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Anomalous cell migration properties on electrospun fibers[1] RICHARD CLARK, SISI QIN, MIRIAM RAFAILOVICH, Stony Brook University, DEPARTMENT OF MATERIALS SCIENCES AND ENGINEERING, STONY BROOK UNIVERSITY TEAM, DEPARTMENT OF BIOMEDICAL ENGINEERING, STONY BROOK UNIVERSITY TEAM — We have studied the influence of substrate morpholiogy on the en-mass cell migration from an agarose droplet. On flat surfaces, the cell velocity decreases asymptotically towards the single cell value as the radial distance increases, and remains constant thereafter. On fibers, the velocity remains constant at the single cell limit for the first 24 hours and then begins to increase continuously for the next four days. On flat surfaces we have shown that migration was triggered by nuclear deformation [Pan Z. et al, 2009], whereas on fibers the nucleus is constantly deformed as the cell assumers the shape of the fiber and hence does not seem to play as major a role. Vinculin and paxillin immunofluorescent staining were performed to determine the role of traction forces. We found that whereas polarization remains constant on flat surfaces with time, it increases on the fiber surfaces after the first 24 hours, and may explain the increased migration speed.

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Miriam Rafailovich
Stony Brook University

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