

**Supplementary Table 1.** Pathobiology information of 3 datasets.

Datasets	Samples
GSE151341	41 early and 50 late knee OA of plasma samples
GSE126677	2 OA and 3 healthy synovial fluid samples
GSE105027	12 OA and 12 healthy chondrocyte serum samples

**Supplementary Table 2.** GO enrichment analysis: A) molecular function, B) biological process, and C) cellular component enrichment analyses of overlapping DE miRNAs. GO, Gene ontology; DE miRNAs, Differentially expressed microRNAs**Molecular functions:**

Number	Pathway	P-value
1	ion binding (GO:0043167)	5.17130073957e-170
2	nucleic acid binding transcription factor activity (GO:0001071)	1.09749433908e-43
3	protein binding transcription factor activity (GO:0000988)	7.47004988159e-32
4	enzyme binding (GO:0019899)	9.43388933535e-32
5	cytoskeletal protein binding (GO:0008092)	2.72122648748e-23
6	enzyme regulator activity (GO:0030234)	1.1662489941e-18
7	RNA binding (GO:0003723)	0.000104145141085
8	transmembrane transporter activity (GO:0022857)	0.0023987506975

**Biological processes:**

Number	Pathway	P-value
1	cellular nitrogen compound metabolic process (GO:0034641)	8.52990492929e-159
2	biosynthetic process (GO:0009058)	1.54217706421e-98
3	cellular protein-modification process (GO:0006464)	8.86958848907e-69
4	small molecule metabolic process (GO:0044281)	1.70629903806e-57
5	neurotrophin TRK receptor signaling pathway (GO:0048011)	2.18022486853e-48
6	Fc-ε receptor signaling pathway (GO:0038095)	2.22725365687e-39
7	blood coagulation (GO:0007596)	1.12770428503e-34
8	catabolic process (GO:0009056)	1.10745499097e-31
9	epidermal growth factor receptor signaling pathway (GO:0007173)	6.94030104886e-21
10	response to stress (GO:0006950)	8.29819889391e-20
11	cell death (GO:0008219)	5.16936168705e-16
12	Fc-γ receptor signaling pathway involved in phagocytosis (GO:0038096)	2.11819376159e-14
13	toll-like receptor signaling pathway (GO:0034166)	1.68822829172e-11
14	immune system process (GO:0002376)	8.27183457467e-11
15	TRIF-dependent toll-like receptor signaling pathway (GO:0035666)	4.02482580612e-08

**Cellular components:**

Number	Pathways	P-value
1	organelle (GO:0043226)	1.57350724348e-312
2	protein complex (GO:0043234)	1.25540168523e-30
3	cytosol (GO:0005829)	3.12588126709e-28
4	nucleoplasm (GO:0005654)	5.23186499237e-28
5	microtubule-organizing center (GO:0005815)	1.0520156488e-11
6	platelet α granule lumen (GO:0031093)	3.34733440699e-06