

## IN BRIEF

**TECHNOLOGY****Making mice with TALENs**

Genome editing of mouse embryos is a potentially rapid means of generating mouse models of human disease, and previous studies have achieved targeted genomic deletions and replacements using zinc finger nucleases (ZFNs). For this purpose, Wefers *et al.* have now adopted transcription-activator-like effector nucleases (TALENs), which allow more customizable targeting of genomic sequences than do ZFNs. They injected a site-specific TALEN and an engineered DNA replacement cassette into a one-cell mouse embryo to generate a knock-in mutation in *Rab38* to model Hermansky–Pudlak syndrome. Heterozygous mutant progeny from this founder mutant were available within 18 weeks.

**ORIGINAL RESEARCH PAPER** Wefers, B. *et al.* Direct production of mouse disease models by embryo microinjection of TALENs and oligodeoxynucleotides. *Proc. Natl Acad. Sci. USA* **110**, 3782–3787 (2013)

**RNA****New tricks for an old enzyme**

RNA polymerase II (Pol II) is a major DNA-dependent RNA polymerase in mammals that transcribes mRNAs and long non-coding RNAs. While studying the inhibition of Pol II that is mediated by binding of the B2 non-coding RNA, Wagner *et al.* found that Pol II overcomes this inhibition by acting as an RNA-dependent RNA polymerase (RdRP) to elongate the B2 RNA using another region of B2 as a template. RdRPs are known to have important amplification roles in RNA interference in some eukaryotes, but it remains to be seen whether similar roles will be found for this RdRP activity of Pol II.

**ORIGINAL RESEARCH PAPER** Wagner, S. D. *et al.* RNA polymerase II acts as an RNA-dependent RNA polymerase to extend and destabilize a non-coding RNA. *EMBO J.* 8 Feb 2013 (doi:10.1038/emboj.2013.18)

**EPIGENETICS****Plant epigenomic diversity explored**

The extent, pattern and basis of epigenomic variation were explored in this study through characterization of genomes, methylomes and transcriptomes of wild populations of *Arabidopsis thaliana*. The findings suggest that single cytosine methylation polymorphisms do not have a genetic basis in this species. However, genetic variation does affect RNA-directed DNA methylation (RdDM) that occurs at differentially methylated regions, for which thousands of methylation quantitative trait loci were identified. Targets of RdDM, including protein-coding genes, were found to be activated in pollen and seeds, which may be important for developmental functions.

**ORIGINAL RESEARCH PAPER** Schmitz, R. J. *et al.* Patterns of population epigenomic diversity. *Nature* 6 Mar 2013 (doi:10.1038/nature11968)

**GENETIC TESTING****New guidelines for paediatric genetics**

The American Academy of Pediatrics and the American College of Medical Genetics and Genomics have issued new policy recommendations for the genetic testing and screening of children. They support the screening of newborns for a limited number of genetic conditions for which early intervention is effective but recommend that screening for recessive conditions and predictive testing for most adult-onset disorders be delayed until adulthood.

**ORIGINAL RESEARCH PAPERS** Committee on Bioethics *et al.* Ethical and policy issues in genetic testing and screening of children. *Pediatrics* **131**, 620–622 (2013) | Ross, L. F. *et al.* Technical report: ethical and policy issues in genetic testing and screening of children. *Genet. Med.* **15**, 234–245 (2013)