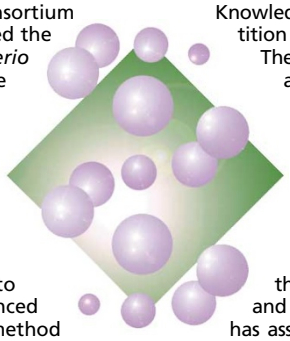
TOUCHING**base**

One fish two fish…

The genomes of two fish dear to geneticists are now available on the Internet. Last month, an international consortium lead by the Sanger Institute at Hinxton, UK, released the preliminary assembly of the genome of *Danio rerio* (better known as the zebrafish). The draft sequence is now available at http://www.ensembl.org/Danio_rerio. Another consortium, the International Fugu Genome Consortium, headed by the Joint Genome Institute in Walnut Creek, CA, released the sequence of the compact genome of *Fugu rubripes* (the Japanese pufferfish). The *Fugu* genome contains roughly the same number of genes as the human genome in a sequence seven times shorter, owing to its paucity of large repeat-filled tracts. It was sequenced and assembled using the whole genome shotgun method pioneered by Celera Corporation. The consortium scientists report in *Science* (25 July, 2002) that they have discovered nearly 1,000 genes in the pufferfish genome that are apparently identical to previously unidentified human genes. The sequence is available at http://genome.jgi-psf.org/fugu3/fugu3.home.html.



And the KDD cup winner is…

Celera and ClearForest jointly won one of two first prizes in the Knowledge, Discovery and Data (KDD) Mining Cup, a competition held by the Association for Computing Machinery. The Cup is a data-mining competition that has been held annually for the past eight years but has focused on information technology in biology in the last two. The contest required 32 competitors to build a system that would automatically analyze thousands of scientific articles on *Drosophila melanogaster* to determine which should be curated in FlyBase (http://www.flybase.org), the public *Drosophila* genome database. The data-mining algorithms had to identify scientific papers that included experimental details of gene expression and return a check-list for each gene indicating whether it has associated RNA and/or protein products. In a separate KDD Cup competition, Australia's Telstra Research Laboratories beat 52 other teams in a contest involving the use of MEDLINE abstracts to predict the effects of yeast knockouts. For more information about the competition, visit http://www.acm.org/sigs/sigkdd/kdd2002/.

The mighty IGF

Ever read a science story in a newspaper and wonder "Why didn't I know about this?" A case in point may be an article published by *The Philadelphia Inquirer* (4 August, 2002), entitled "Ageless athlete may not be far off". It discussed the use of genetic engineering to produce more powerful and long-lasting athletes. "Imagine Barry Bonds winning another home-run title at 50," said the article, and then warned that these "designer-athletes could turn up at the next Olympic Games, just two summers from now in Athens." (For the non-sport enthusiasts, Barry Bonds is a 38-year-old baseball player.) Okay, so the article was a little hyped, but it was actually based on a study published last year in these pages by Musaro *et al*. (*Nature Genet.* **27**, 195–200; 2001), describing a transgenic mouse that expresses an isoform of insulin-like growth factor-1 only in skeletal muscle (mIGF-1). The mice develop normally and show increased muscle mass and strength. They also escape age-related muscle atrophy and recover more quickly from injury. The IGF-1 protein appears to stay in the muscle bed and does not enter the circulation, thereby avoiding the serious side effects reported in other transgenic *Igf1* models. The work using mice suggests a possible avenue for preventing disease-related muscle frailty, as in muscular dystrophy, and indeed the same authors recently published a study reporting promising results in a mouse model of the disease. But according to the *Inquirer*, the research has wider implications. One of the authors of the study was quoted by the newspaper as saying that he has received calls from weightlifters and other athletes, including a high school football coach who wanted to have his entire team injected!

Dario Bonetta

Alternatives to animals

A report published last month by the House of Lords' Select Committee on Animals in Scientific Procedures found that experiments in animals are necessary for research and toxicology testing, but more should be done to fund and promote the "Three Rs": replacement of conscious, living vertebrates by non-sentient alternatives; reduction of the number of animals needed to obtain information; and refinement of procedures to reduce to a minimum suffering by animals. "Animal experiments are still needed, but more could be done to find new methods of research and testing which don't involve animals," said committee chair Lord Smith of Clifton. "There is also too much bureaucracy which hampers scientific research and can harm animal welfare. Our recommendations, together with a much greater openness about what animal experiments are done and why, should help to create a better balance between the legitimate needs of science and the care and welfare of animals." The Committee recommended that the UK should strive not for the tightest regulation, but for the best regulation, properly enforced. It also recommends that accurate information on the details of, and rationale for, animal experiments be made public. The report, entitled *Animals in Scientific Procedures,* is available at www.parliament.uk. According to the Home Office's *Statistics of Scientific Procedures on Living Animals*, in 2001 the total number of animals used in experiments in the UK was 2.57 m, down 75,000 (2.8%) from 2000 and about 50% of the number used in experiments 25 years ago. Most procedures in 2001 were carried out on mice (63%), followed by rats (19%), fish (7%), birds (5%), other mammals (3%), other rodents (2%) and reptiles and amphibians (1%). (These categories perhaps indicate that those at the Home Office who collected the statistics are regrettably unfamiliar with the defining features of the mammal.) The main purposes of carrying out scientific procedures were for fundamental biological research and breeding (each representing 30% of total use), and applied studies into human medicine or dentistry, representing 26% of procedures started in 2001. Whereas the number of animals in research has decreased, the use of genetically modified animals has more than doubled since 1995 and represents 24% of all scientific procedures, compared to 8% in 1995. These statistics are available at http://www.official-documents.co.uk/document/cm55/5581/5581.pdf.