

## S&T Highlights from Japan

August 2009

NSF Tokyo Regional Office

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1. **[Industrial R&D Investment]** According to a Nihon Keizai Newspaper survey, investment in R&D by 253 major Japanese companies totaled ¥10,955.1 billion (~\$109.6 billion) in JFY 2009. This is a decrease of 6.5 percent from JFY 2008. These top companies are mainly investing in technologies for energy production and conservation, materials development, and nanotechnology. (Summary translation of an article in Nihon Keizai Newspaper – 8/3/09)

2. **[4,000-meter Deep Sea Experimental Lab]** JAMSTEC (Japan Agency for Marine-Earth Science and Technology) plans to establish an unmanned deep sea experimental laboratory on the floor of the Japan Trench at a depth of 4,000-meters. As many as 10 modules, each measuring 2.0m x 2.0m x 4.0m high, will be placed within the next few years. Projected research activities range from the culturing of microorganisms with potential medical uses, to resource exploration, to the measurement of carbon dioxide absorption. An expert team will start work on the project in the near future. (Summary translation of an article in Nihon Keizai Newspaper – 8/3/09)

3. **[20 Times more Successful]** Prof. Shinya Yamanaka and his team have succeeded in increasing the efficiency of production of iPS (induced pluripotent stem) cells 20 times higher than the previous rate. By suppressing the expression of P53 in the presence of the standard 4 iPS inducing genes, the team observed the iPS cell yield of 20

percent compared to the previous rate of 1-2 percent. The increased efficiency will make significant contributions to providing more iPS cells for patients and, eventually, establishing a cell bank. (Summary translation of an article in Nihon Keizai Newspaper – 8/10/09)

**4. [School Statistics]** MEXT (Ministry of Education, S&T) has compiled a statistical summary of the annual survey of schools from kindergarten through universities as of May 2009. Enrollment at elementary schools was 7,064,000, a record low. 97.9 percent of the 1,188,000 junior high school graduates entered senior high school, a record high. [Senior high school education is not compulsory in Japan.] 56.2 percent of the 1,063,000 senior high school graduates entered universities, including 2-year colleges, also a record high. 41.7 percent of undergraduate students were women, a record high, and 30.5 percent of graduate students were women; this too was a record high in Japan. The summary is available in Japanese at [http://www.mext.go.jp/b\\_menu/toukei/001/08121201/1282646.htm](http://www.mext.go.jp/b_menu/toukei/001/08121201/1282646.htm). A full report will be published in December 2009. (Summary translation of the report on MEXT WEB)

**5. [Biodiversity Japan Fund]** The Japanese Ministry of Environment (MOE) will include ¥1 billion (~\$1 million) in its JFY 2010 budget request to establish a 'Biodiversity Japan Fund' (tentative name) to support protection of biodiversity in developing countries. The Japan Fund is to be housed within the Administrative Office of the Convention on Biological Diversity (CBD) headquartered in Canada. The establishment of the fund is designed to demonstrate Japanese government's proactive stance on the environment issues in advance of the 10<sup>th</sup> Conference of the Parties (COP10) that Japan is hosting in Nagoya in October 2010. MOE intends to use the Fund to improve the scientific quality of biological distribution data from surveys in developing countries. (Summary translation of an article in Asahi Newspaper – 8/21/09)

**6. [Genes to Enable Rice to Survive Floods]** A team led by Nagoya University researchers (represented by Dr. Motoyuki Kariya) has identified two genes that enable rice to survive sudden high-water levels during floods. The genes were successfully introduced into Japanese rice that does not normally survive high-water levels. They were discovered in the stems of Thai rice that grows at the rate of 20 centimeters per day and can survive flooding. The genes were named as Snorkel 1 and Snorkel 2. This discovery will help contribute to stabilize rice production. (Summary translation of an article in Nihon Keizai Newspaper – 8/20/09, Sanken on-line news article, and an article in Japan Times-8/21/09)

**7. [High School Students at Scientific Meetings]** While 'young people away from science' has long been an issue, scientific societies are offering opportunities for high school students to present their research results at professional society meetings. Interacting with experts at academic meetings will hopefully encourage the students to consider scientists as a future career. For example, the Japan Applied Physics Society (JAPS) invites high school students to make presentations, and the Society of Evolutionary Studies, Japan (SESJ) has been giving opportunities for high school students to present their research results since 2006. This is the third year for the Institute of Electrical Engineers of Japan (IEEJ) to hold contests for high school students; there are usually about 70 entrants. The enthusiasm of the students is so high that those involved are wondering why so many other young people are shy away from the sciences. (Summary translation of an article in Nihon Keizai Newspaper – 8/21/09)

**8. [New Funding Opportunities and 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)]**

JSPS has begun soliciting proposals for the \$300 million program to send Young Researchers Abroad (see <http://www.nsfokyo.org/rm09-05.pdf> ). The deadlines are August 24-26 and October 13-16, 2009 for individual awards and August 25-September 25, 2009 for institutional awards.