

IN BRIEF

POPULATION GENETICS**A population genomic resource for *Drosophila melanogaster***

The authors introduce the *Drosophila melanogaster* Genetic Reference Panel (DGRP), a new community resource consisting of full genome sequences of inbred lines of fruitflies. Because the lines are derived from a single outbred population, they capture a large amount of natural variation and are therefore ideal for the fine genotype–phenotype mapping of quantitative traits. An analysis of 168 lines emphasizes the potential of the DGRP by highlighting patterns of genetic polymorphisms, by identifying sites of positive and negative selection and by locating variants that are associated with quantitative traits.

ORIGINAL RESEARCH PAPER Mackay, T. F. C. *et al.* The *Drosophila melanogaster* Genetic Reference Panel. *Nature* **482**, 173–178 (2012)

TECHNOLOGY**Environmental genomes assembled**

Typically, sequencing of metagenomes has either analysed organisms that have been cultured from environmental samples or has provided incomplete genomes of various species in the sample. Iverson *et al.* overcame the difficulties of assembling complete, novel genomes from environmental samples using paired-end, high-throughput sequencing and computational algorithms. From sea water, they assembled an almost complete genome for an uncultured and uncharacterized euryarchaeote that represented only 1.7% of the original metagenome sequence; this allowed inferences of its physiological and metabolic characteristics based on its gene repertoire.

ORIGINAL RESEARCH PAPER Iverson, V. *et al.* Untangling genomes from metagenomes: revealing an uncultured class of marine Euryarchaeota. *Science* **335**, 587–590 (2012)

GENE REGULATION**Chromosome dynamics in Polycomb regulation**

Polycomb group proteins are developmental gene expression regulators that localize to regions of the nucleus called Polycomb bodies. The authors monitored the dynamics at Polycomb bodies during development in *Drosophila melanogaster*. They showed that Polycomb proteins are gradually recruited to these compartments during embryogenesis. Furthermore, two types of chromosomal movement at Polycomb bodies — a fast, highly constrained motion and a slower, long-range motion that was indicative of chromosome territory movement — decreased through development, suggesting a role for this movement in gene regulation.

ORIGINAL RESEARCH PAPER Cheutin, T. & Cavalli, G. Progressive Polycomb assembly on H3K27me3 compartments generates Polycomb bodies with developmentally regulated motion. *PLoS Genet.* **8**, e1002465 (2012)

BEHAVIOURAL GENETICS**Separate genetic programmes for sex-specific behaviour**

In this study, the authors investigated genes controlling sexually dimorphic behavioural traits in mice. They identified dimorphically expressed genes in the adult mouse hypothalamus and amygdala that were regulated in a sex-specific, spatially restricted manner by sex hormones. Targeted disruption of four of these genes individually resulted in deficits in sex-specific behavioural traits, such as male and female sexual behaviour. Thus, the neural circuits leading to these traits are governed by separate genetic switches that act in response to sex hormones.

ORIGINAL RESEARCH PAPER Xu, X. *et al.* Modular genetic control of sexually dimorphic behaviors. *Cell* **148**, 596–607 (2012)