

Abstract Submitted
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Matrix remodeling between cells and cellular interactions with collagen bundle JIHAN KIM, BO SUN, Oregon State University — When cells are surrounded by complex environment, they continuously probe and interact with it by applying cellular traction forces. As cells apply traction forces, they can sense rigidity of their local environment and remodel the matrix microstructure simultaneously. Previous study shows that single human carcinoma cell (MDA-MB-231) remodeled its surrounding extracellular matrix (ECM) and the matrix remodeling was reversible. In this study we examined the matrix microstructure between cells and cellular interaction between them using quantitative confocal microscopy. The result shows that the matrix microstructure is the most significantly remodeled between cells consisting of aligned, and densified collagen fibers (collagen bundle)., the result shows that collagen bundle is irreversible and significantly change micromechanics of ECM around the bundle. We further examined cellular interaction with collagen bundle by analyzing dynamics of actin and talin formation along with the direction of bundle. Lastly, we analyzed dynamics of cellular protrusion and migrating direction of cells along the bundle.

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