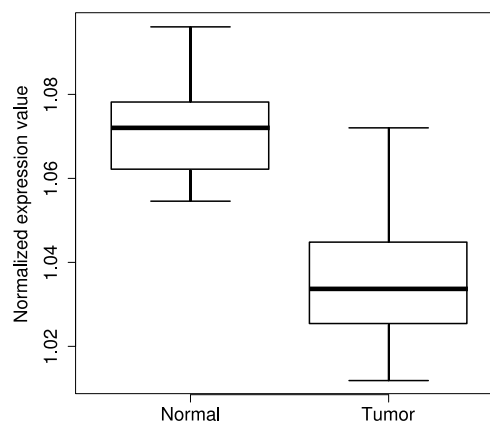
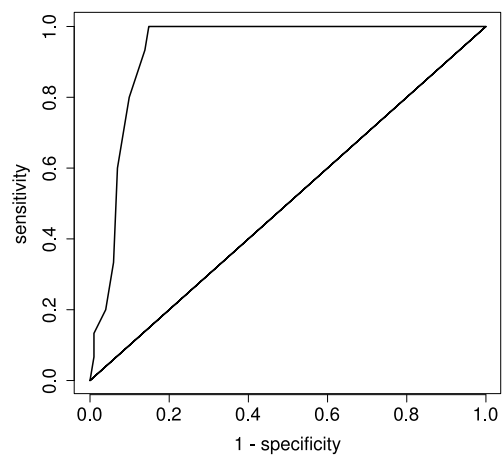


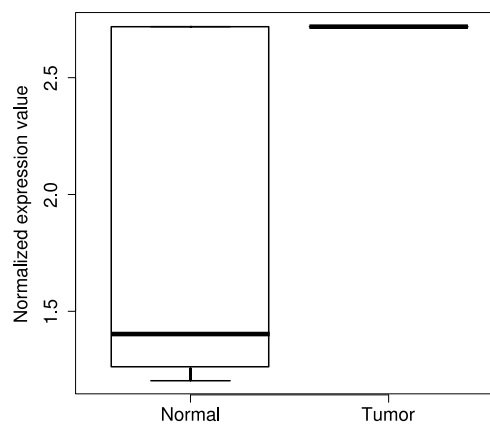
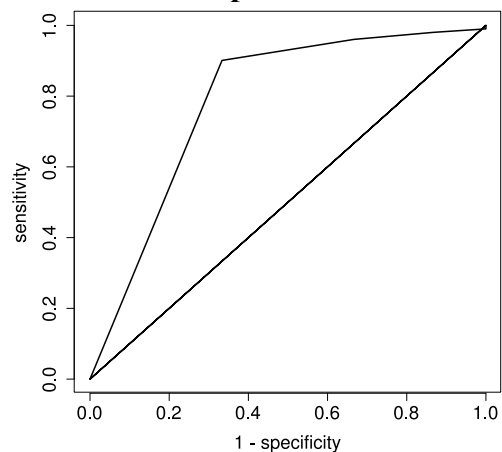
Supplementary Information

Figure S1. ROC curves and expression distribution of miRNAs. Expression profiles of NTUH miRNA dataset was used for validating our results. Solid line: actual prediction performance of the miRNA as diagnostic marker; dashed line: AUC = 0.5 (no predictive power). * p -value < 0.05; ** p -value < 0.01; *** p -value < 0.001.

A. hsa-let-7c. MIMAT0000064. ***



B. hsa-miR-21-5p. MIMAT0000076. ***



C. hsa-miR-22-3p. MIMAT0000077.

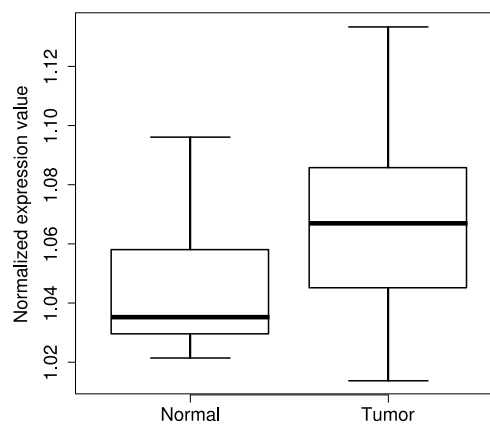
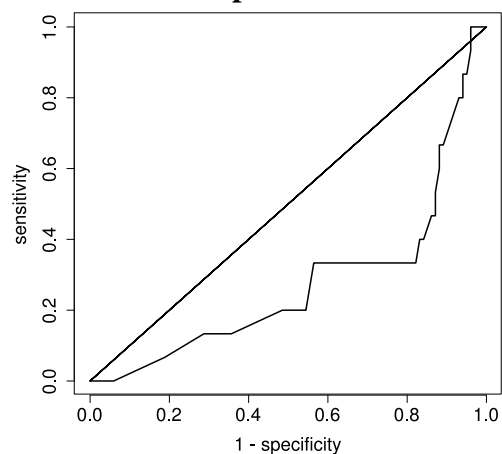


Figure S1. Cont.

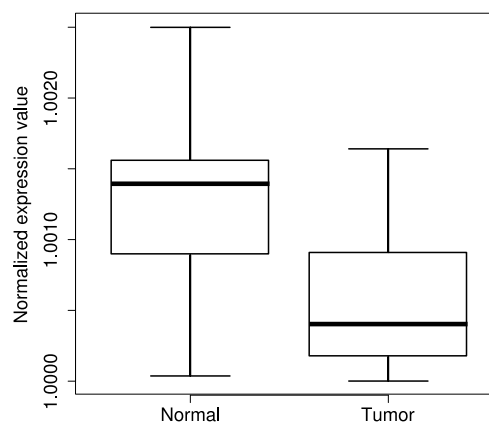
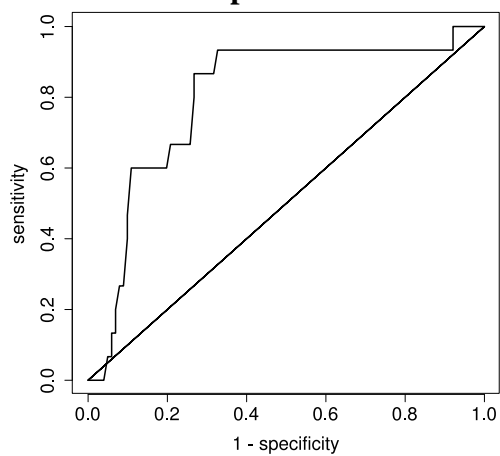
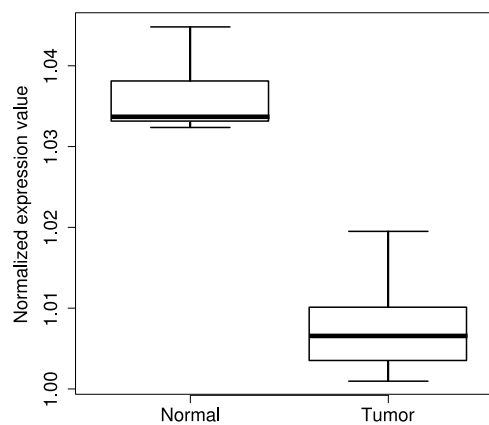
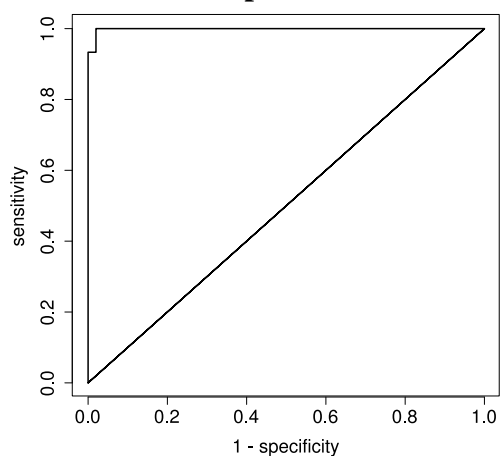
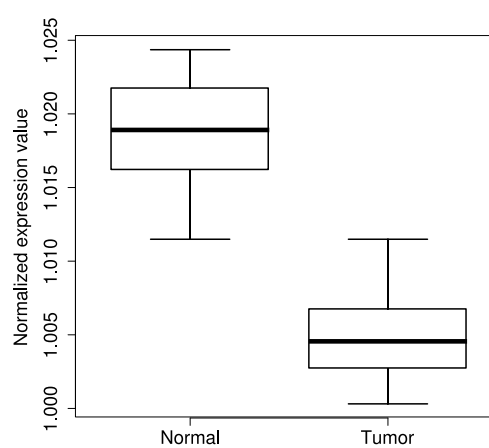
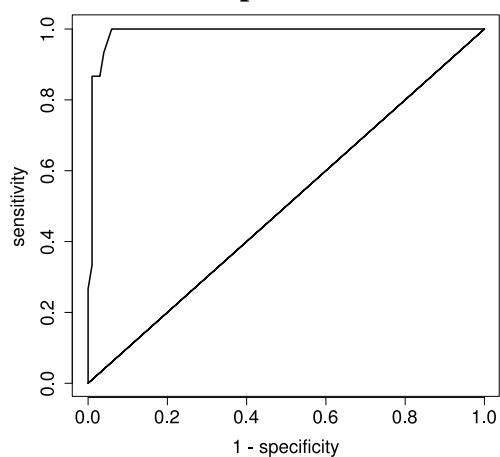
D. hsa-miR-31-5p. MIMAT0000089. *****E. hsa-miR-99a-5p. MIMAT0000097. *******F. hsa-miR-100-5p. MIMAT0000098. *****

Figure S1. Cont.

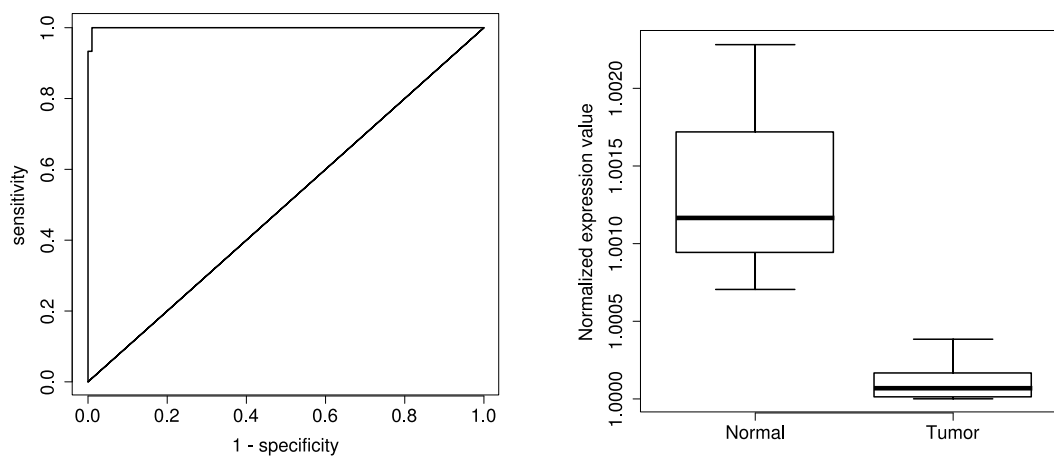
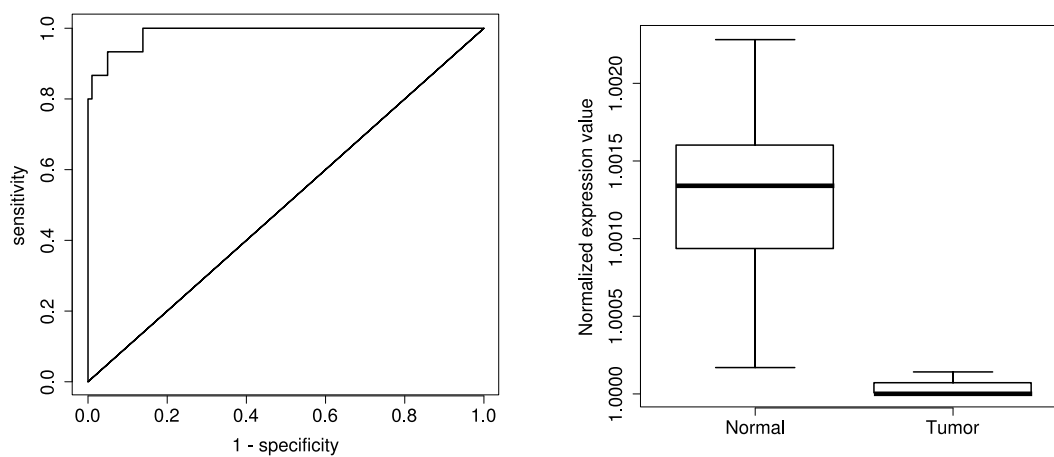
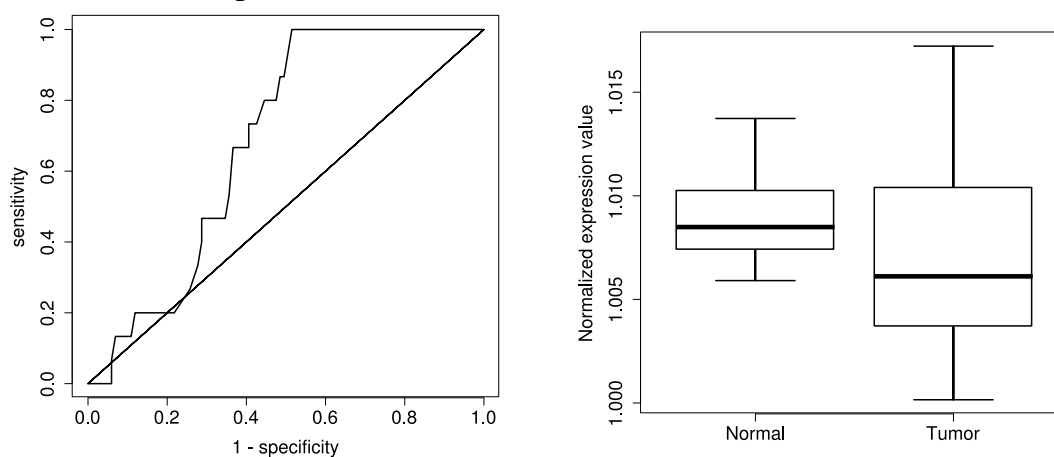
G. hsa-miR-139-5p. MIMAT0000250. *****H. hsa-miR-204-5p. MIMAT0000265. *******I. hsa-miR-214-3p. MIMAT0000271. ***

Figure S1. Cont.

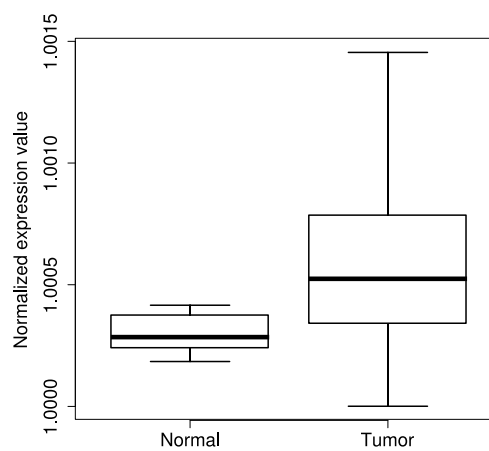
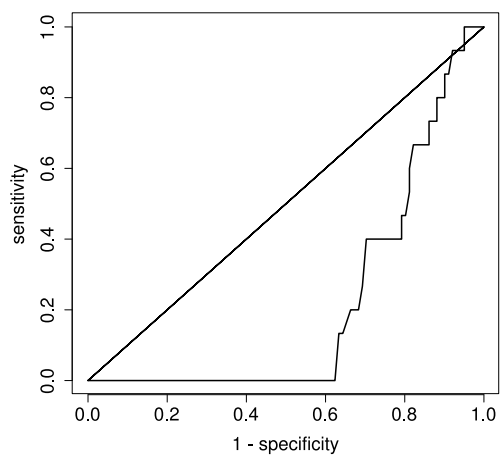
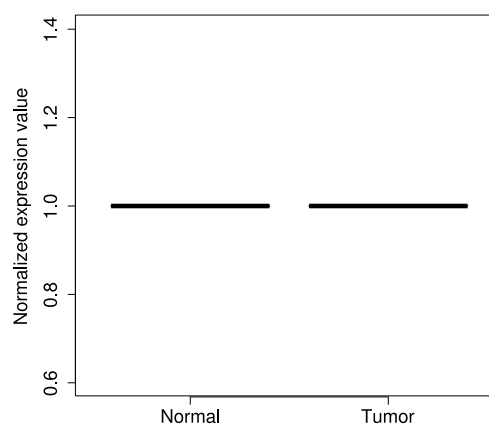
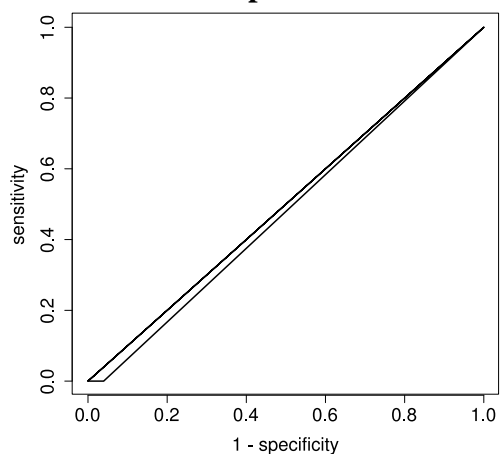
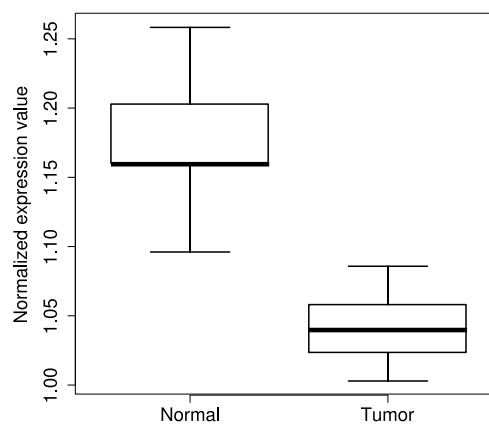
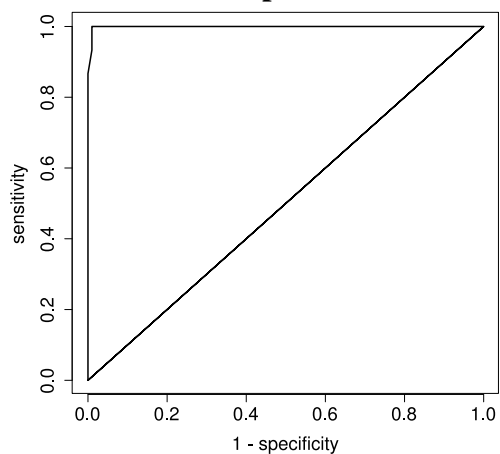
J. hsa-miR-215. MIMAT0000272.**K. hsa-miR-122-5p. MIMAT0000421.****L. hsa-miR-125b-5p. MIMAT0000423. *****

Figure S1. Cont.

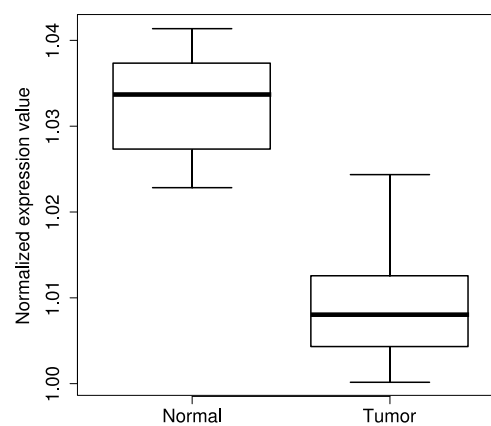
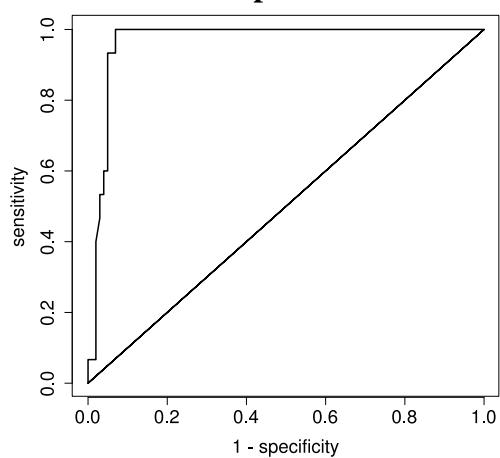
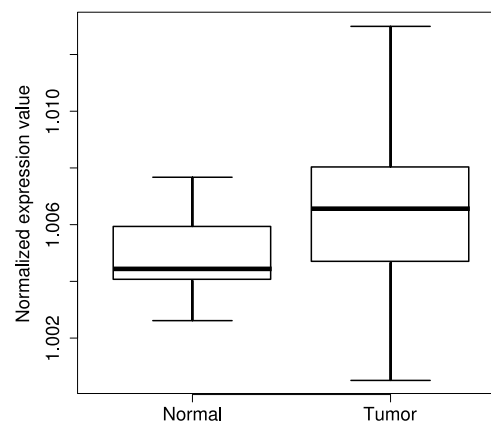
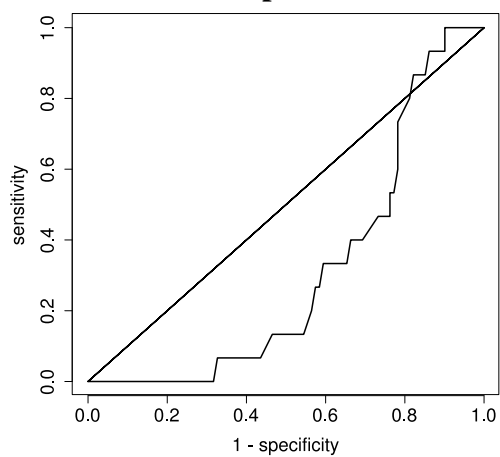
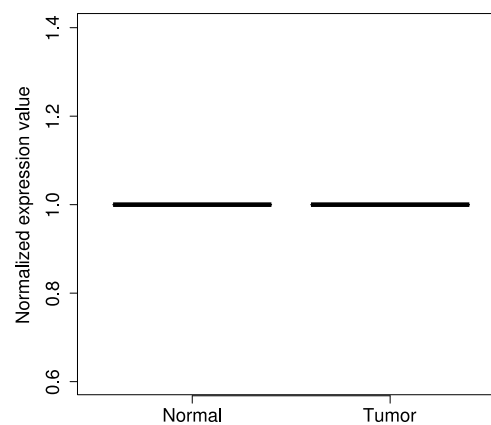
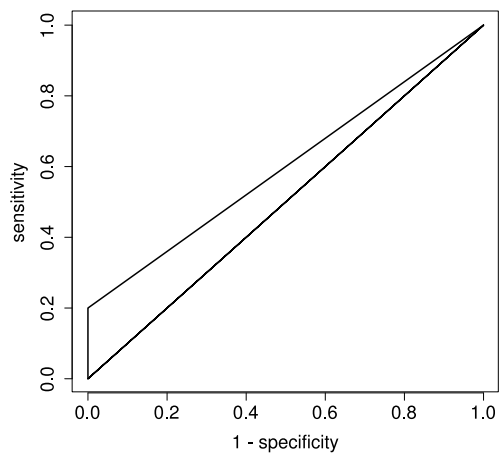
M. hsa-miR-145-5p. MIMAT0000437. *****N. hsa-miR-125a-5p. MIMAT0000443.****O. hsa-miR-383. MIMAT0000738.**

Figure S1. Cont.

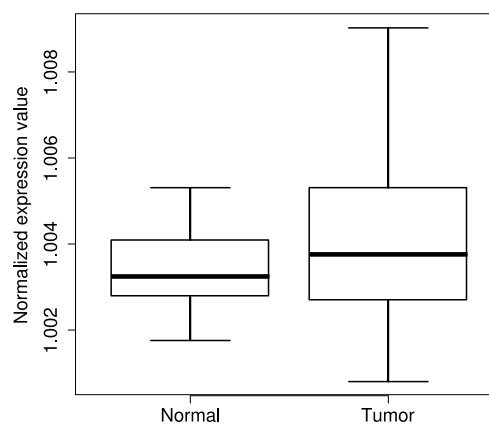
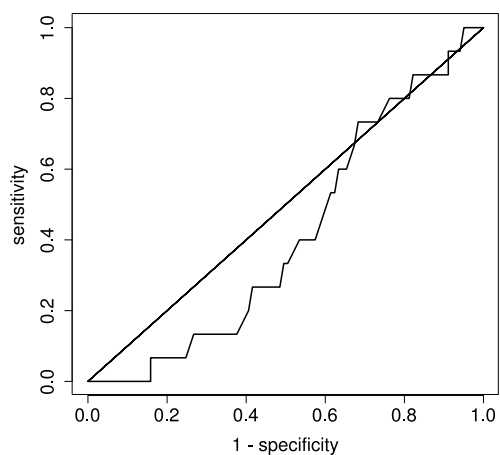
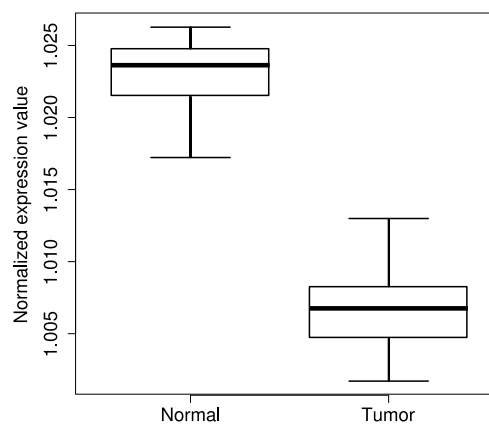
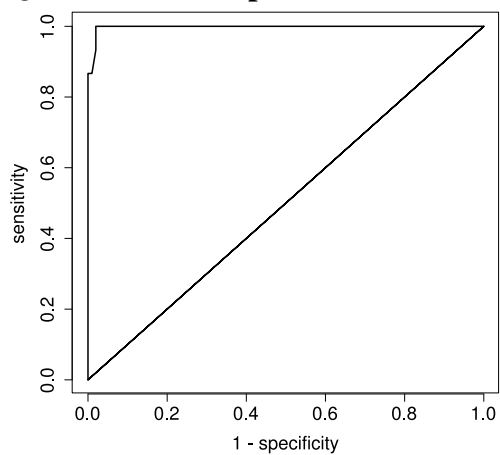
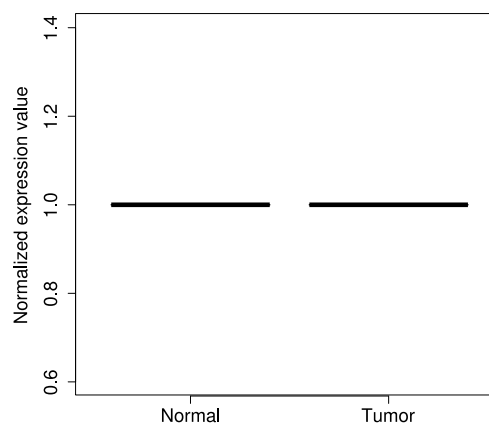
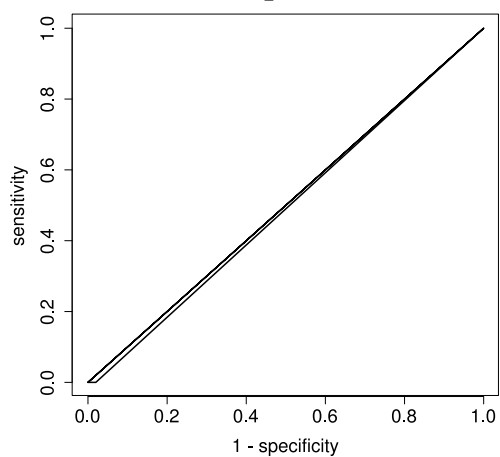
P. hsa-miR-193b-3p. MIMAT0002819.**Q. hsa-miR-497-5p. MIMAT0002820. *******R. hsa-miR-520d-3p. MIMAT0002856.**

Figure S2. miRNA-regulated PIN. (hsa-miR-21-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

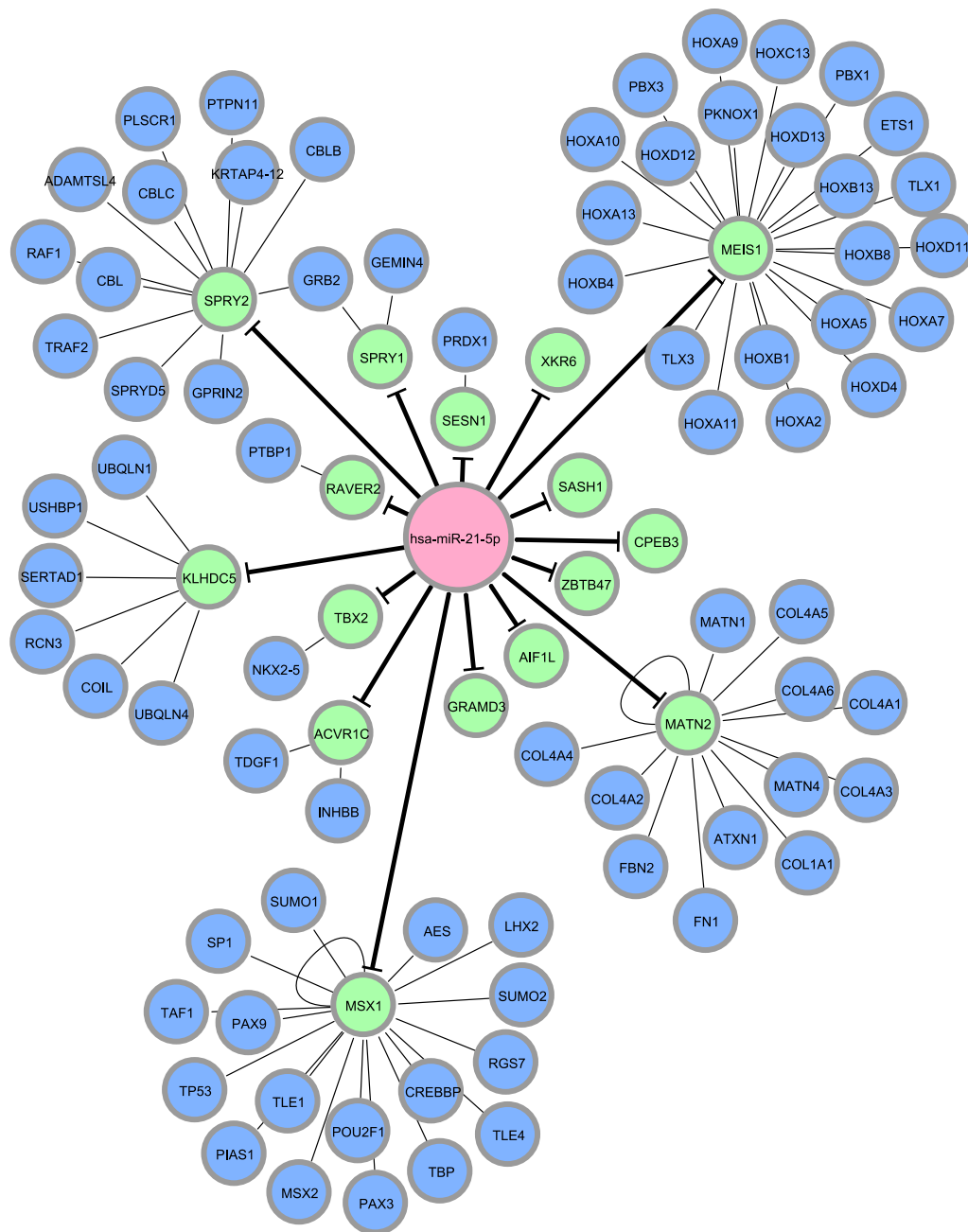


Figure S3. miRNA-regulate PIN. (hsa-miR-22-3p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

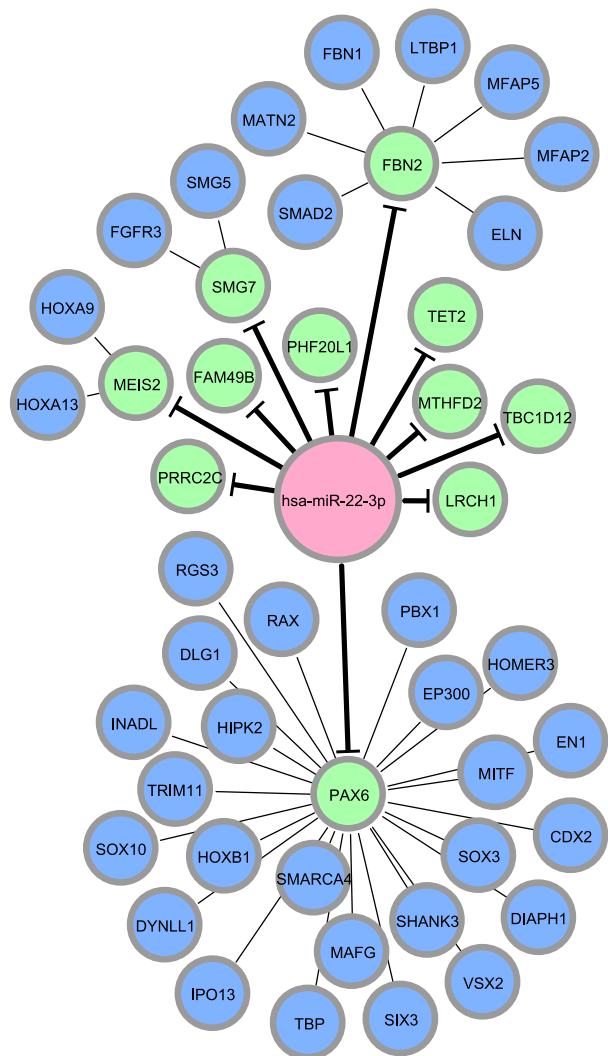


Figure S4. miRNA-regulated PINs. (hsa-miR-31-5p and hsa-miR-99a-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

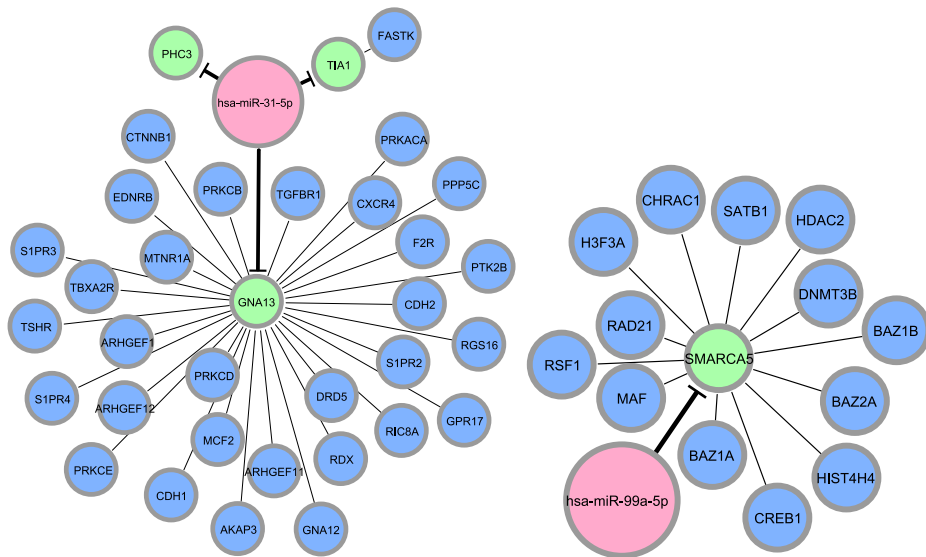


Figure S5. miRNA-regulated PINs. (hsa-miR-100-5p and hsa-miR-139-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

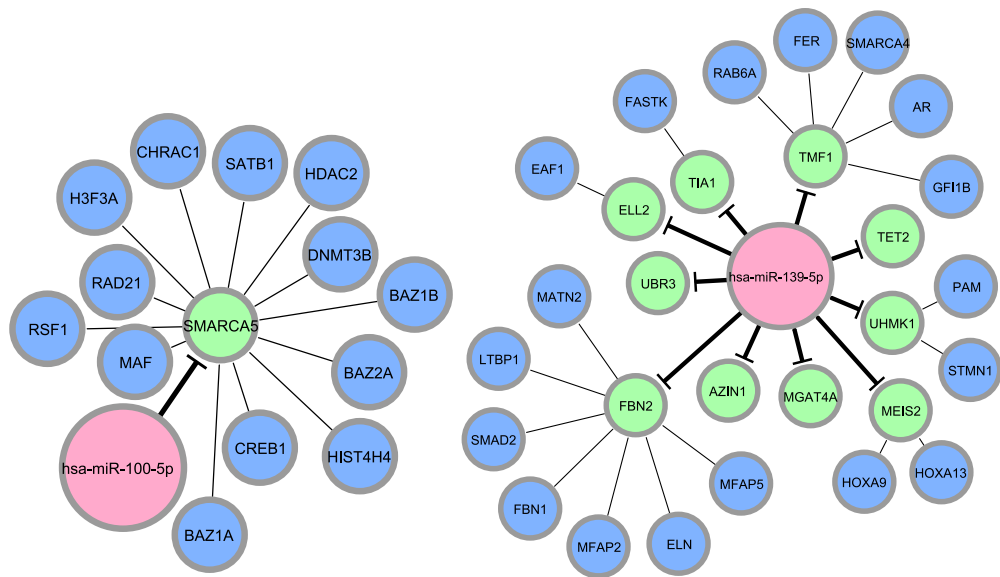


Figure S6. miRNA-regulated PIN. (hsa-204-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

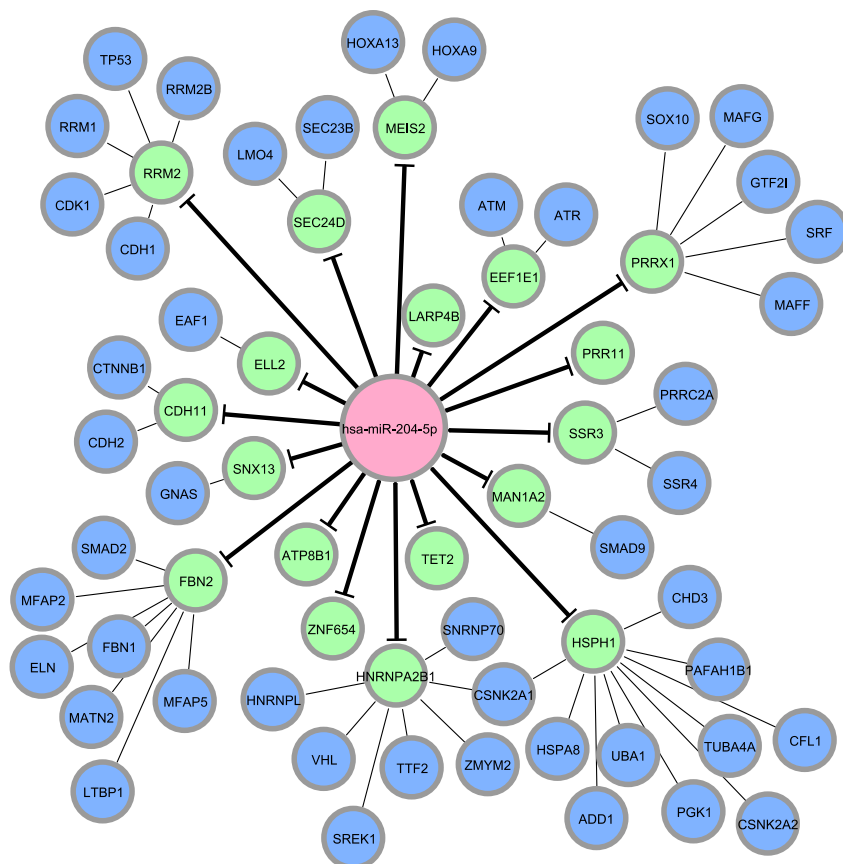


Figure S7. miRNA-regulated PINs. (hsa-miR-214-3p, hsa-miR-215, and hsa-miR-122-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

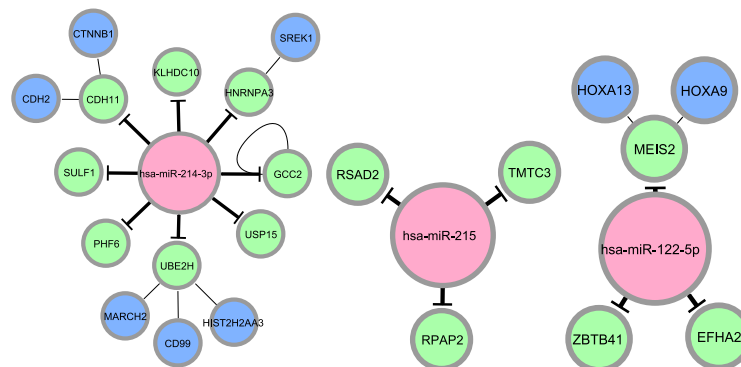


Figure S8. miRNA-regulated PIN. (hsa-miR-125b-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

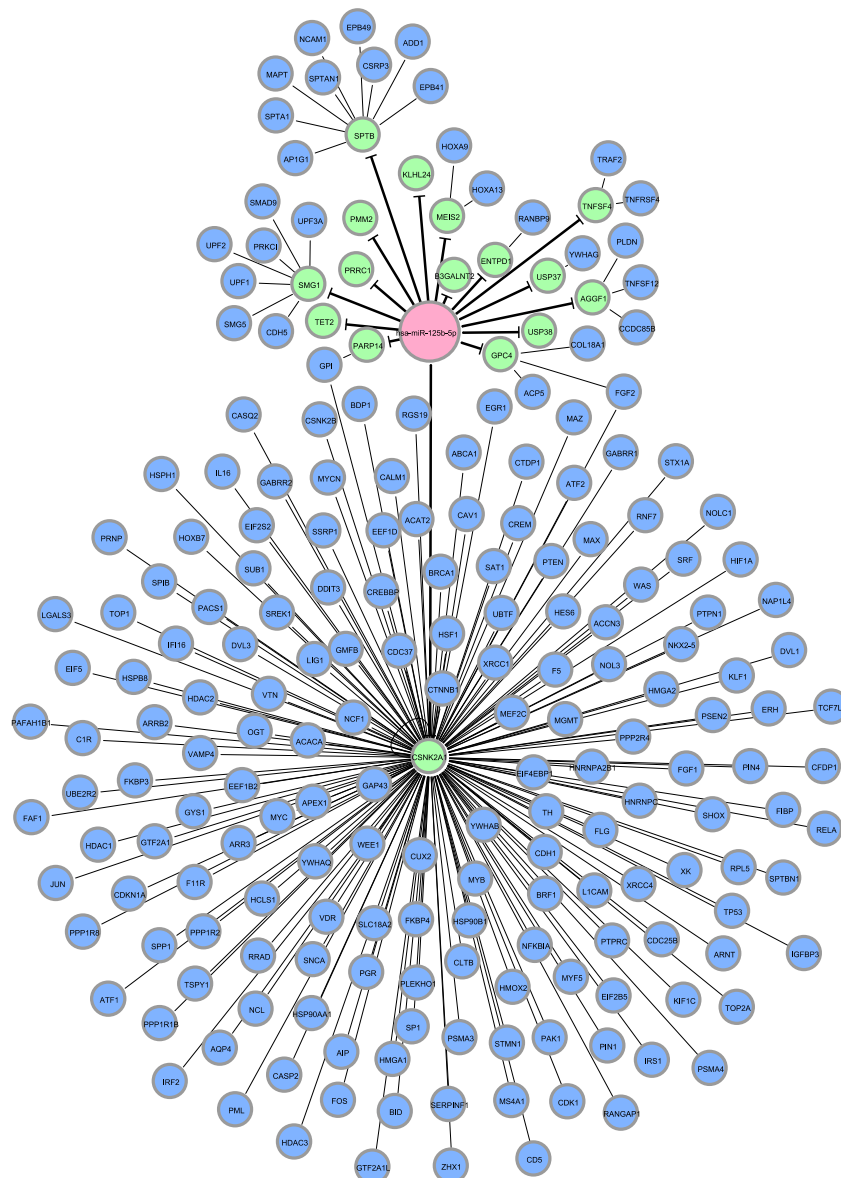


Figure S9. miRNA-regulated PIN. (hsa-miR-145-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

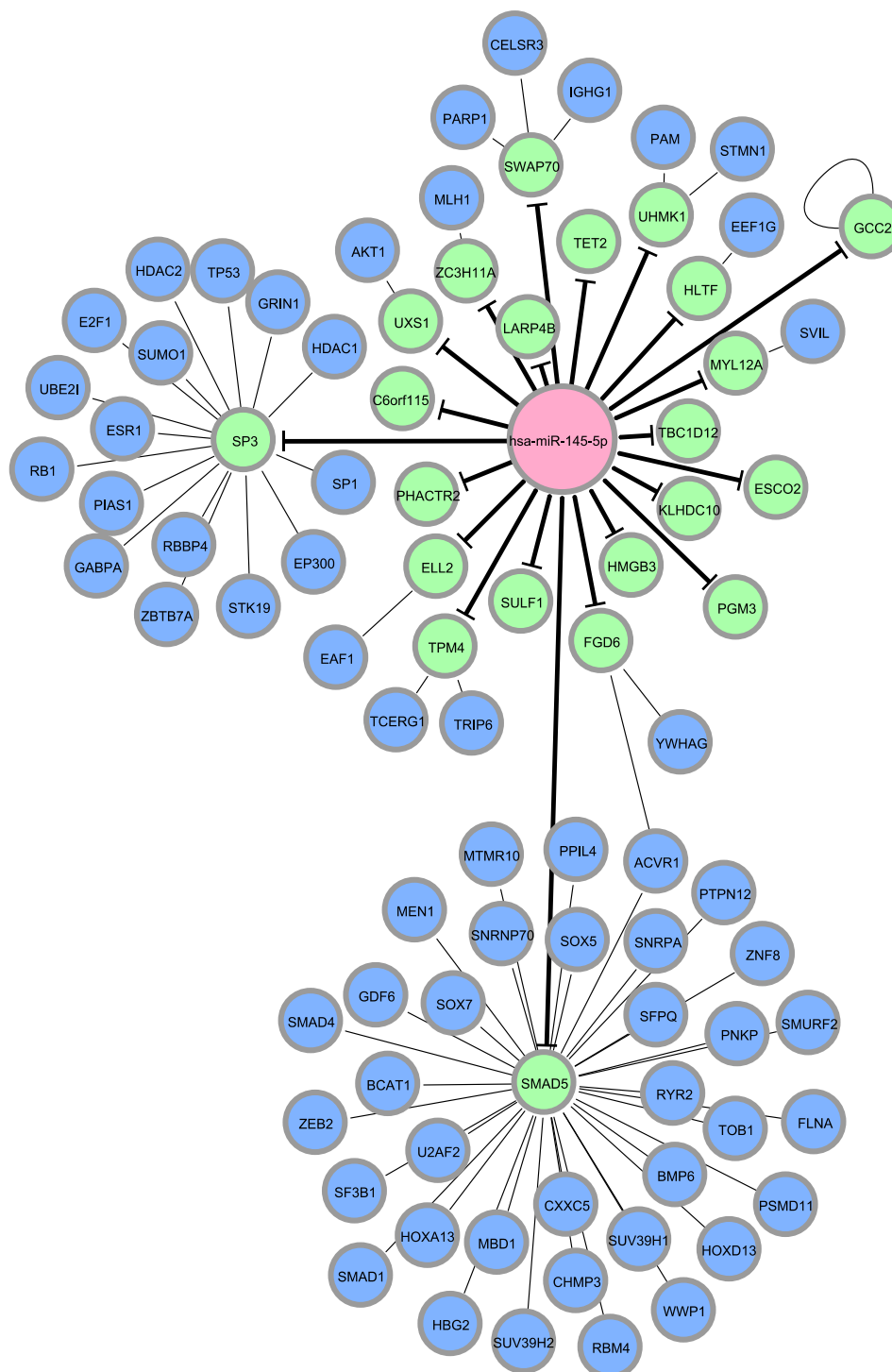


Figure S10. miRNA-regulated PIN. (hsa-miR-125a-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

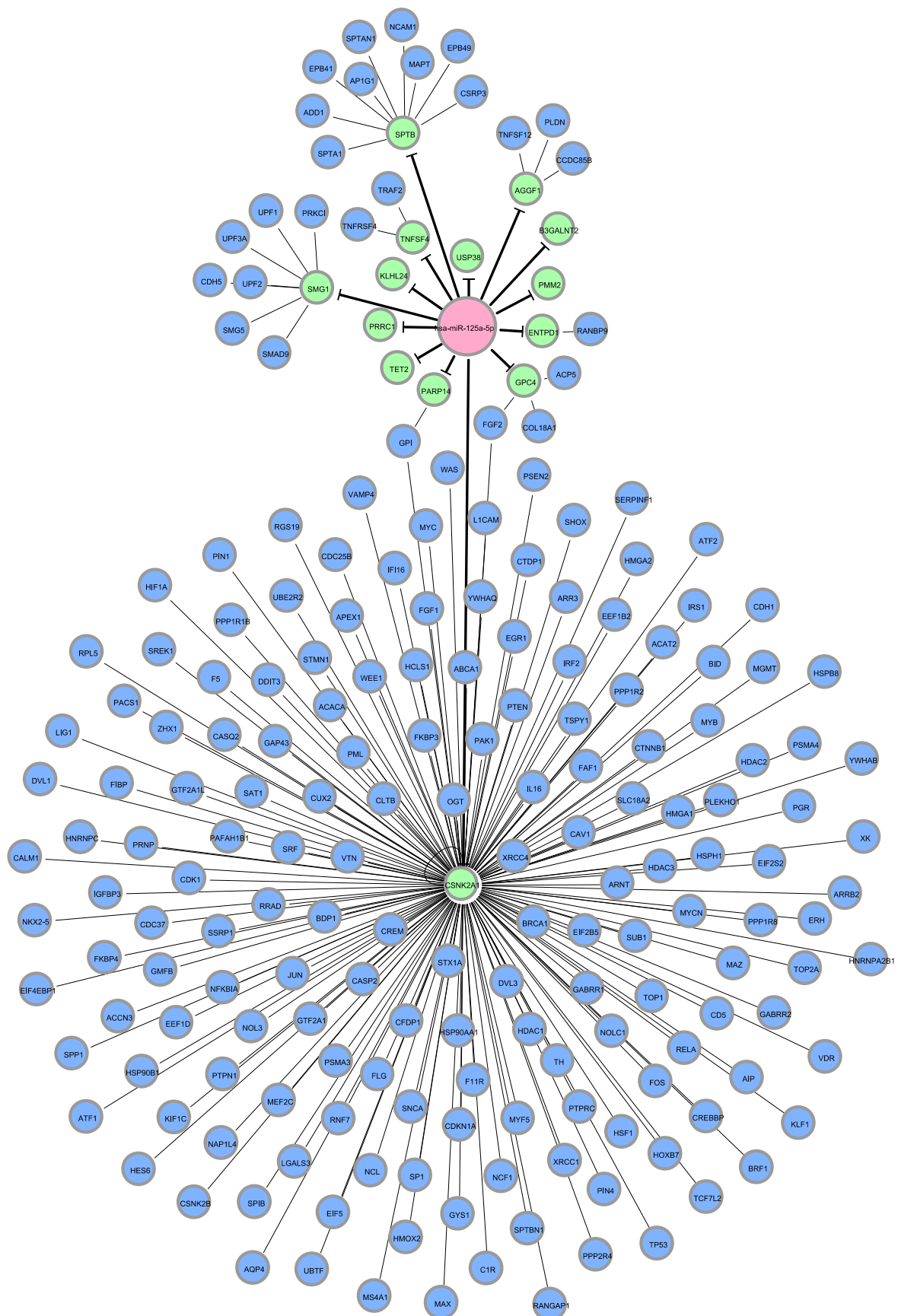


Figure S11. miRNA-regulated PINs. (hsa-miR-383 and hsa-miR-193b-3p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

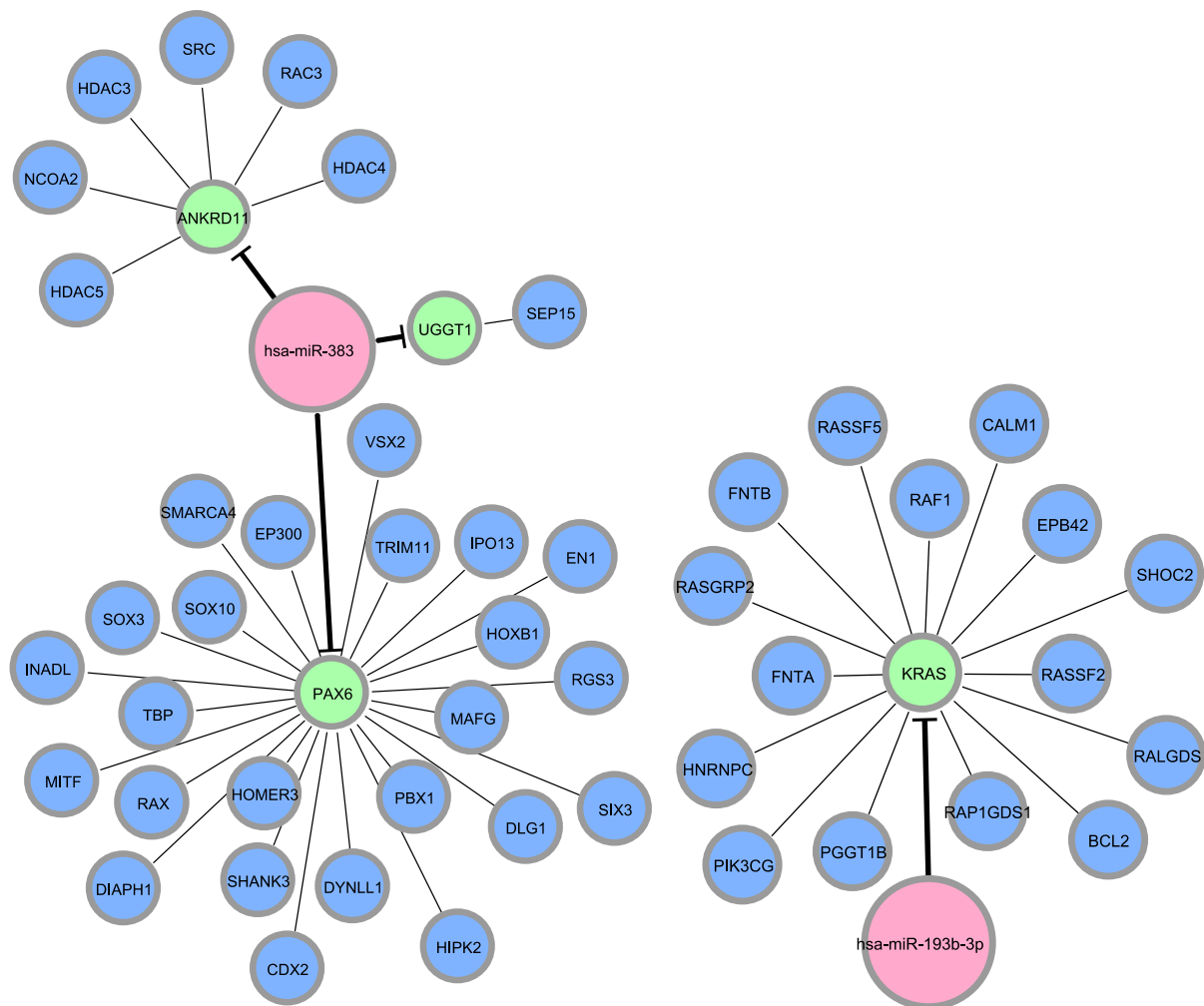


Figure S12. miRNA-regulated PIN. (hsa-miR-497-5p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

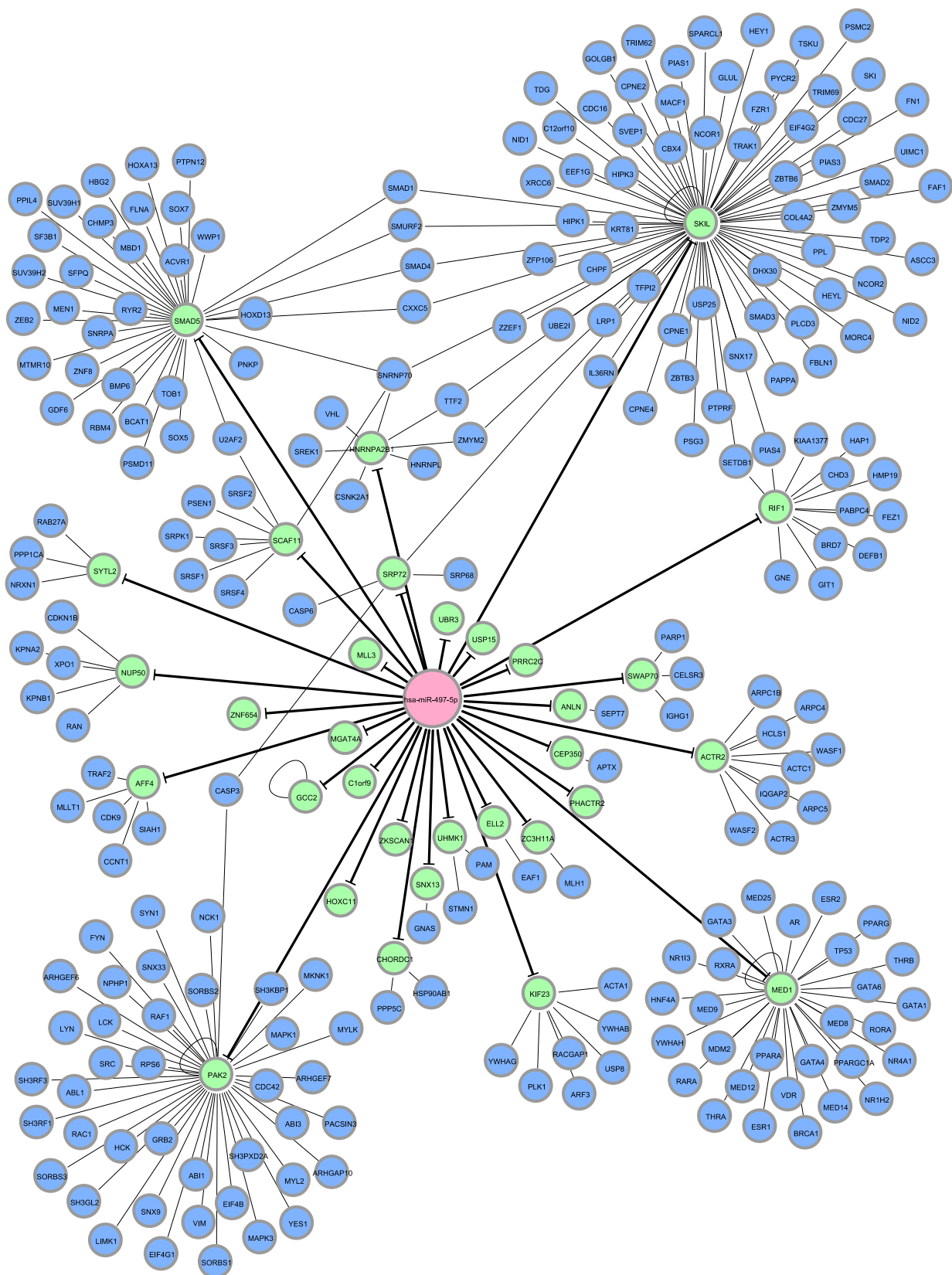


Figure S13. miRNA-regulated PIN. (hsa-miR-520d-3p). **Red:** miRNA; **green:** direct target of the miRNA; **blue:** proteins interacting with direct target of the miRNA.

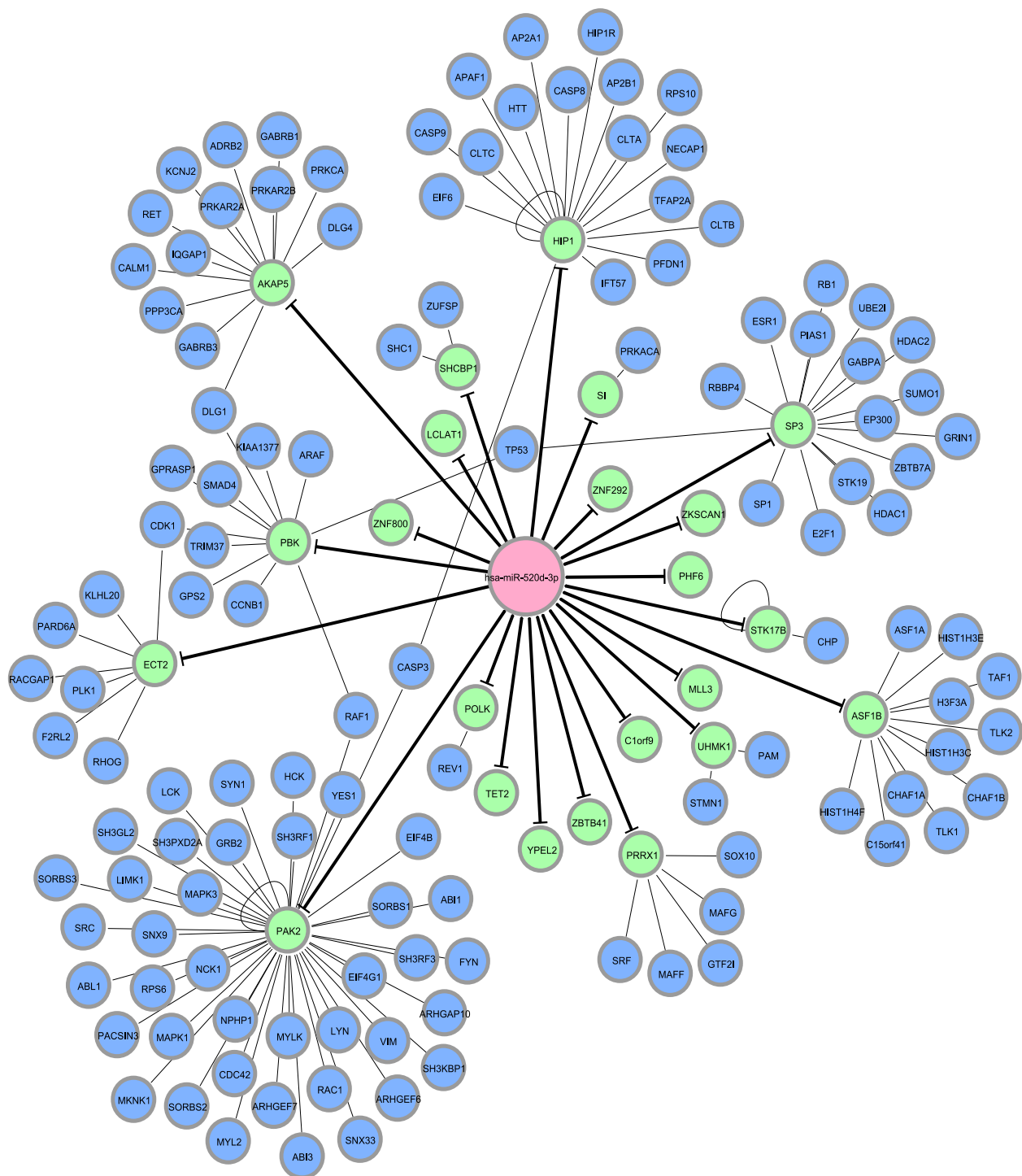
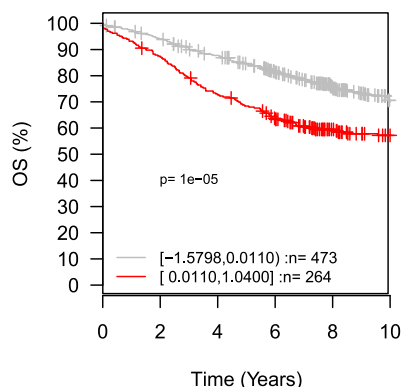
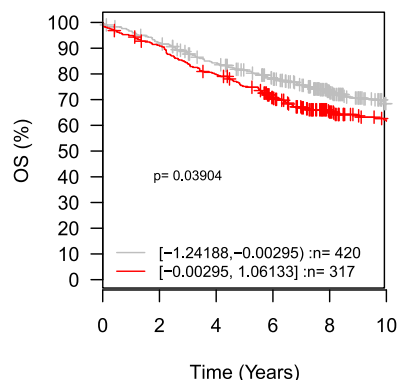


Figure S14. GOBO Kaplan-Meier survival curve of selected gene set with significant clinical outcome. (continue). The gene set was formed by selecting genes annotated with designated GO term in the miRNA-regulated PIN. Full GOBO Kaplan-Meier survival p-value were calculated and listed in Table 9. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

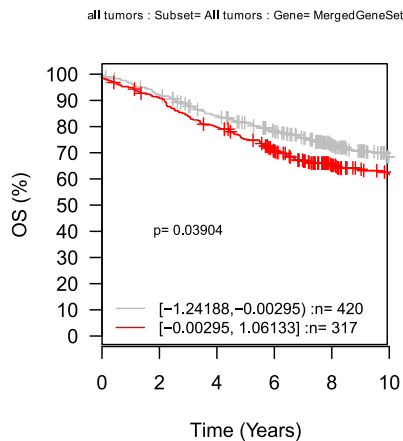
MIMAT0000064 (hsa-let-7c)***
GO:0015630, Microtubule cytoskeleton
all tumors : Subset= All tumors : Gene= MergedGeneSet



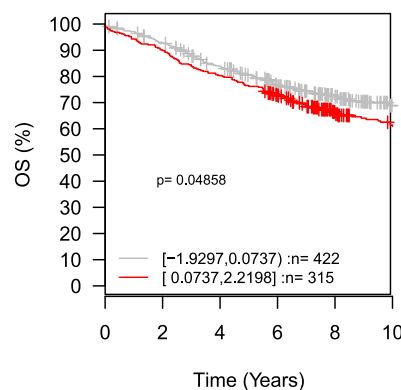
MIMAT0000064 (hsa-let-7c)*
GO:0043069, Negative regulation of programmed cell death
all tumors : Subset= All tumors : Gene= MergedGeneSet



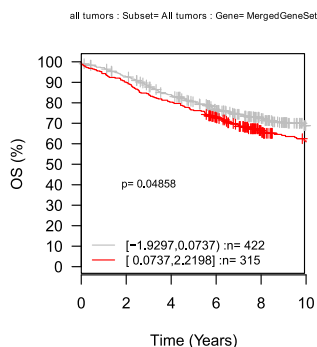
MIMAT0000064 (hsa-let-7c)*
GO:0060548, Negative regulation of cell death
all tumors : Subset= All tumors : Gene= MergedGeneSet



MIMAT0000089 (hsa-miR-31-5p)*
GO:0006917, Induction of apoptosis
all tumors : Subset= All tumors : Gene= MergedGeneSet



MIMAT0000089 (hsa-miR-31-5p)*
GO:0012502, Induction of programmed cell death
all tumors : Subset= All tumors : Gene= MergedGeneSet



MIMAT0000423 (hsa-miR-125b-5p)*
GO:0015630, Microtubule cytoskeleton
all tumors : Subset= All tumors : Gene= MergedGeneSet

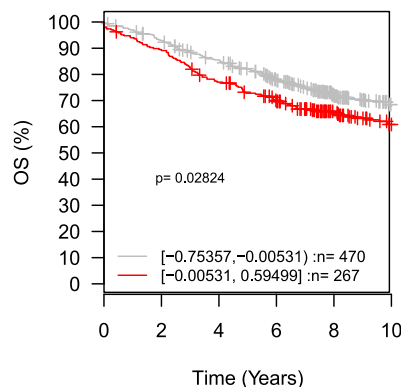
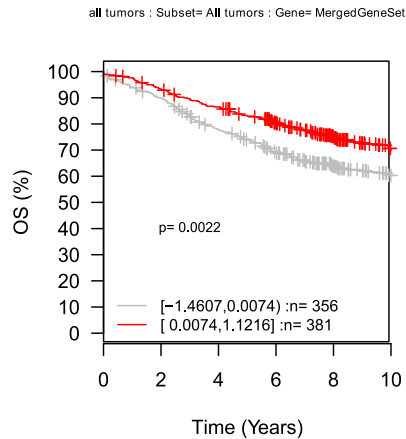


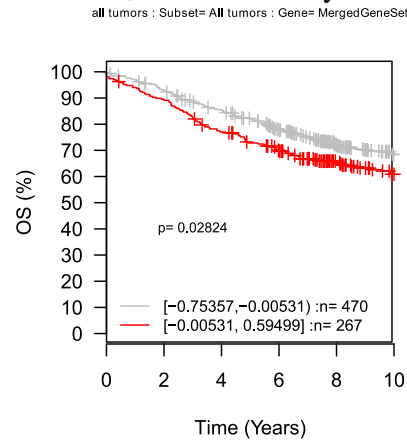
Figure S14. Cont.

MIMAT0000423 (hsa-miR-125b-5p)**

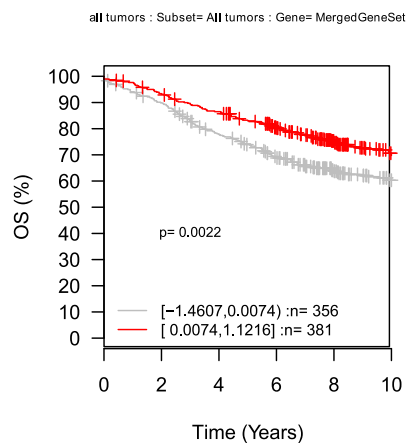
GO:0050678, Regulation of epithelial cell proliferation

**MIMAT0000443 (hsa-miR-125a-5p)***

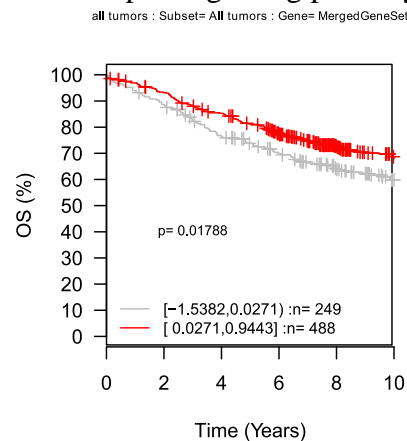
GO:0015630, Microtubule cytoskeleton

**MIMAT0000443 (hsa-miR-125a-5p)***

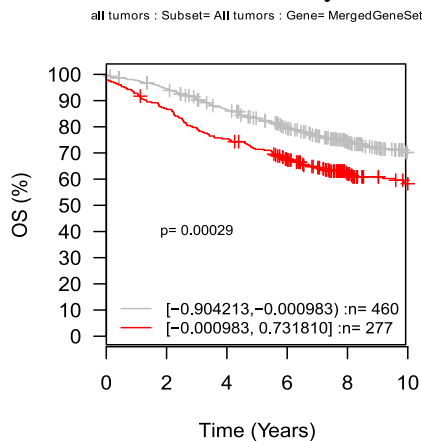
GO:0050678, Regulation of epithelial cell proliferation

**MIMAT0002820 (hsa-miR-497-5p)***

GO:0007179, Transforming growth factor beta receptor signaling pathway

**MIMAT0002856****(hsa-miR-520d-3p)*****

GO:0015630, Microtubule cytoskeleton

**MIMAT0002856 (hsa-miR-520d-3p)***

GO:0048011, Nerve growth factor receptor signaling pathway

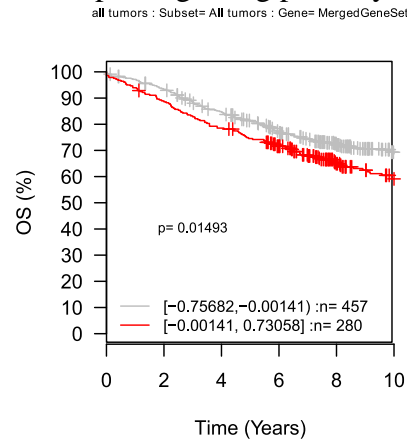
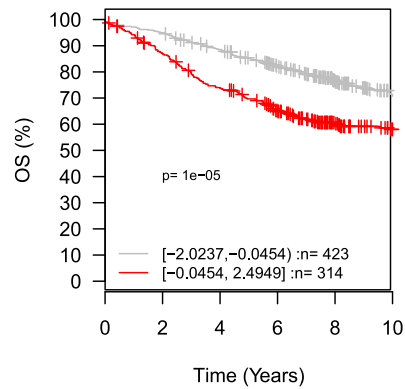


Figure S14. Cont.**MIMAT0002856 (hsa-miR-520d-3p)*******GO:0051988, Regulation of attachment of spindle
microtubules to kinetochore**

all tumors : Subset= All tumors : Gene= MergedGeneSet



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