*****TCTCACACAGAAATCGCACCCGT*****
          TCTCACACAGAAATCGCACCCGT          29*
          AGGGGTGCTATCTGTGATTGA          16
          TCTCACACAGAAATCGCACCCGTC          11
          AGGGGTGCTATCTGTGATTGAG          6

```

(-48.90)

```

*****AGGGGTGCTATCTGTGATTGAG*****
.....TCTCACACAGAAATCGCACCCGT..... 29
.....AGGGGTGCTATCTGTGATTGA.....
.....TCTCACACAGAAATCGCACCCGTC..... 11

```

Supplemental Figure S3

Supplemental Figure S3

.....AGGGGTGCTATCTGTGATTGAG..... 6*

.....TCTCACACAGAAATCGCACCCGTct..... 11

```
mmu-mir-343(mmu-mir-343)
TGGGATAGAGTGGGTGTGGCGGGGGTAGCAGAGCCCAAGGCACCTCTCCCTTCATGTGCCAGATCCTGCATGC
.((((.....(((((((((((((.....(((.....)))))).)))....)).....)).....)).....))..... (-26..40)
*****TCTCCCTTCATGTGCCAG*****
```

mmu-mir-344(mmu-mir-344-1)
CTGCAGCCAGGGTTTTACCAGTCAAGGCTCCTGGCTAGATTCCAGGTACCAGCTGGTACCTGATCTAGCCAAGGCTGACTGTAAGCCCTGAACA
.....((((((((.....((((((((((.....((((((((.....((((((((.....))))))))))))))))))))))))))..... (-58.70)
*****TGATCTAGCCAAAGGCTGACTGTAAGCCCTGAACA*****

```
mmu-mir-34a(mmu-mir-34a)
CCAGCTGTGAGTAATTCCTTTGGCAGTGCTCTTAGCTGGTTGTTGTGAGTATTAGCTAAGGAAGCAATCAGCAAGTATACTGCCCTAGAAGTGCTGCACATTGT
.(((.(((((((.(((.((((((((((.(((((((((.((...)))...)))))))).)))).)).)).)).)).)).)).)).)).)).)).)).)).)).
(-43..30)
*****TGGCAGTGCTCTTAGCTGGTTGT*****
.....TGGCAGTGCTCTTAGCTGGTTGT.....
```

Supplemental Figure S3

13*

.....TGGCAGTGTCTTAGCTGGTTGTT.....

10

mmu-mir-34b-3p(mmu-mir-34b)
GTGCTCGGTTTGTAGGCAGTGTAAATTAGCTGATTGTAGTGCGGTGCTGACAATCACTAACTCCACTGCCATCAAAACAAGGCAC
(((((((.....(((((((.....(((((((.....)))))))))))))))))))))))))))))))))))))) (-34.10)
*****AATCACTAACTCCACTGCCATC*****
.....AGGCAGTGTAAATTAGCTGATT..... 18
.....AATCACTAACTCCACTGCCATC..... 17*
.....AGGCAGTGTAAATTAGCTGATTGT..... 17
.....TAGGCAGTGTAAATTAGCTGATT..... 8
.....AGGCAGTGTAAATTAGCTGAT..... 7
.....ATCACTAACTCCACTGCCATC..... 6
.....TAGGCAGTGTAAATTAGCTGAT..... 6
.....ATCACTAACTCCACTGCCATCA..... 5

mmu-mir-34b-5p(mmu-mir-34b)
GTGCTCGGTTTGTAGGCAGTGTAAATTAGCTGATTGTAGTGCGGTGCTGACAATCACTAACTCCACTGCCATCAAAACAAGGCAC
(((((((.....(((((((.....(((((((.....)))))))))))))))))))))))))))))))))))))) (-34.10)
*****AGGCAGTGTAAATTAGCTGATTGT*****
.....AGGCAGTGTAAATTAGCTGATT..... 18
.....AATCACTAACTCCACTGCCATC..... 17
.....AGGCAGTGTAAATTAGCTGATTGT..... 17*
.....TAGGCAGTGTAAATTAGCTGATT..... 8
.....AGGCAGTGTAAATTAGCTGAT..... 7
.....ATCACTAACTCCACTGCCATC..... 6
.....TAGGCAGTGTAAATTAGCTGAT..... 6
.....ATCACTAACTCCACTGCCATCA..... 5

mmu-mir-34c(mmu-mir-34c)
AGTCTAGTTACTAGGCAGTGTAGTTAGCTGATTGCTAATAGTACCAATCACTAACCACACAGCCAGGTAAAAAGACT
(((((((.....(((((((.....(((((((.....)))))))))))))))))))))))))))))))))))))) (-31.60)
*****AGGCAGTGTAGTTAGCTGATTGC*****
.....AGGCAGTGTAGTTAGCTGATTGC..... 2918*
.....AGGCAGTGTAGTTAGCTGATTG..... 1591
.....AGGCAGTGTAGTTAGCTGATT..... 975
.....AGGCAGTGTAGTTAGCTGAT..... 279
.....AGGCAGTGTAGTTAGCTGA..... 152
.....AGGCAGTGTAGTTAGCTGATTGCT..... 108
.....AGGCAGTGTAGTTAGCTG..... 20
.....AGGCAGTGTAGTTAGC..... 12

.....AGGCAGTGTAGTTAGCTGATTGt..... 359
.....AGGCAGTGTAGTTAGCTGATTGa..... 140
.....AGGCAGTGTAGTTAGCTGATTGCa..... 102
.....AGGCAGTGTAGTTAGCTGATTt..... 28
.....AGGCAGTGTAGTTAGCTGgTTGC..... 14
.....AGGCAGTGTAGTTAGCTGtTTGC..... 12
.....AGGCAGTGTAGTTAGCTGATa..... 12
.....AGGCAGTGTAGTTAGCTGATTa..... 11
.....AGGCAGTGTAGTTAGCTGATTGCa..... 11
.....AGGCAGTGTAGTTAGCTGcTTGC..... 11

mmu-mir-350(mmu-mir-350)
AGATGCCTTGCTCTACAAGAGTAAAGTGCATGCGCTTTGGGACAGTGAGGAAAATAATGTTACAAAGCCCATACACTTTTACCCTTTAGGAGAGTTG
(((((((.....(((((((.....(((((((.....))))))))))))))))))))))))))))))))))))))
(-32.12)
*****TTCACAAAGCCCATACACTTTT*****
.....TTCACAAAGCCCATACACTTTT..... 11*

mmu-mir-351(mmu-mir-351)

(-37.79)

mmu-mir-361(mmu-mir-361)

GAAGCTTATCAGAATCTCCAGGGGTACTTAGTATTTGAAAAGTCCCCCAGGTGTGATTCTGATTTGTTTC

(((((..((((((((((.(.(((((.((((.....))))).))))).))...)))))))))..)))) (-29.50)

*****TTATCAGAATCTCCAGGGGTAC*****

Supplemental Figure S3

.....ACTGGACTTGGAGTCAGAAG.... 346
ACTGGACTTGGAGTCAGA..... 159
CTGGACTTGGAGTCAGAAGGC... 62
CTGGACTTGGAGTCAGAAGG... 32
ACTGGACTTGGAGTCAGAA..... 30

.	ACTGGACTTGGAGTCAGAAGGa . . .	205
.	ACTGGACTTGGAGTCAGAAGGCa . .	121
.	ACTGGACTTGGAGTCAGAAGGt . . .	110
.	ACTGGACTTGGAGTCAGAAGGCt . .	92
.	CTGGACTTGGAGTCAGAAGGCt . .	71
.	ACTGGACTTGGAGTCAGAAGGGaT.	46
.	ACTGGACTTGGAGTCgGAAGGC. . .	33
.	ACTGGACTTGGAGTCAGAAGGCtTt	30
.	ACTGGACTTGGAGTCAGAAGGaa . .	30
.	ACTGGACTTGGAGTCAGAAGa	29
.	ACTGGACTTGGAGTCAGAAGGCtT.	27
.	ACTGGACTTGGAGTCAGAAGt	24
.	CTGGACTTGGAGTCAGAAGGCtTt	23
.	CTGGACTTGGAGTCAGAAGGCa . .	19
.	ACTGGACTTGGAGTCAGAAGGCaa . .	14
.	CTGGACTTGGAGTCgGAAGGCt . .	13
.	CTGGACTTGGAGTCAGAAGGCtT.	13

mmu-mir-379(mmu-mir-379)

.....	TGGTAGACTATGGAACGTAGGa.....	151
.....	TGGTAGACTATGGAACGTAGGt.....	96
.....	TGGTAGACTATGGAACGTAGGaa.....	52
.....	TGGTAGACTATGGAACGTAGGtAT.....	23
.....	TGGTAGACTATGGAACGTAGGtaa.....	17
.....	TGGTAGACTATGGAACGTAGGta.....	13
.....	TGGTAGACTATGGAACGTAGGaaa.....	12

mmu-mir-380-3p(mmu-mir-380)

AAGATGGTTGACCATAGAACATGCGCTACTTCTGTGTCGTATGTAGTATGGTCCACATCTT
 ((((((((((.....(((((((((((.....(((((((((((.....))))))))))))))))))))))))))))))))) (-27.00)
 *****TATGTAGTATGGTCCACATCTT
 TATGTAGTATGGTCCACATCTT.. 5

mmu-mir-380-5p(mmu-mir-380)

AAGATGGTTGACCATAGAACATGCGCTACTTCTGTGTCGATGTAGTATGGTCCACATCTT
 ((((((...(((((((...(((((((...)))))))))))))))))))))...))))))))) (-27.00)
 ATGGTTGACCATAGAACATGCG**.TATGTAGTATGGTCCACATCT.. 5

```
mmu-mir-381(mmu-mir-381)
```

TACTTTAAAGCGAGGTTGCCCTTTGTATATTCCGGTTTATTGCATGGAATATACAAGGGCAAGCTCTCTGTGAGTA
(((((((.(.(.((((((((((((((((((((.(.(((...)))..))))))))).....)))))))))..)))..)))..))) (-35.00)
*****TATACAAGGGCAAGCTCTCTGT*****
.....TATACAAGGGCAAGCTCTCTGT..... 11*

mmu-mir-382(mmu-mir-382)

Supplemental Figure S3

.....AATCATTACGGACAACACTT.....	98
.....GAAGTTGTTCTGGTGGATT.....	94
.....GAAGTTGTTCTGGTGGAT.....	71
.....AAGTTGTTCTGGTGGATTCTG.....	70
.....AATCATTACGGACAACACTTT.....	53
.....AAGTTGTTCTGGTGGATTCT.....	21
.....GAAGTTGTTCTGGTG.....	21
.....AATCATTACGGACAACACT.....	12
.....AAGTTGTTCTGGTGGATT.....	11
.....GAAGTTGTTCTGGTGGATTCTg.....	24
.....GAAGTTGTTCTGGTGGATTCTa.....	21
.....GAAGTTGTTCTGGTGGATTa.....	15
.....GAAGTTGTTCTGGTGGATTt.....	14

```
mmu-mir-383(mmu-mir-383)
CTCAGATCAGAAGGTGACTGTGGCTTTGGGTGGATATTAATCAGCCACAGCACTGCCTGGTCAGAAAGAG
...((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
...AGATCAGAAGGTGACTGTGGCT*.....(-28.90)
...AGATCAGAAGGTGACTGTGGCT.....17*
```

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mmu-mir-409-3p(mmu-mir-409)
TGGTACTCGAGAGAGGTTTACCCGAGCAACTTTGCATCTGGAGGACGAATGTTGCTCGGTGAACCCCTTTTCGGTATCA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))) (-38..10)
*****GAATGTTGCTCGGTGAACCCCT*****
.....GAATGTTGCTCGGTGAACCCCT.....26*
.....CGAATGTTGCTCGGTGAACCCCT.....24
.....AGGTTACCCGAGCAACTTTGCAT.....17
.....AATGTTGCTCGGTGAACCCCT.....16
.....AGGTTACCCGAGCAACTTTGCA.....6

```

```

mmu-mir-409-5p(mmu-mir-409)
TGGTACTCGGAGAGAGGTTACCCGAGCAACTTTGCATCTGGAGGACGAATGTTGCTCGGTGAACCCCTTTTCGGTATCA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AGGTTACCCGAGCAACTTTGCAT*****
.....GAATGTTGCTCGGTGAACCCCT.....26
.....CGAATGTTGCTCGGTGAACCCCT.....24
.....AGGTTACCCGAGCAACTTTGCAT.....17*
.....AATGTTGCTCGGTGAACCCCT.....16
.....AGGTTACCCGAGCAACTTTGCA.....6

```

```
mmu-mir-410(mmu-mir-410)
GGGTACTTGAGGAGAGGTTGTCTGTGATGAGTTCGCTTTATTAATGACGAATATAACACAGATGGCCTGTTTTCAATACCA
.(((.(((((((.((((.(((((((.(((((((.(.....)).)))))).)))))).)))))).) ( -35.80)
*****AATATAACACAGATGGCCTGT*****
*****AATATAACACAGATGGCCTGT..... 29*
```

*****TAGTAGACCGTATAGCGTACG*****	
.....TAGTAGACCGTATAGCGTAC.....	28
.....TAGTAGACCGTATAGCGTACG.....	28*
.....ATAGTAGACCGTATAGCGTAC.....	26
.....ATAGTAGACCGTATAGCGTACG.....	24

```
mmu-mir-423-3p(mmu-mir-423)
ACTTGTGAGGAAATAAAGGAAGTTAGGCTGAGGGGCAGAGAGCGAGACTTTTCTATTTTCCAAAAGCTCGGTCTGAGGCCCTCAGTCTTGCTTCTACCCGCG
CTTG
....(((.(.....(((((((.(((((((((((..((.(.(((.(((((.....))))))))).))..)))))))))))).)))))).))..))
).. (-52.20)
*****AGCTCGGTCTGAGGCCCTCAGT*****
```

```

***
.....TGAGGGGCAGAGAGCGAGACTTT.....
..... 5342
.....TGAGGGGCAGAGAGCGAGACTTTT.....
..... 777
.....TGAGGGGCAGAGAGCGAGACTT.....
..... 477
.....TGAGGGGCAGAGAGCGAGACT.....
..... 211
.....AGCTCGGTCTGAGGCCCTCAGT.....
..... 164*
.....TGAGGGGCAGAGAGCGAGAC.....
..... 84
.....TGAGGGGCAGAGAGCGAGA.....
..... 54
.....TGAGGGGCAGAGAGCGA.....
..... 42
.....AAGCTCGGTCTGAGGCCCTCAGT.....
..... 31
.....AGCTCGGTCTGAGGCCCTCAG.....
..... 27
.....TGAGGGGCAGAGAGCGAG.....
..... 15
.....AGGGGCAGAGAGCGAGACTTTT.....
..... 15
.....AAGCTCGGTCTGAGGCCCTCAG.....
..... 7
.....AGCTCGGTCTGAGGCCCTCAG.....

```


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..... 6
.....AAGCTCGGTCTGAGGCCCC.....

..... 5
.....AAGCTCGGTCTGAGGCCCT.....

..... 5

.....TGAGGGGCAGAGAGCGAGACTTa.....

..... 317
.....TGAGGGGCAGAGAGCGAGACTTTa.....

..... 302
.....TGAGGGGCAGAGAGCGAGgCTTT.....

..... 90
.....TGAGGGGCAGAGAGCGcGACTTT.....

..... 74
.....TGAGGGGCAGAGAGCGAGcCTTT.....

..... 39
.....TGAGGGGCAGAGAGCGAGACTTaa.....

..... 33
.....TGAGGGGCAGAGAGCGAGACTTaT.....

..... 32
.....TGAGGGGCAGAGAGCGAGACTTTaa.....

..... 31
.....TGAGGGGCAGAGAGCGAGAc.....

..... 31
.....TGAGGGGCAGAGAGCGAGACTTTTt.....

..... 27
.....TGAGGGGCAGAGAGCGgGACTTT.....

..... 24
.....TGAGGGGCAGAGAGCGAGtCTTT.....

..... 23
.....AGCTCGGTCTGAGGCCCTCAGTaT.....

..... 21
.....TGAGGGGCAGAGAGCGAGgCTTTT.....

..... 21
.....TGAGGGGCAGAGAGcTAgACTTT.....

..... 19
.....TGAGGGGCAGAGcGCGAGACTTT.....

..... 18
.....TGAGGGGCAGAGAGCGAGACgTT.....

..... 17
.....TGAGGGGCAGAGAGCGtGACTTT.....

..... 17
.....TGAGGGGCAGAGAGCGAGACTTg.....

..... 16
.....TGAGGGGCAGAGAGCGAGAAa.....

..... 15
.....TGAGGGGCAGAGAGCGAGACTTTaT.....

..... 14
.....AGCTCGGTCTGAGGCCCTCAGa.....

Supplemental Figure 10

..... 14	 TGAGGGGCAGAGAGCGAGACTaa.....
..... 14	 TGAGGGGCAGAGAGCGAGACaa.....
..... 13	 TGAGGGGCAGAGAGCGAGACTa.....
..... 13	 TGAGGGGCAGAGAGaGAGACTTT.....
..... 12	 TGAGGGGCAGAGAGCGAGACTaT.....
..... 12	 AGCTCGGTCTGAGGCCCTCAGTt.....
..... 12	 TGAGGGGCAGAGAGCGAGACcTT.....
..... 12	 TGAGGGGCAGAGAGCGAGAA.....
..... 12	 TGAGGGGCAGAGAGCGcGACTTTT.....
..... 11	 TGAGGGGCAGAGgGCGAGACTTT.....
..... 11	 TGAGGGGCAGAGAGCGAGaTTT.....
..... 10	 TGAGGGGCAGAGAGCGcGACTT.....
..... 10	

```

mmu-mir-429(mmu-mir-429)
CCTGCTGATGGATGCTCTACAGACATGGTTAGATCTGGATGCATCTGTCTAACTACTGTCTGGTAATGCCGTCATCCACGGC
.(((.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAATACTGTCTGGTAATGCCGT*****(-36..10)
.....TAATACTGTCTGGTAATGCCG.....50
.....TAATACTGTCTGGTAATGCCGT.....25*

```

[illegible]

mmu-mir-433(mmu-mir-433)
TGCCCGGGGAGAAAGTACGGTGAGCCTGTCATTATTCAGAGAGGCTAGATCCTCTGTGTTGAGAAGGATCATGATGGGCTCCTCGGTGTTCTCCAGGTAGCGGCAC
CACACCATGAAGGCAGCCC
((((...((((...(((.(((((((((((.(((((((...)))))).)...)))).)))))))).)).)...)))).).(((.(...))


```
mmu-mir-449a(mmu-mir-449a)
CTGTGTTGATGGCTTGGCAGTGATTGTTAGCTGGTTGAGTAGTGAGCGGCACCAGCTAACATGCGACTGCTCTCTATTGCACACACA
(((((((...(((((((...(((((((...(((((((...(((((((...)))))))))...)))))))))...)))))))))... (-44.90)
*****TGGCAGTGATTGTTAGCTGGT*****
.....TGGCAGTGATTGTTAGCTGGT..... 19*
-----

mmu-mir-449b(mmu-mir-449b)
AGACTCGGGTAGGCAGTGTTGTTAGCTGGCTGCGTTGGGTCAGGCCAGCAGCCACAGCTACCCTGCCACTTCCTTCTGGC
(((((...(((((((...(((((((...(((((((...(((((((...)))))))))...)))))))))...)))))))))... (-30.90)
*****AGGCAGTGTTGTTAGCTGGC*****
-----

mmu-mir-449c(mmu-mir-449c)
AGGATGAAGTGTGGGTGTGTCAAGCAGGCAGTGCAATTGCTAGCTGGCTGTTAGAAGTTATCCCAACAGTTGCTAGCTGCACTACCCTCTGCTGCACTCAGAAGC
ATGC
.((((...(((((...(((((...(((((...(((((...(((((...)))))))))...)))))))))...)))))))))... (-43.60)
*****AGGCAGTGCAATTGCTAGCTGG*****
****
-----

mmu-mir-450a-3p(mmu-mir-450a-2)
GAAGTATTTTTGCGATGTGTTCCTAATATGTACTATGAGTATATTGGGGATGCTTTGCATTCATGGTTC
(((((((...(((((((...(((((((...(((((((...(((((((...)))))))))...)))))))))...))))))))) (-26.30)
*****ATTGGGGATGCTTTGCATTCAT*****
.....TTTTGCGATGTGTTCCTAATAT..... 194
.....TTTTGCGATGTGTTCCTAAT..... 167
.....TTTTGCGATGTGTTCCTAATA..... 62
.....TTTTGCGATGTGTTCC..... 51
.....TTTTGCGATGTGTTCCATA..... 28
.....TTTTGCGATGTGTTCC..... 24
.....TTTTGCGATGTGTTCCCT..... 11
.....TTTTGCGATGTGTTCCCTA..... 8
.....TTTTGCGATGTGT..... 3
.....TTTTGCGATGTGTT..... 3
-----

mmu-mir-450a-5p(mmu-mir-450a-1)
GAGAGATACTGAGCTGTTTTTGGCATGTGTTCCTAATATGTGCTATAATTATATTGGGAACATTTGCATAAAAGCTTTGTGTCAATACA
(((((((...(((((((...(((((((...(((((((...(((((((...)))))))))...)))))))))...)))))))))... (-41.40)
*****TTTTGCGATGTGTTCCTAATAT*****
.....TTTTGCGATGTGTTCCTAATAT..... 194*
.....TTTTGCGATGTGTTCCTAAT..... 167
.....TTTTGCGATGTGTTCCTAATA..... 62
.....TTTTGCGATGTGTTCC..... 51
.....TTTTGCGATGTGTTCCATA..... 28
.....TTTTGCGATGTGTTCC..... 24
.....TTTTGCGATGTGTTCCCT..... 11
.....TTTTGCGATGTGTTCCCTA..... 8
.....TTTTGCGATGTGT..... 3
.....TTTTGCGATGTGT..... ATTGGGAACATTTGCATAAAT..... 10
.....TTTTGCGATGTGTT..... 3
-----

aaGAGAGATACTGAGCTGT..... 19
.....TTTTGCGATGTGTTCCTAat..... 18
.....TTTTGCGATGTGTTCCTAATAa..... 13
.....TTTTGCGATGTGTTCCTAaA..... 10
-----

mmu-mir-450a-5p(mmu-mir-450a-2)
GAAGTATTTTTGCGATGTGTTCCTAATATGTACTATGAGTATATTGGGGATGCTTTGCATTCATGGTTC
(((((((...(((((((...(((((((...(((((((...(((((((...)))))))))...)))))))))...))))))))) (-26.30)
*****TTTTGCGATGTGTTCCTAATAT*****
```

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```

.....TTTTCGCATGTGTTCCCTAATAT..... 194*
.....TTTTCGCATGTGTTCCCTAAT..... 167
.....TTTTCGCATGTGTTCCCTAATA..... 62
.....TTTTCGCATGTGTTCC..... 51
.....TTTTCGCATGTGTTCCCTAA..... 28
.....TTTTCGCATGTGTTCC..... 24
.....TTTTCGCATGTGTTCCCT..... 11
.....TTTTCGCATGTGTTCCCTA..... 8
.....TTTTCGCATGTGTT..... 3
.....TTTTCGCATGTGTT..... 3

```

mmu-mir-450b-3p(mmu-mir-450b)

```

GATACAGAATTATTTTGCAGTATGTTCTGAATACATAACATAAGCGTATTGGGAACATTTTGCATGCATAATTTTGTATC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****ATTGGGAACATTTTGCATGCAT***** (-31.80)
.....ATTGGGAACATTTTGCATGCAT..... 55*
.....TTGGGAACATTTTGCATGCAT..... 33
.....TTTTCAGTATGTTCTGAAT..... 9

```

mmu-mir-450b-5p(mmu-mir-450b)

```

GATACAGAATTATTTTGCAGTATGTTCTGAATACATAACATAAGCGTATTGGGAACATTTTGCATGCATAATTTTGTATC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TTTTCAGTATGTTCTGAATA***** (-31.80)
.....ATTGGGAACATTTTGCATGCAT..... 55
.....TTGGGAACATTTTGCATGCAT..... 33
.....TTTTCAGTATGTTCTGAAT..... 9

```

mmu-mir-451(mmu-mir-451)

```

CTTGGGAATGGCGAGGAAACCGTTACCATTACTGAGTTAGTAATGGTAACGTTCTCTTGCTGCTCCACA
..((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AAACCGTTACCATTACTGAGTT***** (-45.70)
.....AAACCGTTACCATTACTGAGTT..... 120
.....AAACCGTTACCATTACTGAGTT..... 66*

```

mmu-mir-452(mmu-mir-452)

```

GCTAAGCAGTTACAACGTGTTTGCAGAGAAACTGAGACTTTTATAACTATGTCTCAGTCTCATCTGCAAAGAGGTAAGTGCTTTGC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TGTTTGCAGAGGAAACTGAGAC***** (-39.70)

```

mmu-mir-453(mmu-mir-453)

```

AGAAGATGCAGGAGTGCTGTGAGAGTGCCATCCCCTGGTACTTGGAGGGAGGTTGCCTCATAGTGAGCTTGCAATTATTTAA
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AGGTTGCCTCATAGTGAGCTTGCA***** (-34.20)
.....TGCTGcAGTGCTcTGAG..... 17

```

mmu-mir-455(mmu-mir-455)

```

CTCCCTGGTGTGAGCGTATGTGCCCTTTGGACTACATCGTGAACGCAGCACCATGCAGTCCACGGGCATATACACTTGCCCTCA
.....(((((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.(((.
*****GCAGTCCACGGGCATATACACT***** (-37.50)
.....TATGTGCCCTTTGGACTACATCGT..... 36
.....GCAGTCCACGGGCATATACACT..... 26
.....TATGTGCCCTTTGGACTACATCG..... 21
.....GTATGTGCCCTTTGGACTACAT..... 19
.....TATGTGCCCTTTGGACTACAT..... 10

```

mmu-mir-463(mmu-mir-463)

```

CTTTACCTAATTTGTTGTCATCATGTAACACATAAATGATGATAGACACCATATAAGGTAGAGGAAGGTTCACT
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TGATAGACACCATATAAGGTAG***** (-20.20)

```

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mmu-mir-464(mmu-mir-464)

ACCTTGTTATGGGGTCTGGGGTAAGGAGTGGTCATCAGGGGACTACCAAGTTTATTCTGTGAGATAGA
 .(((.....)))((((((((((((((((((((.....)))..))))..))))..)))).. (-13.20)
 *****TACCAAGTTTATTCTGTGAGATA**

mmu-mir-465a-3p(mmu-mir-465a)

GCCCTATTAGAAATGGCACTGATGTGATAAAATAAAAAATTGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTAC
 (((((((((((((((((((((((.....)))..))))..))))..)))).. (-23.40)
 *****GATCAGGGCCTTTCTAAGTAGA*****
GATCAGGGCCTTTCTAAGTAGA..... 0*
TGATCAGGGCCTTTCTAAGTAGA..... 0

mmu-mir-465a-3p(mmu-mir-465b-1)

TGCAATGCCCTATTAGAAATGGTGCTGATCTGATGAATAAAAAATTGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTA
 .(((.(((.((((((((((((((((.....)))..))))..))))..)))).. (-30.53)
 *****GATCAGGGCCTTTCTAAGTAGA*****
GATCAGGGCCTTTCTAAGTAGA..... 0*
TGATCAGGGCCTTTCTAAGTAGA..... 0

mmu-mir-465a-3p(mmu-mir-465b-2)

TGCAATGCCCTATTAGAAATGGTGCTGATCTGATGAATAAAAAATTGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTA
 .(((.(((.((((((((((((((((.....)))..))))..))))..)))).. (-30.53)
 *****GATCAGGGCCTTTCTAAGTAGA*****
GATCAGGGCCTTTCTAAGTAGA..... 0*
TGATCAGGGCCTTTCTAAGTAGA..... 0

mmu-mir-465a-3p(mmu-mir-465c-1)

TGCAATGCCCTATTAGAAATGGCGCTGATCTGATGAATAAAAAAAATGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTA
 .(((.(((.((((((((((((((((.....)))..))))..))))..)))).. (-32.01)
 *****GATCAGGGCCTTTCTAAGTAGA*****
TATTTAGAAATGGCGCTGATCT..... 2
TATTTAGAAATGGCGCTGATCTG..... 2
GATCAGGGCCTTTCTAAGTAGA..... 0*
TGATCAGGGCCTTTCTAAGTAGA..... 0

mmu-mir-465a-3p(mmu-mir-465c-2)

TGCAATGCCCTATTAGAAATGGCGCTGATCTGATGAATAAAAAAAATGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTA
 .(((.(((.((((((((((((((((.....)))..))))..))))..)))).. (-32.01)
 *****GATCAGGGCCTTTCTAAGTAGA*****
TATTTAGAAATGGCGCTGATCT..... 2
TATTTAGAAATGGCGCTGATCTG..... 2
GATCAGGGCCTTTCTAAGTAGA..... 0*
TGATCAGGGCCTTTCTAAGTAGA..... 0

mmu-mir-465a-5p(mmu-mir-465a)

GCCCTATTAGAAATGGCACTGATGTGATAAAATAAAAAATTGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTAC
 (((((((((((((((((((((((.....)))..))))..))))..)))).. (-23.40)
 ****TATTTAGAAATGGCACTGATGTGA*****
GATCAGGGCCTTTCTAAGTAGA..... 0
TGATCAGGGCCTTTCTAAGTAGA..... 0

mmu-mir-465b-3p(mmu-mir-465a)

GCCCTATTAGAAATGGCACTGATGTGATAAAATAAAAAATTGATCAGGGCCTTTCTAAGTAGAGTAAGGCTTAC
 (((((((((((((((((((((((.....)))..))))..))))..)))).. (-23.40)
 *****GATCAGGGCCTTTCTAAGTAGA*****
GATCAGGGCCTTTCTAAGTAGA..... 0*


```
mmu-mir-466a-3p(mmu-mir-466b-2)
TGTATGTGTTGATGTGTGTACATGTACATGTCTGAATATGATATACATATACATACACGCACACATAAGACACATATGAG
.(((((((((.(((((((((.(((((.((((.....)))))).)))))).))))))))....) (-29.62)
*****TATACATACACGCACACATAAGA*****
```

```
mmu-mir-466a-3p(mmu-mir-466c)
GTATATGTTGTTGATGTGTGTGCATGTACATATGTGAATATGATATACATATACATACACGCACACATAAGACACATATGAGC
.((((((((((((.(((((((((((.(((((.((((((.....)))))))).)))))))).).)))))).... (-34..60)
*****TATACATACACGCACACATAAGA*****
```

```
mmu-mir-466a-3p(mmu-mir-466e)
GTGATGTGTTGATGTGTGTACATGTACATATGTGAATATGATATACATATACATACACGCACACATAAGACACATATGAGC
..(((((((((((.(((((((((.(((((.((((((.....)))))))).)))))))).)))))).... (-30.00)
*****TATACATACACGCACACATAAGA*****
```

```
mmu-mir-466a-5p(mmu-mir-466a)
TATATGTGTTTATGTGTGTACATGTACATATGTGAATATGATATCCATATACATACACGCACACATAAGAC
..(((((((.....(((((((((((((.....)))))).)))).))))).))))).)))... (-22.70)
*****TATGTGTGTGTACATGTACATA*****
```

mmu-mir-466b-3-3p(mmu-mir-466b-3)
TATATGTGTTGATGTGTGTACATGTACATGTGTGAATATGATACAAATACATACACGCACACATAAGACACATATGA
(((((((((((.(((((((((((.(((((((.((((((.....)))))).)))))).)))))).)))))). (-32..40)
*****AATACATACACGCACACATAGA*****

```
mmu-mir-466b-3p(mmu-mir-466a)
TATATGTGTTTATGTGTGTACATGTACATATGTGAATATGATATCCATATACATACGCACACATAAGAC
*.(((((((.....((((((((((((((((((((((...)))))).))..)))))))))).... (-22.70)
*****TATACATACACGCACATAGA*
```

```
mmu-mir-466b-3p(mmu-mir-466b-2)
TGTATGTGTTGATGTGTGTACATGTACATGCTGAATATGATATACATATACATACACGCACACATAAGACACATATGAG
.(((((((((((.(((((((((((.(((((((((((.)))))).)))))).)))))).))))).))... (-29.62)
*****TATACATACACGCACACATAAGA*****
```

```
mму-mir-466b-3p(mmu-mir-466c)
GTATATGTTGGTATGTTGTCATGTACATATGTGAATATGATATACATATACATAACGCACACATAAGCACCATATGAGC
.(!!!!!!!!!!!!(((((((.....)))))))).)))....(.....).))))))... (-34..60)
*****TATACATACACGCACACATAAGA*****
```

```
mmu-mir-466b-3p(mmu-mir-466e)
GTGATGTGTTGATGTGTGTACATGTACATATGTGAATATGATATACATATACATACACGCACACATAAGCACATATGAGC
..(((((((((((.(((((((((.(((((.((((((.....)))))))).)))))))).)))))).... (-30.00)
*****TATACATACACGCACACATAAGA*****
```

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.(((((((.((((((((((.((((.(((((((.....)))))).)))))))).)... (-33.70)

*****GATGTGTGTGTACATGTACAT*****

```
mmu-mir-466b-5p(mmu-mir-466b-3)
TATATGTGTTGATGTGTGTACATGTACATGTGTGAATATGATATACAAATACATACGCACACATAAGACACATATGA
(((((((.....)))))).)))))..))))).))))))). (-32..40)
*****GATGTGTGTTCATGTACATG*****
```

mmu-mir-466c-3p(mmu-mir-466b-1)
TGTATGTTGTTGATGTTGTTGACATGTACATGTGTGAATATGATATACATATACATACACGCACATAAGACACATATGAG
.(((((((((((.((((((((((..(((((.((((((((.....)))))).)))))...)))))))).).... (-33.70)
*****TATCATACACGCACATAAGA*****

```
mmu-mir-466c-3p(mmu-mir-466c)
GTATATGTGTTGATGTGTGTGTGCATGTACATATGTGAATATGATATACATATACATACACGCACACATAAGACACATATGAGC
.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TATACATACACGCACACATAAGA*****(-34.60)*****
```

```
mmu-mir-466c-3p(mmu-mir-466e)
GTGTTATGTGTTGATGTGTGTACATGTACATATGTGAATATGATATACATATACATACACGCACACATAAGACACATATGAGC
..(((((((.(.(((((((((..(((((.((((((.....)))))))).)))....( -30.00)
*****TATACATACACGCACACATAAGA*****
```

[illegible]

mmu-mir-466d-5p(mmu-mir-466d)
CATGTGTTGGTGTGTCGCATACATGTGTGTATGAATATACATATACATACACGCACACATAGATACGCACGCACACACACACAGG
..(((((((.....)))))))).)..)))..).)))))))).... (-46.60)

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```
mmu-mir-466e-3p(mmu-mir-466a)
TATATGTGTTTATGTGTGTGTACATGTACATATGTGAATATGATATCCATATACATACACGCACACATAAGAC
..(((((((...((((((((((((((((((((((((((...)))))))))... (-22.70)
*****TATACATACACGCACACATAAGA*
```

```
mmu-mir-466e-3p(mmu-mir-466b-1)
TGTATGTTGTTGATGTGTGTGCACATGTACATGTGTGAATATGATATACATATACATACACGCACACATAAGACACATATGAG
.((((((((.((((((((.((((((((.((((((((.(.....)))))).))))).))))).))))).)))))).... (-33.70)
*****TATACATACACGCACACATAAGA*****
```

[illegible]

```
mmu-mir-466e-3p(mmu-mir-466e)
GTGTAATGTTGATGTGTGTACATGTACATATGTGAATATGATATACATATACATACGCACACATAAGACACATATGAGC
..(((((((.....)))))))))... (-30.00)
*****TATCATACATCGCACACATAAGA*****
```

[illegible]

* * * * *

.....TGcGTGCATtTGCTTtT..... 15

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```
mmu-mir-466i(mmu-mir-466i)
AGAGATCATGTGCAGTGAAC TGCCACATTTTGTATATATTATGTATGTATGTGTGTGTGTGTGTGTGTGTATATATATACACACACATACACACTACATG
TATGCAACATATATAC
(((((((.(.(((.(...)).)).)))))).(((((.(.((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))).)).)))))).( -53.40)
*****ATACACACACATACACTA*****
```

* * * * *

* * * * *

```
mmu-mir-466k(mmu-mir-466k)
ATATATGTGTGTGTGTGTGTGTGTGTGTACATGTACATGTGAGTATGTGTGTGTATATGTTTGTACATGTGCATGTGTGTGAGTATGTGAATATATGTGTATATG
TGTGCATGTGCATGTGT
...(((.((.(((((.(((((((((((((((((((((.(((.((((((((((((((.))))))...)))...)))...)))...)))...)))...)))...)))
..)))))...))..)) (-45.20)
*****TGTGTGTGTACATGTACATGTGA*****
```

* * * * *

* * * * *

```
mmu-mir-467a(mmu-mir-467b)
CCGTGTGCGTAAGTGCCTGCATGTATATGCGTGTATATTTTATGCATATACATACACACCAACACACACAT
..(((((((.(.(((.(.((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****TAAGTGCCTGCATGTATATGCG*****(-29.70)
.....TAAGTGCCTGCATGTATATGCG..... 9*
```

```
mmu-mir-467b(mmu-mir-467a)
CTGTGTGCGTAAGTGCCTGCATGTATATGCGTGTATATTTATGCATATACATACACACCTACACACACAT
.(((((((.(.(.(((.(.((((((((((((((((.....)))))))))))))))))).)).)).)).)))))). (-32..10)
```

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```

*****GTAAGTGCCTGCATGTATATG*****
.....TAAGTGCCTGCATGTATATGCG..... 9
-----

mmu-mir-467b(mmu-mir-467b)
CCGTGTGCGTAAGTGCCTGCATGTATATGCGTGTATATTTTATGCATATACATACACACCAACACACACAT
..((((((..((..((..((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-29.70)
*****GTAAGTGCCTGCATGTATATG*****
.....TAAGTGCCTGCATGTATATGCG..... 9
-----

mmu-mir-467c(mmu-mir-467c)
CCTTTGTGCATAAGTGCCTGCATGTATATGTGTGTATATTTTATGCATATACATACACACCTATACACACATGCACACAGACATGCGAGAATGGC
((((((((..((((((((..((((((((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-29.36)
*****TAAGTGCCTGCATGTATATGTG*****
-----

mmu-mir-467d(mmu-mir-467d)
CCTGTGTGCATAAGTGCCTGCATGTATATGCGTGTATATTTTATGCATATACATACACACCTACACACATGCACACAGACA
..((((((((..((((((((..((((((((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-33.10)
*****TAAGTGCCTGCATGTATATGCG*****
.....ATAAGTGCCTGCATGTATATGCG..... 15
.....TAAGTGCCTGCATGTATATGCG..... 11
.....TAAGTGCCTGCATGTATATGCG..... 10*
-----

mmu-mir-467e(mmu-mir-467e)
GCCTGTGTGCATAAGTGTGAGCATGTATATGTGTGTATATTTTATGCATATACATACACACCTATATACACATGCACACAGACAT
..((((((((..((((((((..((((((((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-33.60)
*****ATAAGTGTGAGCATGTATATGT*****
.....ATAAGTGTGAGCATGTATATGT..... 20*
-----

mmu-mir-467f(mmu-mir-467f)
ACGGCTACATAGAGAAATCCTGTACCCAGAAATCGAACGGGGGTGGGTGTGTGTGTAGGTGTGTGTGTGTATGTATGTATATACACACACACCTACACACA
GCTTTTTTGAATTT
.....((((((((..((((((((..((((((((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-54.30)
*****ATATACACACACACACCTACA*****
*****
-----

mmu-mir-467g(mmu-mir-467g)
GTCTTGTGCATGCATATATATATGTGTGTGTATATATATATACATATATACATACACATGTATATGTATATATACATACACACATATATATAT
TCATGTATATATATA
...((((((((..((((((((..((((((((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-51.20)
*****TATACATACACACATATAT*****
*****
-----

mmu-mir-467h(mmu-mir-467h)
TTTTTACATTTTGTCTTCATGTATATGTGTGTGTGCGGTGTACATAATTATATCTATGTGTGCATGTATGTGGACATAAGTGTGTGCATGTATATGTGTGT
GTGTGGTGTACATAAT
.....((((((((..((((((((..((((((((((((((((((((.....))))))))))))))..))..))..))..))..)).. (-34.00)
)...)...).. (-34.00)

```


[illegible]

```
mmu-mir-491(mmu-mir-491)
AATTGACTTAGCTGGAAGTGGGGAACCCCTTCCATGAGGAGTAGAACACTCCTTATGCAAGATTCCCTTCTACCTGACTGAGTTGA
..((..(((.....(((.....(((.....(((.....)))))))))).)).))))).)).)).))))).)) (-40..10)
*****AGTGGGGAACCCCTTCCATGAGG*****
```

```
mmu-mir-494(mmu-mir-494)
TTGATACTTGAAGGAGAGGTTGTCCGTTGTCTTCTCTTTATTTATGATGAAACATACACGGGAACCTCTTTTTTAGTATCAA
.( (((((( (((((((((( .(((((((((( (((((.....)))))))).)))))).))))). )))))). (-36.70)
*****
*****TGAAACATACACGGGAACCTC*****
```

```

mmu-mir-495(mmu-mir-495)
AAAGAAGTTGCCCATGTTATTTTTTCGCTTTTATTTGTGACGAAACAAACATGGTGCACTTCTT
.(((((((.(((((((((.(((.(((((.)))))))).)))))))).))))))))) (-22.40)
*****AAACAAACATGGTGCACTTCTT
*****AAACAAACATGGTGCACTTCTT. 20*
.....AACAAACATGGTGCACTTCTTt 10

```

.....ATGGTC-GTTCATTTT.....	1624
.....ATGGTC-GTTCATTTTA.....	31
.....ATGGTC-GTTCATTT.....	23
.....CATGGTC-GTTCATTTT.....	13

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*****TTAAGACTTGCAGTGATGTTT*****

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..... 10

mmu-mir-503(mmu-mir-503)

TGCCCTAGCAGCGGGAACAGTACTGCAGTGAGTGTGGTGCCCTGGAGTATTGTTTCCACTGCCTGGGTA
 ((((((.....))))))..))))) (-37.70)
 *****TAGCAGCGGGAACAGTACTGCAG*****

.....TAGCAGCGGGAACAGTACTGCAG..... 1704*
TAGCAGCGGGAACAGTACTGCA..... 391
TAGCAGCGGGAACAGTACTG..... 326
TAGCAGCGGGAACAGTACTGCAGT..... 230
TAGCAGCGGGAACAGTACT..... 140
GGAGTATTGTTTCCACTGCCTGG..... 81
TAGCAGCGGGAACAGTACTGC..... 67
GAGTATTGTTTCCACTGCCTGG..... 62
TAGCAGCGGGAACAGTACT..... 31
TAGCAGCGGGAAC..... 17
TAGCAGCGGGAACAG..... 14

.....TAGCAGCGGGAACAGTACTGa..... 147
TAGCAGCGGGAACAGTACTaa..... 124
TAGCAGCGGGAACAGTACTGCa..... 72
TAGCAGCGGGAACAGTACTGCAt..... 65
TAGCAGCGGGAACAGTACTaaA..... 49
TAGCAGCGGGAACAGTACTGaAa..... 44
TAGCAGCGGGAACAGTACTaaAa..... 37
TAGCAGCGGGAACAGTACTa..... 29
TAGCAGCGGGAACAGTACTGCAGa..... 29
TAGCAGCGGGAACAGTACTGCcG..... 29
GGAGTATTGTTTCCACTGCCTGGa..... 29
TAGCAGCGGGAACAGTACTGt..... 27
TAGCAGCGGGAACAGTACTGaA..... 19
TAGCAGCGGGAACAGTACTGCaa..... 12
TAGCAGCGGGAACAGTACTGCAGaa..... 10

mmu-mir-504(mmu-mir-504)

TCCTGTTGGGAGACCCTGGTCTGCACTCTATCTGTAACTTACTGAAGGGAGAGCAGGGCAGGGTTTCCATACAGAGG
 ..(((((((.....))))))..))))) (-44.30)
 *****AGACCCTGGTCTGCACTCTATC*****

.....GTTGGGAGAgCtT..... 40

mmu-mir-505(mmu-mir-505)

AAATTGATGCACCCAGTGGGGAGCCAGGAAGTATTGATGTTTCTGCCAGGTTAGCGTCAACACTTGCTGGTTTTCTCTGGAGTATCA
(((((((.....))))))..))))) (-43.20)
 *****CGTCAACACTTGCTGGTTTTCT*****

mmu-mir-509-3p(mmu-mir-509)

GTGGTTCTTTACTCCAGAATGTGGCAATCATGCATAATTAATGTGATTGACATTTCTGTAATGGAGTAACACAT
 (((.....(((((((.....))))))..))))) (-19.40)
 *****TGATTGACATTTCTGTAATGG*****

mmu-mir-509-5p(mmu-mir-509)

GTGGTTCTTTACTCCAGAATGTGGCAATCATGCATAATTAATGTGATTGACATTTCTGTAATGGAGTAACACAT
 (((.....(((((((.....))))))..))))) (-19.40)
 *****TACTCCAGAATGTGGCAATCAT*****

mmu-mir-511(mmu-mir-511)

GATACCCACCATGCCTTTTGCTCTGCACTCAGTAAATAATAATTTGTGAATGTGTAGCAAAAGACAGGATGGGGATCCA
 (((.....(((((((.....))))))..))))) (-27.90)
 *****ATGCCTTTTGCTCTGCACTCA*****

mmu-mir-532-3p(mmu-mir-532)

[illegible]

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mmu-mir-532-5p(mmu-mir-532)
CAGATTGTGCTTTTCTCTTCACGCTTGAGTGTAGGACCGTTGACATCTTAATTACCCCTCCCACACCCAAGGCTTGCAAGGAGAGCAAGCCTTCTC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CATGCCTTGAGTGTAGGACCGT*****(-33.82)
.....CATGCCTTGAGTGTAGGACCGT.....158*
.....CCTCCCACACCCAAGGCTTGCA.....6
.....CATGCCTTGAGTGTAGGACCGTT.....5

```

```
mmu-mir-540-3p(mmu-mir-540)
TGGGGCAAGGGTCAACCTCTGACTCTGTGGCCAAGGGTAGACAGGTCAGAGGTCGATCCTGGGCCTA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))) ( -42.00)
*****AGGTCAGAGGTCGATCCTGG*****
....CAAGGGTCAACCTCTGACTCTGT.....13
....CAAGGGTCAACCTCTGACTCTG.....9
....CAAGGGTCAACCTCTGACTCT.....6
.....AGGTCAGAGGTCGATCCTGGG.....5
.....AGGTCAGAGGTCGATCCTGGGC.....5
```

```

mmu-mir-540-5p(mmu-mir-540)
TGGGGCAAGGGTCACCTCTGACTCTGTGGCCAGGGTAGACAGGTCAGAGGTCGATCCTGGGCCTA
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CAAGGGTCACCTCTGACTCTGT***** (-42.00)
....CAAGGGTCACCTCTGACTCTGT.....13*
....CAAGGGTCACCTCTGACTCTG.....9
....CAAGGGTCACCTCTGACTCT.....6
.....AGGTCAGAGGTCGATCCTGGG.....5
.....AGGTCAGAGGTCGATCCTGGGC.....5

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mmu-mir-541(mmu-mir-541)
GCCAAATCAGAGAGGGATTCTGATGTTGGTCACACTCCAAGAGTTTTAAATGAGTGGCGAACACAGAATCCATACTCTGCTTATGGC
(((((((((.....)))))))).)))))))))..))))).)).))) (-37.50)
*****AAGGGATTCTGATGTTGGTCACACT*****
.....AAGGGATTCTGATGTTGGTCAC.....257
.....AAGGGATTCTGATGTTGGTCA.....229
.....AAGGGATTCTGATGTTGGTCACA.....184
.....AAGGGATTCTGATGTTGGTCACAC.....81
.....AAGGGATTCTGATGTTGGTCACACT.....71*
.....AAGGGATTCTGATGTTGGT.....69
.....AAGGGATTCTGATGTTGGTC.....48
.....AAGGGATTCTGATGTTGG.....20
-----
.....AAGGGATTCTGATGTTGGTCat.....73
.....AAGGGATTCTGATGTTGGTCAct.....29
.....AAGGGATTCTGATGTTGGTat.....20
.....AAGGGATTCTGATGTTGGTCa.....19
.....AAGGGATTCTGATGTTGGTCAct.....10
.....AAGGGATTCTGATGTTGGTat.....10

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.....TGTGACAGATTGATAACTGAAAGt.....	80
.....TGTGACAGATTGATAACTGAAAt.....	23
.....TGTGACAGATTGATAACTGAAaa.....	18
.....TGTGACAGATTGATAACTGAAt.....	11
.....TGACAGATTGATAACTGAAAGt.....	11

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(((((((((((..(((.((((((((((((((..((((((...((((.....))))).)))).)))..))))))))))..))))..))))))....))))))

*****GGGAGCCCATACTTGGTTTCAG*****

ACACTATATTATGTATAAATGTAACACACTTCTATATATGTCCACATATATGCCGGTGTTGTTATTATACAGGTATAGGTGTG
(((((((((((.....(((((((((((.....)))))))).)))))))).)))))))).))))). (-31..10)
*****ATGTATAAAATGTATACACA*****

TCGCGGGCGTGTGAGTGTGTGTGTGTGAGTGTGTGTGCTCCAAGTCCACGCTCATGCACACACCCACACGCCCGCACG
 ((((((((((((((.(.(((((((((((((((((((.(.)).)))))))))))))))))))))))))))))).. (-55.70)

 *****CAGGCTCATGCACACACCCACAC*****

.....TGAGTGTGTGTGTGTGAGTGT.....	CACGCTCATGCACACACCCACA.....	25
.....TGAGTGTGTGTGTGTGAGTGT.....	CACGCTCATGCACACACCCACA.....	19*
.....TGAGTGTGTGTGTGTGAGTGT.....	CACGCTCATGCACACACCCACA.....	7
.....TGAGTGTGTGTGTGTGAGTGT.....	CACGCTCATGCACACACCCACA.....	6

.....TGAGTGTGTGTGTGTGAGTGTGT.....	25
.....CAGCTCATGCACACACCCACA.....	19
.....TGAGTGTGTGTGTGTGAGTGTGT.....	7*
.....CAGCTCATGCACACACCCAC.....	6

.....acAGTCCACGaTC.....	12
.....TGAGTGTGTGTGTGAGTGTGa.....	10
.....TGAGTGTGTGTGTGTGAGTGTGa.....	10

ACTCTTTGGATACAGTGTGTCACCAGTTACTAATCTAACTAATTGTAACCTGTTGAACAACCTGAACCCAAAGGGTGCAAA
(((((((.....((((((((((.....)))))))).))))))).... (-33.94)
*****CCTGTGGAACCTGAACCAA*****

[illegible][illegible]

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mmu-mir-598(mmu-mir-598)
GCTGATGCTGGCGGTGATGCCGATGGTGCAGCTGAAAATGGGCTGCTACGTCATCGTCGTCATCGTTATCATCATCAT
(((((((.....))))))....)))...))).. (-33.30)
*****TACGTCATCGTCGTCATCGTTA*****
.....TACGTCATCGTCGTCATCGTTAT..... 81
.....TACGTCATCGTCGTCATCGTT..... 52
.....TACGTCATCGTCGTCATCGTTA..... 41*

-----

mmu-mir-615-3p(mmu-mir-615)
TCGGGAGGGGCGGGAGGGGGGTCCCGGTGCTCGGATCTCGAGGGTGCTTATTGTTCCGGTCCGAGCCTGGGTCTCCCTCTCCCCCATCCC
..(((((((.....))))))....))).. (-61.00)
*****TCCGAGCCTGGGTCTCCCTCT*****
.....TCCGAGCCTGGGTCTCCCTCT..... 30
.....TCCGAGCCTGGGTCTCCCTCT..... 21*

-----

mmu-mir-615-5p(mmu-mir-615)
TCGGGAGGGGCGGGAGGGGGTCCCGGTGCTCGGATCTCGAGGGTGCTTATTGTTCCGGTCCGAGCCTGGGTCTCCCTCTCCCCCATCCC
..(((((((.....))))))....))).. (-61.00)
*****GGGGGTCCCGGTGCTCGGATC*****
.....TCCGAGCCTGGGTCTCCCTCT..... 30
.....TCCGAGCCTGGGTCTCCCTCT..... 21

.ttGGAGGGGCGGGAGGG..... 25
cTCGGGAGGGGCGGGAG..... 14

-----

mmu-mir-652(mmu-mir-652)
AGGAACAGCTATGTACTGCACAACCCTAGGAGGGGGTGCCATTACATAAGATATAATTGAATGGCGCCACTAGGGTTGTGCA GTGTACAGCCTACAC
(((((.....)))))).. (-51.30)
*****AATGGCGCCACTAGGGTTGTG*****
.....AATGGCGCCACTAGGGTTGTG..... 205*
.....AATGGCGCCACTAGGGTTGTG..... 95
.....AATGGCGCCACTAGGGTTGTG..... 16
.....AATGGCGCCACTAGGGTTGTG..... 12
.....AATGGCGCCACTAGGGTTGTG..... 10
.....AATGGCGCCACTAGGGTTGTGt..... 2180
.....AATGGCGCCACTAGGGTTGTGa..... 299
.....AATGGCGCCACTAGGGTTGTGtt..... 130
.....AATGGCGCCACTAGGGTTGTGt..... 29
.....AATGGCGCCACTAGGGgTGTGt..... 22
.....AATGGCGCCACTAGGGcTGTGt..... 20
.....AATGGCGCCACTAGGGTTGTGat..... 14
.....AATGGCGCCACTAGGGTTGTGtt..... 13
.....ATGGCGCCACTAGGGTTGTGt..... 12
.....AATGGCGCCACTAGGGTTGTGa..... 11
.....AATGGCGCCACTAGGGTTGTGg..... 11
.....AATGGCGCCACTAGGGTTGTgt..... 10

-----

mmu-mir-653(mmu-mir-653)
CATCTTTTCA GTTGTGAACAATCTCTACTGAACCAAGCTCCAAGCGAGTTCA CTGGAGTTTGT TTTCA GTATTG CAGGAGTGC T
(((((((.....))))))....))).. (-35.80)
*****GTGTTGAACAATCTCTACTG*****

-----

mmu-mir-654-3p(mmu-mir-654)
CTCGGTAAGTGGGAAGATGGTAAGCTGCAGA ACATGTGTGTTTCTCATGT CATATGTCTGCTG ACCATCACCTTTGGGTCTCTG
((((.....((.....(.....))))))....)).. (-23.90)
*****TATGTCTGCTGACCATCACCT*****

-----

mmu-mir-654-5p(mmu-mir-654)
CTCGGTAAGTGGGAAGATGGTAAGCTGCAGA ACATGTGTGTTTCTCATGT CATATGTCTGCTG ACCATCACCTTTGGGTCTCTG
```

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(((((.....((...(((((((.....(((((((.....)))))))))..))))))..))))))..... (-23.90)
 *****TGGTAAGCTGCAGAACATGTGT*****

.....ATGG-AAGCTGcGA..... 11

mmu-mir-665(mmu-mir-665)

AGAACAGGGTCTCCTTGAGGGGCTCTGCCTCTATCCAGGATTATGTTTTATGACCAGGAGGCTGAGGTCCCTTACAGGC6GCTCTTACTCT
(((((((.....(((((((.....)))))))))..))))))..))))))..... (-44.40)
 *****ACCAGGAGGCTGAGGTCCCT*****

.....ACCAGGAGGCTGAGGTCCCTTA..... 22

mmu-mir-666-3p(mmu-mir-666)

CTGATTCTGCCTGCGTGGAGCGGGCACAGCTGTGAGAGCCCCCTAGGTACAGCGGGGCTGCAGCGTGATCGCTGCTCACGCACAGGAAGTGACGACAG
 (((..((..(((.....(((((((.....)))))))))..))))))..)))))).....

(-47.30)

*****GGCTGCAGCGTGATCGCTGCT*****

mmu-mir-666-5p(mmu-mir-666)

CTGATTCTGCCTGCGTGGAGCGGGCACAGCTGTGAGAGCCCCCTAGGTACAGCGGGGCTGCAGCGTGATCGCTGCTCACGCACAGGAAGTGACGACAG
 (((..((..(((.....(((((((.....)))))))))..))))))..)))))).....

(-47.30)

*****AGCGGGCACAGCTGTGAGAGCC*****

mmu-mir-667(mmu-mir-667)

GTGGGTACTGGCCTCGGTGCTGGTGGAGCAGTGAGCACGCCATACATTATATCTGTGACACCTGCCACCCAGCCCAAGGCCCTAGGCCAC
 ((((((.....(((((((.....)))))))))..))))))..))))))..... (-40.94)
 *****TGACACCTGCCACCCAGCCCAAG*****

mmu-mir-668(mmu-mir-668)

GGTAAGTGTGCCTCGGGTGAGCATGCACTTAATGTAGGTGTATGTCACTCGGCTCGGCCCACTACC
 ((((((.....(((((((.....)))))))))..))))))..))))))..... (-33.30)
 *****TGTCACCTCGGCTCGGCCCACTACC*****

.....TGTCACCTCGGCTCGGCCCACT.... 16

.....TggaTCACTCGGCTCG..... 14

mmu-mir-669a(mmu-mir-669a-1)

TGTATGTGCATGTGTGTATAGTTGTGTGTGCATGTTTCATGTCTATATTTGAATATACATAACATACACACACGTATAAACGCAAGCACACATACA
 .(((((((.....(((((((.....)))))))))..))))))..)))))).....

(-36.80)

*****AGTTGTGTGTGCATGTTTCATGT*****

mmu-mir-669a(mmu-mir-669a-2)

CATGTATGTGCATGTGTGTATAGTTGTGTGTGCATGTTTCATGTCTATATTTGAATATACATAACATACACACACGTATAAACGCAAGCACACACA
 ..(((((((.....(((((((.....)))))))))..))))))..)))))).....

(-37.80)

*****AGTTGTGTGTGCATGTTTCATGT*****

mmu-mir-669a(mmu-mir-669a-3)

TTCCTCCATGTATGTGCATGTGTGTATAGTTGTGTGTGCATGTTTCATGTCTATATTTGAATATACATAACATACACACACATGTATAAACGCAAGCACACATACA
 CAGA

.....(((((((.....(((((((.....)))))))))..))))))..)))))).....

.... (-37.90)

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*****AGTTGTGTGTGCATGTTTCATGT*****
****
-----
-----
mmu-mir-669b(mmu-mir-669b)
ATGAATGTATGTGCATGTGTATATAGTTTTGTGTGCATGTGCATGTGTCTATTAAATGTACATATACATACACACAAACATATACACGCATGCGCA
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
(-39.80)
*****AGTTTGTGTGCATGTGCATGT*****
-----
-----
mmu-mir-669c(mmu-mir-669c)
CCTCCATGTATGTGCATGTGTGTATAGTTGTGTGTGGATGTGTGTATTTCATATAAATAACATACACACACACACAAGTAAACACAAGTGCACAAACAGACA
CAGG
(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...
.))) (-46.00)
*****ATAGTTGTGTGTGGATGTGTGT*****
****
.....ATAGTTGTGTGTGGATGTGTGT.....
..... 289*
.....ATAGTTGTGTGTGGATGTGTGTAT.....
..... 52
.....ATAGTTGTGTGTGGATGTGTGTA.....
..... 33
-----
-----
mmu-mir-669d(mmu-mir-669d)
CAGCCCGGGATTGTGTGTTGCTTGCTCTATATGTGTGTATACTTGTGTGTGCATGTATATGTGTGTATATGAATATACATATACATACACCCATATACACAC
GCATGCATGCACACAC
.....((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
)))...))...))...))...))...))...))...))...))...))...))...))...))...))...))...))...))...))...))...
(-49.71)
*****ACTTGTGTGTGCATGTATATGT*****
*****
-----
-----
mmu-mir-669e(mmu-mir-669e)
GCCTGGGATTTCATGGGCTGTACCCTATATATGGGCAGGTGTGTGTCTTGTGTGTGCATGTTTCATTTGTGTATATGAATATGAATATACACACACTTACACACTCA
TGCACACACACACA
((((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...
.)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...
(-40.04)
*****TGTCTGTGTGTGCATGTTTCAT*****
*****
-----
-----
mmu-mir-669f(mmu-mir-669f)
TGTATGTGCCTGTGTGTATAGTTGTGTGTGCATGTGCATGTGTGTATATGAATATACATATACATACACACACACGTATAAACGCAAGCACAAACACACACAGAG
GAATGGCACTCGTTGA
(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...
.)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...)))))...
(-46.30)
*****CATATACATACACACACACGTAT*****
*****
*****
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.....

.....

.....

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*****TATGCATATACACGCATGCAA*****

* * * * *

mmu-mir-670(mmu-mir-670)
GGTTTGAGGTGGGCGCTGACATCCCTGAGTGTATGTGGTGAACCTGAACCTGCCCTGGGTTTCCTCATATCCATTGAGGAGTGTGAGCTGCCTCTTCGCT
(((...((((..(((((....(((((((.....))))).)).))))))..)))))))..)))))))..)))))))..)))))))..)))))))..)))))))

(-46.70)
*****ATCCCTGAGTGTATGTGGTGAA*****

[illegible]

(-57.10)
*****TCCGGTTCACGGGCTCCACC*****

[illegible]

(-57.10)
*****AGGAAGCCCTGGAGGGGCTGGAG*****

.....AGGTCGATGGATtTTTT.....	90
.....AGGTCGATGGATtTTTT.....	70
.....GAGGTCGATGGATtTTTT.....	62
.....AGGTCGATGGATtTT.....	52
.....GAGGTCGATGGATtTTTT.....	38
.....GAGGTCGATGGATtTT.....	24
.....GAGGTCGATGGATtT.....	13
.....AGGTCGATGGATcTTTT.....	11
.....aGAGGTCGATGGATtTTTT.....	10

mmu-mir-672(mmu-mir-672)
GATGGTGATCTAGCCCTTTAGTTTTGAGGTTGGTGTACTGTGTGAGTATACATATTATCACACACAGTCACTATCTTCGAAAGTGAGGGTGCACATC
(((((((((.....(((((((.((((((((((((((.(((((((((((((((((.....)))))))))))))))))))))).)))))))).)))))))).))))))

(-44.32)
*****TGAGGTTGGTGTACTGTGTGA*****
.....TGAGGTTGGTGTACTGTGTGA.....

17769*.....TGAGGTTGGTGTACTGTGTGT.....

3569TGAGGTTGGTGTACTGTGTGTG.....

2063		
.....	TGAGGTTGGTGTACTGTGT.....	272
.....	TGAGGTTGGTGTACTGTGTG.....	216
.....	GAGGTTGGTGTACTGTGTGTGA.....	102
.....	TGAGGTTGGTGTAC.....	63
.....	TGAGGTTGGTGTACTGT.....	38
.....	TGAGGTTGGTGTACTGTG.....	36
.....	TGAGGTTGGTGTGTA.....	19
.....	GAGGTTGGTGTACTGTGTGTG.....	17
.....	GAGGTTGGTGTACTGTGTGT.....	13

.....TGAGGTTGGTGTACTGTGTGTgt.....

1229TGAGGTTGGTGTACTGTGTGTGAt 382

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.....TGAGGTTGGTGTACTGTGTGTGAa.....	375
.....TGAGGTTGGTGTACTGTGTGTGAaa.....	156
.....TGAGGTTGGTGTACTGTGTGTGg.....	111
.....TGAGGTTGGTGTACTGTGTGTGa.....	94
.....TGAGGTTGGTGTACTGTGTGTGc.....	71
.....TGAGGTTGGTGTACTGTGTGTGt.....	30
.....TGAGGTTGGTGTACTGTGTGgGTGA.....	29
.....TGAGGTTGGTGTACTGTGTGTGAaT.....	24
.....TGAGGgTGGTGTACTGTGTGTGA.....	24
.....TGAGGTTGGTGTACTGTGTGTGa.....	22
.....TGAGGTTGGTGTACTGTGTGTtA.....	18
.....TGAGGTTGGTGTACTGcGTGTGA.....	17
.....TGAGGTTGGTGTACTGTGTtTGA.....	16
.....TGAGGTTGGTGgACTGTGTGTGA.....	15
.....TGAGGTTGGTGTACTGTGTGTaA.....	14
.....TGAGGTTGGTGTACTGTGTGTGtA.....	14
.....TGAGGTTGGTGTAtTGTGTGTGA.....	13
.....TGAGGTTGGTGTACTGgGTGTGA.....	13
.....TGAGGTTGGTGTACTGTGTGgGA.....	12
.....TGAGGTTGGTGTACTGTGTGaA.....	12
.....TGAGGTTGGTGTACTGTGTGcGA.....	12
.....TGAGGTTGGTGTACTGTGTGTGtT.....	12
.....TGAGGTTGGTGTACTGTGTGa.....	12
.....TGAGGTTGGTGTACTGTGcGTGA.....	11
.....TGAGGTTGGTGTACTGTtTGTGA.....	10
.....TGAGGTTGGTGTACTGTGTGTGAaaa.....	10
.....TGAGGTTGgGTACTGTGTGTGA.....	10

[illegible][illegible][illegible]

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*****TGGTGC GGAAGGGGCCACAGT***** (-56.00)

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mmu-mir-677(mmu-mir-677)
GAGCCTTCAGTGATGATTAGCTTCTGACTTTCGTTCTTCTGAATTTGCTGAAGCCAGATGCCGTTCTGAGAAGGGGAAAAATGGACAGAACTGAACATTTTGA
GGCT
.((((((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.((((((.
))))))(-35.20)
*****TTCAGTGATGATTAGCTTCTGA*****
****
```

```
mmu-mir-679(mmu-mir-679)
CTATGGCTTTGGACTGTGAGGTGACTCTTGGTGTGTGATGGCTTTTCAGCAAGGCCTCCTCACAGTAGCTATA
.(((((((.....(((((((.(.(((((.(.((.....)).)))))))))..))))))))) (-30..90)
*****GGACTGTGAGGTGACTCTTGGT*****
```

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.(((((((((((.((((.(((...(((((.((((..(((((((.(.....))))).)))))...)))))...)).)...)))))...)).)

* * * * *

.....AGGTcGATGGaTTT.....

..... 21

mmu-mir-683(mmu-mir-683)
TGGGAAGTCCAGCTGGGAGGCTGCAGTGGACCCAGGCTAAAGCCAAGCTTTTCTGCACTGCAGTGGATGCCTGCTGTAAGCTGTGTCCTCCTGGGCTGCATGGA

.))) (-43.60)
*****CCTGCTGTAAGCTGTGTCCTC*****

* * * *

```
mmu-mir-684(mmu-mir-684-1)
GTAGGGCAATCTGTCCTTAAGTAGGGATAAATTACTCTTGAACAAATGATCCTAGATAGTTTTCCCTTCAAGTCAAAGCGTCTTG
(((((((...((.(.....((((..(((((.(((.(.....)).).))).))))))))) (-18.70)
*****AGTTTCCCTTCAAGTCAA*****
```

```
mmu-mir-684(mmu-mir-684-2)
TGTAGGGCAATCTGTCTTTAAGTAGGGATAATTACTCTTGAACAAATGATCCTAGATAGTTTTCCCTTCAAGTCAAGTGCTTG
..(((((((..((.(((.....((((((((((((.(.(((.(.....).)).).)))))))))).).)))))) (-18.80)
*****AGTTTTCCCTTCAAGTCAA*****
```

mmu-mir-685(mmu-mir-685)
GTCGGGGCGGATGCCTCCCTCGCCGGAGCGGATGCCTCCCTCGCCGGAGCTTGAACAGACTCACGGCCAGCAGTGCAGATTCAATGGCTGAGGTGAGGCACCTC

[illegible]

))). (-53.00)
 *****TCAATGGCTGAGGTGAGGCAC***

* * * *

mmu-mir-686(mmu-mir-686)
GCCACAGCAGGTGCTTATATTGCTTCCCAGACGGTGAAGAAAGTAATAGAGATCAACCCGTACCTTCTGGGCACCATGGCTGGGGGTGCAGCGGATTGCAGCTTC

)))) (-35.50)
*****ATTGCTTCCCAGACGGTGAAGA*****

* * * *

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ATAGTCTGACACACATTTTACACTATCCTGGAATGCAGCAATGAATCCTGGGTATTGTTTCAGTCTGTCATTGTATTCTTGAAAGTG
(((.(.((((((...(((...(((...)))))))).)))...)))))))))...))))) (-22.40)
 *****CTATCCTGGAATGCAGCAATGA*****

```
mmu-mir-688(mmu-mir-688)
GAAAGGGCAGTGAAGAAAAGTAGGGCTTGCTTGGGGAGAGCACCTCGCAGGCAGCTACTTATTCCAGCTCGCCC
...(((((((((((.....((((((.....)))))))))..)))))).))))).))))).)))) (-32.50)
*****TCGCAGGCAGCTACTTATTC*****
```

```
mmu-mir-689(mmu-mir-689-1)
CCCGGATAGCCGGGTCCCGTCCGTCGCCGCTCGGCGGGGTCCCCGCGTCCTCCCCGACGCGGCGCGGGGTCTCCCCCGCCGGGCGTCGGGACCGGGATCCGGT
GCGG
.(((...(((((((.((((..(((((((((((.((((((((((.....)).))))))....)))))))).))))).)))))))))
.))) (-76.80)
*****CGTCCCGCTCGGCGGGTCC*****
***
.....CGGCGGGGTCCCCGCG.....
.... 5
```

```
mmu-mir-689(mmu-mir-689-2)
CCCGGATAGCCGGGTCCCCGTCCGTCGCCGCTCGGGGGGTCCCCGCGTCGTCCCGCGGCGGCGCGGGGTCTCCCCCGCCGGGCGTCGGGACCGGGGTCCGGT
GCGG
.((((...((((((.((((((...((((((((((((((((((.((((((((((((((...))))))))))))))))...))))))))))))))))))))))
.))) (-83.60)
*****CGTCCCGCTCGGCGGGTCC*****
***
.....CGGCGGGGTCCCCGCG.....
.... 5
```

```
mmu-mir-690(mmu-mir-690)
TGTGTTTTTGTGGAGCTAATTGGCTGTATTAAAGTGCTAGTAAGAAACATTCTCCTCCAGCTGGAGAGATGGCTCAGCTGTTAAAGGCTAGGCTCACAAACAAA
TATA
(((((((.(.(.((((((...((((((...((((((...((...((...(((...(((...(((...(((...(((...(((...(((...(((...(((...(((...
)))) (-30.20)
*****AAAGGCTAGGCTCACAAACAAA*

****
.....TGGAGAGATGGCTCAG.....
..... 46
.....TGGAGAGATGGCTCAGC.....
..... 23
-----
.....ggGCTGGAGAGATGGCTC.....
..... 255
.....ggGCTGGAGAGATGGCTCA.....
..... 255
.....ggGCTGGAGAGATGGCT.....
..... 48
.....gggGCTGGAGAGATGGCTCA.....
```

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```

..... 25
.....ggGCTGGAGAGATGGC.....

..... 21
.....TGGAGAGATGGCTCAGCc.....

..... 16
.....gggGCTGGAGAGATGGCTC.....

..... 13

-----
mmu-mir-691(mmu-mir-691)
GCTGATTATTTTGTCTTCTTCTTGGGTCTGCTTTGAATATTCCTGAAGAGAGGCAGAAAATGTTATATTTAATAT
..((((...((((((((((((...((((...)))))))))...))))))...)))))..... (-15.30)
*****ATTCCTGAAGAGAGGCAGAAAA*****
-----

mmu-mir-692(mmu-mir-692-1)
AGGGTGGCAGGGCCACAACCAGCGCAGACTGGCGCGCCCAGGGATCTCTGGGTGAGTATCTCTTTGAGCGCCTCACTCTCAAGCACAACTAGGAGGCCTCTGCC
TTCC
.((((((((((((...(((...(((...(((...(((...))))))...))))))...))))))...))))) (-42.82)
*****ATCTCTTTGAGCGCCTCACTC*****
****
-----
.....CCAGGGAT-TgTGGT.....

..... 15

-----
mmu-mir-692(mmu-mir-692-2)
GGTGGCAGGGCCACAACCAGCGCAGACTGGCGCGCCCAGGGATCTCTGGGCGAGTATCTCTTTGAGCGCCTCACTCTCAAGCACGACTAGGAGGCCTCTGTGCC
TTCC
.((((...))))...((((...(((...(((...(((...))))))...(((...)))...))))...((((...(((...))))...))))))...
.... (-39.30)
*****ATCTCTTTGAGCGCCTCACTC*****
****
-----

mmu-mir-693-3p(mmu-mir-693)
AGTTGTAGGCATGCTCATTACAGCCACATCCGAAAGTTTCTGGCTAGGGCAGCTTTTCAGATGTGGCTGTAATGAGCATGCTCCAGC
.((((...((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****GCAGCTTTTCAGATGTGGCTGTAA***** (-60.90)
-----

mmu-mir-693-5p(mmu-mir-693)
AGTTGTAGGCATGCTCATTACAGCCACATCCGAAAGTTTCTGGCTAGGGCAGCTTTTCAGATGTGGCTGTAATGAGCATGCTCCAGC
.((((...((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CAGCCACATCCGAAAGTTTC***** (-60.90)
-----

mmu-mir-694(mmu-mir-694)
AAAGGCCAGCTCAGGCATCGCTTTCAACCCAAGACCAGGCTGAAATGTTGCCTGAAGCAGTCTCTGCCT
..((((...((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CTGAAATGTTGCCTGAAG***** (-23.60)
-----

mmu-mir-695(mmu-mir-695)
TCACGAGGAATCCTAGATTGGGCATAGGTGACTGAAGTACACAGCTGCCTTTCTTACAAAGGCACTGGTTACCTTGGTCCTGGTCACCGGCTCGGCTATCTGCTA
CTCG

```

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...((((.....(((.((((((...(((((((((.(((.(.((((((((.....))))))))).))).....))))))))).))))))))) (-37.32)

*****AGATTGGGCATAGGTGACTGAA*****

mmu-mir-696(mmu-mir-696)

GGTCTGTGCGGGTGCCTGAAGCTGTCCCGAGCCACGCTTCTGCTTTCCCGGGCTTGCTGCTTGCTGCTTGCTGCTGGGCAGCTT
(((((((.....))))).))..((((((((((((((((((((.....))))))))..))))))))) (-33.10)

*****GCGTGTGCTTGCTGTGGG*****

mmu-mir-697(mmu-mir-697)

GAGTGGGGATGTGCTCTGGATGTTGGTCTTGACAGGTCTCAGAGGTGACTACCACACATTGAAGGGGTGGCGGTAACATCCTGGTCCTGTGGAGACTGTCATAGT
CTCC

....(((((((.....(((.(((((((((.(((.(.((((((((.....))))))))..))))))))) (-40.70)

*****AACATCCTGGTCCTGTGGAGA*****

mmu-mir-698(mmu-mir-698)

TCATCTCTGCCCTCACTGTAAGGGAGGGTGGTGGCTATGTGGGTGGGACAGGGATGTTCAAGTTGCTAAAGACATTCTCGTTTCCTTCCCTCAGTGTCCCGAGATG
GTGA

((((((((.....(((.(((((((((.(((.(.((((((((.....))))))))..))))))))) (-38.50)

*****CATTCTCGTTTCCTTCCCT*****

mmu-mir-699(mmu-mir-699)

CGTGCAGCGGGGCGTCATCCGTCAGCTCACATAGTGACGCAGGCAGTGCGACCTGGCTCGCAC
..(((((((.(((((.(((.(.((((((((.....))))))))..))))))))) (-26.40)

*****AGGCAGTGCGACCTGGCTCG*****

mmu-mir-700(mmu-mir-700)

TTCAGTGGGAGTAAGGCTCCTTCTGCTTGCTGCTGAGGGGAGAAATACGAAGTGCACGCGGGAACCGAGTCCACCCCCAGT
...(((((((.(((((.(((.(.((((((((.....))))))))..))))))))) (-32.90)

*****CACGCGGGAACCGAGTCCACC*****

.....CACGCGGGAACCGAGTCCACC..... 15*

.....GGGGAGAAATACGAAGT..... 10

.....CTGtCACGCGGGA..... 26

mmu-mir-701(mmu-mir-701)

GTGGAGCATCTACCTTGAGCAAGTAATTAGCCGCTGAAATAGATGGATTGTATAGATGAGGTTCTATCTATTAAAGAGGCTAGCCACTTATCAAGTGCTAACAGC
CCAC

(((((((.(((((.(((.(.((((((((.....))))))))..))))))))) (-34.86)

*****TTAGCCGCTGAAATAGATGGA*****

mmu-mir-702(mmu-mir-702)

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```

..... 13
.....AACTAGACTGTGAGCTTCTAG.....

..... 11
-----
.....CAACTAGACTGTGAGCTTCTAGt.....

..... 22
-----
mmu-mir-709(mmu-mir-709)
TGCCCCGTTTCTCTGCTTCTACTCAGAAAGTGCTCTGAGCATAGAACTGTCCTGTTTGAGCAGCACTGGGGAGGCAGAGGCAGGAGGAT
.((((((.((((((((((...((((((...((((((...((((((...((((((...))))))))))...))))))))))...)))))) (-34.50)
*****GGAGGCAGAGGCAGGAGGA*
-----

mmu-mir-710(mmu-mir-710)
CTCTCTCGTCAAATAGAACCAAGTCTTGGGGAGAGTTGAGCTTGGTGTGAAAAGTACATACCCCTTCAACTCTTTAGAACTTAGGTATCTGAAGTGGAGTGGAG
TGGAG
((((((.((((((((((...((((((((((...((((((((((...))))))))))...))))))))))...)))))) (-34.10)
*****CCAAGTCTTGGGGAGAGTTGAG*****
*****
-----

mmu-mir-711(mmu-mir-711)
CATGTTCCCTAACTTTGAATCTCTTCTTAGGGTGCTTCAGGCAAGCTGGGGACCCGGGGAGAGATGTAAGTCTGGGGAGATG
(((.((((((((((...((((((((((...((((((((((...))))))))))...)))))))))) (-38.00)
*****GGGACCCGGGGAGAGATGTAAG*****
-----

mmu-mir-712(mmu-mir-712)
TCTCCGCTTCTCCTTACCCGGGCGGTACCCGCTCCGGCGCCGGCCCGGGACGCCGCGGCGTCCGTGCGCCGATGCGAGTCACCCCGGGGTGTTGCGAGTTCG
GGGA
((((((.((((((((((...((((((((((...((((((((((...))))))))))...)))))))))) (-72.60)
*****CTCCTTACCCGGGCGGTACC*****
*****
-----

mmu-mir-713(mmu-mir-713)
GGCCTATCCGGAGGCCCTGATTGGTTAGTGAGACTTGATTGACATGAGCACCTCCCTTAGGGTTAGAGTGCACTGAAGGCACACAGCATAGGGCTTCCAAGATCG
GGT
.((((((.((((((((((...((((((((((...((((((((((...))))))))))...)))))))))) (-37.10)
*****TGCACTGAAGGCACACAGC*****
***
-----

mmu-mir-715(mmu-mir-715)
GGCTGGGAGAGGGCTCCGTGCACACCCCGCGTGCGCGGTACTTCTCCCTCCTGAGGGCCGCCGTGCGGGACGGGTGTGGGTAGGCAACGGTGGGCTCCC
GGGTC
((((((.((((((((((...((((((((((...((((((((((...))))))))))...)))))))))) (-57.80)
*****CTCCGTGCACACCCCGCGTG*****
*****

```

```

mmu-mir-717(mmu-mir-717)
TTGTCGCTATCACTGTACGCTATTTTTCAGTCTCAGACAGAGATACCTTCTCTGAATTCATAGAAGCTGCTCTCCGTTCCGAAGGGATTGAGAAGTGATAAAT
CCAG
.....(((((((.....(((((((.....(((((((.....(((((((.....(((((((.....(((((((.....(((((((.....(((((((.....(((((((.....
.))) (-25.30)
*****CTCAGACAGAGATACCTTCTCT*****
****

```

```
mmu-mir-720(mmu-mir-720)
CTGGAGCCCCAGAAATGAAGATGCAGCTTTAGAAATTTGGGTGGTCTATCTCGCTGGGGCCTCCA
((((((((((((((...((((((.(.(. ....)).)))))).)...)))))).))))) (-28..20)
*****ATCTCGCTGGGGCCTCCA*
.....ATCTCGCTGGGGCCTCCA.. 110*
.....TCTCGCTGGGGCCTCCA.. 107
-----
.....ATCTCGgTGGGaCCTCCA.. 75
.....TCTCGgTGGGaCCTCCA.. 50
.....TCTCGgTGGGaCCTCCA.. 42
.....ATCTCGgTGGGaCCTCCA.. 36
.....CTCGgTGGGaCCTCCA.. 12
.....TC-ATCTCGCTGGGGCCTCCA.. 11
.....TCaTATCTCGCTGGGGCCTCCA.. 11
```

```
mmu-mir-721(mmu-mir-721)
GGAAGACAGTGC AATTAAGGGGGAAAAAGTACCTGGGATGTTCTGAGAATTCATTTTTCTGTATTGCCACTCTGCTTGGA
.....(((((.....(((.....(((.....(((.....)))..)))..)))..)))..)))..(((.....))) (-16.20)
*****CAGTGCAATTAAGAGGGGGAA*****
```

```
mmu-mir-741(mmu-mir-741)
TTGATCTACGTAGATTGGTACCTATCATGTAAATCATGTAAGCATGAGAGATGCCATTCTATGTAGATTAA
.( ((((((((((.( (((((.( ((((((.....)))))).)))).))))))))) . (-31..60)
*****TGAGAGATGCCATTCTATGTAGA***
```

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```
mmu-mir-743a(mmu-mir-743a)
CTGTATTTCAGATTGGTGCCTGTCATGTTTATAAGAATGAAAGACACCAAGCTGAGTAGAGTA
((.(((((((.(((((((.((((((.....))))).))))).))))).)).. (-23.00)
*****GAAAGACACCAAGCTGAGTAGA***

-----

mmu-mir-743b-3p(mmu-mir-743b)
TGCAGTGCTGTGTTTCAGACTGGTGTCCATCATGTGAAATATTTGTGAAAGACATCATGCTGAATAGAGTAAGGCCCA
((.(((((.(((((((.(((((((.((((((.....))))).))))).))))).)).. (-29.00)
*****GAAAGACATCATGCTGAATAGA*****
.....GAAAGACATCATGCTGAATAGA..... 8*

-----

mmu-mir-743b-5p(mmu-mir-743b)
TGCAGTGCTGTGTTTCAGACTGGTGTCCATCATGTGAAATATTTGTGAAAGACATCATGCTGAATAGAGTAAGGCCCA
((.(((((.(((((((.(((((((.((((((.....))))).))))).))))).)).. (-29.00)
*****TGTTCAGACTGGTGTCCATCA*****
.....GAAAGACATCATGCTGAATAGA..... 8

-----

mmu-mir-744(mmu-mir-744)
GGCTGGGCAAGGTCGGGGCTAGGGCTAACAGCAGTCTTACTGACGGTTTCTGGAAACCACACACATGCTGTTGCCACTAACCTCAACCTTACTCGGTC
(((((((.(((((((.(((((((.(((((((.((((((.....))))(((((.(((((((.((((((.....))))).))))).))))).)).. (-45.50)
*****TGCGGGGCTAGGGCTAACAGCA*****
.....TGCGGGGCTAGGGCTAACAGCA.....

4872*
.....TGCGGGGCTAGGGCTAACAGC..... 509
.....TGCGGGGCTAGGGCTAACAG..... 312
.....TGCGGGGCTAGGGCTAAC..... 53
.....TGCGGGGCTAGGGCTAAC..... 42
.....TGCGGGGCTAGGGCTAA..... 34
.....TGCGGGGCTAGGGCTAACAGCAG..... 29
.....GCGGGGGCTAGGGCTAACAGCA..... 28
.....TGCGGGGCTAGGGCTAACAGCAGT..... 12
.....TGCGGGGCTAGGGCTA..... 11

-----
.....TGCGGGGCTAGGGCTAACAGCAT.....

1452
.....TGCGGGGCTAGGGCTAACAGCAa..... 765
.....TGCGGGGCTAGGGCTAACAGCAt..... 190
.....TGCGGGGCTAGGGCTAACAGt..... 132
.....TGCGGGGCTAGGGCTAACAGa..... 128
.....TGCGGGGCTAGGGCTAACAGt..... 53
.....TGCGGGGCTAGGGCTAACAGCAaT..... 52
.....TGCGGGGCTAGGGCTAACAGaA..... 38
.....TGCGGGGCTAGGGCTAACAGCAta..... 32
.....TGCGGGGCTAGGGCTAACAGCAtTt..... 30
.....TGCGGGGCTAGGGCTAACAGCc..... 27
.....TGCGGGGCTAGGGCTAACAGCAaa..... 26
.....TGCGGGGCTAGGGCTAACAGaAa..... 24
.....TGCGGGGCTAGGGCTAAAct..... 21
.....TGCGGGGCTAGGGCTAACAGCcT..... 15
.....TGCGGGGCTAGGGCTAACAGaAa..... 13
.....TGCGGGGCTAGGGCTAccAGCA..... 13
.....TGCGGGGCTAGGGCTAACcGCA..... 13
.....TGCGGGGCTAGGGCTcACAGCA..... 13
.....TGCGGGGCTAGGGCTgACAGCA..... 12
.....TGCgtGGCTAGGGCTAACAGCA..... 11
.....TGCGGGGCTAGGGCTAACAGCAaTt..... 11
.....TGCGGGGCTAGGGCTAAt..... 11
.....TGCGGGGCTAGGGCTAAa..... 11
```

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```
*****TTTGTGACCTGGTCCACTA*****
-----
mmu-mir-759(mmu-mir-759)
GGATTATAATAAATTAATGCCTAAACTGGCAGAGTGCAAACAATTTTGACTCAGATCTAAATGTTTGCAGTGGCTGTTTAAACATTTAATTTGTTCC
.....((((((((((((((..((((((..((((((((((..((((((..((((((((((..((((((((((..((((((((((..((((((((((..((((((((((..
(-31.40)
*****GCAGAGTGCAAACAATTTTGAC*****
-----
mmu-mir-760(mmu-mir-760)
CGGGAGGATGCCTCGGTGCGGGGCGCGTCGCCCCCTCAGGCCACCAGAGCCCGGATACCTCAGAAATTCGGCTCTGGGTCTGTGGGGAGCGAAATGCAACCCAA
ACCCCGTTTCCCGG
((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..
)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..
(-61.40)
*****CGGCTCTGGGTCTGTGGGA*****
*****
-----
.....GCCCGGcTagCTCAG.....
..... 164
-----
mmu-mir-761(mmu-mir-761)
TGGCAAGTGGAGGAGCAGCAGGGTGAAACTGACACAGTGCTGGTGAGTTTCACTTTGCTGCTCCTCCTGACTCCCA
.(((..((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
GCAGCAGGGTGAAACTGACACA*****
-----
mmu-mir-762(mmu-mir-762)
GCCCCGGCTCCGGGTCTCGGCCGCGACGGTCCGGCCGGCCATGCTGGCGGGGCTGGGGCCGGGACAGAGCCCGTGGC
((((((((((((..((((((((((((..((((((((((((..((((((((((((..((((((((((((..((((((((((((..((((((((((((..((((
GGGGCTGGGGCCGGGACAGAGC*****
-----
.....cGcGGCGGGGcGGGG..... 23
.....aGCGGGGCTGGGcgCG..... 16
.....GcGGCGGGGcGGGG..... 10
-----
mmu-mir-763(mmu-mir-763)
AATGATGGAGGTGCAGGCGTTTCTGGGGATTAATGACCAGTGGGGAAGAACCAGTGGCCCTCGGCTCTGCCTCCCAGCCAGCCATTAAGTCAAGGAAATGTCT
TTTGCTGAGGTCGTT
((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((
..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))..)))
(-49.80)
*****CCAGCTGGGAAGAACCAGTGGC*****
*****
-----
mmu-mir-764-3p(mmu-mir-764)
TCAACACAATCTGAATCTTGGAGGCAGGTGCTCACATGTCCTCTCCATGCTTATAAATACATGGAGGAGGCCATAGTGGCAACTGTCACCATGATTGATTTCGT
TGG
.((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((..((((
)). (-49.90)
*****AGGAGGCCATAGTGGCAACTGT*****
***
-----
mmu-mir-764-5p(mmu-mir-764)
```


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```

))). (-50.10)
*****TGAGGTAGTAAGTTGTATTGTT*****

***
.....TGAGGTAGTAAGTTGTATTGTT.....

.... 29*
.....TGAGGTAGTAAGTTGTATTGT.....

.... 12
-----

mmu-mir-99a(mmu-mir-99a)
CATAAACCCGTAGATCCGATCTTGTGGTGAAGTGGACCGCGCAAGCTCGTTTCTATGGGTCTGTG
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****AACCCGTAGATCCGATCTTGTG*****
....AACCCGTAGATCCGATCTTGTG..... 6878*
....AACCCGTAGATCCGATCTTGT..... 5017
....AACCCGTAGATCCGATC..... 258
....AACCCGTAGATCCGATCTTG..... 226
....AACCCGTAGATCCGA..... 66
....AAACCCGTAGATCCGATCTTGT..... 43
....AACCCGTAGATCCGATCTT..... 23
....AACCCGTAGATCCGATCT..... 20
....AACCCGTAGATCCGATCT.....CAAGCTCGTTTCTATGGGTCTG... 17
....AACCCGTAGATCCGAT..... 14
-----
....AACCCGTAGATCCGATCTTGTGt..... 2454
....AACCCGTAGATCCGATCTTGTGa..... 884
....AACCCGTAGATCCGATCTTGTGaa..... 39
....AACCCGTAGATCCGcTCTTGT..... 34
....AACCCGTAGATCCGATCTTGTt..... 28
....AACCCGTAGATCCGcTCTTGTG..... 28
....AACCCGTAGATCCGATCTTGTa..... 23
....AACCCGTAGATCCGATCTTGTGtT..... 17
....AACCCGTAGATCCGcTCTTGTGt..... 12
....AACCCGTAGATCCGgTCTTGT..... 11
....AACCCGTAGATCCGATCTTGCg..... 10
-----

mmu-mir-99b(mmu-mir-99b)
GGCACCCACCCGTAGAACCGACCTTGCGGGGCCTTCGCCGCACACAAGCTCGTGTCTGTGGGTCCGTGTC
((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
*****CACCCGTAGAACCGACCTTGC*****
.....CACCCGTAGAACCGACCTTGC..... 1441
.....CACCCGTAGAACCGACCTTGCg..... 1357*
.....CACCCGTAGAACCGACC..... 92
.....CACCCGTAGAACCGACCTTG..... 57
.....CACCCGTAGAACCGACCTTGC.....CAAGCTCGTGTCTGTGGGTCCGT... 37
.....CACCCGTAGAACCGACCTTGC.....CAAGCTCGTGTCTGTGGGTCC..... 24
.....CACCCGTAGAACCGA..... 22
.....CACCCGTAGAACCGACCTT..... 22
.....CACCCGTAGAACCGACCTTGC.....CAAGCTCGTGTCTGTGGGTCC..... 19
.....CACCCGTAGAACCGACCTTGC.....CAAGCTCGTGTCTGTGGGTCCg..... 17
.....ACCCGTAGAACCGACCTTGC..... 15
.....ACCCGTAGAACCGACCTTGCg..... 14
-----
.....CACCCGTAGAACCGACCTTGCgT..... 481
.....CACCCGTAGAACCGACCTTGCGa..... 318
.....CACCCGTAGAACCGACCTTGCa..... 52
.....CACCCGTAGAACCGACCTTGCgT.....CAAGCTCGTGTCTGTGGGTCCGa... 30
.....CACCCGTAGAACCGACCTTGCgaa..... 27
.....CACCCGTAGAACCGACCTTGCaa..... 12
-----

```