

TIGR finishes work on rice genome

The Institute for Genomic Research (TIGR) is a non-profit research center based in Rockville, USA dedicated to deciphering and analyzing genomes and molecular chains that constitute each organism's genetic heritage. TIGR have sequenced the first rice genome as part of an international consortium for the last six years. The completed sequence, published in the August 11 issue of *Nature*, unveils a genome consisting of roughly 400 million DNA bases holding 37,544 genes on rice's 12 chromosomes.

Robin Buell, an investigator for TIGR's rice genome project said, "Scientific community can use genome analysis to develop new varieties of rice that deliver increased yields and grow in unfavorable conditions." This finished sequence will provide an indispensable roadmap to agricultural researchers using both biotechnology and conventional breeding to develop hardier rice varieties. The rice genome is used as a base for genomic studies of cereals. As rice has a smaller genome than maize and wheat, it will make better varieties for sequencing. TIGR researchers sequenced more than 10 per cent of the genome of the temperate subspecies of rice, *Oryza sativa* subspecies *japonica*, which is cultivated mainly in Japan, Korea, and the U.S. The newly complete rice genome builds upon earlier draft sequences published by private companies Monsanto and Syngenta. And a very good model of a public-private partnership where companies donated their genome sequences to the IRGSP. This is a major step forward for agriculture and the completed rice genome will accelerate discovery said the TIGR President.

Monsanto leaking millions in patent revenue, claims Canada

The Polaris, a Canada-based research institute has reported that, Monsanto has lost \$545 millions in international royalty payments and is trailing its major competitor, Pioneer, in the US department of agriculture genetically modified (GM)-crop field trials. In addition, with a patent challenge to its insect-resistant Bt transgenic traits from Dow

Agrobusiness, it says that the company's intellectual property rights are by no means secure. As per the report, Monsanto also had an agreement with Brazilian seed industry body Abrasem over the genetically modified seed, Ready variety, where Monsanto raised around 5.8 per cent royalty from the commercialization. In addition to the above issue, the protest group of Canada states their aims as "developing the kinds of strategies and tactics required to unmask and challenge the corporate power that is the driving force behind governments concerning public policy making on economic, social and environmental issues". Again they claim, "Monsanto is racing against time to create new offerings to replace sales of items losing protection".

One-fifth of human genes have been patented

About 20 per cent of human genes have been patented in the United States, primarily by private firms and universities. The researchers are patenting genes because these are potentially valuable research tools, useful in diagnostic tests or to discover and produce new drugs. According to the report, gene patents were central to the biotech boom of the 1980s and 1990s. The top patent assignee is *Incyte*, a California-based drug company whose patents cover 2,000 human genes. The issuing of patents for human genes is controversial and has generated much debate about its importance to R&D. Gene patents promote the disclosure and dissemination of ideas by making important uses of gene sequences publicly known argued some of the advocates in the US. Again they said that patents also provide important incentives to investors who would otherwise be reluctant to invest in ideas that could be copied by competitors.

Unapproved GMO rice found in China

GeneScan, a Germany-based global tester of genetically modified organisms in food, said in a report that, "Gene-altered rice is being sold in parts of China, even though its commercialization has not approved by the Chinese government". The spokesman in China's agriculture ministry said, "the government was not aware of any such cases of illegal sale of GMO rice. According to Chuk Ng, general manger of GeneScan's operation in China, it had found gene-altered Bt rice in samples collected from the Chinese city of Wuhan as well as the southern province of Guangdong, which may threaten to contaminate the Chinese rice market.

South Africa passed new Bt cotton variety

The South African farmer will plant a new Bt cotton variety that has stacked genes for insect and herbicide resistance. The South African government permits the commercialization of the new Bt variety. Monsanto's has got permission for marketing the new variety. The crop is already being grown in the United States and Australia. And the variety combines the features of its Bollgard cotton that resists bollworms, and Roundup Ready cotton, which is resistant to the weed-killer glyphosate, said Monsanto's regional biotechnology regulatory manager. In the year 2004-05, about 90 per cent of the relatively small cotton variety plantings in South Africa were genetically engineered. Approximately 22000ha of cotton were planted last season, but Monsanto expected the volume to be higher this year as some farmers were likely to switch from unprofitable maize to cotton. According to a report, Monsanto announced that the company has obtained government approval to launch a new variety of genetically engineered cotton. The seed combines an insecticide with a built-in resistance to the weed-killer. It is the first time that South African authorities have granted a permit for the commercialization of a genetically engineered crop that includes this kind of 'stacked gene', which combines two different genetically engineered varieties.

Bharat Biotech started epidermal therapeutic research

Bharat Biotech International Ltd, an Indian-based biotech company launched the first recombinant epidermal growth factor- *Regen D*. The therapeutic has been developed and manufactured by the company over five years at a cost of Rs 18 crores. This research is taking place in collaboration with the Institute of Genomic Research and Integrated Biology (IGIB), New Delhi. According to a report, *Regen-D* is being launched in two strengths Regen-150 for diabetic foot ulcers and Regen-60 for burns and skin grafts, in a topical gel application. The therapeutic had indicated a 90 per cent healing rate during the third phase of the clinical trial. The therapeutic is expected to contribute around 10 per cent to Bharat Biotech's turnover in 2005-2006

Functional genomics study gets global aid

In India, scientists in the public sector research organization have taken up the study on functional genomics in different food crops like rice, tomato, sugarcane, chickpea and coffee. Some of these projects are also

underway with international collaborations. The motive behind the functional genomics projects is to discover new genes and allele mining (finding out a brother gene). This will ultimately help molecular breeding and the development of crop varieties that are resistant to drought and diseases. It will also help grow crops having enhanced nutritional value and fruits and vegetables with an increased shelf-life, said the Minister for Science and Technology, Govt. of India. The functional genomics projects for various crops are supposed to create networks between related government ministries and departments, universities and scientific institutions in the country. The Indian Agriculture Research Institute (IARI), the Delhi University (South Campus) and 11 other research laboratories are involved in the functional genomics project with a cost of investment of Rs 80 million.

India, South Korea joint research programme on stem cell

India and South Korea started a joint research programme on stem cell for combating number of communicable and non-communicable diseases. According to the report, the Indian Health Minister visited South Korea and discussed these issue with his Korean counterpart. The possible areas of cooperation consist in the following: for new and emerging disease like influenza, SARS, Avian Flu, leptospirosis, Japanese encephalitis, HIV/AIDS, drug resistant TB, hepatitis A, B, E and measles, use of the global informations system (GIS) and satellite imaging for an early warning for epidemics, pandemic preparedness and vaccine development especially for infectious diseases. India is planning new national programmes to combat a number of communicable and non-communicable diseases. There is also possibility of co-operation in risk exposure and assessment of arsenic and other environmental pollutants, mental healthcare, registries for cancer and epilepsy and neuro-sciences.

Indo-China collaboration on biomedical research

India and China are planning to collaborate research on stem cell and traditional medicine as both countries have the largest amount of traditional varieties and are knowledge centre in medicine. On this issue a delegation from both countries met and discussed the possible framework of research collaboration. There is also a possible work of survey and documentation of medicinal plants and varieties, with a scientist exchange programme. In India, the health ministry is planning to regulate stem cell research because it has already started in an

uncontrollable way in private clinics. There will be a cautious approach to deal with regulation of this stem cell research in a discipline manner, said in a statement from Indian health ministry.

FAO prepared a database of developing country biotechnology profile

The Food and Agriculture Organization (FAO) have come out with a database containing "Developing Country Biotechnology Profiles". The main aim of this database is to store the data and updated baseline information on the crop biotechnology products and techniques in developing countries. The database, FAO-BioDeC, is a searchable tool that aims to provide easy access to key updated sources of biotechnology-related information contained in entries from 128 developing countries. The information on each country was classified and stored into 11 key subjects, which include biotechnology research policy, research capacity, regulatory frameworks, biotechnology applications, publications and links.

(Sources: RIS based on *Check Biotech* Aug,11; *Check Biotech*, Oct 7,2005; *Financial Express* Oct 17,2005; 2005; *Crop Biotech* Oct 21,2005; *Check Biotech* Oct 21, 2005; *Business day* Oct 18,2005; *Asian Age*, Sept 16,2005; *Financial Express*, Sept 02,2005; *Financial Express* Oct 20,2005; *ScivDev Net*; *FAO Bio News*)