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IN THIS ISSUE

* China-US Cooperation in Health
* China-Denmark Cooperation in Traditional Medicine
* China-Japan CDM Workshop
* Progresses for Functional Genomes and Biochips
* China Works on New Space Launch Vehicles

INTERNATIONAL COOPERATION

China-US Cooperation in Health

XU Guanhua, Chinese Minister of Science and Technology and head of the Chinese S&T delegation, renewed on April 2006 a protocol on cooperation in the field of science and technology between PRC and USA,

with his US counterpart at the White House Office of Science and Technology Policy. During his stay, XU also signed a cooperation accord for health and medicine with the United States Department of Health and Human Services. The accord makes cooperation in traditional Chinese medicine an agenda item for the joint S&T committee meeting to be held between the two nations, and a priority area to be initiated under the cooperation agreement for health and medicine. In the meantime, the Department of Social Development, a part of the Ministry of Science and Technology, and NIH National Center for Complementary and Alternative Medicine jointly inked a letter of intention for traditional Chinese medicine and complementary and alternative medicine. The letter of intention is the result of numerous visits, talks, and written exchanges between officials of the Department of Social Development, the United States Department of Health and Human Services, and NIH National Center for Complementary and Alternative Medicine, with the support of the Chinese Ministry of Science and Technology. At the signing ceremony, both sides thought highly of the letter of intention, a new page in S&T cooperation between the two nations, and a historical step marking traditional Chinese medicine into the mainstream western society and international academic communities.

A seminar on traditional Chinese medicine and cancer research, the first of its kind jointly sponsored by NIH National Cancer Institute and its Chinese counterpart, was held in Washington DC before the signing ceremony. Some 40 Chinese experts, and more than 100 experts and professors from renowned US universities and institutes, including Harvard University, Yale University, Memorial Sloan-Kettering Cancer Center, and Anderson Cancer Center, attended the meeting.

China-Denmark Cooperation in Traditional Medicine

On May 11, 2006, a signing ceremony was held to

forge a cooperative tie between China Biotechnology Development Center, a part of the Chinese Ministry of Science and Technology, and the Denmark National Traditional Medicine Group, to work on the modern development of traditional Chinese medicines. CHENG Jinpei, Chinese Vice-Minister of Science and Technology, and Ms. Connie Hedegaard, Danish Minister for Environment made their respective speech at the event.

The cooperation agreement, an initiative defined by a general accord singed in 1985 between China and Denmark on S&T cooperation, will lead to extended S&T cooperation and exchanges between universities, research institutes, hospitals, and pharmaceuticals of the two nations, especially in facilitating the modernization and internationalization of traditional Chinese medicines. The agreement has listed quite a number of cooperation and exchanges items, including clinical and basic studies, attestation of traditional Chinese medicine at the EU, patent protection and marketing, commercial cooperation in the field of traditional Chinese medicines, and exchanges of researchers and university students between the two nations.

CHENG, Chinese Vice-Minister of Science and Technology, said in his speech that the Chinese Ministry of Science and Technology has made the international R&D program for traditional medicines an official initiative this year, where the 11th Five-year plan(2006-2010) for science and technology begins. The agreement will become an important component of a memorandum of understanding to be signed between the two nations later this year for cooperation on traditional medicines.

Ms. Connie Hedegaard, Danish Minister for Environment, briefed the audience of the latest development in traditional medicines in Denmark. She thought highly of the important role played by traditional Chinese medicine in protecting people's health for several thousand years. She said Denmark

would collaborate with the Chinese government to introduce traditional Chinese medicines into the European market.

The signing of the agreement marks a new cooperation area created between the two nations, and heralds a new important partner for modernization and internationalization of traditional Chinese medicines. The effort will help China go further in modernizing its traditional medicines under an internationalized background.

China-Japan CDM Workshop

Not long ago, a China-Japan workshop on CDM capacity building, jointly sponsored by the Global Environment Office, a part of the Chinese Ministry of Science and Technology, the Japanese Ministry of Economy, Trade and Industry, Shandong Provincial Department of Science and Technology, and the Japan New Energy and Industrial Technology Development Organization (NEDO), was held in Jinan, Shandong.

At the meeting, officials from sponsoring organizations, and the Shandong Normal University made opening speeches. LU Xuedu, Deputy Director, the Global Environment Office, GAO Guangsheng, Director, National Climate Office, SU Wei, Deputy Director, Department of Treaty and Law, Chinese Ministry of Foreign Affairs, and the representative from NEDO gave talks on a range of related topics, including the latest development of CDM, China's regulatory and procedural issues for CDM, international talks on climate change and China's position, and NEDO's emission scenarios. Dr. PENG Sizheng, from the China Agenda 21 Management Center, briefed the audiences of the framework, objectives, concrete activities, and outputs of China-Japan CDM capacity building project in Shandong.

Some 120 representatives from involving institutes in 16 cities of Shandong Province, including Shandong University, the Institute of Energy, a part of Shandong Provincial Academy of Sciences, Research Institute of

Jinan Municipal Environment and Sanitation Bureau, and enterprises practicing CDM mechanism, attended the meeting. Dazhong Daily, and Qilu Evening News covered the story of the workshop. The meeting and associated launch event has made more government agencies, enterprises and the public aware of the CDM campaign in the province, which in turn becomes a big push for the implementation of the project.

Following the launch event, a second training course for CDM capacity building opened, at which CDM service agencies from Ningxia and Hebei shared their experience with audiences, and representative from Shandong CDM Technology Service Center reported the progresses so far achieved in the implementation of the project. Experts from DNV and Japanese firms made talks on CDM project mining and PDD development, and judging the quality of CDM projects. Prof. WEI Zhihong of Tsinghua University made a detailed explanation and review of PIN and PDD documents completed by the Shandong team. In the meantime, Shandong team had a thorough discussion of technical problems encountered in PIN and PDD survey, preparing, and compiling, and found answers involving PIN and PDD procedures from experts at the meeting.

RESEARCH AND DEVELOPMENT

Progresses for Functional Genomes and Biochips

Functional genome and biochips, a major special project, has identified and cloned 676 new human genes, and 278 genes bearing a defined function in diagnosing major human diseases, including 126 physiological genes, 57 liver cancer related genes, 49 genes involving hypertension, coronary artery disease, and diabetes, 27 new genes concerning cardiovascular diseases and blood sugar, and 19 functional genes regulating cardiovascular health and blood sugar. Researchers also screened out 56 functional genes of major application perspectives, and 17 potential drug

targets. The project is granted with second prize of the national natural science award. In addition, researchers sorted out 15 precursor composites for cancer killing, and discovered 6 genes and associated therapeutic techniques for treating schizophrenia, leukemia, cataract, brachydactyly, and asthma. The efforts have also led to multiple gene based new diagnostic techniques.

China's SNP study has produced internationally advanced results, with extremely high quality data for No. 21 chromosome. China also expanded its involvement from 1% workload of the human genome sequencing in the past to the current 10%.

China Works on New Space Launch Vehicles

China will phase out the development of its space launch vehicles in three steps, said WU Yansheng, President of China Academy of Launch Vehicle Technology, at a forum named "Innovative Beijing", co-sponsored by both social and natural scientists on May 17, 2006. According to WU, the three steps will be: 1) improving the existing non-returnable launch vehicles, in an effort to meet payload launch needs of both domestic and international clients; 2) accelerating the development of new generation toxicity and pollution free launch vehicles, and completing the upgrading of non-returnable launch vehicles; and 3) developing proprietary new space launch vehicles, in an attempt to meet China's strategic needs for space activities, and enhancing China's comprehensive strength in the area.

Both N_2O_4 and UDMH, propellants used in the CZ-series carrier rockets, are toxicant liquids that have to be burned and evaporated in upper air to reduce their contamination. If liquid oxygen, kerosene, or liquid hydrogen can be used as the propellants, the terminal product of burning will only be toxicity and pollution free water. Considering the current requirements for safety and reliability, the existing fuel gases will continue to be used in launching the Shenzhou 7 spacecraft, though the new fuel materials have entered

experimental phases. WU said China would develop new space launch vehicles, in an attempt to realize the future objectives of space probes.

Rabies Vaccines for Human

The Chengda rabies vaccines, developed by the Liaoning Chengda Biotechnology Co. Ltd., has recently been granted for an extended valid term up to 1.5 years, which makes it a human rabies vaccine with the longest effect.

Using a range of internationally advanced manufacturing techniques, including bioreactor based high density mini cell culturing technology, suspension filling technique, and an fully automatic, closed and pipeline-based work process, the company produces high-titer antigens of long lasting stability, taking advantage of the fine strains recommended by WHO. The internationally advanced high purification system is able to eliminate unneeded proteins and DNA, which results in a terminal product qualified for both long effect and fine safety. The Chengda vaccine has an effect higher than 4.5IU per injection, much higher than the national standard. Stability tests show that a Chengda injection of 4.5IU is able to produce an effect of 2.5IU or above, after an interval of 4 weeks at a temperature of 37℃, or 2.8IU or higher, after an interval of 19 months at a temperature of 4℃. As a result, the Chengda rabies vaccine is allowed to extend its valid effect term to 1.5 years.

Submillimeter Celestial Signals Detected

Purple Mount. Observatory, a part of the Chinese Academy of Sciences, has successfully received celestial signals at the submillimeter level, during a trial observation made at the Delingha station in Qinghai Province, using POST. The event makes the first instance for China receiving such signals.

According to a briefing, submillimeter wavelength sits between infrared and microwave, and is one of the electromagnetic waves applied lately. Enjoying

numerous applicable features, including short wave, fine directionality, and strong interactiveness with other matters, submillimeter wave can be used to observe the deeper universe that has rarely been touched before, in an attempt to understand the genesis and evolution of celestial bodies, and what happened there.

The submillimeter technology also has extensive application perspectives in other areas, including atmospheric research, and environmental watch. The technology can benefit the development of modern telecommunication, as it is of a frequency much higher than the one used by mobile telecommunication.

The event capturing 650-micron celestial signals using POST heralds a new breakthrough in China's astronomic technology and related observations at the submillimeter level, making China in line with its international counterparts in the same area.

Windbreak for Large Crane

ZHANG Zhancheng, a senior engineer who has long worked on windbreaks for large cranes at Tianjin Tanggu Lianfa S&T Co. Ltd., invented a self-lock windbreak system, using the design principle of friction break.

Thanks to 6-year development, tests, and trial applications, the new windbreak system has entered actual applications. Under a windless weather, the eccentric wheel would produce an initial friction under the initial pressure, which makes the windbreak in a stand-by status. When winds blow up, the eccentric wheel would strike a break on the rail surface, with a force corresponding to the wind force. Under the PLC control, an operator can automatically release or lock the break, when moving to a new working site. The system is so designed that it can independently resist the attack of large winds at 35m/s, in case all other security systems fail. The new windbreak system enjoys less investment, with lower operation and shipping costs and unrestricted space for installation,

compared with other windbreak systems, It calls for no change to other equipment, and is desirable for both upgrading the existing cranes or installing the new ones.

Largest Domestic Nuclear Generator in Grid

Tianwan nuclear power plant, the largest single volume generator, was successfully made part of the power grid on May 12, 2006. Grid tests have shown a perfect design match of all technical indicators presented by the nuclear power generator.

Tianwan nuclear power plant is one of major projects initiated in the 9th Five-year period(1996-2000), and a largest joint venture established by China and Russia. The power plant has achieved numerous technical innovations and improvements, including a dual-level safe dome structure, a completely detached and insulated four-channel security system, additional heap melts captors, and a full digital control system. Its safety control design proves better than most pressurized water reactors in operation in the world, with some of its indicators reaching or approaching the level of the third generation nuclear generators.

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