**Analysis of fibroblast spheroid formation in vitro**

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**Background** Fibroblasts exist in the connective tissue and are generally separated by collagen bundles. Some of functions in fibroblast are synthesis, secretion, and degradation of extracellular matrix components such as collagens, proteoglycans, and so on. As the results, the connective tissue is kept with normal, healthy conditions. In vitro, fibroblasts are cultured on the collagen- or gelatin-coated culture dish. These proteins play an important role in proliferation and differentiation. In this study, we report that fibroblasts on enzyme-treated collagen massed each other to sphere formation.

**Methods** Type I collagen was treated with an enzyme X and we obtained collagen (Col). Culture dish was coated with Col solution. Mouse NIH/3T3 cells or mouse primary embryonic fibroblasts (MEF) were cultured on the Col-coated dish. We observed cell morphology by using a phase-contrast microscope. To investigate the movement of cytoskeleton we stained polymerized actin or other proteins with fluorescence dyes. In addition, cell motility was monitored and analyzed by a time-lapse observation.

**Results and Conclusion** Each of NIH/3T3 and MEF demonstrated that Col has an ability to grow sphere body of fibroblasts.

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