Supplemental Information

Circular RNA Profiling Reveals

Exosomal circ_0006156 as a Novel Biomarker in Papillary Thyroid Cancer

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### miRNA Predictions

| CircRNA | CircRNA (Top) - miRNA (Bottom) pairing | Site Type | CircRN A Start |
|---------|---------------------------------------|-----------|----------------|
| hsa_circ_0006156 (5' ... 3') | CCCACACAAAUGAUUGUGAGCAA | 8mer-1a | 236 |
| hsa-miR-1178 (3' ... 5') | GAUCCCUUCUUGUCACGUU | | |
| hsa_circ_0006156 (5' ... 3') | AAUAAGAAAACAGACGGAGCAG | 7mer-1a | 480 |
| hsa-miR-1181 (3' ... 5') | GCCGAGCACCACCGCGCGUCC | | |
| hsa_circ_0006156 (5' ... 3') | AGUGGUGGAUGUGCGAGCGGGO | 7mer-m8 | 439 |
| hsa-miR-1281 (3' ... 5') | CCCUCUCCU-CCUCCCGCU | | |
| hsa_circ_0006156 (5' ... 3') | GAAGCAGCCCCAAGCUAGUAU | 7mer-m8 | 506 |
| hsa-miR-1298 (3' ... 5') | AUGUAGACUGCGCUUACUU | | |
| hsa circ 0006156 (5’ ... 3’) | UCGAGCAGCCAGAACCACGCUCAC | 7mer-m8 | 350 |
|-------------------------------|---------------------------|--------|-----|
| hsa-miR-1304 (3’ ... 5’)     | GUGUAGAGUGACAUCGGAGUUU    |        |     |
| hsa circ 0006156 (5’ ... 3’) | UCAGUUUUUUCCCAGCAUCAUC    | 7mer-m8| 210 |
| hsa-miR-1322 (3’ ... 5’)     | GUCCUAGCGUGCUAGUAG        |        |     |
| hsa circ 0006156 (5’ ... 3’) | CAGUACGAAAGCCU--CGCACAA  |        |     |
| hsa-miR-147b (3’ ... 5’)     | AUGCUUCUUGAAAAGGCGUGUG    |        |     |
| hsa circ 0006156 (5’ ... 3’) | CCGCUUACUUACCCACCUGUACC   | 8mer-1a| 307 |
| hsa-miR-194 (3’ ... 5’)      | AGGUGUACCUCACGACAUGU      |        |     |
| hsa circ 0006156 (5’ ... 3’) | AGUACAGCAAGCCUCCCGACAA   | 7mer-m8| 167 |
| hsa-miR-210 (3’ ... 5’)      | AGUCGCGCACAGUGUGCGUC      |        |     |
| Gene       | Sequence       | 7mer   | Score |
|------------|----------------|--------|-------|
| hsa_circ_0006156 (5' ... 3') | GUCACACCCCAAGGCUCCUGAGUG | 7mer-m8 | 52    |
| hsa-miR-510 (3' ... 5') | CACUAACCGUGAGGAGAGCUAU | |       |
| hsa_circ_0006156 (5' ... 3') | GCASCUGCAACACAGUAACAAU | 7mer-1a | 398   |
| hsa-miR-568 (3' ... 5') | CACACAUUGGAAAGAUGUA | |       |
| hsa_circ_0006156 (5' ... 3') | ACAUAAUAGGUGAAGGAAUGAUA | 7mer-1a | 241   |
| hsa-miR-578 (3' ... 5') | UGGUGGAAGCCUGGUGGUCUUC | |       |
| hsa_circ_0006156 (5' ... 3') | GAAAUUAUACUAUU---UAGGAUAU | 7mer-m8 | 259   |
| hsa-miR-587 (3' ... 5') | CACUGAUUGAAGGAAUACCUUU | |       |
| hsa_circ_0006156 (5' ... 3') | UACCCUCAGCCAGUCUCCAAC | 7mer-1a | 88    |
| hsa-miR-1270 (3' ... 5') | UGUCUGCGAGGAAGAAGAGGUC | |       |
| RNA          | 5' → 3' Sequence | 7mer-1a | 8mer-1a |
|--------------|------------------|---------|---------|
| hsa circ 0006156 (5' → 3') | UACCCCCUAGCCAAGUCUCCAAC |         |         |
| hsa-miR-620 (3' → 5')          | UAAAGAUAAUGUAGGUA        |         |         |
| hsa circ 0006156 (5' → 3') | GUCUCCUGAGGUUAUCCCCCCA |         |         |
| hsa-miR-625 (3' → 5')          | CCGAUAUCUUUGAAGGGGGA     |         |         |
| hsa circ 0006156 (5' → 3') | CCAGCAUCACUCUCCCCACACAA |         |         |
| hsa-miR-644 (3' → 5')          | CGAGAUCUUUCGUGUGGA       |         |         |
| hsa circ 0006156 (5' → 3') | GACCAGUACAGCAAGGCUCCCGCA |         |         |
| hsa-miR-658 (3' → 5')          | UGGUUGCUAGAUAGGAAGGCCG   |         |         |
| hsa circ 0006156 (5' → 3') | CACCUGUUACCAGGACCUGGAGAU |         |         |
| hsa-miR-766 (3' → 5')          | CGACUCCGACACCCCGACCUCA   |         |         |
|                  | Strandedness | Sequence                        | 7mer   | Score |
|------------------|--------------|---------------------------------|--------|-------|
| hsa_circ_0006156 | 5' → 3'      | AUGUACUGAGUGCCCGCGGGUC          | 7mer-m8| 26    |
|                  |              |                                 |        |       |
|                  | 3' → 5'      | CGGUACACGUGUGUCGGCCCA           |        |       |
| hsa-miR-941      | 3' → 5'      |                                 |        |       |
| hsa_circ_0006156 | 5' → 3'      | CAACCUACAUCACCCGAGAAGAC         | 7mer-1a| 284   |
|                  |              |                                 |        |       |
|                  | 3' → 5'      | GUGUACGGGUUGUGUCUCUCUCU         |        |       |
| hsa-miR-942      | 3' → 5'      |                                 |        |       |
| CircRN A End | 3' pairing | local AU position | TA | SPS | context + score | context + score percentile |
|--------------|------------|-------------------|----|-----|-----------------|----------------------------|
| 243          | 0.003      | -0.01             | -0.055 | 0    | -0.068          | -0.377                     | 99                         |
| 486          | 0.015      | 0.025             | -0.046 | -0.149 | -0.068          | -0.297                     | 64                         |
| 445          | -0.016     | 0.101             | -0.05  | -0.042 | -0.101          | -0.228                     | 86                         |
| 512          | 0.021      | -0.025            | -0.06  | -0.004 | 0.031           | -0.157                     | 98                         |
|    |     |     |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|-----|-----|
| 356| 0.003 | 0.074 | -0.038 | 0.001 | -0.034 | -0.114 | 85   |
| 216| 0.003 | 0.012 | -0.032 | -0.017 | 0.009 | -0.145 | 91   |
| 314| -0.039 | 0.005 | -0.06  | -0.128 | -0.112 | -0.581 | 99   |
| 173| 0.021 | 0.082 | -0.038 | 0      | 0.027 | -0.028 | 75   |
| 314| 0.001 | 0.005 | -0.027 | -0.072 | -0.046 | -0.213 | 84   |
| 58  | -0.016 | 0.022 | -0.054 | 0.003 | -0.033 | -0.198 | 95  |
|-----|--------|-------|--------|-------|--------|--------|-----|
| 404 | 0.004  | 0.015 | -0.037 | 0.004 | 0.059  | -0.029 | 86  |
| 247 | -0.002 | -0.023 | -0.024 | 0.017 | 0.042  | -0.064 | 85  |
| 265 | -0.016 | -0.059 | -0.025 | 0.023 | 0.043  | -0.154 | 96  |
| 94  | -0.002 | 0.038 | -0.04  | 0.006 | -0.034 | -0.106 | 84  |
|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 94  | 0.001 | 0.038 | -0.04 | 0.006 | -0.034 | -0.103 | 83  |
| 69  | 0.001 | 0.019 | -0.043 | 0.021 | -0.118 | -0.194 | 91  |
| 228 | 0.004 | -0.012 | -0.026 | 0.002 | -0.05 | -0.156 | 87  |
| 311 | 0.003 | 0.036 | -0.06 | -0.07 | -0.172 | -0.51 | 98  |
| 185 | -0.002 | 0.019 | -0.031 | 0.031 | -0.048 | -0.105 | 79  |
|      |       |       |       |       |       |       |      |
|------|-------|-------|-------|-------|-------|-------|------|
| 32   | 0.003 | 0.085 | -0.058| -0.07 | -0.114| -0.274| 86   |
| 290  | 0.001 | 0.037 | -0.024| 0.023 | 0     | -0.037| 70   |