Effects of Caveolin 1 Overexpression on Hepatic Stellate Cells Adhesion

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Introduction: Caveolin-1 (Cav-1), a component of the plasma membrane, has been reported to regulate several cell behaviors, including cell-extracellular matrix (ECM) adhesion. In addition to its role in caveolae, Cav proteins also function in subcellular locations such as the focal adhesion complex (FA). **Objectives:** The present study aimed to investigate the correlation between Cav-1 expression level and the adhesion properties of two Hepatic stellate cells (HSC) cells lines, GRX and $GRX^{EGFP\text{-}Cav}$, that constitutively overexpresses Cav-1, in the presence or absence of fetal bovine serum (FBS). **Material and Methods:** Cell adhesion was monitored by microscopic morphological analysis and by sulforhodamine B (SRB) assay after 2, 4 and 6 hours of the plating. **Results and Discussion:** As expected, our results showed an increase in cell adhesion in the presence of FBS. Two hours after plating, $GRX^{EGFP\text{-}Cav}$ adhesion was greater than GRX. However, $GRX^{EGFP\text{-}Cav}$ transformed cells depicted a round shape while control GRX cells acquired a sprawling morphology. It was also observed that cells cultivated without FBS $GRX^{EGFP\text{-}Cav}$ have a star-like shape and larger area in contrast to $GRX^{EGFP\text{-}Cav}$ cells plated with FBS. GRX cells have the same morphologic aspect independently of serum. In the presence of FBS interactions are mediated by specific proteins and thus formation of FAs can occur. In the absence of FBS, contact is carried out by non-specific bonds without FAs formation. Our previous results demonstrated that GRX cells showed typical well-organized actin stress-fibres and that in $GRX^{EGFP\text{-}Cav}$ the major stress-fibres were reduced in length. Actin filaments are important FA components that provide mechanical stabilization of the cell. **Conclusions:** These observations suggest a possible relationship between changes in the actin cytoskeleton caused by the levels of Cav-1 and the adhesion properties of GRX cells.

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