

Abstract Submitted  
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**Dynamics of Cancer Cell near Collagen Fiber Chain** JIHAN KIM, BO SUN, Oregon State University — Cell migration is an integrated process that is important in life. Migration is essential for embryonic development as well as homeostatic processes such as wound healing and immune responses. When cell migrates through connective extracellular matrix (ECM), it applies cellular traction force to ECM and senses the rigidity of their local environment. We used human breast cancer cell (MDA-MB-231) which is highly invasive and applies strong traction force to ECM. As cancer cell applies traction force to type I collage-based ECM, it deforms collagen fibers near the surface. Patterns of deforming collagen fibers are significantly different with pairs of cancer cells compared to a single cancer cell. While a pair of cancer cells within 60 um creates aligned collagen fiber chains between them permanently, a single cancer cell does not form any fiber chains. In this experiment we measured a cellular response and an interaction between a pair of cells through the chain. Finally, we analyzed correlation of directions between cancer cell migration and the collagen chain alignment.

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