IN BRIEF

HUMAN DISEASE

Transcriptional dysregulation in *NIPBL* and cohesin mutant human cells

Liu, J. *et al. PLoS Biol.* **7**, e1000119 (2009)

Cornelia de Lange syndrome is caused by mutations in cohesin and other proteins associated with the chromosome cohesion complex. These authors show that transcriptomic profiles of samples from patients with this multisystemic developmental disorder have a unique pattern of transcriptional dysregulation. The degree of dysregulation correlates with phenotypic severity, and the profile could be used for disease diagnosis or classification. The promoters of dysregulated genes are enriched for cohesin binding sites, suggesting that cohesin might function as a transcription factor.

GENE REGULATION

Diversity and complexity in DNA recognition by transcription factors

Badis, G. *et al. Science* 14 May 2009 (doi:10.1126/science.1162327)

The recognition of DNA sequence motifs by transcription factors is a vital step in gene expression, but the DNA binding specificity of very few of these factors has been characterized in detail. This study used microarrays containing all possible 10-bp sequences to analyze the binding specificities of over 100 known and predicted mouse transcription factors, and used various algorithms to determine their sequence preferences. This provides an extensive new resource that will be informative for future work on transcription factor function.

ANIMAL MODELS

Generation of transgenic non-human primates with germline transmission

Sasaki, E. *et al. Nature* **459**, 523–527 (2009)

Transgenic primates have been generated previously, but without transmission of the transgene in the germ line. Sasaki and colleagues used a self-inactivating lentiviral vector to introduce an enhanced GFP (*EGFP*) transgene into embryos of the common marmoset, a New World primate with a relatively high reproductive rate. Transgenic animals were successfully produced and germ line transmission was achieved, with the transgenic offspring developing normally. Transgenic marmosets should be particularly useful for modelling human diseases that affect phenotypes such as cognitive ability, for which mice are poor models.

PLANT GENETICS

Turning meiosis into mitosis

d'Erfurth, I. *et al. PLoS Biol.* **7**, e1000124 (2009)

This paper reports an important step towards the clonal reproduction of crop species, which would allow favourable traits to be propagated by seed. The authors introduced three mutations into the sexual plant *Arabidopsis thaliana* to convert the normal process of meiosis, with its consequent ploidy reduction, to a mitotic division. The mutations prevent entry into the second meiotic division, eliminate recombination and modify chromatid segregation. The seeds of the engineered plant are fully diploid, and are therefore genotypically identical to the parent. The approach should also be applicable to other plants and crops.