

N0.574

CHINA SCIENCE AND TECHNOLOGY

# NEWSLETTER

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

N0.574

February 20, 2010

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## SPECIAL ISSUES

### Small Business Loan Project Assessed

Not long ago, the Chinese Ministry of Science and Technology and China Banking Regulatory Commission jointly launched a one-year initiative to assess the loans to be granted to small and medium tech businesses.

It is stipulated that when screening small and medium tech business candidate for a loan project, banking institutions need to consult S&T specialists from an expert database designed for the purpose. S&T specialists are supposed to provide consultation services for

banking institutions, using their knowledge in the required fields, and provide scientific, rational, fair, and objective judgment. They shall also observe the confidentiality for the consultation services provided. Local S&T authorities may add new specialists to the database upon the needs of local industrial development.

Both the Ministry of Science and Technology and China Banking Regulatory Commission have authorized the China Banking Association to work on the details of providing the required services. The Association will soon distribute a user manual to the member institutions. Up to date, the two organizations have made some 1000 specialists available for the database.

## Banking Service for Tech Businesses

Beijing Municipal S&T Committee inked on February 8, 2010 an accord with Bank of Beijing to finance the development of biopharmaceuticals in the city. Bank of Beijing will secure RMB 20 billion worth credit for the businesses or major S&T projects supported by Beijing Municipal S&T Committee. Of the credit, RMB 5 billion will go directly to biopharmaceuticals. At the signing ceremony, Bank of Beijing approved a loan worth RMB 96 million to four pharmaceutical companies, including Yiling Pharmaceuticals, Yuekang Pharmaceuticals, Pharmaron (Beijing), and Kangchen Pharmaceuticals.

In recent years, Beijing Municipal S&T Committee and Bank of Beijing have jointly established a number of special banking branches to support small and medium tech businesses, providing dedicated services for them. At the end of 2009, Bank of Beijing has made loans worth RMB 40 billion to more than 1,000 tech businesses in the Beijing area.

INTERNATIONAL COOPERATION

## Fat Switch Found

A study, headed by LIU Yong at the Institute for Nutritional Sciences under Shanghai Institutes for Biological Sciences, in collaboration with the scientists from UT Southwestern Medical Center, has successfully established a special rat model using the knock-in technique. Researchers generated a knock-in line of mice (Y985F) expressing a mutant Ob-Rb with a phenylalanine substitution for Tyr985. Study found that whereas young homozygous Y985F animals were slightly leaner when 15 weeks old, they exhibited apparent age-dependent and diet-induced deterioration of energy balance paralleled with pronounced leptin resistance when reaching 40 weeks. The rats were extremely sensitive to excessive nutrients intake, and would quickly gain weight under a high-fat diet. Meanwhile, they registered a prominently elevated expression of hypothalamic SOCS3, a

key negative regulator of leptin signaling. Researchers believe that these results have unmasked distinct binary roles for Try985-mediated signaling in energy metabolism, acting as an age/diet-dependent regulatory switch to counteract age-associated or diet-induced obesity.

The study, financed by the Chinese Ministry of Science and Technology, National Natural Science Foundation, Shanghai Municipal S&T Committee, and the Chinese Academy of Sciences, reported its findings in the recent online issue of *Molecular and Cellular Biology*.

## Prion Hypothesis Confirmed

Not long ago, a study team, led by Prof. MA Jiyan at East China Normal University School of Life Science in Shanghai, in collaboration with WANG Fei and WANG Xinhe from Ohio State University, created a recombinant prion with the hallmarks of the pathogenic PrP isoform: aggregated, protease-resistant, and self-perpetuating, using recombinant murine PrP purified from *Escherichia coli*. After intracerebral injection of the recombinant prion, wild-type mice developed neurological signs and reached the terminal stage of disease, confirming that these mice succumbed to prion disease. The finding was published in the recent online issue of journal *Science*.

## New China-Japan Joint S&T Meeting



The 13<sup>th</sup> China-Japan Joint S&T Commission meeting was held February 3-4, 2010 in

Beijing. As a follow up event to the consensus reached at a summit meeting between the two countries in 2008, the meeting was for the first time held at a raised level, with a new topic on industrial innovation collaborations. A Chinese delegation, headed by CAO Jianlin, Chinese Vice-Minister of Science and Technology, attended the meeting. Both sides shared the latest S&T policy developments in their respective countries, exploring the possibility of expanding and deepening S&T cooperation between the two countries. The meeting was a complete success.

## China-Japan S&T Cooperation Forum



An S&T cooperation forum, co-sponsored by the Chinese Ministry of Science and Technology, the Ministry of Foreign Affairs of Japan, and the Ministry of Education, Culture, Sports, Science and Technology, was held February 4, 2010 in Beijing, in an attempt to expand and deepen S&T cooperation between the two countries. Under a theme of innovation and cooperation, participants had an in-depth discussion of a range of topics concerning R&D collaborations featured with supplementing each other with their respective strength and reciprocal benefits, and government support to such collaborations. Some 200 participants, including CAO Jianlin, Chinese Vice-Minister of Science and Technology, senior officials from the Ministry of Foreign Affairs of Japan and the Ministry of Education, Culture, Sports, Science and Technology, and representatives from more than 100 Chinese and Japanese enterprises, were present at the event.

## Acetylation Regulating Cellular Metabolism

Cells are the most basic units in human body, and cells fulfill sophisticated regulation and signal passing functions mainly through proteins, before working on the proteins, a posttranslational modification is needed. A research team, led by ZHAO Shimin and LEI Qunying at Fudan University School of Life Sciences, found that protein lysine acetylation has emerged as a key posttranslational modification in cellular regulation, in particular through the modification of histones and nuclear transcription regulators. Researchers also found that lysine acetylation is a prevalent modification in enzymes that catalyze intermediate metabolism. The findings of the two papers written by Chinese scientists, published in the February 19, 2009 issue of journal *Science*, provides new insight for developing new drugs for metabolism related diseases, including liver diseases and cancers.

## Water Collection Fiber

Researchers at the Chinese Academy of Sciences and Beijing University of Aeronautics and Astronautics said that they have found a unique structure built in spider silk that is able collect morning dew, based on both optical and electronic microscope observations. Researchers said the water-collecting ability of spider capture silk is the result of a unique fiber structure that forms after wetting, with the 'wet-rebuilt' fibers characterized by periodic spindle-knots made of random nanofibrils and separated by joints made of aligned nanofibrils. The finding was published in the recent issue of journal *Nature*.

Researchers have rolled out the water-collecting fiber based on the unique structure discovered. Tests show that the novel material, when in a foggy environment, is able to turn water vapor in the air into dew on the surface of the material. It is believed that the restructured fibers will eventually become a promising material to collect water from the air, or to be applied in industrial filtering activities.

## Advanced Residue Removing Technique

A study team, led by Prof. YUE Tianli with Food Science and Engineering School, part of Northwest Agriculture & Forestry University, developed an approach to remove organic pesticide residues in apples, using an ultrasound technique. The finding, published in the recent issue of *Agricultural Engineering*, shows that the apples so treated would keep a quality up to the national standard for export.

YUE and coworkers developed a safe and effective ultrasound technique to remove organic chlorine residues in apples. Study shows that the technique is able to remove 59.24% of the chlorine residues in the apple under a given temperature and duration. Researchers also evaluated the quality of the apple treated with the technique, and found that the treated apple would have an affected total sugar and total acid, though remain in the range of national standard for export.

## NEWS BRIEFS

### Top Ten S&T Progresses in 2009

Top ten S&T progresses in 2009, selected by 563 Chinese Academy of Sciences and the Chinese Academy of Engineering academicians, were unveiled on January 20, 2010. They are: Tianhe-1, a petaflop supercomputer was successfully developed; China established its first inland scientific research station in the Antarctic; Shanghai Synchrotron Radiation Facility saw the completion of its construction; major breakthroughs have been achieved in the area of quantum computation; China approved the massive production of H1N1 vaccine, the first instance in the world; iPS full functionalities were first unveiled in the world; China rolled out large volume sodium sulfur energy storage cells; Chinese scientists found the earliest feathered dinosaurs in the world; solar energy based silicon purification made a success; and successful commercial demonstration for making ethylene glycol from coal at a 100,000-ton level.

### Strategic Alliances for Memory Industry

Thanks to the support of the Dept. of High and New Technology Development and Industrialization, and Dept. of Policies and Legislations, part of Chinese Ministry of Science and Technology, and Shandong Provincial Dept. of Science and Technology, a strategic alliance for memory industry was established on January 29, 2010 in Beijing. Physically located on the premises of INSPUR, the alliance is made up of 26 members from industry, universities, and research institutes.

During the 11th Five-year Plan period (2006-2010), the Ministry of Science and Technology launched a major project to develop key mass storage technologies under an information technology component of the National 863 Program. The Alliance is one of the 36 domestic organizations approved to work on internationally advanced PB applicable technologies and mass online storage technologies. It will join the strength of industry, universities, and research institutes to complete the needed demonstration applications at major government agencies, realizing a historical leap from technology dependent to proprietary innovation in the area.

## Another Deep Water Gas Reserve Found

China National Offshore Oil announced on February 9, 2010 that it has found, in collaboration with Husky Oil China Ltd., another gas reserve (Liuhua 29-1) in the area of 29/26. Before this, two other oil reserves, or Liwan 3-1 and Liuhua 34-2, have been spotted in the same area.

Sitting in the northeast 43 km from Liwan 3-1, or 20 km from Liuhua 34-2, the newly found Liuhua 29-1 has reached a depth of 3331m, or a water depth up to 720m. The new reserve has seen a gas layer as thick as 70m. It is estimated that the new gas well will be able to produce 57 million cubic feet of natural gas on a daily basis.

## New Marine Satellite

China will launch a satellite to investigate marine dynamic environment at the end of the year. Not long ago, researchers at the Center for Space Science and Applied Research, part of the Chinese Academy of Sciences, have completed the calibration of satellite's payloads.

According to a briefing, the new satellite is a terrestrial remote sensing unit designed to collect data of marine dynamic environment, including sea surface wind, waves, currents, temperature, storms, and tides, for marine NWP models. The effort will eventually produce useful data for the nation's economic development, and become an observed data source for marine studies.

## Key Lab Home in Xinjiang

A national key lab for protecting and utilizing the bioresources in the Talimu Basin was inaugurated on February 8, 2010 at Talimu University. Thanks to the joint support of the Ministry of Science and Technology and Xinjiang Production and Construction Corps, the Lab will mainly work on local fruit tree germplasm resources and associated genetic breeding, extreme organisms and associated DNA resources, natural products, and biodiversity protection across the deserts, and ecological environment reconstruction. Dr. ZHANG Lili, Director of the Lab, is a Chinese scientist returned from abroad, and has achieved laudable accomplishments in special local plant breeding and ecological protection in Xinjiang. The new lab has so far completed the part of infrastructure construction, including working sites and scientific facilities. Enjoying noticeably increased grants from National Natural Science Foundation, the new lab expects to become a major applied basic research center in the region.

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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 Tel: (8610)58881360 Fax: (8610) 58881364

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