

**Supplementary table 1**

| <b>miRNA</b>    | <b>Gene (Notch pathway)</b> | <b>Gene (TGF-<math>\beta</math> pathway)</b> |
|-----------------|-----------------------------|--|
| hsa-miR-106b-5p | KAT2B                       | SMAD9  |
| hsa-miR-129-5p  | NOTCH1                      | BMPR2  |

**Supplementary Table1.** List of experimentally validated miRNA - gene interactions for Notch signaling and TGF- $\beta$  signaling pathway.

**Supplementary Table 2**

| <b>miRNA</b>    | <b>Gene (Notch pathway)</b> | <b>Gene (Wnt pathway)</b>          |
|-----------------|-----------------------------|------------------------------------|
| hsa-miR-181a-5p | NOTCH2,LFNG,KAT2B           | WNT16,NLK,WNT3A,<br>WNT2           |
| hsa-miR-183-5p  | NOTCH2, <b>PSEN1</b>        | BTRC,CCND1,PPP3R1,<br><b>PSEN1</b> |
| hsa-miR-562     | <b>PSEN1</b>                | <b>PSEN1</b>                       |
| hsa-miR-25-3p   | KAT2B                       | TP53                               |
| hsa-miR-221-3p  | <b>DVL2</b>                 | DKK2,CTNNB1, <b>DVL2</b>           |
| hsa-miR-449a    | HDAC1                       | CCND1                              |
| hsa-miR-181b-5p | KAT2B                       | NLK                                |
| hsa-miR-137     | <b>CTBP1</b>                | <b>CTBP1</b>                       |
| hsa-miR-181c-5p | NOTCH2                      | NLK                                |
| hsa-miR-29c-3p  | NUMB                        | JUN                                |

**Supplementary Table 2.** List of experimentally validated miRNA - gene interactions for Notch signaling and WNT signaling pathway.

Supplementary Table 3

| miRNA           | Gene (Wnt pathway)  | Gene (TGF- $\beta$ pathway)                   |
|-----------------|---|---|
| hsa-miR-192-5p  | FZD7,CTNNBIP1,TBL1X,APC,VANGL1,WNT3,PRICKLE1,NLK,FZD4,MAPK9, GPC4,FZD1,TCF7 | ID2,ID4,ACVRD2B,E2F5,ID1,ACVR2A,BMPR2,RPSKB1  |
| hsa-miR-7-5p    | CAMK2D,LRP6,MAPK9,WNT8B, <b>PPP2R1B</b>                                     | <b>PPP2R1B</b> ,BMPR2                         |
| hsa-let-7b-5p   | CCND2,CUL1,PLCB3,CCND1  | THBS1,CUL1,E2F5                               |
| hsa-miR-26a-5p  | GSK3B,CCND2, <b>SMAD4</b> , <b>MYC</b>                                      | <b>SMAD4</b> , <b>MYC</b> ,SMAD1              |
| hsa-miR-17-5p   | MAPK9,CCND1, <b>SMAD4</b> , <b>MYC</b>                                      | THBS1, <b>SMAD4</b> , <b>MYC</b> ,TGFB2,BMPR2 |
| hsa-miR-101-3p  | FZD6,JUN,RAC1   | TGFB1,ACVR2B                                  |
| hsa-miR-186-5p  | WNT5A, <b>SMAD4</b> ,CNSK1A1  | AVCR1, <b>SMAD4</b> ,SMAD5,ACVR2A             |
| hsa-miR-20a-5p  | CCND1, <b>MYC</b> , <b>SMAD4</b>  | THBS1, <b>SMAD4</b> , <b>MYC</b> ,TGFB2,BMPR2 |
| hsa-miR-18a-5p  | DAAM2, <b>SMAD4</b>   | <b>SMAD4</b> ,TGFB2                           |
| hsa-miR-199a-3p | MAPK9,MAPK8   | MAPK1   |
| hsa-miR-148b-3p | FBXW11,TBL1XR1  | INHBA   |
| hsa-let-7f-5p   | CCND1, <b>MYC</b>   | <b>MYC</b>                                    |
| hsa-miR-425-5p  | CCND1, <b>PPP2CB</b>  | <b>PPP2CB</b>                                 |
| hsa-let-7a-5p   | CCND2, <b>MYC</b>   | THBS1, <b>MYC</b>                             |
| hsa-miR-130b-3p | TCF4, <b>SMAD4</b>  | ACVR1, <b>SMAD4</b> ,TGFB2                    |
| hsa-miR-374b-5p | FZD8,CCND1  | CDKN2B  |
| hsa-miR-22-3p   | FRAT2,PRKACA  | SP1,BMP7                                      |
| hsa-let-7c      | <b>MYC</b>  | TGFB1, <b>MYC</b>                             |
| hsa-miR-141-3p  | TCF7L1  | TGFB2   |
| hsa-miR-125b-5p | TP53  | BMPR1B  |
| hsa-miR-584-5p  | <b>ROCK1</b>  | <b>ROCK1</b>                                  |
| hsa-miR-29b-3p  | CTNNBIP1  | ACVR2A,SP1                                    |
| hsa-miR-128     | WNT3A   | TGFB1,BMPR2                                   |
| hsa-miR-302a-3p | CCND2   | LEFTY2  |
| hsa-let-7g-5p   | <b>MYC</b>  | <b>MYC</b>                                    |
| hsa-miR-483-3p  | <b>SMAD4</b>  | <b>SMAD4</b>                                  |
| hsa-miR-302d-3p | CCND2   | LEFTY2  |
| hsa-miR-133a    | <b>RHOA</b>   | <b>RHOA</b>                                   |
| hsa-miR-140-3p  | MAPK8   | ACVR2B  |
| hsa-miR-34b-5p  | <b>MYC</b>  | <b>MYC</b>                                    |
| hsa-miR-142-3p  | GPC4  | TGFB1,BMP8A                                   |
| hsa-miR-146a-5p | <b>ROCK1</b>  | <b>ROCK1</b>                                  |
| hsa-miR-590-3p  | PPP2R5A   | ID4   |
| hsa-miR-34c-5p  | <b>MYC</b>  | <b>MYC</b>                                    |
| hsa-miR-34b-3p  | <b>MYC</b>  | <b>MYC</b>                                    |
| hsa-miR-196a-5p | CCND2   | BMP4  |
| hsa-miR-185-5p  | <b>RHOA</b>   | <b>RHOA</b>                                   |
| hsa-miR-378a-3p | <b>MYC</b>  | <b>MYC</b>                                    |
| hsa-miR-138-5p  | <b>ROCK2</b>  | <b>ROCK2</b>                                  |

Supplementary Table 3. List of experimentally validated miRNA - gene interactions for WNT signaling and TGF- $\beta$  signaling pathway.