



nature publishing group



► **COVER:** 'Collective migration' by Vicky Summersby, inspired by the Review on p445



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Studying the movements of single cells has enabled great advances in our understanding of the general mechanisms that underlie cell migration. Effective cell migration requires the integration of localized and transient signals with changes in cellular architecture, cell adhesion and asymmetric polarization. As a result, cells move by extending protrusions at their front and retracting their trailing end.

Although the collective migration of cells relies on similar guidance cues and protrusions to those used by single migratory cells, the mechanisms that coordinate this type of migration are less clear. However, Peter Friedl and Darren Gilmour (page 445) explain that some general principles can be drawn from the comparison of how diverse cellular functions and behaviours combine to produce multicellular migration during embryonic morphogenesis, wound repair and cancer. Collective cell migration differs from single cell migration in that cells remain physically and functionally connected as they move, they coordinate their polarization and cytoskeletal activity and they structurally modify tissue along their migration path.

The mechanisms of collective migration, as well as the signalling networks that regulate directed cell migration, were discussed at a recent Gordon Research Conference on gradient sensing and directed cell migration. The meeting also highlighted the importance of understanding how mechanical and chemical inputs from neighbouring cells and the surrounding environment are coordinated during multicellular movement. It will be imperative to understand the role that each cell in the collective cell migration sheet has, which signals define the roles of different cells in the sheet, and how the cells in the sheet communicate with each other and the environment to complete their mission. As always, we will follow this exciting field with interest and keep you informed!

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