Hepatic fibrosis

Hepatic fibrosis occurs during chronic hepatic injury and is involved in hepatic stellate cells (HSCs) activated by several types of immune cells. Among the immune cells, hepatic macrophages and their crosstalk with HSCs play a vital role in all stages of hepatic fibrosis. Exosomes, which are 30-150 nm lipid bilayer vehicles, can transfer specific lipid, nucleic acids, proteins, and other bioactive molecules. Exosomes can act as good communication between macrophages and HSCs.

Chen et al. investigated the role of exosomes between THP-1 macrophage and HSCs in the progression of liver fibrosis. Exosomes originating from lipopolysaccharide (LPS)-treated THP-1 macrophages promoted HSCs proliferation and induced the increased expression of fibrotic genes. LPS could alter the miRNA profile in exosomes secreted from THP-1 macrophages. The changed miR-103-3p in exosomes could promote HSCs proliferation and activation by targeting Krüppel-like factor 4 (KLF4) and it plays important roles in the crosstalk between THP-1 macrophages and HSCs during the progression of liver fibrosis. Moreover, miR-103-3p in serum exosomes from liver fibrosis patients could be a biomarker for liver fibrosis. Therefore, exosomes may have important roles in the crosstalk between macrophage and HSCs in the progression of chronic liver diseases [1)].

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Chen L, Yao X, Yao H, Ji Q, Ding G, Liu X. Exosomal miR-103-3p from LPS-activated THP-1 macrophage contributes to the activation of hepatic stellate cells. FASEB J. 2020 Feb 15. doi: 10.1096/fj.201902307RRR. [Epub ahead of print] PubMed PMID: 32061112.