

Abstract Submitted
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Effect of Surface Adhesion on Individual and Collective Migration¹ WOLFGANG LOSERT, University of Maryland, COLIN MCCANN, University of Maryland and NCI, ERIN RERICHA, University of Maryland, CAROLE PARENT, LCMB, NCI, NIH — Cell-surface adhesion plays a critical role in amoeboid cell motion by supplying the traction allowing a cell to move itself forward. The amoeba *Dictyostelium discoideum*, a model system for individual and collective cell migration, naturally exhibits both cell-substrate and cell-cell adhesion during the aggregation process. We used both high- and low-magnification time-lapse microscopy to investigate the individual and collective migration of *D. discoideum* on substrates of varying adhesiveness, as well as on interfaces between surfaces. We find that surface adhesion can affect both individual cell migration as well as the behavior of cell groups. At the population scale, non-ideal surfaces slow down the initiation of aggregation and change the aggregation dynamics. At the scale of single cells, we measure both adhesion ability as well as the area of contact between cells and surface for individual cells and cells that are part of groups. We find that comparable forces are needed to pull cells off all surfaces, indicating that surface adhesion is actively regulated by migrating cells.

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