

NO.589

CHINA SCIENCE AND TECHNOLOGY

NEWSLETTER

The Ministry of Science and Technology
People's Republic of China

NO.589

July 20, 2010

IN THIS ISSUE

- * IP Management Regulation
 - * China-Europe Energy Conference
 - * WAN Met with French Guests
 - * C-delta Promotes Renal Tubular Cell Apoptosis
 - * Insight on Chocolate Mutation of Silkworms
 - * Submarine Robots with Artificial Mussels
 - * Largest Domestic Data Center
-

SPECIAL ISSUE

IP Management Regulation

Not long ago, four government agencies, including Ministry of Science and Technology, State Development and Reform Commission, Ministry of Finance, and State Intellectual Property Office, jointly promulgated an interim regulation on managing the intellectual properties derived from major earmark projects, in a move to implement the defined IP strategy, raising the level of S&T innovations, protecting innovation results, promoting IP transfer and application, nurturing/developing new strategic industries, and protecting IP rights in addressing major economic and social issues.

The Regulation made the existing laws and policies, including the Law of S&T Advancement, and the Outline of National IP Strategy, part of the efforts to protect the intellectual properties derived from major earmark projects. It covers a range of related contents, including general principles, terms of reference of IP management, managing IPs in implementing major earmark projects, IP ownership and associated protection, and IP transfer/applications.

The Regulation also defines the responsibility, rights, and obligations shared by the management at different levels in a major earmark project. It defines the IP management obligations of the management at different levels, including comprehensive management department, project steering panel, and project implementer. Additionally, it makes IP activities and associated protection part of five-year plan, project application, project review and approval, contracts, process management, and results approval.

INTERNATIONAL COOPERATION

China-Europe Energy Conference



The 6th China-Europe Energy Conference, co-sponsored by the Chinese Ministry of Science and Technology and the EU, was held July 6-7, 2010 in Shanghai. WAN Gang, Chinese Minister of Science and Technology, and Günther Oettinger, EU Energy Commissioner, made their remarks at the opening ceremony. WAN spoke about the deployment made by the Chinese government in developing and diffusion energy efficiency and emission reduction technologies and

associated accomplishments. He thought highly of the energy cooperation between China and the EU, and wished the collaboration would go further and deeper, including strengthening joint basic researches in the area, escalating investment and collaboration in the area of new and high technologies, accelerating the spin-off of energy findings, and facilitating clean energy technology transfer. Oettinger made a positive response to WAN's remarks, saying that he would promote the energy cooperation between China and the EU, and render due contributions to securing the needed energy supply and mitigating the impacts of climate change.

Participants discussed technological and industrial collaborations in three major areas, including renewable energy, intelligent power grid, and clean automobile, based on the topics of adaptation to climate change impacts through energy efficiency and emission reduction, and nurturing new strategic industries in the post financial crisis period. After the conference, European participants visited Chinese businesses in Jiangsu Province.

WAN Met with French Guests

On July 5, 2010, WAN Gang, Chinese Minister of Science and Technology, met with Valéochrie Péochresse, French Minister of Higher Education and Research, and her party, including Dr. Bernard Debré, a member of French Parliament and urologist. WAN briefed French guests of S&T cooperation activities between the two countries since the reform and opening up campaign. He mentioned, in particular, the celebration of 30th anniversary of signing an S&T accord between the two countries in 2008. WAN wished that both countries would strengthen the collaborations in the areas of water resources management, electric automobiles, space and aeronautics, health, biotechnology, information, and materials. WAN also expressed his appreciations to Dr. Bernard Debré, for his voluntary service for treating the children in the poverty-stricken area in Jiangxi Province.

Two ministers also made an in-depth discussion of the progresses achieved on ITER, in addition to a range of other issues, including responding to financial crisis using S&T means, industrial R&D expenditures, reform of universities, technology transfer, genetically engineered foods, S&T activities in the area of agriculture, intellectual property protection, and diseases prevention and control.

More Funds for Information Study

According to a Memorandum of Understanding jointly signed by the Chinese National Natural Science Foundation and the Royal Society of Edinburgh, the two signatory parties will jointly finance the exchanges of research personnel based on the joint research projects between China and Scotland area.

The Royal Society of Edinburgh will provide a financing package up to 6,000 pounds to a joint

research project on an annual basis, mainly as Chinese researchers' living expense in the UK and British researchers' airfare to China. Chinese National Natural Science Foundation will finance Chinese researchers' international airfare to the UK, and British researchers' living expense in China. In 2011, both sides will finance the projects in the area of information science.

The exchange project has started to take applications, with October 8, 2010 as the deadline. The application shall be submitted to National Natural Science Foundation West Europe Division. The results will be published online at the end of December 2010.

RESEARCH AND DEVELOPMENT

C-delta Promotes Renal Tubular Cell Apoptosis

A study team, led by Li Xiaoning at Wuhan University Zhongnan Hospital, found that the raised expression of C-delta in proteinuria makes a killer that induces renal tubular cell apoptosis, which means prohibiting the expression of C-delta in animals' kidney will be able to fence off the injury to renal tubular cells. The finding was published in the July 1, 2010 issue of *Journal of the American Society of Nephrology*.

Researchers found that proteinuria is able to induce renal tubular cell apoptosis both in vivo and in-vitro, and sorted out the incidences showing the early and advanced renal tubular cell apoptosis, which confirmed the direct toxicity of albumin on renal tubular cells at the cellular, sub-cellular, DNA, and protein levels. Researchers also found that the raised expression of C-delta in proteinuria would promote albumin to induce renal tubular cell apoptosis, suggesting that C-delta is a killer by inducing renal tubular cell apoptosis. LI and her team also worked out a successful approach to inhibit the proteinuria-induced renal tubular injury using chemicals and gene transfection. It is believed that the finding creates a new drug target for treating kidney diseases.

Insight on Chocolate Mutation of Silkworms

Not long ago, Chinese scientists at Southwest University Institute of Sericulture and System Biology reported their findings on the chocolate mutation of silkworms in the recent issue of *PNAS*, which provides an important insight for people to understand the insect's pigmentation patterning.

With the support of National 973 Program, LIU Chun and coworkers, in collaboration with Japanese scientists, made a chain analysis of chocolate mutation of silkworms, based on the findings on domesticated silkworm genome and through positional cloning. Researchers found

that the mutation was caused by the mutation of tyrosine hydroxylase DNA (BmTh). Researchers observed a drastic reduction of BmTh expression in the study. Use of RNAi with BmTh prevented pigmentation and hatching, and feeding of a tyrosine hydroxylase inhibitor also suppressed larval pigmentation in the wild-type strain. Apparently, the reduced expression of BmTh makes a direct cause for the chocolate mutation of silkworms. Additionally, the excessively reduced expression would make the mutants fail to hatch.

Artificial Corneal Endothelium

FAN Tingjun and coworkers at Ocean University of China School of Marine Life started to work on artificial corneal endothelium in the early 2002. Researchers cultured cornea seed cells under an appropriate temperature using amnion as the rack. They began to transplant the artificial cornea in rabbits, cats, and macaques from the end of 2008. As of July 8, 2010, the implanted artificial corneal endothelium has kept New Zealand rabbit's cornea transparent for 391 days, domesticated cats for 209 days, and macaques for 119 days.

The cornea lab, in collaboration with Qingdao Yuming Biotechnology, has completed the construction of a class III medical instrument workshop, with a permit to produce class III implants and artificial organs. The lab has also worked with Qingdao Zhonghao Bioengineering to develop a full artificial cornea. So far they have recombined corneal endothelium. Researchers plan to roll out a full artificial cornea and complete the needed animal tests in three or five years.

Submarine Robots with Artificial Mussels

A research team, headed by Prof. GUO Shuxiang at Harbin Engineering University, mastered the core technology to build a mini submarine robot in 2008. The robot is equipped with artificial mussels able to converse electric energy to mechanic energy, allowing being driven at a low voltage. Able to turn around and swing, the artificial mussel enjoys numerous merits, including tiny size, low cost, noise free, and electromagnetic interference free. The bionic robots can be employed to detect water pollution, clean narrow pipes, collect underwater data, and assist clinical operations. They can also be employed as a team to work on different tasks.

Visitors saw some submarine bionic robots with a length no more than 10cm at a Harbin Engineering University lab. They were named bionic fish, bionic crab, and bionic jelly fish. They can turn around, retreat, climb, grasp, float, and submerge on their own, or under remote control, like a real aquatic creature. In a demonstration, researchers placed a bionic fish into an aquatic tank. It wagged its tail and started to swim under the remote control. A bionic crab walked horizontally on eight legs like a real crab on the floor of the aquatic tank. It grasped a moving creature using its legs, and floated to the water surface, before loosening its grip at a designated area.

Enhanced Global Change Study

A major national research program was kicked off to study global change on July 9, 2010 in Beijing. WAN Gang, Vice-Chairman of Chinese People's Political Consultative Conference and Chinese Minister of Science and Technology and other senior leaders attended the event, at which 19 major projects were launched, including a study of the typical warming periods in the past 2000 years and associated impacts, climate environment change in China since the last glacial period and its impacts on human population in the arid and semi-arid areas, Southern Ocean-Indian Ocean ocean-atmosphere process and its impacts on East Asia and global climate change, and impacts of climate change on China's food production system and associated adaptation. According to a briefing, the new global change study initiative will build up China's adaptability to global climate change, raising China's influence in the area, enhancing China's strength in studying global change, providing scientific evidences for securing a sustainable socioeconomic development, and rendering consultation and suggestions for China being part of international climate change talks and environment diplomacy.

Largest Domestic Data Center

Runze International Information Port, the largest data center park in the country, was inaugurated at the National Sustainable Development Experimental Park in Langfang, Hebei Province. Occupying an area of 2010 mu (1 mu= 0.0667 hectare), the new park plans to build 2.62 million square meters of structures, mainly for housing G4 internet data storage and cloud computing centers. The park will be divided into 6 major sections: computer section, value-added service, industrial innovation, administrative service, project R&D, and functional service. Phase I project will be completed and put into operation in May 2011.

The Runze International Information Port will mainly work on data center service, including internet data center, cloud computing, and the internet of things, making itself a world class and a top domestic data storage depot. It will also serve as a data backup center for government agencies and institutions, providing value added information service and high tech incubation. Meanwhile, the data center giant will built itself into a well functioned service center with beautiful environment and applicable facilities on 660,000 square meters of floor space, accommodating the work and living needs of personnel working at the park.

Comments or inquiries on editorial matters or Newsletter content should be directed to:

Department of International Cooperation, MOST 15B, Fuxing Road , Beijing 100862,
PR China E-mail:hzs_dyzdc@most.gov.cn Fax: (8610) 58881364

<http://www.most.gov.cn>