D802 Role of Focal Adhesion Kinase on proliferation of Human Retinal Pigment Epithelial cell during Pathogenesis of Proliferative Vitreoretinopathy

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Proliferative Vitreoretinopathy (PVR) is a disease caused by overgrowth of Retinal Pigment Epithelial (RPE) cells which is resulted from abrasion and damage of a retina. The overgrowing cells then migrate to retina through a corpus viterium, cause a contraction of the membrane, and evoked a blindness. It has been suggested that growth factors in a vitreous cavity have major function to the survival, growth and migration of RPE cells in PVR. In this study, we investigated the molecular mechanism that caused PVR. First, we observed expression of FAK in RPE cells and cancer cell lines. FAK has an important role in suppressing anoikis (death of unattached cell). Overexpression of FAK is also implicated in invasion and metastasis of cancer. Interestingly, RPE cells showed overexpression of FAK. This increased expression of FAK was abolished when the cell was cultured to 100% confluent status on dish. To investigate which growth factors are involved in the induction of FAK, several growth factors, PDGF-BB, IGF-I, basic FGF, EGF, TGF-β and fetal bovine serum were treated after the cells were cultured in serum-free medium for 24 hours. Serum, PDGF-BB and IGF-I treatment induced expression of FAK. This result suggest that expression of FAK induced by growth factors on RPE cells has an important role in pathogenesis of PVR. A signaling pathway from growth factors to expression of FAK and the survival mechanism of RPE cells in a vitreous cavity is under investigation.