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Ascidian genome

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Ascidians are sea squirts, hermaphrodite marine invertebrates that live in shallow ocean waters. Ascidians are thought to exhibit characteristics of the evolutionary ancestors of chordates and vertebrates. In the December 13 *Science* Dehal *et al.* report a draft sequence of the genome of the ascidian *Ciona intestinalis*, one of the smallest of the chordates (*Science* 2002, **298**:2157-2167). Most of the DNA came from a single individual in Half Moon Bay, California, and was sequenced using a whole-genome shotgun approach. There was a high rate of allelic polymorphism, nearly 15-fold more than in humans. The assembled genome spans 116.7 Mb and contains 95% of the protein coding genes. Japanese researchers have also collected over 480,000 ESTs (expressed sequence tags) that were used to find genes in the *Ciona* genome sequence. An annotation workshop came up with a prediction of around 16,000 coding genes (comparable to sequenced invertebrates and significantly less than vertebrates). Many of the predicted genes are homologous to genes in the fly and worm genomes, while others (about one sixth) have only vertebrate homologs, or no clear homologs. Gene analysis suggests that *Ciona* resembles an ancestral chordate, and there are many examples of vertebrate-specific gene duplication events (genes encoding *Fgfs*, *Smads* or T-box proteins for example); thus, in several respects, *Ciona* lies somewhere between ancient chordates and vertebrates. Dehal *et al.* describe interesting examples in the development of the endocrine system, apoptosis, muscle-related genes and signalling pathways.

References

1. *Science* , [<http://www.sciencemag.org>]
2. *Ciona intestinalis*, [<http://genome.jgi-psf.org/ciona4/ciona4.home.html>]
3. Ideas fly at gene-finding jamboree.