Increased expression of RUNX1 in liver correlates with NASH activity score in patients with non-alcoholic Steatohepatitis (NASH).

Kaur S, Rawal P, Siddiqui H, Rohilla S, Sharma S, Tripathi DM, Baweja S, Hassan M, Vlaic S, Guthke R, Thomas M, Dayoub R, Bihari C, Sarin SK, Weiss TS (2019) Increased expression of RUNX1 in liver correlates with NASH activity score in patients with non-alcoholic Steatohepatitis (NASH). *Cells* 8(10), 1277.

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Abstract

Given the important role of angiogenesis in liver pathology, the current study investigated the role of Runt-related transcription factor 1 (RUNX1), a regulator of developmental angiogenesis, in the pathogenesis of non-alcoholic steatohepatitis (NASH). Quantitative RT-PCRs and a transcription factor analysis of angiogenesis-associated differentially expressed genes in liver tissues of healthy controls, patients with steatosis and NASH, indicated a potential role of RUNX1 in NASH. The gene expression of RUNX1 was correlated with histopathological attributes of patients. The protein expression of RUNX1 in liver was studied by immunohistochemistry. To explore the underlying mechanisms, in vitro studies using RUNX1 siRNA and overexpression plasmids were performed

in endothelial cells (ECs). RUNX1 expression was significantly correlated with inflammation, fibrosis and NASH activity score in NASH patients. Its expression was conspicuous in liver non-parenchymal cells. In vitro, factors from steatotic hepatocytes and/or VEGF or TGF- significantly induced the expression of RUNX1 in ECs. RUNX1 regulated the expression of angiogenic and adhesion molecules in ECs, including CCL2, PECAM1 and VCAM1, which was shown by silencing or over-expression of RUNX1. Furthermore, RUNX1 increased the angiogenic activity of ECs. This study reports that steatosis-induced RUNX1 augmented the expression of adhesion and angiogenic molecules and properties in ECs and may be involved in enhancing inflammation and disease severity in NASH.

Involved units

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doi: 10.3390/cells8101277

PMID: 31635436