

C 2. EFFECTS OF PASSAGES ON THE EXTRACELLULAR MATRIX SYNTHESIS BY CULTURED RAT MESANGIAL CELLS

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Most cell lines including renal glomerular mesangial cells change in their behavior during repeated passages in vitro culture. Later passages represent only the cells that are successfully adapted and perhaps dedifferentiated, and they, therefore, may not be the same as the cells of origin. Thus, the influence of passages is one of the problems that should be considered also in experiments with cultured mesangial cells (CMC). From literature survey, we were able to find only one study on the influence of passages on the synthetic function of CMC. Reported experiments utilizing CMC employed varying passage numbers ranging from 1 to 20~40

To evaluate the effects of passages on the extracellular matrix (ECM) production by cultured rat mesangial cells (CRMC), production of type IV collagen (CIV), fibronectin (FN) and laminin (LN) were measured by flow cytometry of 1×10^4 cells from 10 mesangial cell lines from 1st to 40th passages. The mean fluorescence intensity was taken as the expression of these ECM production. Total cell counts at each passage were not significantly different from that of the 1st passage. Production of CIV decreased at 7th through 11th passages. FN production increased after 15th passages up to 40th passages. LN production decreased at 9th passages and was increased at 25th passage. These results show that ECM productions by CRMC change after prolonged in vitro culture. CRMC earlier than 7th passage are considered to resemble more closely to the cell of origin.

These results can be used as a guide in selecting passage number in the study of the pathophysiologic process in altered ECM production using mesangial cells in culture.