

**Supplementary table 1. Comprehensive target list consisting of 115 potential genes after filtering from all the predicted target genes for the identified miRNAs**

| Sl. No. | GENE SYMBOL | Entrez Gene Name                                                                 | Tissues/Cells        | Relevant references | Predicted to be targeted by (only identified miRNAs were picked) | Score/Base P value from miRBase target version_5.0 | Energy (miRBase target version_5.0) |
|---------|-------------|----------------------------------------------------------------------------------|----------------------|---------------------|------------------------------------------------------------------|----------------------------------------------------|-------------------------------------|
| 1       | CCNB1       | cyclin B1                                                                        | Oocytes              | [1]                 | hsa-miR-199b-5p                                                  | 17.0583/ 1.985800e-02                              | -20.06                              |
|         |             |                                                                                  |                      |                     | hsa-miR-199a-3p                                                  | 16.2084/ 3.774820e-02                              | -17.59                              |
| 2       | IGF1        | insulin-like growth factor 1 (somatomedin C)                                     | Granulosa cells, etc | [2]                 | hsa-let-7b                                                       | 17.3966/ 2.672260e-02                              | -22.92                              |
|         |             |                                                                                  |                      |                     | hsa-miR-23a                                                      | 17.3748/ 1.593960e-02                              | -15.48                              |
| 3       | IGFBP1      | insulin-like growth factor binding protein 1                                     | Granulosa cells, etc | [3]                 | hsa-miR-103                                                      | 16.7805/ 3.189630e-02                              | -21.46                              |
|         |             |                                                                                  |                      |                     | hsa-let-7b                                                       | 16.1089/ 9.889850e-02                              | -20.55                              |
|         |             |                                                                                  |                      |                     | hsa-miR-140-3p                                                   | 16.1898/ 4.266420e-02                              | -19.87                              |
| 4       | CDC2        | cell division cycle 2, G1 to S and G2 to M                                       | Oocytes              | [1]                 | hsa-miR-145*                                                     | 17.1268/ 1.677130e-02                              | -16.48                              |
| 5       | CDK2        | cyclin-dependent kinase 2                                                        | Oocytes              | [1]                 | hsa-miR-15b                                                      | 15.4162/ 9.063360e-02                              | -20.1                               |
|         |             |                                                                                  |                      |                     | hsa-miR-18a                                                      | 16.431/ 3.872430e-02                               | -18.94                              |
| 6       | RB1         | retinoblastoma 1                                                                 | Oocytes              | [4]                 | hsa-miR-143                                                      | 17.0319/ 2.137170e-02                              | -15.72                              |
| 7       | CUL2        | cullin 2                                                                         | Oocytes              | [5]                 | hsa-miR-15b                                                      | 15.7993/ 8.761310e-02                              | -18.57                              |
|         |             |                                                                                  |                      |                     | hsa-miR-424                                                      | 18.6368/ 8.779800e-03                              | -20.05                              |
|         |             |                                                                                  |                      |                     | hsa-miR-195                                                      | 16.4184/ 5.003250e-02                              | -15.64                              |
| 8       | RAB2        | RAB2A, member RAS oncogene family                                                | Oocytes              | [6]                 | rno-miR-21                                                       | 16.2827/ 3.670530e-02                              | -16.17                              |
| 9       | IL2         | interleukin 2                                                                    | Granulosa cells      | [7]                 | hsa-let-7a                                                       | 17.9651/ 1.121270e-02                              | -19.61                              |
| 10      | CX43        | connexin 43                                                                      | Ovary                | [8]                 | dre-miR-23a                                                      | 17.5667/ 1.993390e-02                              | -27.51                              |
|         |             |                                                                                  |                      |                     | dre-miR-23b                                                      | 17.5667/ 1.962400e-02                              | -27.51                              |
| 11      | STAT3       | signal transducer and activator of transcription 3 (acute-phase response factor) | Corpus luteum        | [9]                 | hsa-miR-20a                                                      | 16.8749/ 7.269850e-02                              | -22.21                              |
|         |             |                                                                                  |                      |                     | hsa-miR-17                                                       | 17.1745/ 5.734300e-02                              | -24.32                              |
| 12      | DNMT1       | DNA (cytosine-5-)-methyltransferase 1                                            | Oocytes              | [10]                | hsa-miR-145*                                                     | 17.4956/ 1.155930e-02                              | -20.44                              |
|         |             |                                                                                  |                      |                     | hsa-miR-126                                                      | 13.9965/ 5.771220e-02                              | -11.07                              |
| 13      | STAR        | steroidogenic acute regulatory protein                                           | Ovary                | [11]                | hsa-miR-17                                                       | 17.3682/ 4.979880e-02                              | -23.81                              |
|         |             |                                                                                  |                      |                     | hsa-miR-101                                                      | 15.3062/ 8.480980e-02                              | -10.38                              |
| 14      | BMP15       | bone morphogenetic protein 15                                                    | Oocytes, Ovary       | [12, 13]            | hsa-miR-145                                                      | 16.6281/ 3.208670e-02                              | -22.5                               |
| 15      | GDF9        | growth differentiation factor 9                                                  | Oocytes, Ovary       | [14]                | hsa-miR-199a                                                     | 16.2043/ 3.791010e-02                              | -20                                 |
|         |             |                                                                                  |                      |                     | hsa-miR-18a                                                      | 16.7874/ 2.687100e-02                              | -19.58                              |
| 16      | c- MOS      | c-moloney sarcoma oncogene                                                       | Oocytes              | [14]                | hsa-miR-101                                                      | 17.6844/ 9.219050e-03                              | -23.4                               |
| 17      | FST         | follistatin                                                                      | Ovary                | [13, 15]            | hsa-miR-378*                                                     | 16.5714/ 5.587340e-02                              | -24.86                              |
|         |             |                                                                                  |                      |                     | hsa-miR-27b                                                      | 15.8419/ 8.612300e-02                              | -17.73                              |
| 18      | HSPA8       | heat shock 70kDa protein 8                                                       | Cumulus cells        | [16]                | hsa-miR-222                                                      | 18.7465/ 2.378420e-03                              | -21.04                              |
|         |             |                                                                                  |                      |                     | hsa-miR-101                                                      | 17.6034/ 9.952370e-03                              | -14.77                              |
|         |             |                                                                                  |                      |                     |                                                                  |                                                    |                                     |
|         |             |                                                                                  |                      |                     |                                                                  |                                                    |                                     |

|    |          |                                                                                               |                 |      |                 |                       |        |
|----|----------|-----------------------------------------------------------------------------------------------|-----------------|------|-----------------|-----------------------|--------|
| 19 | ZP3      | zona pellucida glycoprotein 3 (sperm receptor)                                                | Ovary, Oocyte   | [17] | hsa-miR-15b     | 17.3966/ 2.207880e-02 | -18.8  |
|    |          |                                                                                               |                 |      | hsa-miR-940     | 17.2605/ 3.300140e-02 | -28.74 |
|    |          |                                                                                               |                 |      | hsa-miR-140-3p  | 17.1462/ 1.793330e-02 | -21.65 |
|    |          |                                                                                               |                 |      | hsa-miR-29a     | 17.1462/9.908740e-03  | -20.59 |
| 20 | ZP1      | zona pellucida glycoprotein 1 (sperm receptor)                                                | Oocyte          | [18] | hsa-miR-99b*    | 16.402/ 1.889760e-02  | -29.08 |
|    |          |                                                                                               |                 |      | hsa-miR-143     | 15.8758/ 6.814110e-02 | -16.68 |
| 21 | EGF      | epidermal growth factor (beta-urogastrone)                                                    | Luteal cells    | [19] | hsa-miR-29a*    | 17.5947/ 2.185380e-02 | -23.88 |
|    |          |                                                                                               |                 |      | hsa-miR-199a-5p | 15.6821/ 6.615360e-02 | -20.71 |
| 22 | ADAMTS8  | ADAM metalloproteinase with thrombospondin type 1 motif, 8                                    | Ovary           | [20] | mmu-let-7b      | 17.0975/ 3.394150e-02 | -22.15 |
|    |          |                                                                                               |                 |      | mmu-let-7c      | 17.0975/ 3.052700e-02 | -22.15 |
| 23 | LH/CG-R  | luteinizing hormone/choriogonadotropin receptor                                               | Granulosa cells | [21] | hsa-miR-222     | 17.5136/ 8.223810e-03 | -26.07 |
|    |          |                                                                                               |                 |      | hsa-let-7e      | 17.432/ 2.644650e-02  | -22.97 |
|    |          |                                                                                               |                 |      | hsa-let-7a      | 16.6305/ 4.700500e-02 | -17.15 |
|    |          |                                                                                               |                 |      | hsa-let-7c      | 16.33/ 7.264700e-02   | -17.61 |
| 24 | CYP19A1  | cytochrome P450, family 19, subfamily A, polypeptide 1                                        | Granulosa cells | [22] | hsa-miR-193a-5p | 15.6623/ 9.903720e-02 | -22.62 |
|    |          |                                                                                               |                 |      | hsa-miR-23a     | 16.1244/ 5.094820e-02 | -17.43 |
| 25 | PTGS2    | prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)         | Cumulus cells   | [23] | bta-let-7c      | 17.6237/ 3.148530e-02 | -15.13 |
|    |          |                                                                                               |                 |      | bta-let-7b      | 17.3013/ 4.417760e-02 | -15.45 |
|    |          |                                                                                               |                 |      | bta-miR-125b    | 16.4416/ 4.885810e-02 | -16.08 |
| 26 | PTX3     | pentraxin-related gene, rapidly induced by IL-1 beta                                          | Cumulus cells   | [24] | hsa-miR-18a     | 16.575/ 3.341900e-02  | -21.09 |
|    |          |                                                                                               |                 |      | hsa-miR-29a     | 15.9149/ 4.622940e-02 | -13.16 |
| 27 | TNF      | tumor necrosis factor (TNF superfamily, member 2)                                             | Corpus Luteum   | [25] | hsa-miR-125b    | 16.0314/ 5.133550e-02 | -21.89 |
|    |          |                                                                                               |                 |      | hsa-miR-409-5p  | 15.6516/ 3.340670e-02 | -13.79 |
| 28 | FSHR     | follicle stimulating hormone receptor                                                         | Granulosa cells | [26] | hsa-miR-101*    | 17.0555/ 1.374430e-02 | -16.94 |
|    |          |                                                                                               |                 |      | hsa-miR-378*    | 16.1459/ 7.629970e-02 | -16.67 |
|    |          |                                                                                               |                 |      | hsa-miR-29a*    | 16.2596/ 7.866090e-02 | -15.94 |
| 29 | INHBA    | inhibin, beta A                                                                               | Granulosa cells | [27] | hsa-miR-20a     | 16.7439/8.003780e     | -14.16 |
|    |          |                                                                                               |                 |      | hsa-miR-409-5p  | 14.8364/7.767180e-02  | -11.85 |
| 30 | SERPINE2 | serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 2 | Granulosa Cells | [28] | hsa-miR-424     | 16.2965/6.588470e-02  | -19.14 |
|    |          |                                                                                               |                 |      | hsa-miR-199a-5p | 15.9092/5.275390e-02  | -23.7  |
|    |          |                                                                                               |                 |      | hsa-miR-199a-3p | 15.7742/5.914220e-02  | -21.41 |
| 31 | LRP8     | low density lipoprotein receptor-related protein 8                                            | Granulosa Cells | [29] | hsa-miR-455-5p  | 16.3337/2.995900e-02  | -20.66 |
| 32 | EGR1     | early growth response 1                                                                       |                 | [30] | hsa-miR-15b*    | 17.6609/1.195770e-02  | -28.42 |
| 33 | ZAR1     | zygote arrest 1                                                                               | Oocyte          | [31] | hsa-miR-99a*    | 16.7144/1.066850e-02  | -17.06 |
|    |          |                                                                                               |                 |      | hsa-miR-15b     | 15.8047/8.720810e-02  | -16.47 |
| 34 | NR5A2    | nuclear receptor subfamily 5, group A, member 2                                               | Ovary           | [32] | hsa-miR-125b    | 15.643 /7.194120e-02  | -22.55 |
| 35 | POR      | P450 (cytochrome) oxidoreductase                                                              | Ovary           | [32] | hsa-miR-24      | 19.1953/4.743910e-03  | -30.33 |
| 36 | BAX      | BCL2-associated X protein                                                                     | Oocyte          | [33] | hsa-miR-455-3p  | 17.3748/1.333010e-02  | -19.39 |
|    |          |                                                                                               |                 |      |                 |                       |        |
|    |          |                                                                                               |                 |      |                 |                       |        |

|    |        |                                                                              |                         |      |                 |                       |        |
|----|--------|------------------------------------------------------------------------------|-------------------------|------|-----------------|-----------------------|--------|
| 37 | VEGFA  | vascular endothelial growth factor A                                         | Ovary                   | [34] | bta-miR-195     | 18.2724/1.588310e-02  | -25.89 |
|    |        |                                                                              |                         |      | bta-miR-17-5p   | 17.7836/1.846720e-02  | -22.06 |
|    |        |                                                                              |                         |      | bta-miR-20a     | 17.5437/2.635450e-02  | -19.91 |
|    |        |                                                                              |                         |      | bta-miR-145     | 16.7949/4.182970e-02  | -19.54 |
|    |        |                                                                              |                         |      | bta-miR-26a     | 16.5526/4.004140e-02  | -19.75 |
|    |        |                                                                              |                         |      | hsa-miR-409-5p  | 15.7251/4.284640e-02  | -23.17 |
| 38 | AREG   | amphiregulin                                                                 | Granulosa cells         | [35] | hsa-miR-15b     | 16.8281/ 2.556460e-02 | -18.42 |
|    |        |                                                                              |                         |      | hsa-miR-499-5p  | 16.1174/ 5.706290e-02 | -19.67 |
| 39 | ACTB   | actin, beta                                                                  | Oocyte                  | [31] | hsa-miR-145     | 16.1202/ 5.265760e-02 | -17.81 |
| 40 | ALK    | anaplastic lymphoma receptor tyrosine kinase                                 | Granulosa cells         | [36] | hsa-let-7b*     | 15.4019/ 6.718860e-02 | -13.37 |
| 41 | SMAD2  | SMAD family member 2                                                         | Granulosa cells         | [36] | hsa-miR-455-3p  | 15.8069/ 5.775160e-02 | -29.52 |
| 42 | HSD3B2 | hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 2 | Granulosa cells         | [37] | hsa-miR-15b     | 17.6595/1.753880e-02  | -18.31 |
|    |        |                                                                              |                         |      | hsa-let-7b      | 17.5498/2.281180e-02  | -27.1  |
|    |        |                                                                              |                         |      | hsa-miR-195     | 16.7578/3.749650e-02  | -16.7  |
| 43 | BUB1B  | BUB1 budding uninhibited by benzimidazoles 1 homolog beta (yeast)            | Oocyte                  | [38] | hsa-let-7b      | 19.073/4.680770e-03   | -26.76 |
|    |        |                                                                              |                         |      | hsa-let-7c      | 18.1859/1.045720e-02  | -23.38 |
|    |        |                                                                              |                         |      | hsa-let-7a      | 17.5206/1.812050e-02  | -21.08 |
| 44 | RBL2   | retinoblastoma-like 2 (p130)                                                 | Oocyte                  | [38] | hsa-miR-409-5p  | 15.4722/4.028470e-02  | -21.16 |
| 45 | HMGA1  | high mobility group AT-hook 1                                                | Oocyte                  | [39] | hsa-miR-26a     | 16.8505/2.695120e-02  | -20.14 |
| 46 | SPPI   | secreted phosphoprotein 1                                                    | Granulosa and theca     | [40] | hsa-miR-126     | 14.7463/2.509870e-02  | -17.33 |
|    |        |                                                                              |                         |      | hsa-miR-127-5p  | 15.9479/5.980460e-02  | -16.53 |
|    |        |                                                                              |                         |      | hsa-miR-140-3p  | 16.1391/4.465210e-02  | -18.45 |
| 47 | AMH    | anti-Mullerian hormone                                                       | Granulosa cells         | [41] | hsa-miR-193a-5p | 17.0555/2.414980e-02  | -23.85 |
|    |        |                                                                              |                         |      | hsa-miR-127-3p  | 15.9185/3.299160e-02  | -20.79 |
|    |        |                                                                              |                         |      | hsa-miR-27b*    | 15.9932/4.726390e-02  | -26.58 |
| 48 | Ang II | angiogenin, ribonuclease, RNase A family, 5                                  | Ovary                   | [42] | hsa-miR-126     | 15.4742/ 1.108110e-02 | -16.51 |
| 49 | CCL2   | chemokine (C-C motif) ligand 2                                               | Cumulus cells           | [43] | hsa-miR-126     | 15.4742/ 1.108110e-02 | -16.51 |
| 50 | HOXA9  | homeo box A9                                                                 | Oocyte, granulosa cells | [44] | mmu-miR-145     | 18.2039/ 1.279040e-02 | -17.19 |
|    |        |                                                                              |                         |      | mmu-miR-143     | 17.1462/1.989930e-02  | -15.35 |
|    |        |                                                                              |                         |      | bta-miR-101     | 16.2868/6.084290e-02  | -12.72 |
|    |        |                                                                              |                         |      | mmu-miR-126-3p  | 15.2496/ 9.831610e-02 | -16.18 |
| 51 | TBC1D1 | TBC1 domain family, member 1                                                 |                         | [45] | hsa-miR-125b    | 15.3968/ 8.889750e-02 | -20.98 |
| 52 | FOXO3A | forkhead box O3                                                              | Ovary                   | [46] | hsa-miR-99a     | 16.4709/ 7.738560e-03 | -19.67 |
|    |        |                                                                              |                         |      | hsa-miR-140-3p  | 16.1446/ 4.443110e-02 | -24.48 |
|    |        |                                                                              |                         |      | hsa-miR-21*     | 15.741/ 4.794800e-02  | -18.48 |
|    |        |                                                                              |                         |      | hsa-miR-99b     | 15.6675/ 1.441980e-02 | -22.76 |
|    |        |                                                                              |                         |      | hsa-miR-126     | 14.2614/ 4.307520e-02 | -18.97 |
| 53 | CASP3  | caspase 3, apoptosis-related cysteine peptidase                              | Corpus luteum           | [47] | hsa-miR-222*    | 16.0797/ 4.325160e-02 | -18.65 |
|    |        |                                                                              |                         |      | hsa-miR-140-5p  | 15.984/ 6.188070e-02  | -17.04 |
| 54 | TGFB1  | transforming growth factor, beta 1                                           | Granulosa cells         | [48] | hsa-miR-18a     | 16.2372/ 4.718780e-02 | -18.45 |
|    |        |                                                                              |                         |      | hsa-miR-940     | 16.2894/ 7.604660e-02 | -21.73 |
|    |        |                                                                              |                         |      | hsa-miR-23a*    | 17.5122/ 2.752120e-02 | -28.23 |

|    |                |                                                                     |                  |      |                 |                       |        |
|----|----------------|---------------------------------------------------------------------|------------------|------|-----------------|-----------------------|--------|
|    |                |                                                                     |                  |      | hsa-miR-199a-3p | 18.2736/ 4.305320e-03 | -23.7  |
| 55 | <i>CXCR-6</i>  | <i>chemokine (C-X-C motif) receptor 6</i>                           | Granulosa cells  | [40] | hsa-miR-199a-5p | 17.0501/ 1.663800e-02 | -26.42 |
|    |                |                                                                     |                  |      | hsa-miR-101     | 15.5701/ 6.665460e-02 | -17.78 |
| 56 | <i>MMP1</i>    | <i>matrix metalloproteinase 1 (interstitial collagenase)</i>        | Ovary            | [49] | hsa-miR-193a-3p | 14.9631/9.596510e-02  | -19.42 |
| 57 | <i>MMP2</i>    | <i>matrix metalloproteinase 2</i>                                   | Ovary            | [49] | hsa-miR-26a-1   | 16.8762/2.169960e-02  | -18.71 |
| 58 | <i>TNFA</i>    | <i>tumor necrosis factor (TNF superfamily, member 2)</i>            | Cumulu/granulosa | [50] | dre-miR-23b     | 17.1692/2.815200e-02  | -20.95 |
| 59 | <i>LPL</i>     | <i>lipoprotein lipase</i>                                           | Corpus luteum    | [51] | hsa-miR-15b     | 16.2422/6.009120e-02  | -26.14 |
| 60 | <i>AMH</i>     | <i>anti-Mullerian hormone</i>                                       | Ovary            | [41] | hsa-miR-193a-5p | 17.0555/2.414980e-02  | -23.85 |
|    |                |                                                                     |                  |      | hsa-miR-127-3p  | 15.9185/3.299160e-02  | -20.79 |
| 61 | <i>wnt4</i>    | <i>wingless-type MMTV integration site family, member 4</i>         | Ovary            | [52] | bta-miR-222     | 16.0598/4.288560e-02  | -20.77 |
|    |                |                                                                     |                  |      | bta-miR-199a-3p | 15.9807/6.758530e-02  | -19.14 |
| 62 | <i>cxcr4</i>   | <i>chemokine (C-X-C motif) receptor 4</i>                           | Granulosa cells  | [40] | hsa-miR-126     | 13.9793/5.881430e-02  | -15.52 |
| 63 | <i>cd14</i>    | <i>CD14 molecule</i>                                                | Cumulus cells    | [50] | hsa-miR-127-5p  | 16.6007/3.145560e-02  | -18.1  |
|    |                |                                                                     |                  |      | hsa-miR-125b    | 15.5773/7.613190e-02  | -16.45 |
| 64 | <i>TLR8</i>    | <i>toll-like receptor 8</i>                                         | Cumulus cells    | [50] | hsa-miR-27b     | 17.5857/1.713880e-02  | -27.33 |
|    |                |                                                                     |                  |      | hsa-miR-27a     | 17.0832/2.415410e-02  | -25.57 |
| 65 | <i>IGF2R</i>   | <i>insulin-like growth factor 2 receptor</i>                        | Granulosa Cells  | [53] | hsa-miR-18a     | 16.1701/ 5.051580e-02 | -16.92 |
|    |                |                                                                     |                  |      | hsa-miR-143     | 15.9231/ 6.502460e-02 | -19.9  |
| 66 | <i>IGFBP4</i>  | <i>insulin-like growth factor-binding protein 4 precursor</i>       | Granulosa Cells  | [53] | hsa-miR-22      | 16.5692/ 2.758000e-02 | -19.21 |
|    |                |                                                                     |                  |      | hsa-miR-222     | 17.5136/ 8.223810e-03 | -26.07 |
| 67 | <i>lhcr</i>    | <i>Lutropin-choriogonadotropic hormone receptor precursor</i>       | Granulosa Cells  | [53] | hsa-let-7a      | 16.6305/ 4.700500e-02 | -17.15 |
|    |                |                                                                     |                  |      | hsa-let-7c      | 16.33/ 7.264700e-02   | -17.61 |
|    |                |                                                                     |                  |      | hsa-miR-23b     | 16.0294/ 8.221530e-02 | -22.87 |
| 68 | <i>TOB1</i>    | <i>Transducer of erbB-2 1</i>                                       | Granulosa Cells  | [53] | hsa-miR-26a     | 16.8922/2.594380e-02  | -16.61 |
| 69 | <i>pdap1</i>   | <i>PDGFA associated protein 1</i>                                   | Granulosa Cells  | [53] | mmu-miR-145     | 16.2711/4.793230e-02  | -27.26 |
|    |                |                                                                     |                  |      | mmu-miR-22      | 16.1373/4.311410e-02  | -17.59 |
| 70 | <i>GADD45G</i> | <i>Growth arrest and DNA-damage- inducible protein GADD45 gamma</i> | Granulosa Cells  | [53] | hsa-miR-103     | 17.1263/2.300590e-02  | -18.4  |
|    |                |                                                                     |                  |      | hsa-miR-127-3p  | 16.6675/1.611740e-02  | -24.7  |
|    |                |                                                                     |                  |      | hsa-miR-193a-5p | 16.4511/4.483480e-02  | -29.36 |
|    |                |                                                                     |                  |      | hsa-miR-503     | 15.8338/5.378100e-02  | -18.15 |
|    |                |                                                                     |                  |      | hsa-miR-15b     | 15.6935/9.578120e-02  | -13.6  |
| 71 | <i>EDF1</i>    | <i>Endothelial differentiation-related factor 1</i>                 | Granulosa Cells  | [53] | hsa-miR-23b     | 18.0788/1.250420e-02  | -26.38 |
|    |                |                                                                     |                  |      | hsa-miR-29a     | 17.5103/2.371940e-02  | -14.9  |
|    |                |                                                                     |                  |      | hsa-miR-99a     | 14.8951/3.899440e-02  | -16.67 |
|    |                |                                                                     |                  |      | hsa-miR-99b     | 13.8718/8.802760e-02  | -19.75 |
|    |                |                                                                     |                  |      | hsa-miR-193a-3p | 17.5062/8.942160e-03  | -23.89 |
|    |                |                                                                     |                  |      | hsa-miR-203     | 17.6184/2.057350e-02  | -15.85 |
|    |                |                                                                     |                  |      | hsa-miR-143     | 17.4853/1.348810e-02  | -16.89 |
|    |                |                                                                     |                  |      | hsa-miR-29a     | 16.7207/2.261010e-02  | -15.34 |
|    |                |                                                                     |                  |      | hsa-miR-127-3p  | 17.7112/5.900490e-03  | -33.71 |

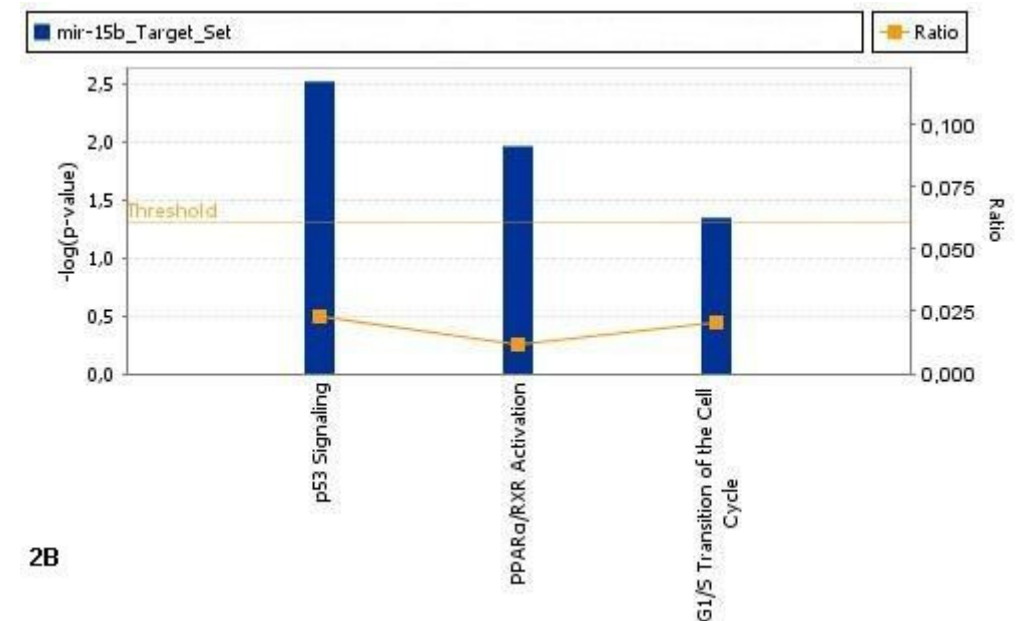
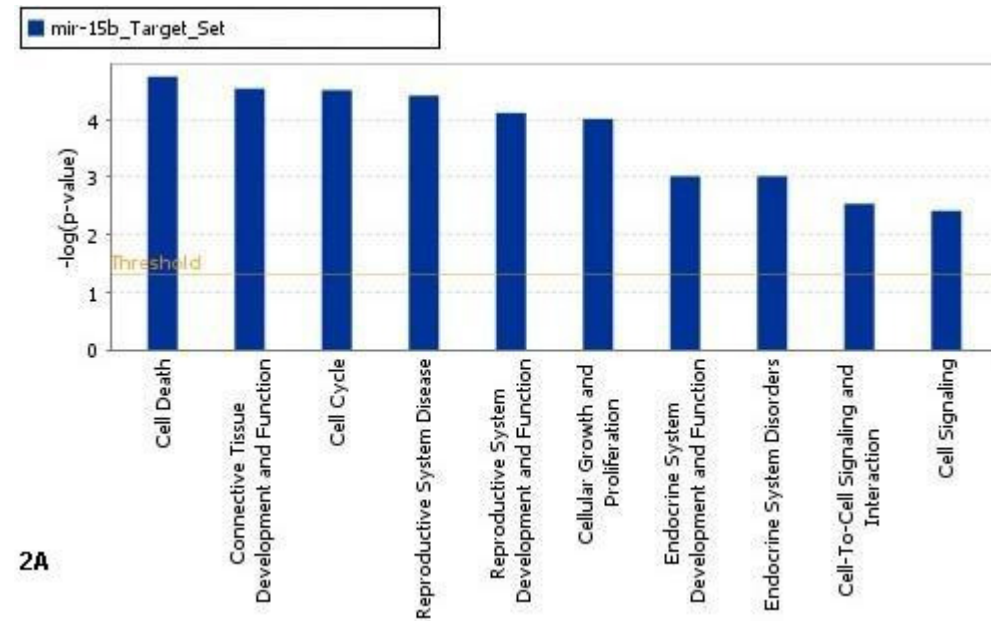
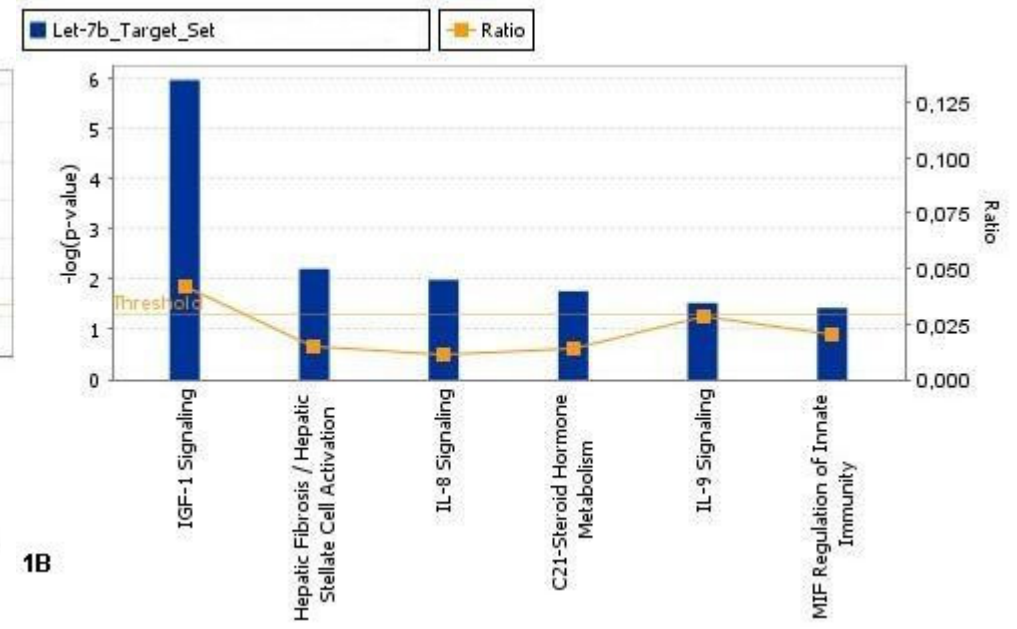
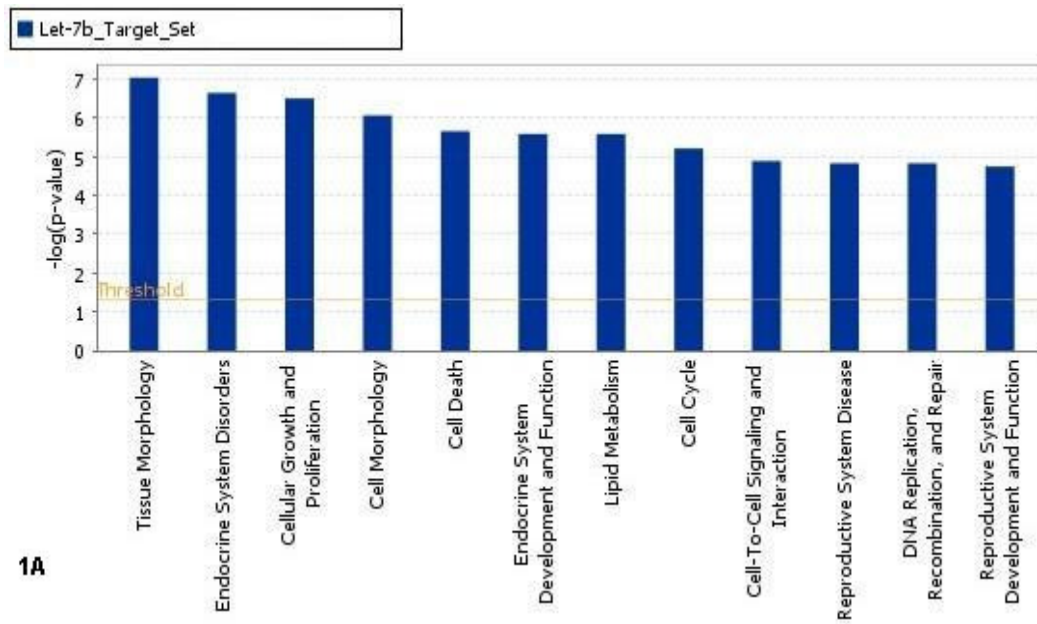
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|----|----------------|-------------------------------------------------------------------------------|-----------------|------|----------------|----------------------|--------|
|    |                |                                                                               |                 |      | hsa-miR-125b   | 16.7149/2.814470e-02 | -22.24 |
| 72 | <i>TMEFF1</i>  | <i>transmembrane protein with EGF-like and two follistatin-like domains 1</i> | Granulosa Cells | [53] | hsa-miR-101    | 16.3328/3.287650e-02 | -16.14 |
|    |                |                                                                               |                 |      | hsa-miR-29a    | 15.4592/6.892840e-02 | -14.93 |
|    |                |                                                                               |                 |      | hsa-miR-27a    | 17.0034/2.604060e-02 | -19.52 |
|    |                |                                                                               |                 |      | hsa-miR-27b    | 16.7016/3.913120e-02 | -16.28 |
|    |                |                                                                               |                 |      | hsa-miR-101*   | 15.8226/4.754970e-02 | -16.11 |
|    |                |                                                                               |                 |      | hsa-miR-101    | 16.3376/3.272990e-02 | -16.14 |
| 73 | <i>CTGF</i>    | <i>connective tissue growth factor</i>                                        | Granulosa Cells | [53] | hsa-miR-145*   | 16.0452/4.951250e-02 | -15.96 |
|    |                |                                                                               |                 |      | mmu-miR-7a*    | 16.4359/3.744620e-02 | -19.84 |
| 74 | <i>EPS8</i>    | <i>epidermal growth factor receptor pathway substrate 8</i>                   | Granulosa Cells | [53] | mmu-let-7b     | 16.512/6.260780e-02  | -18.57 |
|    |                |                                                                               |                 |      | mmu-miR-126-3p | 14.6154/2.987150e-02 | -16.04 |
| 75 | <i>TGFB3</i>   | <i>Transforming growth factor beta-3 precursor</i>                            | Granulosa Cells | [53] | hsa-miR-18a    | 16.7115/4.824610e-02 | -24.13 |
| 76 | <i>VEGFC</i>   | <i>Vascular endothelial growth factor C precursor</i>                         | Granulosa Cells | [53] | hsa-miR-27a    | 16.5549/3.966620e-02 | -16.83 |
| 77 | <i>GRB10</i>   | <i>Growth factor receptor-bound protein 10</i>                                | Granulosa Cells | [53] | hsa-miR-15b    | 16.0975/6.801110e-02 | -18.96 |
|    |                |                                                                               |                 |      | hsa-miR-424    | 15.8262/9.768730e-02 | -20.06 |
| 78 | <i>IGFBP2</i>  | <i>Insulin-like growth factor-binding protein 2 precursor</i>                 | Granulosa Cells | [53] | hsa-miR-940    | 16.0458/9.340990e-02 | -22.35 |
|    |                |                                                                               |                 |      | hsa-miR-145    | 15.9944/5.947490e-02 | -26.54 |
|    |                |                                                                               |                 |      | hsa-let-7b*    | 15.2875/7.404810e-02 | -25.93 |
|    |                |                                                                               |                 |      | hsa-miR-99a    | 14.2758/7.278800e-02 | -16.43 |
| 79 | <i>Irs2</i>    | <i>insulin receptor substrate 2</i>                                           | Granulosa Cells | [53] | mmu-miR-7b     | 16.4554/5.691970e-02 | -15.97 |
| 80 | <i>ADAM17</i>  | <i>A disintegrin and metalloproteinase domain 17</i>                          | Granulosa Cells | [53] | hsa-miR-222    | 15.728/4.877920e-02  | -22.17 |
|    |                |                                                                               |                 |      | hsa-miR-140-3p | 15.6321/7.022190e-02 | -18.89 |
| 81 | <i>ADAM12</i>  | <i>A disintegrin and metalloproteinase domain 12</i>                          | Granulosa Cells | [53] | hsa-miR-15b    | 17.7267/1.653470e-02 | -28.09 |
|    |                |                                                                               |                 |      | hsa-miR-23b*   | 17.1119/3.064470e-02 | -27.62 |
|    |                |                                                                               |                 |      | hsa-miR-195    | 17.0909/2.820830e-02 | -16.47 |
|    |                |                                                                               |                 |      | hsa-miR-103    | 16.7283/3.350390e-02 | -25.18 |
| 82 | <i>ADAMTS1</i> | <i>ADAM metalloproteinase with thrombospondin type 1 motif 1</i>              | Granulosa Cells | [53] | mmu-miR-22     | 15.9859/4.952570e-02 | -23.03 |
| 83 | <i>RGS1</i>    | <i>regulator of G-protein signaling 1</i>                                     |                 |      | hsa-miR-101    | 16.8652/1.996050e-02 | -13.09 |
|    |                |                                                                               |                 |      | hsa-miR-222*   | 16.4731/2.882720e-02 | -21.75 |
|    |                |                                                                               |                 |      | hsa-miR-29a    | 16.0587/4.071650e-02 | -14.78 |
| 84 | <i>DDX5</i>    | <i>DEAD (Asp-Glu-Ala-Asp) box polypeptide 5</i>                               | Oocytes         | [6]  | hsa-miR-18a    | 16.4041/3.980630e-02 | -16.26 |
|    |                |                                                                               |                 |      | hsa-miR-126    | 14.554/3.111270e-02  | -15.33 |
| 85 | <i>TGFBR3</i>  | <i>transforming growth factor, beta receptor III</i>                          |                 | [54] | hsa-miR-103    | 16.1077/5.989130e-02 | -17.15 |
|    |                |                                                                               |                 |      | hsa-miR-125b   | 15.3979/8.881980e-02 | -19.66 |
| 86 | <i>CCND2</i>   | <i>cyclin D2</i>                                                              | Granulosa cells | [55] | hsa-miR-222    | 17.4089/1.071940e-02 | -17.58 |
| 87 | <i>SFRS9</i>   | <i>splicing factor, arginine/serine-rich 9</i>                                |                 | [56] | hsa-miR-29a*   | 19.2437/4.370020e-03 | -15.38 |
|    |                |                                                                               |                 |      | hsa-miR-27b    | 17.6386/1.630780e-02 | -17.05 |
|    |                |                                                                               |                 |      | hsa-miR-27a    | 17.5248/1.591670e-02 | -14.91 |
|    |                |                                                                               |                 |      | hsa-miR-24     | 17.093/3.121390e-02  | -22.05 |
|    |                |                                                                               |                 |      | hsa-miR-125b   | 16.1874/4.478590e-02 | -15.19 |
|    |                |                                                                               |                 |      | hsa-miR-99a    | 15.395/2.341480e-02  | -14.7  |

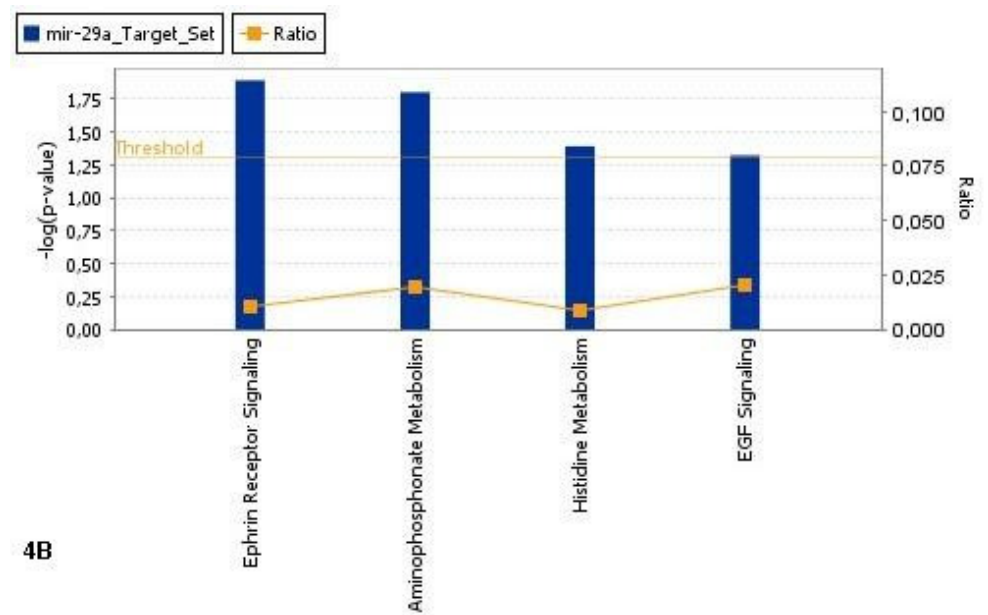
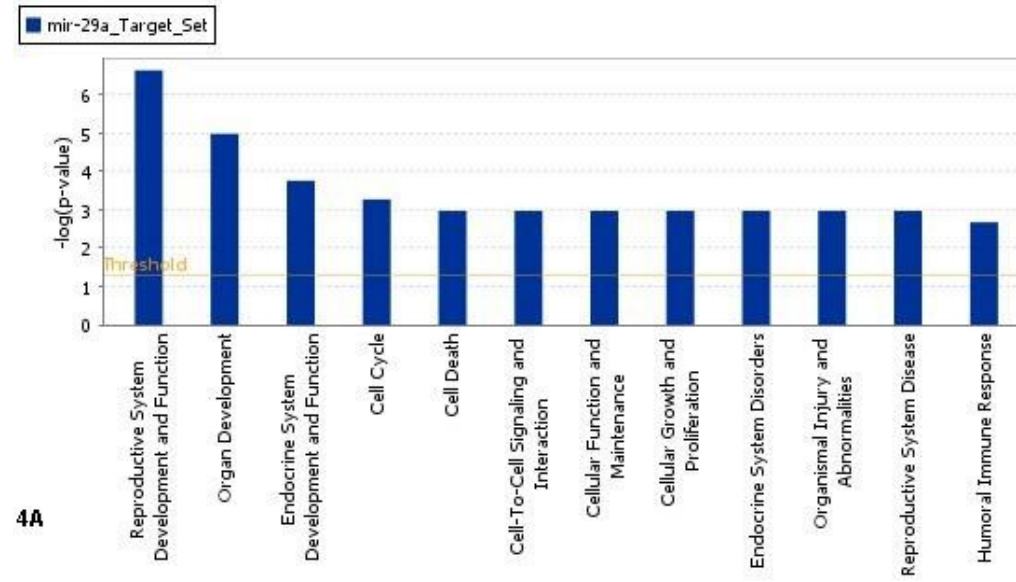
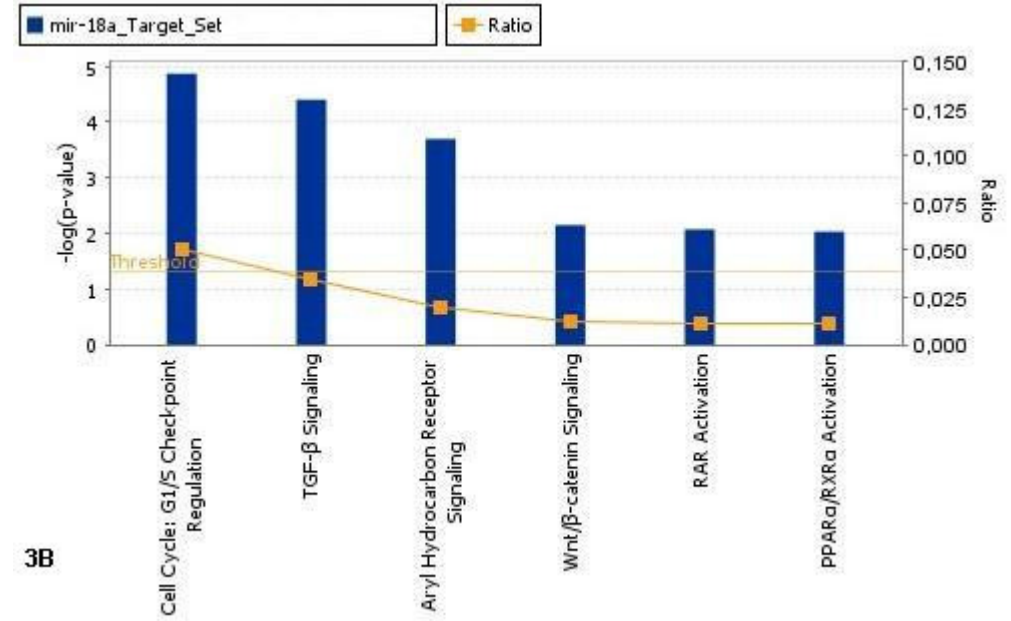
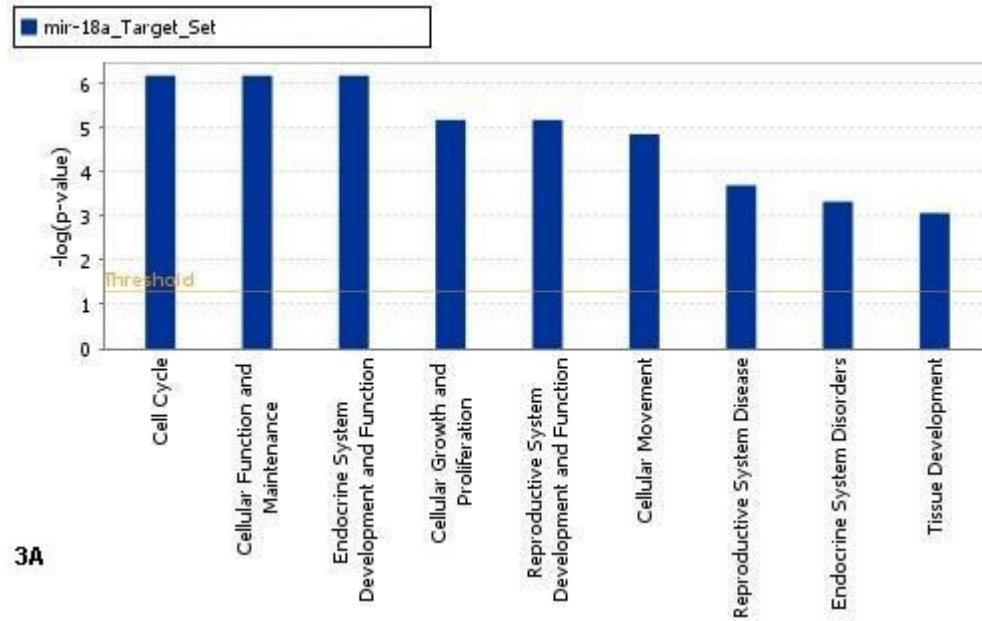
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|-----|----------------|----------------------------------------------------------------------------------------------------|-----------------------------|----------|-------------------------|-----------------------|--------|
| 88  | <i>Casp6</i>   | <i>caspase 6, apoptosis-related cysteine peptidase</i>                                             | Ovarian Follicle            | [57, 58] | hsa-miR-17              | 18.1939/2.715510e-02  | -24.79 |
|     |                |                                                                                                    |                             |          | hsa-miR-20 <sup>a</sup> | 17.882/ 3.437020e-02  | -22.68 |
| 89  | <i>Inhbb</i>   | <i>inhibin, beta B</i>                                                                             | Ovarian Follicle            | [59]     | hsa-miR-22              | 15.5745/ 6.890290e-02 | -22.45 |
|     |                |                                                                                                    |                             |          | hsa-miR-18a*            | 16.7528/ 4.677800e-02 | -31.63 |
| 90  | <i>Gulo</i>    | <i>gulonolactone (L-) oxidase</i>                                                                  | Ovary                       | [60]     | mmu-miR-29a             | 16.0229/ 3.995680e-02 | -22.04 |
| 91  | <i>Cdh2</i>    | <i>cadherin 2</i>                                                                                  | Granulosa cells and oocytes | [55]     | hsa-miR-199a-5p         | 16.9266/ 1.886940e-02 | -25.85 |
|     |                |                                                                                                    |                             |          | hsa-miR-199b-5p         | 16.3327/ 4.162780e-02 | -21.03 |
| 92  | <i>Creb3</i>   | <i>cAMP responsive element binding protein 3</i>                                                   | Granulosa cells             | [61]     | hsa-miR-29a*            | 16.8281/ 4.580960e-02 | -16.96 |
|     |                |                                                                                                    |                             |          | hsa-miR-103             | 17.0828/ 2.397230e-02 | -14.88 |
| 93  | <i>Runx1</i>   | <i>Runt-related transcription factor 1</i>                                                         | Ovary                       | [62]     | hsa-miR-409-3p          | 16.1294/3.812300e-02  | -16.97 |
| 94  | <i>Stc1</i>    | <i>stanniocalcin 1</i>                                                                             | Thecal interstitial cells   | [22]     | mmu-miR-103             | 16.632/3.938640e-02   | -23.92 |
| 95  | <i>DNMT3A</i>  | <i>DNA (cytosine-5)-methyltransferase 3A</i>                                                       | Oocytes                     | [10]     | gga-miR-125b            | 16.1459/4.217920e-02  | -24.38 |
|     |                |                                                                                                    |                             |          | hsa-miR-29a             | 16.7304/2.241400e-02  | -23.06 |
| 96  | <i>RORA</i>    | <i>RAR-related orphan receptor A</i>                                                               | Ovary                       | [63]     | hsa-miR-143*            | 17.624/ 2.741360e-02  | -21.82 |
| 97  | <i>H1foo</i>   | <i>H1 histone family, member O, oocyte-specific</i>                                                | Oocyte                      | [64]     | hsa-miR-125b            | 15.6019/ 7.453860e-02 | -19.88 |
|     |                |                                                                                                    |                             |          | hsa-miR-26a             | 16.402/ 4.050890e-02  | -16.77 |
| 98  | <i>Hsd11b2</i> | <i>hydroxysteroid (11-beta) dehydrogenase 2</i>                                                    | Corpus luteum               | [64]     | hsa-miR-101             | 15.8337/ 5.228430e-02 | -18.95 |
|     |                |                                                                                                    |                             |          | hsa-miR-143*            | 17.4586/ 3.150310e-02 | -28.06 |
| 99  | <i>Cspg2</i>   | <i>Chondroitin sulphate proteoglycan core protein 2</i>                                            | Ovary                       | [64]     | rno-miR-143             | 17.5103/ 1.725090e-02 | -13.88 |
| 100 | <i>YWHAE</i>   | <i>tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide</i> | Ovary                       | [65]     | hsa-miR-199a-3p         | 16.3313/ 3.321940e-02 | -16.74 |
|     |                |                                                                                                    |                             |          | hsa-miR-222             | 16.3068/ 2.750850e-02 | -26.77 |
| 101 | <i>MAP3K5</i>  | <i>mitogen-activated protein kinase kinase kinase 5</i>                                            | Ovary                       | [66]     | hsa-miR-199a-3p         | 16.0825/ 4.302150e-02 | -13.62 |
| 102 | <i>BMP4</i>    | <i>bone morphogenetic protein 4</i>                                                                | Ovary                       | [13]     | hsa-miR-145             | 16.0647/ 5.556770e-02 | -17.37 |
| 103 | <i>SMAD1</i>   | <i>SMAD family member 1</i>                                                                        | Ovary                       | [13]     | hsa-miR-26a             | 15.5259/ 8.873380e-02 | -16.98 |
| 104 | <i>SMAD5</i>   | <i>SMAD family member 5</i>                                                                        | Ovary                       | [13]     | rno-miR-29b             | 15.3821/ 9.549610e-02 | -18.62 |
|     |                |                                                                                                    |                             |          | rno-miR-101a            | 15.4237/ 9.712210e-02 | -14.39 |
| 105 | <i>NOBOX</i>   | <i>NOBOX oogenesis homeobox</i>                                                                    | Oocyte in the newborn ovary | [13]     | bta-miR-145             | 16.0505/ 8.007720e-02 | -19.44 |
|     |                |                                                                                                    |                             |          | mmu-miR-23a             | 17.4891/ 1.449400e-02 | -17.87 |
|     |                |                                                                                                    |                             |          | mmu-miR-23b             | 17.3748/ 1.552470e-02 | -17.87 |
|     |                |                                                                                                    |                             |          | mmu-miR-199a            | 16.487/ 3.185590e-02  | -14.21 |
| 106 | <i>CtBP1</i>   | <i>C-terminal binding protein 1</i>                                                                | Steroidogenesis             | [67]     | mmu-miR-125b            | 16.3157/ 1.868710e-02 | -26.95 |
|     |                |                                                                                                    |                             |          | Mmu-miR-409             | 15.2896/ 7.903530e-02 | -14.98 |
| 107 | <i>MMP9</i>    | <i>Matrix metalloproteinase-9 precursor</i>                                                        | Ovary                       | [68]     | hsa-miR-24              | 16.3733/ 5.891070e-02 | -19.96 |
|     |                |                                                                                                    |                             |          | mmu-miR-7b              | 15.9728/ 9.029870e-02 | -13.99 |
|     |                |                                                                                                    |                             |          | mmu-miR-22              | 15.7417/ 6.186990e-02 | -19.43 |
| 108 | <i>IRS1</i>    | <i>insulin receptor substrate 1</i>                                                                | Theca cells                 | [69]     | mmu-miR-126-3p          | 13.8597/6.952200e-02  | -14.94 |
|     |                |                                                                                                    |                             |          | mmu-miR-7b              | 17.2976/2.506960e-02  | -19.15 |
|     |                |                                                                                                    |                             |          | mml-miR-125b            | 15.4465/9.045120e-02  | -17.27 |
|     |                |                                                                                                    |                             |          | hsa-miR-145             | 15.603/9.146770e-02   | -16.57 |
|     |                |                                                                                                    |                             |          | hsa-miR-126             | 14.3579/8.70270e-02   | -15.35 |

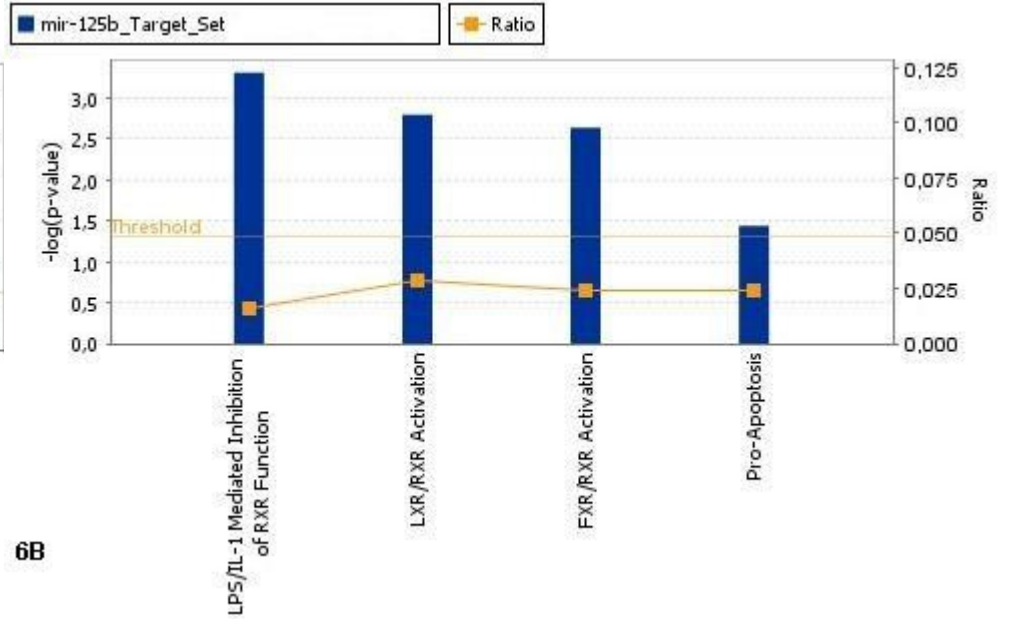
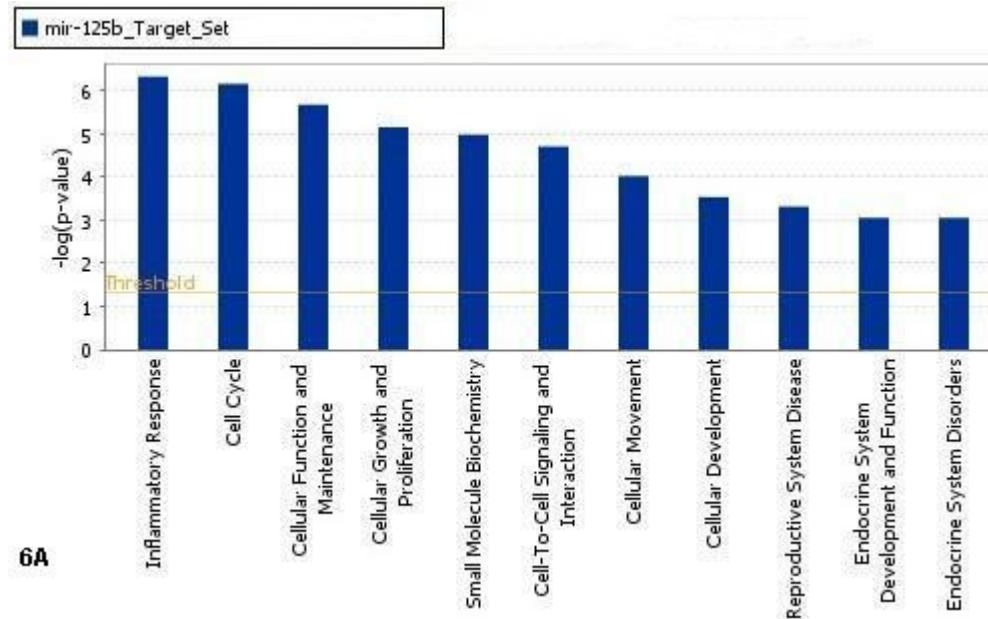
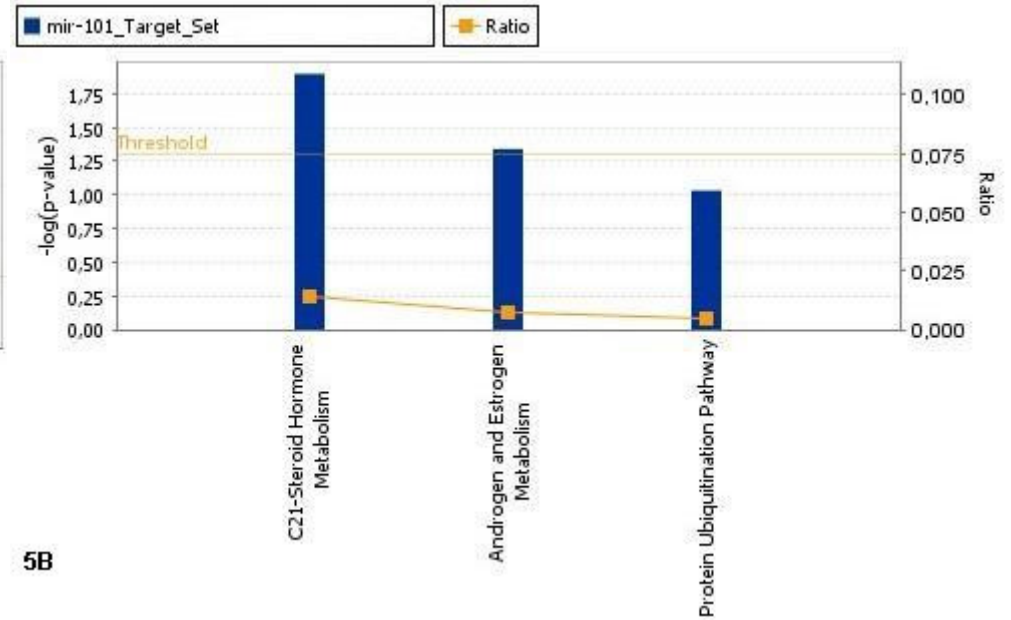
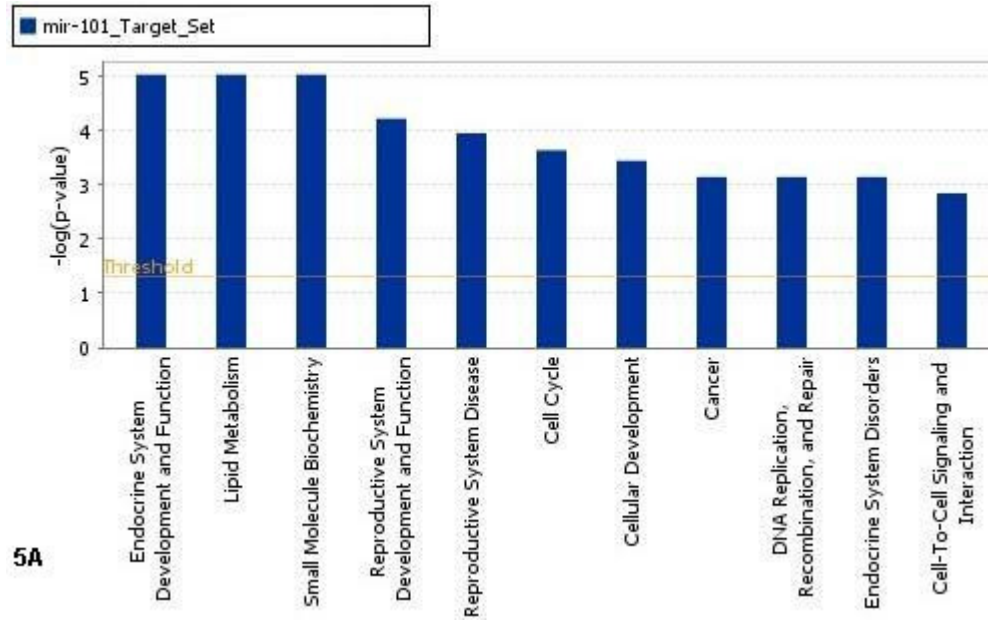
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|-----|---------------|------------------------------------------------------------------------|----------------------------------------|------|--------------|-----------------------|--------|
| 109 | <i>Acvr2a</i> | <i>Activin receptor type-2A precursor</i>                              | Granulosa cells                        | [36] | rno-miR-15b  | 18.4755/ 1.103670e-02 | -21.98 |
|     |               |                                                                        |                                        |      | rno-miR-29a* | 17.1186/ 4.337720e-02 | -11.14 |
| 110 | <i>Lhx8</i>   | <i>lim homeodomain transcription factor 8</i>                          | Ovarian Development                    | [70] | hsa-miR-125b |                       |        |
|     |               |                                                                        |                                        |      | hsa-miR-18a  | 15.635/8.656840e-02   | -16.88 |
|     |               |                                                                        |                                        |      | mmu-miR-18a  | 15.6223/7.542560e-02  | -16.62 |
|     |               |                                                                        |                                        |      | dre-miR-145  | 16.8503/2.912100e-02  | -17.44 |
|     |               |                                                                        |                                        |      | dre-miR-29a  | 16.5177/3.401890e-02  | -16.99 |
| 111 | <i>Sohlh1</i> | <i>spermatogenesis and oogenesis specific basic helix-loop-helix 1</i> | Ovarian Development                    | [70] | bta-miR-125b | 16.9008/4.307670e-02  | -19.66 |
|     |               |                                                                        |                                        |      | hsa-miR-126  | 14.3149/4.606970e-02  | -21.88 |
|     |               |                                                                        |                                        |      | hsa-miR-199a |                       |        |
|     |               |                                                                        |                                        |      | hsa-miR-29a  |                       |        |
| 112 | <i>CPEB1</i>  | <i>cytoplasmic polyadenylation element binding protein 1</i>           | Oocyte growth and follicle development | [71] | mmu-miR-29a  | 15.5525/6.110570e-02  | -22.48 |
|     |               |                                                                        |                                        |      | mmu-miR-18a  | 15.3835/9.611900e-02  | -14.28 |
|     |               |                                                                        |                                        |      | mmu-miR-145  | 16.3382/ 4.498750e-02 | -16.1  |
| 113 | <i>CPEB2</i>  | <i>cytoplasmic polyadenylation element binding protein 2</i>           | Oocyte growth and follicle development | [71] | gga-miR-222  | 15.5373/ 9.313360e-02 | -15.08 |
|     |               |                                                                        |                                        |      | mmu-miR-15b  | 16.6007/ 4.550300e-02 | -12.08 |
|     |               |                                                                        |                                        |      | mmu-miR-222  | 15.7745/ 5.992650e-02 | -11.64 |
| 114 | <i>CPEB3</i>  | <i>cytoplasmic polyadenylation element binding protein 3</i>           | Oocyte growth and follicle development | [71] | gga-miR-18a  | 16.2315/ 6.762780e-02 | -23.36 |
|     |               |                                                                        |                                        |      | gga-miR-222  | 17.2394/ 2.040720e-02 | -22.34 |
|     |               |                                                                        |                                        |      | fru-miR-126  | 14.5653/ 9.138390e-02 | -13.35 |
|     |               |                                                                        |                                        |      | bta-miR-222  | 17.0463/ 1.742610e-02 | -21.4  |
|     |               |                                                                        |                                        |      | bta-miR-222  | 16.3907/ 3.143820e-02 | -20.56 |
| 115 | <i>IGFBP3</i> | <i>Insulin-like growth factor-binding protein 3 precursor</i>          | Oocyte, embryos                        | [72] | hsa-miR-143  | 16.4824/3.721040e-02  | -21.89 |
|     |               |                                                                        |                                        |      | has-miR-125b | 14.3149/4.606970e-02  | -16.99 |

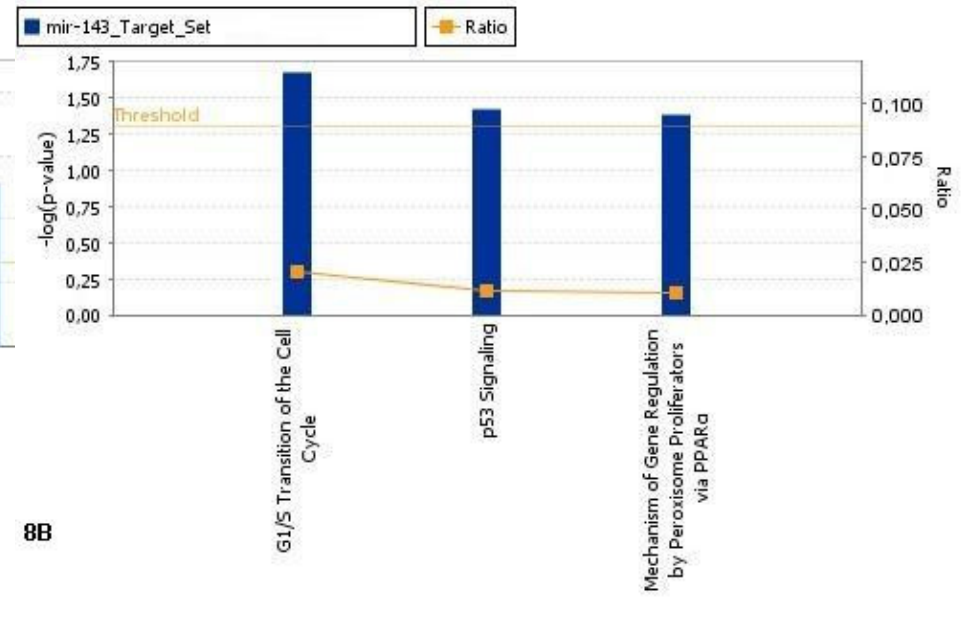
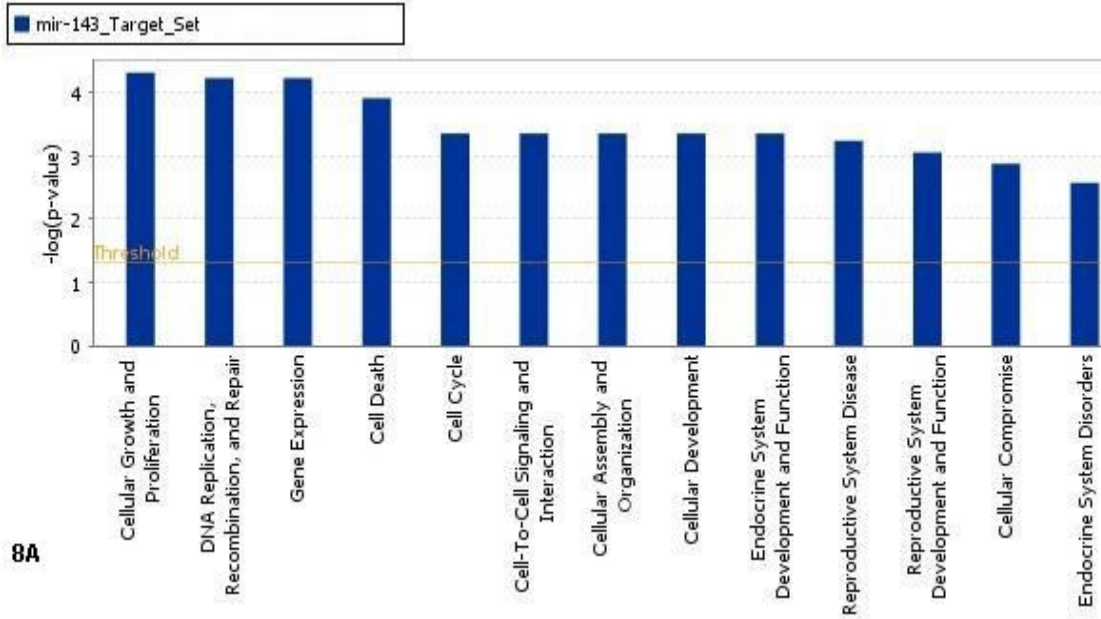
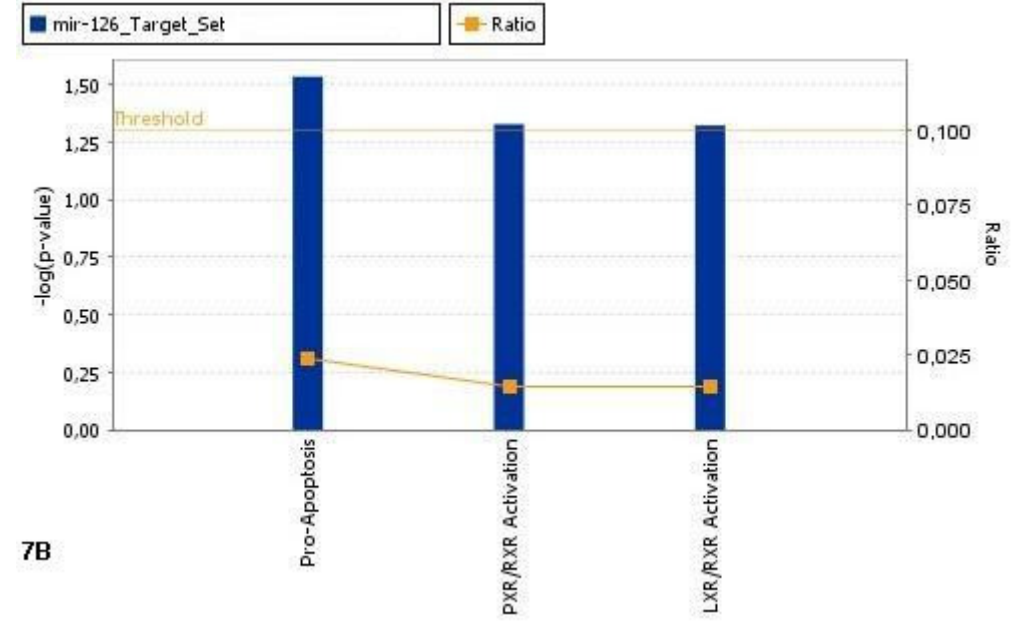
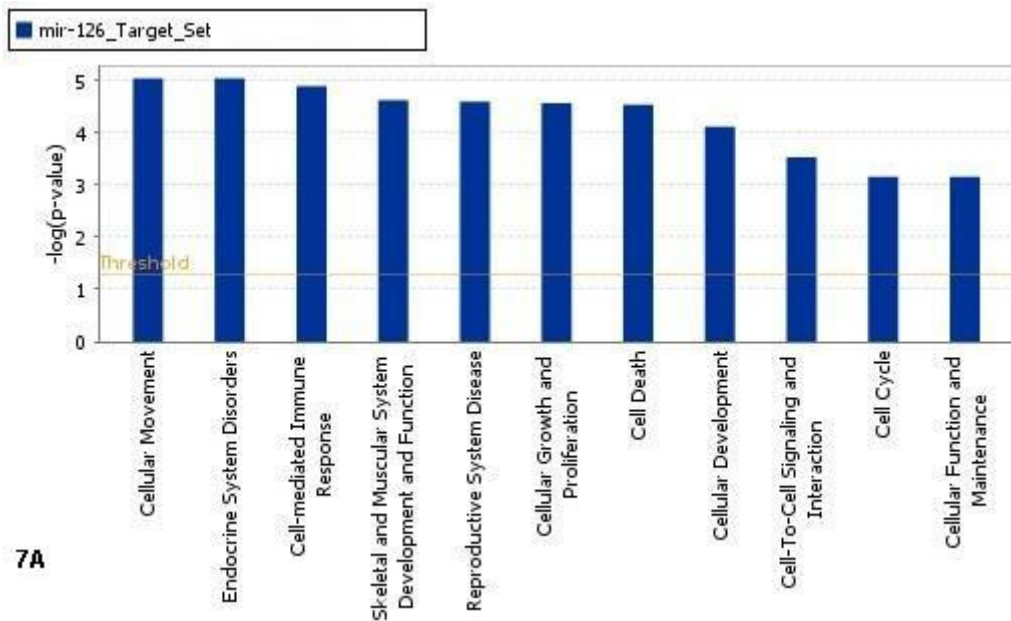
The above table presenting the genes found to be targeted by our cloned miRNAs, which were screened and filtered from total predicted targets based on different condition mentioned in the materials and methods section of the main article. Score/Base P value and energy that were found during target prediction from miRBase target version 5 are listed.

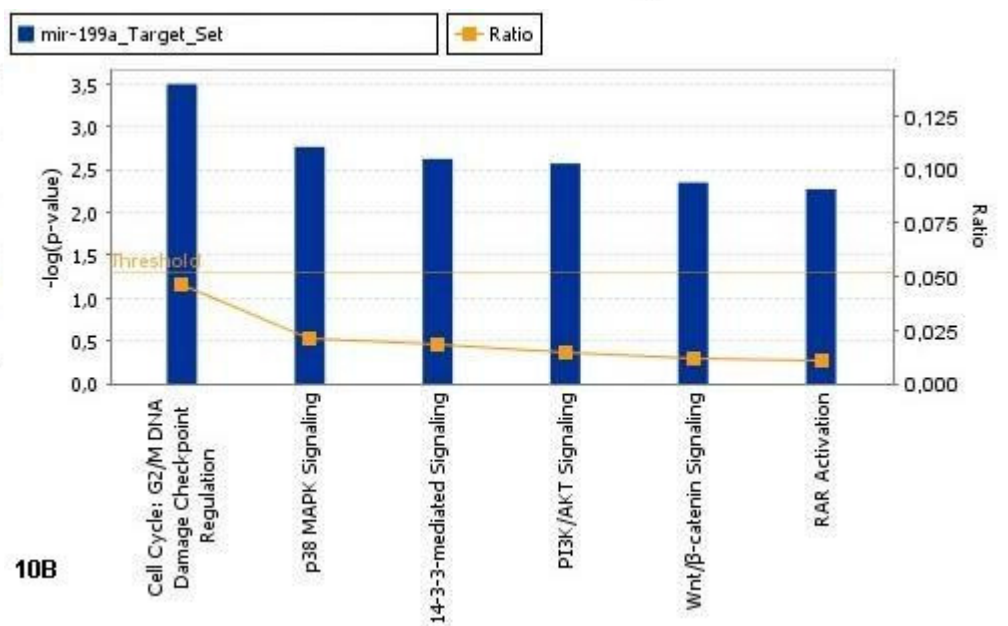
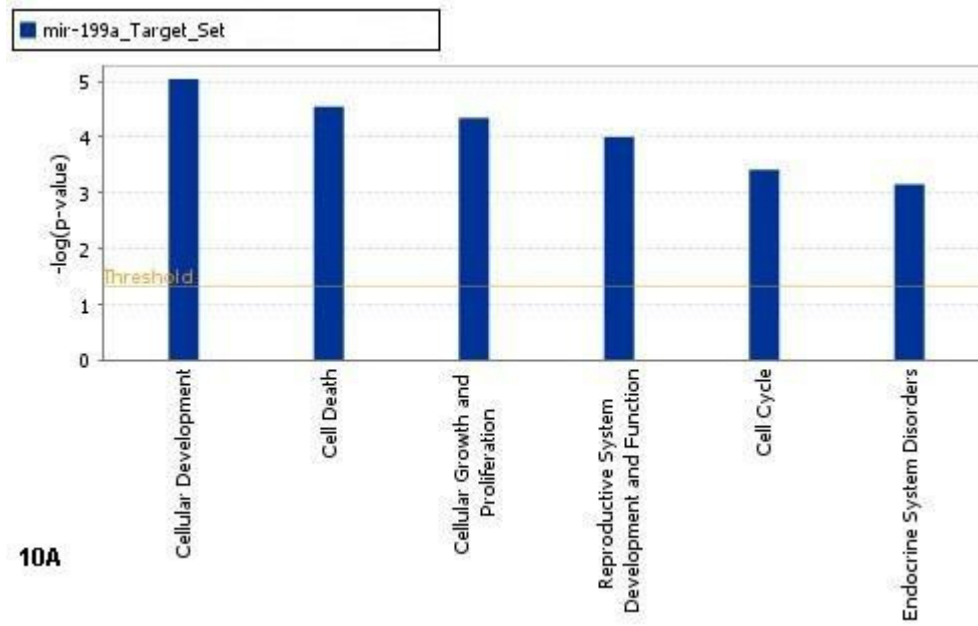
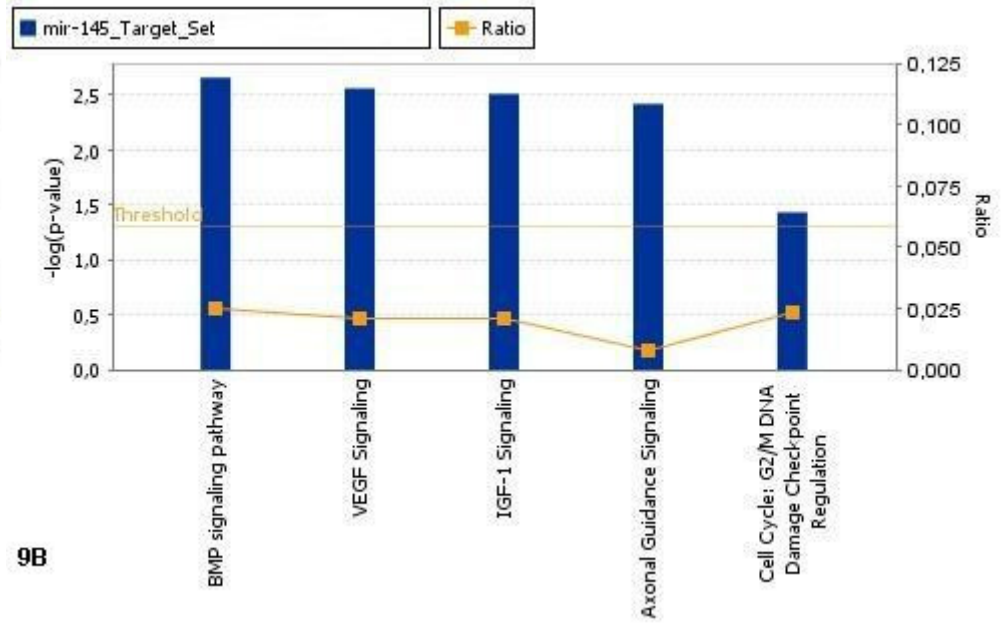
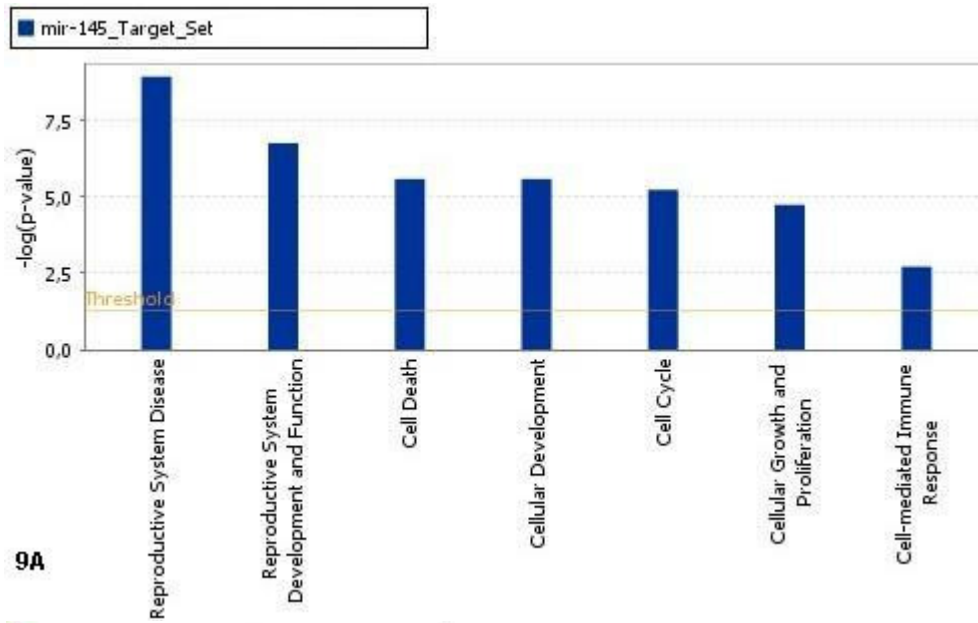
Supplementary Figure 1. Ingenuity analysis of the genes targeted by top eleven screened miRNAs

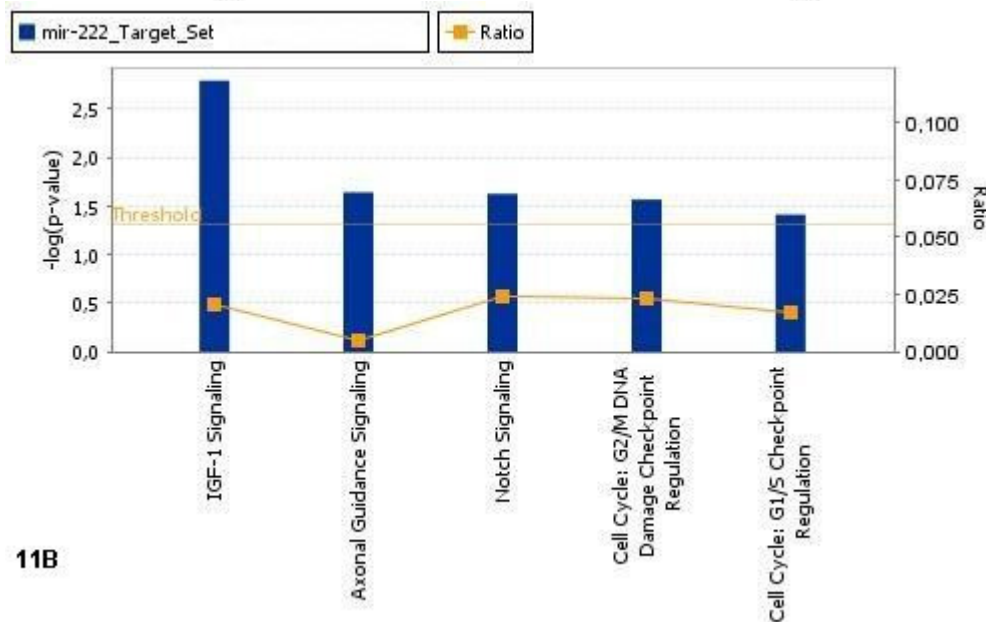
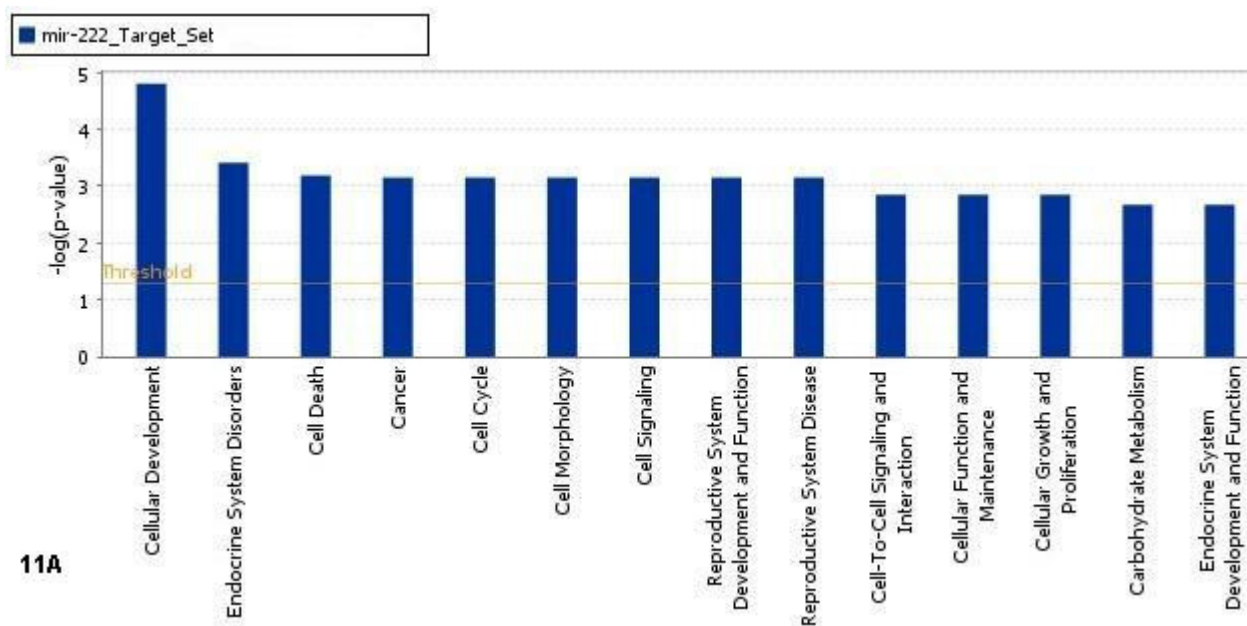












Supp Fig. 1: Detailed Gene Ontology analysis of 11 miRNAs target gene sets by the IPA web delivered software. 1-11 represented the screened target gene set for let-7b, mir-15a, mir-18a, mir-29a, mir-101, mir-125b, mir-126, mir-143, mir-145, mir-199a, and mir-222. The significant different overrepresented GO functional categories (A) that were found after analysis for the screened target genes sets for each miRNAs (1-11). Whereas, detailed pathway analysis are presented by 'B' with respective miRNAs target gene set number (1-11). Ratio denotes the number of affected genes to total number of genes involved in the pathway. Where,  $-\log(p\text{-value})$  denotes the threshold  $p < 0.05$ , which is shown as yellow line. Bars that are above the line indicate significant enrichment of a pathway or function.

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