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► COVER: 'Taking shape' by Patrick Morgan.



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The excitement about stem cells shows no sign of abating. Indeed, it is spilling into even more areas of research, not least genetics. To bring you up to date with the latest developments, this month's issue includes a Focus on stem cells.

There is a buzz about the potential use of pluripotent stem cells in disease modelling and regenerative medicine. Models of monogenic diseases have led the way but, as Daley and colleagues discuss (Review, p266), pluripotent stem cells also offer exciting opportunities for modelling complex traits.

For success in these applications, pluripotent cells usually need to be turned into specific cell types. Cohen and Melton (Review, p243) explain the options for *in vitro* differentiation and discuss recently developed methods to turn one cell type directly into another. This approach is based on the same principles as reprogramming somatic cells into induced pluripotent stem cells by transcription factor expression. Although reprogramming is now widely used, researchers are striving for methods that are more efficient and produce higher quality stem cells. The resulting array of methods can seem bewildering, so Belmonte and colleagues provide a guide to what is on offer and suggest how the desired downstream application should shape reprogramming strategies (Review, p231).

Reprogramming research has also spurred interest in biological questions, such as what epigenetic and transcriptional changes underlie the changes in cell identity and what are the barriers that make reprogramming inefficient? In a Review on p253, Plath and Lowry evaluate how far we have come in addressing these issues.

Also in this issue, several Research Highlights cover recent advances in stem cell research, and we present a selection of other relevant articles in our Web Focus at <http://www.nature.com/focus/stemcells>.

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