

Abstract Submitted
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Physical guidance of the actin cytoskeleton and cell migration dynamics in epithelial cells RACHEL LEE, B. U. SEBASTIAN SCHMIDT, LEONARD CAMPANELLO, MATT J. HOURWITZ, JOHN T. FOURKAS, WOLFGANG LOSERT, Univ of Maryland-College Park — Many cell types have been shown to exhibit contact guidance, in which cells sense and follow the texture of their environment. Contact guidance can lead to persistent directional migration that does not require the coordinated spatial and temporal cues required for guidance cues such as chemical concentration (i.e. chemotaxis). Actin polymerization has been shown to be guided by topographical features (esotaxis) in Dictyostelium discoideum cells, leading to guided cell migration. In this work, we show that actin dynamics are also guided by nanotopography in epithelial MCF10A cells despite large differences in the normal migration behavior of these two cell types. The existence of esotaxis and guided migration across phyla suggests that cytoskeletal dynamics play an important role in texture sensing and directional cell migration.

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