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Quantifying *Dictyostelium discoideum* Aggregation COLIN MCCANN, University of Maryland, PAUL KRIEBEL, CAROLE PARENT, National Institutes of Health, WOLFGANG LOSERT, University of Maryland — Upon nutrient deprivation, the social amoebae *Dictyostelium discoideum* enter a developmental program causing them to aggregate into multicellular organisms. During this process cells sense and secrete chemical signals, often moving in a head-to-tail fashion called a 'stream' as they assemble into larger entities. We measure *Dictyostelium* speed, shape, and directionality, both inside and outside of streams, and develop methods to distinguish group dynamics from behavior of individual cells. We observe an overall increase in speed during aggregation and a decrease in speed fluctuations once a cell joins a stream. Initial results indicate that when cells are in close proximity the trailing cells migrate specifically toward the backs of leading cells.

Colin McCann
University of Maryland

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