

Malaria genomics developments

The first week in October saw the publication of the complete reference genome sequence for the parasite that causes malaria in humans, *Plasmodium falciparum* in *Nature*. In the same issue there were proteomic analyses of the parasite's complex life cycle and the complete genome sequence of the rodent parasite *Plasmodium yoelii yoelii*. Also, in the same week, *Science* published the genome of the insect through which the parasite moves from host to host, the mosquito *Anopheles gambiae*.

Field trials

...in the UK

The UK Government's controversial GM crop-testing programme was thrown into disarray on 15 August 2002, after it was claimed that 14 fields in England and Scotland had been contaminated with unauthorised seeds. Ministers ordered the suspension of the final phase of the farm-scale trials. The Department of Environment, Food and Rural Affairs (DEFRA) said the contamination did not present any danger to public health, but the affair will undermine confidence in the regulatory safeguards and monitoring structures of the trials.

Independent tests carried out by the GM Inspectorate at the Central Science Laboratory confirmed that only the intended GM seed were present. In the light of the test results, Aventis CropScience was authorised on 30 August 2002 to go ahead with sowings of winter oil seed rape, which will complete the Farm-Scale Evaluation

...in France

The French government has approved 8 new GM field trials by Biogemma, Bayer CropSciences, Pioneer Genetique and AGPM Technique. The Confederation Paysanne immediately reacted by again calling for a complete ban on all GM field trials. Ovale (the ecology pressure group) said the Agriculture and Environment ministries should revoke the approval. Biogemma is due to start trials on maize in Blagnac and Artonne this year. Other trials will start in spring 2003. Tighter restrictions have been imposed on these trials. The sites must be inspected by the regional plant protection authorities and they must be at least 400 m (instead of 200 m) away from traditional crops. In May 2002, crops of GM maize were planted in order to study the traceability of such crops in controlled natural conditions.

GM crops in Brazil

Monsanto is to spend R\$1.5 M on research into *Bt*-transgenic cotton in Brazil. Monsanto plans 30 projects to gather data on the effectiveness of the technology, the insects involved and the potential socio-economic effects of using the modified fibre. Monsanto's field research with the Instituto Agronomico do Parana (Iapar) agricultural institute concludes that the transgenic cotton reduces production costs by 25%, partly due to lower insecticide requirements and labour saving. According to the researchers, prey species of the insect pests were not adversely affected.

Lawsuits

Syngenta vs. Monsanto

Syngenta has filed lawsuits over transgenic maize and cotton against Monsanto, DeKalb Genetics, Pioneer Hi-Bred, Delta and Pine Land, Dow AgroSciences and Mycogen Seeds in the USA. This is in defence of Syngenta's patents or exclusive rights to patents. The products involved are YieldGard and Herculex insect resistant maize and Roundup Ready and Bollgard cotton.

Gene flow

Pollen spread

Research from the University of Adelaide in Australia has shown that, although pollen from conventional oilseed rape plants can travel long distances, this only happens with small amounts. The same will be true of GM-crops. This shows that extensive interbreeding will not be a problem but perfect isolation will probably be impossible (*Science*, 2002, 296, 2386-2388).

Horizontal gene transfer

Researchers at the University of Tokyo think they have caught a set of 11 or so genes of the bacterium *Wolbachia* that jumped ship and relocated to the genome of a Japanese beetle (*Callosobruchus chinensis*) – the first case of horizontal gene transfer between a bacterium and an animal. This event might help clarify whether similar integration has ever occurred in the human genome – and, if so, when. It could also shed light on whether such exchanges are likely between GM foods and the bacteria in the human gut.

New gene isolation / sequencing

Dwarfing gene in rice isolated

A team of CSIRO scientists working with

funding from Graingene (a strategic alliance involving three Australian agricultural organisations – AWB Ltd, CSIRO and the Grains Research and Development Corporation) and using data from the rice genome sequence has isolated the semi-dwarfing gene (*sd-1*) of rice and developed perfect markers to identify it. It is expected that this knowledge will allow the development of new varieties of rice and will assist research into other cereal crops.

Tree genome within eighteen months

The US Department of Energy is leading an international research project to sequence the genome of *Populus balsamifera* (black cottonwood or balsam poplar) by the end of 2003. It is expected that the genome will be a basic research tool for studying all aspects of tree biology (<http://www.ornl.gov> or http://gnn.tigr.org/articles/02_02/tree_genome)

Flowering gene isolated

Researchers at the Scripps Research Institute in San Diego, California, have found a gene, CONSTANS, which enables plants to measure day length and so tell when to flower. This discovery could help manipulate food crops to better suit the seasons of equatorial regions (*Nature*, 2002, 419, 308-312).

Rice genes removed

Shigeru Iida and colleagues from the National Institute for Basic Biology in Okazaki knocked specific genes in rice, by increasing the efficiency of homologous recombination. In principle the technique should also work in other plants, including cereals such as maize and wheat. Their method should help them to work out which plant genes do what, and could lead to increases in agricultural yields (*Nature Biotechnology*, 2002, DOI: 10.1038/nbt737).

Technology transfer

...Monsanto transfers technology to Cotton Inc.

Monsanto Co. has given U.S. cotton farmers and textile mills some biotechnology that could create a better cotton plant. Descriptions of six pieces of genetic switches have been transferred to Cotton Incorporated (funded by US cotton growers and importers by Monsanto). Knowing the makeup of the switches could help researchers to engineer plants with better fibers, especially ones of more uniform length.