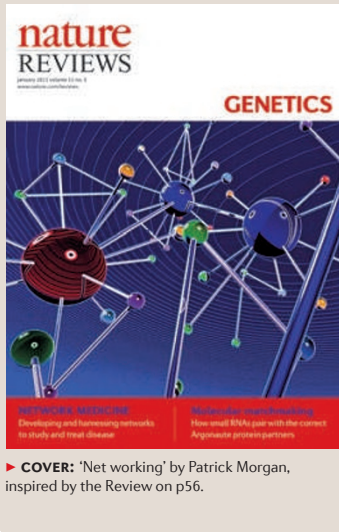




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► **COVER:** 'Net working' by Patrick Morgan, inspired by the Review on p56.



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Readers of *Nature Reviews Genetics* hardly need to be reminded of the practical value of pursuing basic scientific research. However, this month's content again draws attention to how fundamental discoveries are aiding diverse applications.

Researchers in synthetic biology inventively remould the topology of natural genetic circuits. A Research Highlight on p4 describes a construct that exploits the binding properties of signalling pathway components to 'sense' the concentration of intracellular proteins — in a cancerous cell, say — and instructs such cells to switch their fate. And the optimal design of heterologous transgenes hinges on understanding how codon usage affects gene expression, as reviewed by Plotkin and Kudla (p32).

In the clinical arena, huge efforts are being made to develop successful gene therapies. A Research Highlight on p4 describes how engineered binding sites for a microRNA — first characterized as a developmental regulator — can be used to control the expression of a therapeutic transgene. Zinc-finger nucleases — also derived from the fusion of developmental and synthetic biology — are one of the forces behind improvements in correcting genetic defects *ex vivo*, and are the subject of a Poster (<http://www.nature.com/nrg/posters/zinc-fingers>) that has been produced with support from Sangamo Biosciences, Inc., Exact Precision Technology and Sigma Life Science.

Distinct insights and applications can also be obtained by examining cellular networks. As Barabási and colleagues describe in their Review (p56), network views can accelerate drug discovery by highlighting disease pathways and subnetworks, or by revealing potential side effects.

"There are sciences and the applications of science, bound together as the fruit of the tree which bears it" (Louis Pasteur).

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