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IN THIS ISSUE

*Mapping Data Opened to the Public
*International Cooperation between Industry, Universities and Research Institutes
*China-Canada for Sustainable Agriculture
*Helical Conducting Nanofibers
* UTRN a Cancer Prohibiting Gene
*CT for Detecting Sea Floor Earthquake

SPECIAL ISSUE

Mapping Data Opened to the Public

China Geological Survey announced on November 14, 2007 that it will add to the data files open to the public, including some of the geological and geochemical data (1:200,000, 1:250,000, and 1:500,000) it has collected. Up to date, China Geological Survey has opened to the public 12 basic geological databases, including China regional geochemical database (1:200,000 and 1:250,000), China geological spatial database (1:200,000), China geological spatial database (1:250,000), China geological spatial database (1:500,000), China geological map database (1:2,500,000), China geological map database (1:5,000,000), China aeromagnetic database (1:5,000,000), China hydro-geological spatial database (1:6,000,000), China isotope geological age database, China lithostratigraphic unit database, China geological survey extent spatial database, and geological survey deployment spatial database.

According to Chinese laws, these databases shall be accessible to the public. Users can either ask the national geological data library to process the data for them, or handle thedata on their own in a software/hardware environment provided by the library.

INTERNATIONAL COOPERATION

International Cooperation between Industry, Universities and Research Institutes

Peking-Yale Joint Center for Plant Molecular Genetics and Agro-biotechnology inked on November 15, 2007 an accord with Monsanto, the largest plant biotechnology firm in the world, to promote the new development of biotechnology. The event makes a new international cooperation modality between industry, universities and research institutes.

It was reported from a forum set up on November 15, 2007 to promote the dialogue between Peking University and heads of multinationals that Monsanto would initiate a million dollar program to support the center during the period of 2007-2012, through investment, scholarship, and personnel exchange.

According to a briefing, Peking University, Yale University, and Monsanto had started their cooperation 5 years ago by establishing a Monsanto Scholarship, and a Monsanto talents exchange program. Under the program, the undergraduates, postdoctoral students, and researchers of Peking University will have opportunities to be trained at Monsanto, in addition to Peking University sending its doctoral students to study at the Yale University. Up to date, 11 doctoral students of Peking University have been granted with scholarship for studying in the United States.

Jointly established by Peking University and Yale University in 2001, the center mainly works on selected cutting edge areas, including the basics and applications of model plants. The center is jointly operated by the faculties of both universities, with independent study teams and an arrangement for sharing equipment, resources, and expertise.

China-Canada for Sustainable Agriculture

A China-Canada sustainable agriculture center, jointly established by the Canadian Ministry of Agriculture and Agri-Food and Inner Mongolia Agriculture University, was inaugurated on November 12, 2007, at the compound of Inner Mongolia Agriculture University. The University has been working with Canada government and education institutions for a long time with laudable accomplishments. The new center will not only be a promotion to the collaborative study of sustainable agriculture in the two countries, but will also be a platform for sharing the research results in the area. Each year, the

University would dispatch some 80 faculty members to study in Canada, and invite some 60 Canadian experts to lecture or conduct research at the University.

RESEARCH AND DEVELOPMENT

Helical Conducting Nanofibers

Helical conducting nanofibers are useful materials for making optically active devices that can twist the polarization of light. However, it is a challenge to synthesize these fibers in one helical form, that is, either 'left-' or 'right-handed'. WEI Zhixiang and his co-workers at the CAS National Center for Nanoscience and Nanotechnology have overcome this challenge by introducing left-or right-handed impurities into the synthesis.

Researchers added camphorsulfonic acid (CSA), which comes in left- and right-handed forms, to the polymerization of aniline at different molar ratios of CSA to aniline. The addition of left-or right-handed CSA, resulted in the formation of predominantly left-or right-handed nanofibers, respectively. The nanofibers can further self-assemble into rope-like helical bundles. The finding was published in a recent issue of *Advanced Materials*.

UTRN a Cancer Prohibiting Gene

A research team, headed by Prof. LI Yu of Harbin Engineering University Dept. of Life Sciences and Engineering, has confirmed that Utrophin (UTRN) is a cancer prohibiting gene, in a lung cancer related study.

Before this, researchers found that when a UTRN cDNA sequence is introduced, rats' NIH3T3 cells would pick up the speed to multiply for an independent growth. They suspected that UTRN could be a cancer prohibiting gene.

In the new experiment, researchers silenced the UTRN expression in human HEK293 cells, using RNA interference techniques. Together with cell multiplication curves and FITC technique, they found that the silenced HEK293 cells have an accelerated growth, compared with the control group, with an increased number of feet on cells' surface. This implies that silencing UTRN could lead to a malignant mutation of HEK293 cells, which provides evidence showing that UTRN can be a cancer prohibiting candidate.

Anti-bird Flu Gene for Common Chickens

Chinese scientists have successfully made the anti-bird flu gene part of the eukaryotes, and produced the eukaryotes that are resistant to chicken pest. The effort creates a ground for the eventual destroying bird flu viruses in common chickens, using an anti-bird flu gene.

LI Bichun, who leads the study and works for the Yangzhou University, told reporters that he and his coworkers cloned the anti-bird flu genes from the affected chickens, and made them into a gene with bird flu resistance through mutation, before re-transferring the genes into common chickens. This adds up chicken's resistance to the viruses.

The experiment goes through a number of steps, including in vivo cloning, in-vitro mutation, transferring to eukaryotes, resistance test, and re-transferring to chickens. So far the study team has completed the in-vitro experiment, and will soon embark on in vivo one on common chickens.

CT for Detecting Sea Floor Earthquake

Not long ago, Ocean University of China, Jilin University, and Jinhua Zhonghe Environment Technology have jointly rolled out a 'CT' machine that is able to detect the movement of different geological layers. The project has produced 3 utilities and 2 proprietary copyrights.

The sea floor earthquake detector is a proprietary artificial earthquake generator, able to produce an earthquake wave strong enough to penetrate the sea surface, before reaching the preset target on the sea floor. High precision cable collects the echoes, which will then be processed into high resolution and reliable seismic data. The system can reach a depth of 100m, to know the geological formation and layers of shallow sea floors. The system has found applications in a number of feasibility projects, including Hong Kong-Zhuhai-Macao Bridge, and Qingdao Gulf Bridge, and produced basic evidences of sea floor formation, sediment, rocks, and weathered depth for site selection and bridge design.

Major Breakthrough for VRB

A study team, led by ZHANG Huamin, a research fellow of Chinese Academy of Sciences Dalian Institute of Chemical Physics, has produced a 10-kilowatt demonstration system of vanadium redox flow battery for energy storage. The new system has worked for more than 3,000 hours in 130 days without failure, securing a power supply cycle of storing power during the night time, and release power to LED screen during the day time. It has registered an energy efficiency of 87%, without decline.

A vanadium redox flow battery for energy storage is mainly made up of cell module, electrolyte liquid, and an electrolyte storage and transmission system. Comparing with other chemical storage means, VRB enjoys better energy efficiency, a larger volume up to a hundred megawatt, and lower operational and maintenance costs. It has a configuration allowing an independent volume from power, with a flexible design, desirable for scale energy storage.

Virtual Intensive Care Unit

Researchers of Fudan University have recently developed a virtual real time cardiac monitoring system for distant applications. It is a 24-hour monitoring unit for cardiac patients.

The unit is made up of four modules: a real-time cardiac signal collector installed in patients, a GPRS based distant transmission module for collecting real-time data from patients and transmitting doctor's suggestions or advice to patients. The third module is physically located at the automatic monitoring center in the hospital, which is able to take care of 100 patients, automatically analyze electrocardiograms, and screen out abnormalities for doctors. It is also able to transmit written messages such as "you have an abnormal heart beat, please take medicine", or "please take a rest at home". The last part of the system is a GPS module for positioning the patients, through which doctors can quickly spot and find the patient once an emergency occurs.

Distant Cardiac Monitoring System

Shanghai Jiaotong University has recently rolled out a wireless cardiac monitoring system to realize the round-o'clock watch of a number of diseases, including heart disease, diabetes, and hypertension, through the blue tooth technology.

It is a mobile phone like device, equipped with five electrodes connecting to a small box via networking. The small box can be easily attached to one' waist belt. A regular PDA mobile phone can be used to transmit the patient's cardiac data using blue tooth technology. The mobile phone screen, once received the data, would show the patent's cardiac charts in a few minutes.

In an area having a mobile telecommunication coverage, a patient can be connected to the medical center for real-time monitoring and diagnosis through the special 'mobile phone'.

NEWS BRIEFS

New Telemetering Satellite Launched

At 0618, November 12, 2007, China successfully blasted off a telemetering satellite aboard a CZIVC launch vehicle, from the Taiyuan Satellite Launch Center. 21 minutes after lifting off, the satellite entered a preset orbit. With a weight of 2700 kg, the satellite will be mainly used for scientific experiment, land resources survey, crop yield estimation, and disaster prevention and preparedness. It will play a positive role in China's economic development.

Chinese Scientists Honored with Cryosurgery Award

On November 8, 2007, Prof. CAO Peiguo, head of Xiangya No. 3 Hospital Cancer Division under Zhongnan University, was honored with an award conferred by the International Society of Cryosurgery for his outstanding contributions in the area. Prof. CAO has kept a success rate of 3/4 in treating lung cancers using cryosurgery. The event makes CAO the only winner of an international medical award in Hunan Province.
A team of young and middle aged scientists, led by Prof. CAO, introduced the ArHe technique to treat cancers. They made the treatment in line with the following technical course: spotting the diseased part using supersonic B and CT techniques, and then inserting a 2mm ArHe probe into the diseased part. After that, they would start a refrigerating system to force the temperature of the diseased part down to 150℃ below zero, which kills cancerous cells in 15 minutes. The last part of the operation is to start a He system, allowing the temperature to climb up to 20℃, melting the frozen part.

New Drug Resistant Genes Found

XU Xiaoping, deputy head of Shenzhen No. 2 People's Hospital Examination Division, has made the first discovery of two new drug resistant genes in the world. The two new genes have been collected and named by the Genbank.

XU has worked on the drug resistant genes of Acinetobacter, starting from 2005. The three-year efforts has led to the discovery of new OXA genes that are associated with the drug resistance of bacteria. The Genbank has received the DNA sequence of the two genes, and named them OXA-116 and OXA-117 respectively.

Growth of Mandya Yew Accelerated

Thanks to many-year efforts, experts of Nanjing Zhongshan Botanic Garden, part of the Chinese Academy of Sciences, have successfully tripled the growth speed of Mandya Yew. The garden is one of the earliest institutions that have worked on the plant in the country. Researchers embarked on accelerating the growth of Mandya Yew, after the successful extraction of pacilitaxel. They skillfully shortened the growth cycle of Mandya Yew by 1/3, through changing the conditions of temperature, exposure to sunshine, and soil nutrients.

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