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IN THIS ISSUE

*8.8 Billion for Food & Drug Control
* 3 Billion for Olympic Science Action
*New Progresses for Liver Cancer Pathogenesis
*Langchao Server Breaks World Record
*Ground Simulation for Large Aircraft
*Largest Domestic Database for Coronary Disease

SPECIAL ISSUES

8.8 Billion for Food & Drug Control

Chinese State Food and Drug Administration announced on August 8, 2007 that it will invest RMB 8.8 billion to support a range of infrastructure projects relating to food and drug control. Of the said money, RMB 6.3 billion will come from the state treasury, and RMB 2.5 billion from local authorities. The initiative has set up the following goals: in a period of 3-5 years, striving to make the national food and drug control infrastructures equipped with internationally advanced technologies, in line with the economic and social development. Local food and drug control system shall be made in a position to fulfill its given obligations. The project will work on infrastructures in the following six areas:

1) National Institute for the Control of Pharmaceutical and Biological Products: drug test building, bioproducts text building, biosecurity building, biodiagnostic agents building, animal center, operation building, information building, S&T building, and strain rooms.
2) National Institute for Imported Drug Control: State Food and Drug Administration will designate National Institute for the Control of Pharmaceutical and Biological Products and 16 local drug test institutes to be the agencies responsible for testing imported drugs.
3) National Medical Instruments Test Center: the central government will establish ten medical instruments quality control centers, responsible for the quality control of different medical instruments.
4) National Adverse Drug Reaction Test System: establish a national test center for adverse drug reactions, and 31 sub-centers, and establish an online information system for monitoring adverse drug reactions and drug abuse, which will be connected to the national center and 31 sub-centers.
5) Food and drug control infrastructures and associated transformation in the west part of the country;
6) Food and drug control infrastructures and associated transformation in the middle part of the country.

3 Billion for Olympic Science Action

China has invested some RMB 3.17 billion in supporting the S&T action for the Beijing Olympic Game in 2008, said QIN Yong, Deputy Director of MOST Development and Planning, at the one-year countdown for the Game.

The S&T action has staged ten major projects, covering intelligent traffic system for the Beijing area, and electric automobile demonstration, research, and development. Under the ten frameworks, there are 167 sub-projects and 249 research topics, with a total budget worth RMB 1.862 billion.

To support an S&T Olympic Game, MOST has established a special project in a national key projects program for the purpose, focusing on five major areas: technical support and service for game events and large activities, infrastructure construction, sports activities aiming at gold medals, and urban construction, under 85 research topics, and with an investment worth RMB 1.04 billion.
In the area of international cooperation, China has established collaborations with EU, the US, Australia, and IOC, in addition to China-EU Working Group for Digital Olympic Game, and some 100 collaborating projects under the framework. China has initiated cooperation with USDOE on natural gas utilization, distributive power sources, and green Olympic resources planning. China also staged 12 collaborating projects with Australia on food safety, medical care, and meteorology.

RESEARCH AND DEVELOPMENT

New Progresses for Liver Cancer Pathogenesis

A research team, led by Prof. WANG Fusheng with No. 302 PLA Hospital Institute of Infectious Diseases, has found for the first time in the world that the increased number of regulating T cells in liver cancer patients may result in the injury of CD8T lymphocytes and a shortened survival time. The finding was published in a recent issue of journal *Gastroenterology*.

Researchers in the team have worked closely with clinical cases, conducting an in-depth study of 123 patients having both chronic hepatitis B and liver cancer. A comparison between 21 hepatocirrhosis patients and 47 healthy subjects showed that regulating T cells had an abnormal increase in liver cancer patients by 2 to 10 times that of healthy subjects, and 1.5 times that of hepatocirrhosis patients. The increase of regulating T cells would further go up, along with the advancement of liver cancer. Statistical analysis also showed that the increased number of regulating T cells can noticeably affect the survival time of liver cancer patients. Further clinical experiments confirmed the fact that the abnormally increased regulating T cells have a direct contact with CD8T lymphocytes, which deprived CD8T of its tumor fighting function by injuring, allowing malignant multiplications of liver cancer cells.

The finding has not only elaborated the key role played by T cells in immune pathogenesis, but also found that regulating T cells can be used as a clinical indicator for evaluating the advancement of the disease. It creates a new approach for immune therapy of liver cancer.

Langchao Server Breaks World Record

Not long ago, SPEC published the test results of Chinese made four-core server. Developed by Langchao Group, the double-circuit four-core server is able to process 1538 acts per second, which updated the top record registered by HP server in the past eight months.

The new server has doubled the unit performance. Equipped with a four-core information system, the new system enjoys a reduced power consumption by 50%, in addition to a reduced cost of 40%. The new technology means users can buy one four-core serve for the utility of two double-core servers, with a greatly reduced maintenance and management costs. The home made four-core server will help China to reduce its investment and application costs of information system, promoting the information process in the country. According to a briefing, this is third time that Langchao server has updated the world record registered by SPEC.

Ground Simulation for Large Aircraft

Thanks to their several-year efforts, researchers at China Aerodynamic R&D Center rolled out on August 7, 2007 a 8m x 6m wind-tunnel, the largest low-speed vortex simulator in Asia. The wind-tunnel has easily passed all required technical tests.

The Center started to work on the 8m x 6m wind-tunnel and associated supporting equipment and technologies in 2003. Several-year efforts have allowed researchers to find solutions to needed key technologies, including unit intake jet flow, and high accuracy flow control. Researchers also worked out an array of test equipment, including an integrated air-bridge-balance system, digital valve, and flow control unit, which accelerated the development of China' s simulating and test techniques. In the test run of August 7, 2007, the top unit speed reached 63000 rounds per minute, with the accuracy of air-bridge and balance system, air supply system, and rotation control all reaching an advanced level, fully up to the requirements of test.

The event has made China the third country in the world possessing the simulating technologies, following the US and EU. It provides a powerful technical support for enhancing China' s low speed wind-tunnel experiment capability, and for the R&D of large aircraft.

Largest Gait Database

Video based human movement and behavior analysis, a project undertaken by the Institute of Automation, part of the Chinese Academy of Sciences, has recently passed an approval review. As a result derived from international cooperation and exchanges, the project has established the world largest multi-angle gait image database. The system has bee used by 119 clients in 27 countries.

Started from 2004, the project has learnt a lot from international cooperation and exchanges about target detection, analysis of human behavior, and interpretation of video contents. With the help of internationally advanced technologies, including video database, target detecting and tracking, sports video analysis and search, and numerical human gait modeling, researchers have worked out solutions to key technical difficulties, and proposed unique theories, methodologies, and core technologies. Meanwhile, they published some 60 papers in SCI, EI, and at major international seminars, of which 5 in IEEE Trans, 3 in ACM Multimedia, in addition to 5 patents.

The proprietary intelligent monitoring system has been installed in Beijing tube line 13, and in a residential community in Wuhan as well. As a powerful utility for urban security, the national security authorities has made it a demonstration application.

NEWS BRIEFS

Large Grid Control System

A research team, led by HAO Yushan and membered with scientists from Baoding Sanchuan Electricity Ltd. and North China Electricity University, has been working on a real-time power system monitoring system since 1990. The team has landed theoretical breakthroughs in real-time monitoring of the stability of power grids, through establishing a mathematical model for the purpose. The monitoring system can realize a stability control when detecting an instability, avoiding extensive power outage.

The technology has been granted with patents both at home and abroad. After viewing the simulation experiments and field tests of IEEE4 system, experts reached an conclusion that the project has achieved substantive progresses in both theory and practice. At present, the set equipment and associated software have been installed and tested in Inner Mongolia, with two stability control units passing the field test, and seven others in the process of installation. The entire system expects to be put into operation at the end of 2007.

Largest Domestic Database for Coronary Disease

Not long ago, Beijing Anzhen Hospital has established a largest MRI coronary database in the country. The hospital is also proud of its highest CT screenings for coronary heart disease.

According to a briefing, the hospital started to work on MRI based coronary heart disease investigation in 2000, mainly working on morphology, functions, cardiac irrigation, cardiac activity, and coronary artery imaging. The effort has provided a no-wound imaging experience for diagnosing, treating, and evaluating the disease. The 7-year clinical practice and studies have led to the establishment of a largest clinical MRI coronary database (3718 cases). While

creating a foundation for the further in-depth study of coronary heart disease, the hospital has also published an MRI guidance for diagnosis of coronary heart disease.

Since importing the nation' s first 64-slice CT in 2005, the hospital has completed CT screening for some 20,0000 patients, of whom 11,000 are coronary patients or suspects, the largest number of patients screened for the purpose. The effort has led to a collection of rich and reliable clinical data for imaging based diagnosis of cardiovascular diseases.

B/S Multimedia System

Application and demonstration of home made software based B/S multimedia system, a project listed under the national program for S&T key projects in the 10th five-year period, has recently passed an approval check at the Xi' an Jiaotong University. Led by Xi' an Jiaotong University, the project was implemented with the support from Beijing University of Posts and Telecommunications and Southeast University.

Based on some 2-year concerted efforts, researchers have designed and validated Linux+NC based online education solutions for low cost and practical applications. They also rolled out an integrated, standardized, practical, reliable, and low cost online teaching system for primary and middle schools, established a "blue-sky" basic education resources sharing platform, and consolidated teaching assets of 32-GB. Also derived from the project are four national invention patents, 6 copyrights, one standard proposal, and screening of 28 home made software for basic education.

Industrial Application of Coalbed Gas Liquefaction

August 9, 2007 is a good day for CAS Technical Institute of Physics and Chemistry, Beijing Zancheng International Investment Ltd., and Shanxi Yangquan Coal Group. Three parties celebrated the successful development of an industrial unit for separating and liquefying coalbed gas.

In 2003, an R&D team, headed by YANG Kejian, CAS Technical Institute of Physics and Chemistry, separated and liquefied coalbed gas in lab, in collaboration with Beijing Zhancheng International Investment Ltd. In 2005, two parities started to work on an industrial application of separating and liquefying coalbed gas, in collaboration with a new partner Shanxi Yangquan Coal Group. Half a year later, three parties successfully rolled out an experimental unit with a daily capacity of 43 million cubic meters. Liquefied methane flowed out of the unit on August 7, 2007, becoming the world first industrial application of coalbed gas separation and liquefaction.

Multi-core Router

Chengdu Maipu Group has recently made the debut of the world first multi-core router with an open coding system. Experts said that the MP7500 router has integrated a number of the state-of-the-art technologies, including ATCA, PCIE, and four-core processor, with a range of innovations. Equipped with internationally advanced technologies, MP7500 has realized technological innovations of ATCA and multi-core operating system, and made itself the world first standard multi-core router with an open coding system.

Comments or inquiries on editorial matters or Newsletter content should be directed to:
Mr. Mao Zhongying, Department of International Cooperation, MOST
15B, Fuxing Road Beijing 100862, PR China Tel: (8610)58881360
Fax: (8610) 58881364
http://www.most.gov.cn