

S&T Highlights from East Asia and Pacific

June 2009

NSF Tokyo Office

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Japan

1. **[iPS Cell Bank]** Dr. Shinya Yamanaka of Kyoto University discussed the establishment of an iPS (induced pluripotent stem) Cell Bank at Kyoto University by 2014 in a lecture on June 4th. His plan is to produce and preserve iPS cells incorporating about 50 strains of genes extracted from the cells of 20,000-30,000 Japanese volunteers. This will facilitate the production of immune-compatible cells for 90 percent of Japanese people. The iPS cells will be available for distribution to medical institutions for regenerative medicine. (Summary translation of an article in Nihon Keizai Newspaper – 6/5/09)

2. **[Young Researchers Abroad]** The Ministry of Education, Science and Technology (MEXT) will launch a new program to support young Japanese researchers going to research institutions abroad by providing airfares and subsistence. The ¥30 billion (~\$300 million) program, to be announced by the Japan Society for the Promotion of Science (JSPS) in the summer 2009, will assist 15,000-30,000 young Japanese researchers

in all academic fields. Proposals will be accepted from: (1) individual researchers; and (2) organizations intending to send a group of researchers (either students or postdocs) overseas. Researchers wishing to obtain degrees from institutions overseas will be ineligible to apply. The S&T White Paper 2009 emphasizes that the number of young researchers going to research institutions overseas declined from 7,674 in 2000 to 4,163 in 2006. MEXT is concerned about this trend and intends to reverse it. (Summary translation of an article in Asahi Newspaper – 6/9/09)

3. [Future Women Scientists] High school girls are being encouraged to enter university science departments. Existing government programs include ‘SSH (Super Science High School)’ and ‘Girls’ Majoring in Science in the Future.’ Some girls’ high schools are already focusing on science and math to attract more students to the area in face of the declining number of children in Japan. Dr. Akiko Togawa of the University of Tokyo has spoken of the importance of changing the environment for high school girls, both at home and in school. This summer, the National Women’s Education Center will encourage parents and teachers to participate in its science camp for high school girls, to increase interest in girls to major in science. According to a recent government report, the number of 14-year-old girls indicating that their mothers would be happy if they were to major in science was only half of that of the boys of the same age. The proportion of junior high school female science teachers in 2003 was 20 percent, the lowest in the world. (Summary translation of an article in Nihon Keizai Newspaper – 6/11/09)

4. [15% Green House Gas Emission Cut] Japan has set an initial 15 percent target for the reduction in green house gas emissions by 2020. This equates to a 15 percent reduction from 2005 levels and 8 percent reduction from 1990. The mid-term target will be announced at the G-8 Summit in Italy in July and the COP15 (United Nations Framework Convention on Climate Change) in Copenhagen in December, before finalization. Meeting the target will require a 20-times increase in solar energy usage, a change to 50 percent of all cars to be hybrid, and a per household contribution of ¥70,000 (~\$700) per year. (Summary translation of an article in Nihon Keizai Newspaper – 6/11/09)

5. [S&T White Paper] Japan has issued S&T White Paper 2009, ‘Toward Establishing Japan-oriented Transformative S&T to Overcome the Global Crisis.’ Japanese R&D capabilities are epitomized by the four Nobel Prizes in 2008, and the importance of the governmental support for fundamental science as the basis for future technology transformation is stressed. The Government is concerned about the decreasing number of

Japanese researchers staying overseas more than a month: the number halved from 2000-2006, and student exchanges are less popular than expected. The White Paper therefore proposes that exchanges of researchers at all levels be promoted proactively. The White Paper will be summarized in English early in October. The full Japanese version is at: http://www.mext.go.jp/b_menu/hakusho/html/hpaa200901/1268148.htm

6. [CSTP Convened] The Prime Minister chaired the June 19 CSTP (Council for S&T Policy) meeting to discuss the progress of items in the 3rd S&T Basic Plan (JFY2006-2010). The S&T-related budget for 2006-2009 is ¥17.3 trillion (~\$173 billion), excluding the JFY2009 local government S&T budgets. This represents 69 percent of the target ¥25 trillion (~\$250 billion) S&T-related budget for the period of JFY2006-2010. Also discussed were the JFY2010 S&T-related budgetary guidelines: 'Low-carbon society,' 'Health and longevity,' and 'World cutting-edge innovative technologies.' The new ¥270 billion (~\$2.7 billion) in funding for CSTP will be spent on proposals received from the end of June to the end of July. A review to short-list 60 proposals will be completed by mid-August, and selection of the final 30 awards will be announced at the end of August. (Summary translation of CSTP meeting pack – 6/19/09)

7. [School New Deal] The Japanese Economic Stimulus Package 2009 includes ¥490 billion (~\$4.9 billion) for a 'School New Deal' project to design asbestos-free, ecologically-friendly, ICT-equipped, and anti-seismic facilities at elementary and junior high schools. The project will include increasing the usage of solar energy by 10 times, converting TVs from analogue to digital; introducing tablet PCs (that enable writing on the PC screen using a pen) with monitors and electronic touch panel boards. It will also establish martial arts facilities. MEXT (Ministry of Education, S&T), METI (Ministry of Economy, Trade and Industry), and MOE (Ministry of Environment), are discussing details with local governments in the design phase. (Summary translation of an article on MEXT's homepage)

8. [Kaguya Probe Falls to Moon] Kaguya, Japan's first lunar satellite, fell to the moon surface on June 11, after having completed a 17-month scientific mission to shed light on the origin and evolution of the moon. Named after the lunar princess in a Japanese folktale, Kaguya has orbited the moon at an altitude of 100 km to explore the geography, elemental and mineral distribution, and lunar gravity. The 14-instrument orbiter comprises a 3-ton main orbiter and two 50-kg sub-orbiters. Images taken by a high-definition TV camera showed a crater on the south pole of the moon that may not contain any exposed ice, and

proved that no part on the moon is always exposed to sunlight. The camera also captured images of the Earth rising above the lunar horizon. One sub-satellite is still circling the moon, with no scientific function. (Summary of an article in Japan Times – 6/12/09)

9. [Kyoto Prize 2009] Professors Peter and Rosemary Grant, Princeton University, will receive the Kyoto Prize-2009 for their research on evolution conducted on the Galapagos Islands. In November, the award of \$515,000 will be presented at a ceremony in Kyoto. The Prize was established in 1985 by the Inamori Foundation, a philanthropic organization established by Kazuo Inamori, the founder of electronic component maker Kyocera Corporation. (Summary of an article in Japan Times – 6/21/09)

10. [New Funding Opportunities and New Awards from MEXT (Ministry of Education, Science and Technology), JSPS (Japan Society for the Promotion of Science), JST (Japan Science and Technology Agency), and NEDO (New Energy and Industrial Technology Development Organization)]

- CSTP has chosen "Critical Research on the New Strain of Influenza" as one of the research topics to be supported under the 'Coordination Funds for S&T Promotion' in JFY2009. The National Institute of Infectious Diseases, National Medical Center of Japan, RIKEN, and the University of Tokyo's Institute of Medical Science are granted ¥90 million (~\$900K) in JFY2009 to conduct research on the new virus without competition.
- MEXT selected nine centers from 145 applications in interdisciplinary areas for the 2009 cycle of the Global COE (Center of Excellence) program that provides grants to internationally prominent research and education centers in Japan. Each center will receive ¥50-500 million (~\$500K-5 million) per year for five years. This is the third year of the program following the 63 centers granted in 2007 in life science, chemistry/materials, information/electrics/electronics, human literature, and interdisciplinary fields, and the 68 centers funded in 2008 in medicine, math/physics/earth science, machine/civil engineering/architect and other engineering, social science, and interdisciplinary fields.
- MEXT's program to 'Strategically Promote Brain Science Research' has selected two institutions: one that implements research on 'Measurement of brain base that supports social behavior' receives ¥300-600 million (~\$3-6 million) per year for five years;

another for 'Development of model animals that show high-level originality' receives ¥15 million (~\$150K) for four years.

- MEXT's 'National Bio-resource Project,' a 5-year project from 2007 to strategically promote consolidation of the collection/preservation/supply of world-class bio-resources, has selected four projects under its 'Genome Information Program.' ¥5-30 million (~\$50-300K) is shared between the four for one year.
- JSPS is receiving proposals from June 25-September 25 for travel support to participate in the Lindau Nobel Laureate Meeting in 2010. The applicants should be Japanese nationals or foreign nationals who hold Japanese-government-issued alien registration cards, below 35 years of age, and within 6 years after obtaining their Ph.D. degrees. JSPS is the nominating agency in Japan for the Lindau Nobel Laureate Council. The Council decides the final 15 in natural science, 7 in economics, and 20 in physics/chemistry/medicine-physiology-combined field from those nominated by Japan.
- MEXT announced a call for proposals for 'Strategy for Technological Innovation' program (details at: <http://www.nsftokyo.org/rm08-05.pdf>) on June 30. The deadline is July 28, 2009. The program is designed by CSTP (Council for S&T Policy), funded by MEXT, and implemented by JST. The 2009 program solicits proposals in five fields: 'Brain machine interface' - ¥800 million (~\$8 million); 'Regenerative medicine and toxicity evaluation by use of iPS' - ¥1 billion (~\$10 million); 'Spintronics' - ¥1 billion (~\$10 million); 'Efficient solar energy technology' - ¥1 billion (~\$10 million); and 'New superconductive technology' - ¥1 billion (~\$10 million). Only one project will be granted per field. Five grantees will be decided in September-October and the grant funds must be expended by the end of March 2010, as it is part of the JFY2009 (April 2009-March 2010) fund.

Korea

11. [₩61 billion for Brain Research] Korea invests ₩61 billion (~\$48 million) in brain research in 2009, with the aim of elevating Korea to be ranked among the top seven countries in the world in brain research by 2017. It is pledged in the "Brain Research Implementation Plan for 2009" and covers the costs for R&D, infrastructure, and personnel development. (Summary translation of an article in JST's 'Watcher')