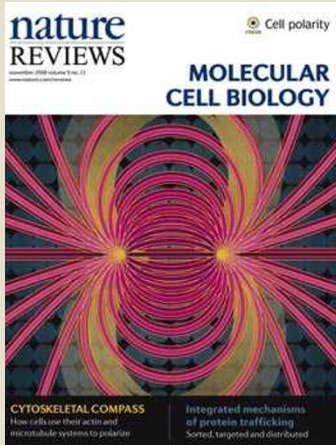




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► COVER: 'Cell polarity' by Nicola Hawes, inspired by the Focus starting on p83



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Cell polarity relies on the asymmetric organization of cellular components and functions. It is implicated in the differentiation, proliferation and morphogenesis of unicellular and multicellular organisms, and its dysregulation can cause developmental disorders and cancer.

With this month's Focus on Cell Polarity, we assess how a cell coordinates signalling pathways, membrane trafficking mechanisms, cytoskeletal dynamics and organelle positioning to ensure proper polarization. Ira Mellman and W. James Nelson (page 833) discuss the requirement, in polarized cells, for the coordinated interaction of machineries that modify the basic mechanisms of intracellular protein trafficking and distribution. Effective trafficking is mediated through the actin cytoskeleton and microtubules, which are also well suited to provide the structural basis for cell polarization because of their inherent structural polarity and intrinsic dynamics. These properties allow them to respond rapidly to polarity cues, as Rong Li and Gregg G. Gundersen explain on page 860. In turn, conserved polarity complexes crosstalk with small GTPases to modulate the actin and microtubule cytoskeletons (Sandra Iden and John G. Collard; page 846).

Michel Bornens (page 874) describes how the positioning of each organelle must be coupled to that of other organelles in order to contribute efficiently to cell polarity, and how this nonrandom positioning is preserved and transmitted through cell division. Lastly, most polarized cells do not function in isolation, but are part of polarized tissue. David M. Bryant and Keith E. Mostov (page 887) discuss the coordinated integration, in space and time, of polarized cells into different epithelial tissues.

If you want to find out more, check out the accompanying online library (www.nature.com/nrm/focus/polarity) with relevant content.

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