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Motion of individual and coupled amoebae during collective migration CHENLU WANG, MEGHAN DRISCOLL, SAGAR CHOWDHURY, SATYANDRA K. GUPTA, University of Maryland-College Park, CAROLE PARENT, National Cancer Institute, National Institutes of Health, WOLFGANG LOSERT, University of Maryland-College Park — Collective migration is a ubiquitous natural phenomenon. We analyzed the migration of Dictyostelium Discoideum amoebae, which migrate both individually and collectively. We previously found that individually and collectively migrating cells have similar speed and straightness. We analyzed the effects of cell-cell contact and cell-surface contact on cell characteristics, such as adhesion, speed, and shape. We found that in the absence of cell-surface contact, cells form irregular clumps, yet are still able to migrate collectively in response to an external signal. Individually migrating cells exhibit waves of high boundary curvature that travel from the fronts to the backs of cells. By comparing the shape dynamics of individual cells and groups of cells, we found that these boundary curvature waves can be transmitted from one cell to another.

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