



Protein interaction and microRNA network analysis in osteoarthritis meniscal cells

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ABSTRACT. Osteoarthritis is the most common form of arthritis among elderly adults. Herein, we performed protein-protein interaction (PPI) and miRNA network analysis to evaluate the global correlation between miRNA regulation and the PPI network in human osteoarthritis. Our results showed that desmoplakin (DSP), cystatin A (CSTA), calmodulin 1, tyrosine kinase endothelial, insulin-like growth factor 1 (IGF-1), IGF-binding protein 7 (IGFBP7), syndecan 1 (SDC1), ephrin type-A receptor 4, and PDZ and LIM domain protein 1 were associated with osteoarthritis. Among these proteins, DSP and CSTA interaction and IGF-1, IGFBP7 and SDC1 interaction were observed in our PPI network. Furthermore, these potential target proteins were also linked with individual miRNA in the network. Our findings shed light on the PPIs and mechanisms by which miRNA may regulate the protein interaction network in osteoarthritis, which might provide theoretical support for further studies aimed at discovering new therapeutic strategies.

Key words: PPI network; MicroRNA network; Osteoarthritis; Protein-protein interaction