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URLs

IN BRIEF

POPULATION GENOMICS

Common genetic variants account for differences in gene expression among ethnic groups.

Spielman, R. S. *et al. Nature Genet.* 7 January 2007 (doi:10.1038/ng1955)

Polymorphic genetic variants contribute to gene expression differences between individuals. These authors examined the quantitative phenotype of gene expression at population levels by analysing over 4,000 genes from several ethnic groups. Around 1,000 of these genes showed differences in expression levels between populations, and these differences were associated with specific genetic variants in regulatory regions. This finding provides an important step on the way to understanding the genetics of susceptibility to complex diseases in which quantitative variants have a crucial role.

EPIGENETICS

The *DXPas34* repeat regulates random and imprinted X inactivation.

Cohen, D. E. *et al. Dev. Cell* **12**, 57–71 (2007)

X-chromosome inactivation (XCI) is regulated by the non-coding RNA *Xist*, which is in turn regulated by its antisense RNA, *Tsix*. Lee and colleagues found that the *DXPas34* repeat, which lies close to the *Tsix* main promoter, has a bidirectional promoter activity that is essential for *Tsix* regulation in both random and imprinted XCI. According to the model that is proposed by the authors, *DXPas34*, which probably originated as a retrotransposon, stimulates *Tsix* expression at the onset of XCI through an enhancer activity and stably silences it once XCI is established.

DEVELOPMENT

Cilia-driven leftward flow determines laterality in *Xenopus*.

Schweickert, A. *et al. Curr. Biol.* **17**, 60–66 (2007)

The nature of the symmetry-breaking event that is required to establish the vertebrate left–right body axis is a controversial issue. Although leftward fluid flow, which is driven by cilia, occurs upstream of the crucial asymmetrically active Nodal pathway in mammals and fish, it was unclear whether a similar mechanism is required in amphibians and birds. Schweickert and colleagues showed that a cilia-driven leftward flow is required to initiate asymmetrical gene expression in *Xenopus* embryos, providing further evidence that the symmetry-breaking event is conserved among vertebrates.

TRANSCRIPTION

Characterization and predictive discovery of evolutionarily conserved mammalian alternative promoters.

Baek, D. *et al. Genome Res.* 8 January 2007 (doi:10.1101/gr.5872707)

One way for a genome to increase its complexity is to use alternative promoters; how frequently genomes resort to this strategy remains unknown. Baek *et al.* compared human and mouse alternative promoters to find sequence elements that distinguish alternative promoters from single promoters. They also identified biologically relevant differences in expression patterns between the promoter types. These results allowed them to create a computational model to predict promoter type, which they used to conclude that nearly half of human genes have alternative promoters.