

Abstract Submitted  
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**Fibroblast motility on substrates with different rigidities: modeling approach** MARIA GRACHEVA, IRINA DOKUKINA, Clarkson University — We develop a discrete model for cell locomotion on substrates with different rigidities and simulate experiments described in Lo, Wang, Dembo, Wang (2000) “Cell movement is guided by the rigidity of the substrate”, *Biophys. J.* 79: 144-152. In these experiments fibroblasts were planted on a substrate with a step rigidity and showed preference for locomotion over stiffer side of the substrate when approaches the boundary between the soft and the stiff sides of the substrate. The model reproduces experimentally observed behavior of fibroblasts. In particular, we are able to show with our model how cell characteristics (such as cell length, shape, area and speed) change during cell crawling through the “soft-stiff” substrate boundary. Also, our model suggests the temporary increase of both cell speed and area in that very moment when cell leaves soft side of substrate.

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