



31 May 2014

Science, Technology and Education News from Taiwan
Number 05 — May 2014

2014 National Development Council Internship Program: NDC offers summer internship programs in various sectors: formulating national development plan, international economy and global competitiveness, promotion and publicity for “Free Economic Pilot Zone” plan, national spatial planning and urban planning, planning of policies in health, welfare, education and culture, government reform, administrative supervision of government-sponsored foundations, performance management, e-government. Deadline for application: 15 June 2014. For details check: <http://www.ndc.gov.tw/encontent/m1.aspx?sNo=0060076>

At **Concours Lepine International Paris 2014**, Taiwan inventors bagged eight gold, 11 silver and 47 bronze medals, as well as two special prizes. The eight gold medalists included Asia University from central Taiwan, which also received recognition for its folding traffic cone from the French Ministry of the Interior and French National Police. Other gold-medal creations were a manufacturing method for ultraviolet resistant snow fungus extract used in skin care products; a multifunctional power generation control mechanism; a rotary internal combustion engine; a nail polish poisoning preventive shield; and an ocarina that doubles as a container.

Simon Chang, head of the newly formed Ministry of Science and Technology, has expressed concerns over the future of **Taiwan's technology brands**, saying they are lagging behind bigger competitors in terms of marketing dollars. Taiwanese brands like Acer Inc., Asustek Computer Inc. and HTC Corp. are all capable of manufacturing high-quality smartphones, but their market share remains smaller than that of Samsung Electronics Co. of South Korea, Chang said. Regarding the ministry's policies, Chang said it will help strengthen the cooperation between the academic sector and the industrial Technology Research Institute (ITRI) by gradually allocating more of its budget to ITRI for applied research.

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1. Taiwan scientists trace origin of rabies outbreak

(United Daily News, 01 05 2014)

A team led by Victor Fei Pang, professor at the School of Veterinary Medicine of Taipei City-based National Taiwan University, found that the rabies outbreak last year among Taiwan ferret badgers was caused by a cryptically circulating endemic strain of the virus, rather than animals from mainland China as previously thought. The results were published May 1 in the journal *Emerging Infectious Diseases*, produced by U.S. Centers for Disease Control and Prevention. Between the beginning of the outbreak in July last year and the end of August, 105 ferret badgers, or *Melogale moschata subaurantiaca*, were found with rabies. But the research by Pang shows that the disease was already present in Taiwan between 2002 and 2014. The ROC Council of Agriculture announced July 16, 2013, three dead ferret badgers from Nantou and Pingtung counties in central and southern Taiwan, respectively, tested positive for rabies. These were the first recorded cases since 1961. The next month the COA said tests showed high similarity between the rabies strains found in local ferret badgers and those from mainland China. After five months of investigation, Pang's team concluded their investigation and submitted the paper to EID. According to their findings, the Taiwan ferret badger rabies strain diverged from strains in mainland Chinese ferret badgers, Chinese dogs and Philippines dogs between 158 and 210 years ago, and already appeared in Taiwan more than a century ago. It did not come from mainland China, nor did it come from dogs, the study showed. As to why the disease had cryptically circulated for more than 52 years and only ferret badgers were affected, Pang said successful conservation efforts may have allowed the ferret badger population to expand to the level where disease transmission became possible. "But further research is needed to determine the exact cause," he added. According to Pang, an infected shrew and puppy have been found since the outbreak began, suggesting that the strain can jump the species barrier. If this is the case, the question becomes why it has remained hidden until now. Pang's team is working on clarifying these issues. According to Tsai Hsiang-jung, director general of Animal Health Research Institute under the COA, experiments on mice will start within the next couple of weeks, followed by work on five-month-old healthy badgers and then beagles. As for the spread of known cases, he said, there have been none north of Miaoli in northern Taiwan, nor in Kaohsiung City in the south of the country.

<http://www.taiwantoday.tw/ct.asp?xItem=216951&ctNode=445>

2. Discovery could lead to much cheaper treatment for liver cancer

(Central News Agency, 14 05 2014)

A team of Taiwanese researchers have found a potential remedy for liver cancer in a drug used for treating arrhythmia that can be much cheaper and less toxic than existing treatments. The arrhythmia drug amiodarone has been shown through animal testing to be able to suppress liver tumors by boosting autophagy -- the process of cells breaking down unnecessary components, according to Liu Hsiao-sheng, a professor of microbiology and immunology at National Cheng Kung University, who led the research. Autophagy plays an important role in many types of cancer, and past studies have shown reduced autophagy in liver cancer patients, Liu said Wednesday as he unveiled the findings at a press conference at the university. Liu said his team also found that among the 46 liver cancer patients in Taiwan they studied, those with reduced autophagy had a lower survival rate after surgery, which led to suspicions about the role autophagy plays in inhibiting cancer and inspired his team to scour the market for drugs that boost the process. Autophagy has been shown to have dual roles in cancer. One is to suppress tumors by preventing the accumulation of damaged proteins and organelles, while the other is to boost the growth of established tumors by promoting cell survival, although research has shown that it is more likely to be used as a tumor suppressor. The team conducted animal testing with several drugs on the market and found amiodarone to be able to boost autophagy, in turn suppressing the growth of liver tumors. Once it has passed clinical trials, the arrhythmia drug promises to reduce the hefty medical bills for liver cancer patients, according to Liu. Existing liver cancer drugs cost over NT\$1,500 (US\$49.8) per pill, which could amount to NT\$40,000-NT\$50,000 in costs per patient per month. By contrast, amiodarone costs just NT\$8 per pill, Liu said. Liu said amiodarone has the potential to be developed into a liver cancer drug, noting that it is also less toxic than other drugs used for treating liver cancer, which accounts for the second highest number of cancer deaths in Taiwan.

<http://focustaiwan.tw/news/asoc/201405140029.aspx>

3. Taiwanese wins NT\$1 million for designing Tang Prize certificate

(Central News Agency, 22 05 2014)

Taiwanese designer Huang Wei-han won the top prize Thursday in a competition to design certificates for the winners of the Tang Prize -- an international academic award established by Taiwanese entrepreneur Samuel Yin. Huang, director of Taipei-based Fontana Design, won the NT\$1 million (US\$33,194) top award with his design "Door to Outstanding Achievements." "I am very happy to win this award," Huang said in Chinese in his acceptance



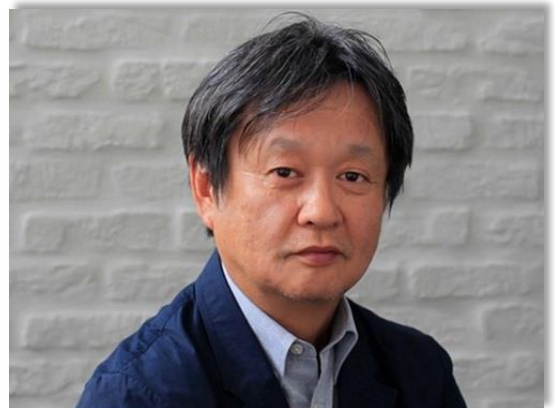
speech. "Thank you to the god of design." His winning submission used silk and Chinese embroidery as primary materials for the four certificates for the Tang Prize categories, and bamboo to make the cases that hold the certificates. Bamboo was chosen because it is an Eastern material, and embroidery because it is the ultimate expression of East Asian arts and crafts in Huang's mind, the designer said. The design consists of images of the sky, earth, mountains and water, all stitched onto their respective certificates to mirror traditional Chinese painting techniques. In second place were Shiang Che-wei, Hsu Wei-tse and Chiu Hsin-i from Shih Chien University. The team won NT\$500,000 for their design "Imprinting," inspired by ancient Chinese printing technology and traditional lacquer craftsmanship. The third place award was shared by designers Liaw Jia-chyi, Chen Ying-hung and a team of designers consisting of Shih Hsiao-chun, Lin Yi-hsien and Yeh Ting-wei. Each winner or group will be awarded NT\$200,000. Chen Wen-long, CEO of the Taiwan Design Center, which co-organized the Tang Prize Diploma Design Competition with the Tang Prize Foundation, said the hundreds of works submitted were all creative and a departure from past perceptions of what certificates are supposed to look like. A total of 245 designs were submitted by Taiwanese students and professionals in the competition, 15 of which were selected as finalists. Materials used consist of a wide selection including bronze, bamboo, metal and wood, according to the Tang Prize Foundation. Each finalist submitted a certificate design for each of the four categories of the Tang Prize: sustainable development, biopharmaceutical science, Sinology and rule of law. The winners were selected by a panel of judges from Taiwan, Japan, Hong Kong and Singapore. The Tang Prize, inspired by the Nobel Prize and established in December 2012, seeks to honor top international researchers in the four categories. The first batch of laureates will be announced June 18, with the award ceremony taking place three months later. Up to three winners will share a cash prize of NT\$50 million for each category.

<http://focustaiwan.tw/news/aedu/201405220042.aspx>

4. Japanese designer wins top prize in Tang Prize medal design contest

(Central News Agency, 22 05 2014)

Renowned Japanese industrial designer Naoto Fukasawa took a US\$500,000 top prize in a competition to design the medals for winners of the Tang Prize - an international academic award established by Taiwanese entrepreneur Samuel Yin. The top winner of the International Invitational Tang Prize Medal Design Competition was announced in Taipei that day at an award ceremony attended by all 10 of the finalists, all of whom are prominent names in the international design scene. The nine other finalists will get US\$50,000 each. Fukasawa, a designer for Japanese retailer Muji and many other international brands, has been named by Bloomberg Businessweek as one of the world's most influential designers and has won several prestigious design awards, including the United States' IDEA gold award and Germany's iF gold award. He is known for his simple and intuitive industrial designs. He believes a good design should blend naturally into a user's behavior, without the user having to think about it, a design philosophy he has coined "Without Thought."



One of his most famous pieces is a wall-mounted CD player he designed for Muji in the 1990s, which became one of Japan's most iconic industrial designs of that time. His winning design for the Tang Prize features medals in the shape of spiral curves. The descriptions of the four categories of the Tang Prize -- sustainable development, biopharmaceutical science, sinology and rule of law -- are carved on the back of the medals in circles along the spiral structure. The other finalists are Japan's Kenji Ekuan, GK Design Group chairman and former president of the International Council of Societies of Industrial Design; Germany's Gunter Rambow, a goldsmith and designer who designed the new Red Dot Trophy; Australian graphic designer Harry Williamson; and Kan Tai-keung, dubbed Hong Kong's "father of graphic design." Among them are also Taiwanese designer Chen Jun-liang, known for his use of Chinese calligraphy and Eastern images in his work; Dutch graphic designer Irma Boom, who specializes in book design; Italian jewelry designer Massimo Zucchi; British graphic and coin designer Matthew Dent; and British jewelry artist Lin Cheung, who designed the London 2012 Paralympics medals. The Tang Prize Foundation and Taiwan Design Center jointly organized the International Invitational Tang Prize Medal Design Competition. They invited 25 international design organizations to nominate a total of 61 top designers from 15 countries to take part in the competition. Ten designers were selected by an international panel of judges in February to enter the final round of the competition to design medals for the 1st Tang Prize. For the final round, each designer presented a medal design for each of the four categories of the Tang Prize. The winning 6.6-centimeter-diameter medals will be made of pure gold and will be manufactured by Taiwan's Central Mint. The Tang Prize, inspired by the Nobel Prize and established in December 2012, seeks to honor top international researchers in the four categories. The first



batch of laureates will be announced June 18, with the award ceremony taking place three months later. Up to three winners will share a cash prize of NT\$50 million (US\$1.66 million) for each category.

<http://www.tang-prize.org/index.aspx>
<http://focustaiwan.tw/news/aedu/201405220018.aspx>

5. Cancer could be a metabolic disease: research institute

(China Post, 28 05 2014)

National Health Research Institute (NHRI) and National Tsing Hua University announced their latest research that suggested that cancer might be a metabolic disease like diabetes. The research team published the first research in the world that has discovered the key to controlling cancer is genes metabolizing glucose and proved that a cancerous gene cannot metabolize glucose completely. According to the NHRI, this is also the first research in the world to confirm the theory that cancer could be a metabolic disease. Wang Hung-chun of the NHRI said that in 1920, some experts discovered that the way regular cells and cancer cells absorb glucose were different, so they proposed the theory that cancer might be metabolic disease. However, according to the NHRI, no one could confirm the theory until the NHRI and National Tsing Hua University published the research to show that the key is JMJD5 gene. Wang said that any foods consumed by human beings will be transformed into glucose and a regular cell can completely absorb and break down glucose, but cancer cells cannot carry out the same functions. According to the research, Wang said that the normal operation of metabolism is closely related to the prevention of cancer, and cancer patients should avoid consuming excessive amounts of sugar in order to lower the risk of cancer cell growth.

New Research Could Contribute to Medicine Development

Ou Yen-chuan, a doctor at Taichung Veterans General Hospital, said that there is no medicine that targets prostate cancer treatment currently. If new medicines can be developed based on the research of glucose and cancer cells, it will provide more treatment choices for cancer patients. Doctor Tu Shih-hsing of the Cathy General Hospital said that there are six different medicines that can be used to treat breast cancer, but some patients started to show signs of drug-resistance. If new medicines can be developed continuously, Tu said, it will greatly benefit cancer patients. Kuan Hsing-jien, president and distinguished investigator of the NHRI, said that this research can become a new strategy for experts to treat cancers and develop new medicines to stop cancer cells from taking away glucose in order to prevent the growth of cancer cells.

<http://www.chinapost.com.tw/taiwan/national/national-news/2014/05/28/408792/Cancer-could.htm>

6. TSMC's 2014 R&D spending to reach US\$1.8 billion

(Central News Agency, 29 05 2014)

Taiwan Semiconductor Manufacturing Co. (TSMC), the world's largest contract chip maker, said that it is planning to spend US\$1.8 billion on research and development to maintain its technological lead in the industry. At a technology symposium held in Hsinchu, C.C. Wei, TSMC's president and co-chief executive officer, said the 2014 R&D spending will be up more than 200 percent from 2009 as the chip maker has been gearing up for high-end technology processes. The 2014 figure will also top 2013's US\$1.6 billion. After increasing its R&D expenses year by year, TSMC has built up an R&D team of 4,500 professionals so far, Wei said. The TSMC technology symposium was watched closely by the global semiconductor industry and market analysts for more clues about technology trends in the IC business and how TSMC will map out its development strategies. According to TSMC, the 2014 R&D spending will be largely used for the company's sophisticated technology, including the 28 nanometer, 20nm and 16nm processes. In addition, TSMC is planning to spend US\$9.5 billion-US\$10 billion on capital expenditure in 2014 to further strengthen its high-end technology, Wei said. He said revenue generated from TSMC's 28nm process rose to US\$6 billion in 2013, up from US\$2.1 billion recorded in 2012 and from US\$150 million in 2011, adding that chips made on the 28nm technology are expected to account for 30 percent of the company's total sales in 2014. The chip maker launched chip production on the 20nm process in January and will kick off production on the 16nm process early next year. Wei said the Internet of Things, which is expected to create about US\$1.9 trillion in business opportunities around the world, will serve as a driver for the growth of the global semiconductor industry in the future. In April, TSMC raised its forecast for the world's 2014 IC industry sales growth to 7 percent from 5 percent, and its estimate for the global semiconductor foundry sales growth to 14 percent from 10 percent. As a leader in the semiconductor foundry industry, TSMC said its sales growth could surpass the overall industry's sales growth by several percentage points.

<http://focustaiwan.tw/news/aeco/201405290020.aspx>



7. Taiwan developing 'smart' endoscope for better checkups

Taiwan is developing a "smart" electric endoscope to provide more comprehensive health screening, the country's National Applied Research Laboratories (NARL) said. NARL is working with the Kaohsiung Medical University Chung-Ho Memorial Hospital, Taiwan Surgical Corp. and Lumos Technology Co. to jointly develop the medical device, which the developers say can provide a complete image from a person's nose to his stomach. A prototype of the 5.6-mm-diameter Smart Electric Endoscope is expected to be completed by the end of the year, said Tseng Shih-feng, a researcher at NARL's Instrument Technology Research Center. It will take another two to three years to complete clinical trials and the required certification process before it will be commercially available, he added. Once it goes on the market, the device is expected to produce an annual output of over NT\$2 billion (US\$67.4 million) for local component suppliers and processing manufacturers, according to NARL.

<http://focustaiwan.tw/news/ast/201405310004.aspx>

(Central News Agency, 312 05 2014)

