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The National Science Council (NSC) establishes a Sci-tech Development Council in order to collect advice and proposals that support NSC's implementation and promotion of the development of natural science, sustainability technology, engineering technology, life sciences, humanity and social sciences, science education, international cooperation and applied technology. It will offer suggestions with regard to NSC's subordinate charge-domains, helping with NSC's execution and sci-tech and academic promotion. The specific tasks assigned to the advisory council is to give professional advice that supports the national policy-making with regard to sci-tech development, national sci-tech programs and other related sci-tech issues. The council will be made up of 19 councilors, including Chairperson and Head Councilor. NSC will invite local or foreign honorable sci-tech and academic figures to take the seats of councilors. Meanwhile, the National Applied Research Laboratories have followed the country's policy to set up five annual goals which are closely related to people's liveliness and wellbeing or economic development.

Taiwan has gone one step further for its international R&D cooperation by signing an agreement with French financial company OSEO in promoting innovation and R&D. The Swiss-based pharmaceutical company Novartis informed that it will invest over NT\$500 mio. in Taiwan this year to make Taiwan as one of the company's 10 largest clinical testing centers in the world. A breakthrough of measuring technology in the field of semiconductor, flat panel and solar energy manufacturing has been unveiled by a local university research team. The same university has invested NT\$75 mio. to establish a super computing center, which will become the fastest computing institute in the country. Regarding to the developments in medical field, a new finding of brain cells responsible for the formation of long-term memory in fruit flies may bring hope for brain diseases. A Taiwanese team has a new understanding of the functions of an enzyme, which could pave the way for preventing or curing cardiovascular diseases. A local university has also reported a successful reattachment surgery of an arm torn off at the shoulder for the first time in the world. These and other science-related information are reported in more details in this current issue.

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1. ITRI unveils wider beam LED light bulb

(Taiwan Today, 01 02 2012)

The Industrial Technology Research Institute announced Jan. 31 that it has developed a lighter weight LED, or light-emitting diode, light bulb with a wider beam angle of 330 degrees. ITRI said it believes there is huge market potential for LED light bulbs, forecasting that sales of the newer more energy-efficient light bulb will overtake those of traditional incandescent light bulbs for the first time in Japan this year. Major international players, such as Netherlands-based Royal Philips Electronics N.V., have recently been focusing much effort on increasing the beam angle of LED light bulbs, whose narrower beam is one of their main disadvantages when compared to traditional light bulbs, according to ITRI. ITRI's breakthrough addresses this disadvantage and is expected to be a game changer by boosting the international competitiveness of Taiwan's LED industry, the institute stated. Weighing less than 100 grams, the newly developed LED light bulb is just half the weight of current LED versions on the market. Furthermore, the plastic bulb is less easily breakable, more flexible and cheaper to produce, adding to its list of advantages, ITRI said.

<http://www.taiwantoday.tw/ct.asp?xItem=185439&ctNode=445>

2. Taiwanese researchers unveil new industrial measurement technology

(Central News Agency, 02 02 2012)

A National Cheng Kung University (NCKU) research team unveiled a new technology that it described as a breakthrough in the science of measurement in the field of semiconductor, flat panel and solar energy manufacturing. The technology, known as an automatic virtual metrology (AVM), can reduce the measurement process in such industries from the usual four hours to six minutes, according to Cheng Fan-tien, director of the NCKU's e-Manuf. Research Center. The AVM system can also expand the measurement scale from the current "random" mode to "all" mode, inspecting and measuring all parts to be tested at the same time, said Cheng, leader of the NCKU research team. The technology, which can help increase production quality and cut manufacturing time, may help major semiconductor, TFT-LCD display panel and photovoltaics manufacturers save at least US\$20 mio. each per year, he said. NCKU has already secured patent rights for the technology in Taiwan, China, the United States, Japan and South Korea, according to Cheng. The university recently transferred the technology to the Tainan-based ForeSight Technology Co. for commercial use.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202020043

3. NCKU to set up fastest computing center in Taiwan

(Central News Agency, 04 02 2012)

National Cheng Kung University (NCKU) will soon set up a super computing center, which will become the fastest computing institute in the country, according to the NCKU's dean of academic affairs. The NT\$75 mio. (US\$2.54 million) center, which will be established on NCKU's campus, will carry out research and development (R&D) in fields such as disaster prevention, contagious disease research, green energy and virus research, said Huang Chi-chuan. In addition to NT\$25 mio. from the National Science Council, NCKU and IBM, one of the world's leading publicly traded technology companies, will each invest NT\$25 mio. to set up the new center that will be equipped with the third generation of IBM's BlueGene computing system. R&D and education training will both account for 20 % of the future center's activities, while scientific computing services will account for 60 %, the dean said. The new center is expected to help Taiwan gain ground in the development of super computing, Huang said, adding the country is falling behind in the field. The field of super computing is expanding worldwide, with Japan playing a leading role in Asia after China, Huang added.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?ID=201202040005&Type=aECO

4. NARL Proposes Five Annual Focuses in 2012

(Central News Agency, 05 02 2012)

Following the national policy for sci-tech development, President of National Applied Research Laboratories (NARL) Wen-Hwa Chen told the press that this year the affiliated institutes and laboratories will focus on five realms closely related to people's liveliness and wellbeing or economic development, especially highlighting the enhancement of disaster prevention and damage reduction technology and the support for industrial development. The five annual goals are: to develop disaster prevention technology, to develop self-reliant space technology, to support national marine survey, to construct cloud computing platform and to promote 12-8 nano technology. Regarding the disaster



prevention technology, Chen pointed out that in response to the growing frequency of the visiting compound disasters around the world during the past few years, NARL will co-operate with the Executive Yuan's plan of disaster prevention technology and application and intensify the integration of its affiliated resources, enhancing the research and development capacity against compound disasters and reducing possible damage and lost. As for the self-reliant space technology, CHEN said that National Space Organization (NSPO), Instrument Technology Research Center and National Chip Implementation Center will continue the development of FORMOSAT -5 as the implementation of the policy. Besides, Taiwan Ocean Research Institute planned to build a 2700-ton research vessel OR-5 (Ocean Research), which will be the largest advanced marine research vessel in Taiwan. The vessel's operation will begin this July. According to Chen, OR-5 will provide services such as early observation of marine disasters, marine ecology protection, nature resources survey and homeland security, etc. National Center for High-Performance Computing will follow the Executive Yuan's Development Plan for Cloud Computing Industry, investing in the development of the environment and technology of cluster software and trying to build a large cluster clouding system. CHEN said, in the following months, National Nano Device Laboratories will form an 12-8 nano devices r&d affiliation with the industries, promoting the 12-8 nano technology and developing patent portfolio strategies as well as seeking to obtain core technologies. With the establishment of the affiliation, the elevation of the r&d capacity of Taiwan's semi-conductor industries is highly expected.

<http://web1.nsc.gov.tw/techwp.aspx?id=1010206001&ctunit=208&ctnode=287&mp=7>

5. New way developed to grow strawberries without using pesticides

(Central News Agency, 06 02 2012)

A new holistic approach to growing strawberries without the use of pesticides has been developed in Taiwan, officials with the Agricultural Research Institute said. Strawberries are vulnerable to pests and various fruit diseases, but the new method puts a premium on tending carefully to the land and the strawberry buds as they grow. Farmers using the method have been able to grow the same quality strawberries as crops grown using pesticides and at a cheaper cost, the institute said. Agriculture officials said carefully tending to the buds can reduce the number of pests and diseases that might appear after they are transplanted to other places for growth and harvesting. Farmers must also tend to the land where the actual strawberries are grown, getting rid of leaves, small branches, petals and other matter after the strawberries have been harvested to prevent the growth of pests in the land. Thorough weekly monitoring of pesticides and diseases was also important, officials said, to ensure that optimal prevention measures are put in place at the right time. The new technique also involves the use of a chemical potion to fortify the ability of strawberry crops to resist disease. Officials suggest that farmers administer a combination of phosphorous acid and potassium hydroxide to strawberries once a week for three consecutive weeks before the rainy season arrives to prevent the crops from rotting.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202060048

6. NCKU makes cauliflower resistant to higher temps

(China Post, 07 02 2012)

TAINSN--Huang Hao-Jen of National Cheng Kung University (NCKU), southern Taiwan, innovated the technology of molecular detection of genetic markers developed in heat-tolerant cauliflower for assisting the selection of breeding to ensure the year-round supply. Cauliflower is usually grown for its floral head production in regions where the average temperature is 25 degrees Celsius or lower. In a subtropical area, like Taiwan, it can only be grown during the fall, winter, and spring. In summer, there is no production and the market depends on imports from temperate regions of the world. Huang studied the production of floral head in high temperatures and developed a number of molecular markers to distinguish the heat-tolerant cauliflower.

<http://www.chinapost.com.tw/taiwan/national/national-news/2012/02/07/330851/NCKU-makes.htm>

7. Students' new invention could help improve road safety

(Central News Agency, 07 02 2012)

Students at National Cheng Kung University (NCKU) have developed a new driver warning system that can help drivers avoid holes in roads, which they said could reduce traffic accidents, the university said. The system named "Wireless-based Active Car-Following and Pothole Warning" has been jointly invented by two students at the school's Department of Computer Science and Information Engineering, Tseng Yu-fan and Tang Hao-yi. The system, which combines an engine, a GPS receiver, an accelerometer, an Internet communicator and a laptop can precisely



detect and locate holes in roads in vehicles equipped with the system. Tang said they have collected information about bumpy roads around Taiwan into the system database that can give a warning to drivers 500 meters before they arrive at the problem area. They told CNA that the system took them one year to complete and that they will continue to improve its design.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202070057

8. Taiwan hospital reports groundbreaking reattachment surgery

(Central News Agency, 08 02 2012)

National Cheng Kung University Hospital (NCKUH) reported that it had succeeded in reattaching a man's severed arm by first transplanting it to his thigh, a procedure that was carried out for the first time in the world in the case of an arm torn off at the shoulder. In June 2008, the 29-year-old welder fell from the fifth floor of a building, hitting a round barrel in mid-air and tearing off his left arm at the shoulder, said Hsieh Shih-chou, one of the plastic surgeons at NCKUH who performed the operation. The NCKUH medical team performed five surgeries in 54 days to reattach the severed arm, Hsieh said. For the first time in reported medical history, an arm severed at the shoulder joint was first transplanted to the man's thigh, which kept the arm alive for eight days while the surgeons dealt with the shoulder site, Hsieh said. "Before the reattachment, we performed a temporary heterotopic transplantation and when the wound got better, we started the second-stage reattachment surgeries," Hsieh said. According to medical literature, temporary heterotopic transplantation -- the temporary attachment of tissues or a body part to a different site --- has been done mostly in cases of severed fingers, hands, lower arms and feet. The welder's case was the first successful case, in which the arm was severed near the shoulder and the reattachment was done eight days after the transplantation, the hospital said. The welder returned to NCKU hospital 8 Feb and was "greatly surprised," when he saw pictures of his severed arm attached to his thigh because he had been unconscious for the entire eight days. The man said his arm can now feel heat, cold and mosquito bites. He still cannot do fine work but he can live independently, he said, adding that he has since taken five road trips in Taiwan on which he drove the car himself.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202080034

9. New device catches toxic bloom: EPA

(China Post, 08 02 2012)

A one-armed contraption is the best way to detect poisonous algae before they bloom in Taiwan's reservoirs, according to a seven-year survey released by the Environmental Protection Administration (EPA). A genus of cyanobacteria called *Microcystis* produces a toxin that does serious harm to the human liver. Left untreated, *Microcystis* can grow into a blue-green bloom with a pea-soup consistency. "When it appears in reservoirs, *Microcystis* increases the cost of water treatment and utilities," said Dennis S. Wang, division chief of the EPA's Environmental Analysis Laboratory. Traditional testing for algae is a three-day process done by hand. The interval between tests is relatively wide due to limits on budget and human resources, so opportunities abound for algae to go undetected, said Wang. But setting up an automated monitor takes just an hour — then after that, "business never closes," said Wang. The monitor is a long arm with a sensor at the tip that reads chlorophyll-a concentration: an indicator of *Microcystis*. Chlorophyll concentration exceeding six parts per billion (ppb) will trip a yellow alert. Lab staff then manually confirm the concentration and follow up with appropriate treatment, said Wang. "At 6 ppb, the *Microcystis* is not hazardous yet," he said. "The international threshold for response is 10 ppb. But with early detection, we've got more time to treat the water supply. The EPA installed the first system in Keelung City's Qingshan Reservoir in 2005. Systems have since trialed in a range of reservoirs island-wide, such as in Hsinchu City and Fengshan City. "Every reservoir has a special ecosystem — unique temperature conditions, nutrient composition," said Wang. "But at this point we have successfully completed the experimental stage. Said Wang, EPA recommends the system to the local water industry, as a replacement for traditional methods. "Taiwan doesn't have a serious algae problem. But prevention is the best medicine."

<http://www.chinapost.com.tw/taiwan/national/national-news/2012/02/08/330953/New-device.htm>

10. Researcher says new discovery may help cure heart disease

(Central News Agency, 08 02 2012)

A Taiwanese researcher said Wednesday that his team has a new understanding of the functions of an enzyme, which could pave the way for preventing or curing cardiovascular diseases. The discovery has been published on the website of the Proceedings of the National Academy of Sciences, a United States-based journal, on Jan. 23,



professor Chiu Jeng-jiann from the National Health Research Institute told a press gathering. His research team found that type III histone deacetylases (HDACs), vitalized by "disturbed flows" in the blood vessels, can suppress antioxidant and anti-inflammatory genes and encourage cell growth, causing cardiovascular diseases. HDACs are enzymes that regulate chromatin structure and gene expression. This means that type III HDACs can serve as an important enzyme for researchers hoping to develop drugs to prevent or cure cardiovascular diseases such as the hardening of the arteries, said Chiu.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202080044
<http://www.taipeitimes.com/News/taiwan/archives/2012/02/09/2003525058>

11. Taiwan's new finding might bring hope for brain diseases

(Central News Agency, 13 02 2012)

A Taiwanese research team has identified the brain cells responsible for the formation of long-term memory in fruit flies, which could pave the way for curing human brain diseases and enhancing memory, a member of the team said. After seven years of research, the team found that the formation of long-term memory requires the synthesis of new proteins in only a few cells in the brain of fruit flies, said the team leader, National Tsing Hua University Professor Chiang Ann-shyn. The team discovered that the long-term memory of fruit flies was impaired after inhibiting protein synthesis in two cells called the "dorsal-anterior-lateral (DAL) neurons," Chiang said at a press conference. Scientists had believed that memory, including long-term memory, was stored in the "mushroom bodies" of the brain but the team found that the long-term memory of fruit flies remained normal when protein synthesis was inhibited in the "mushroom bodies," Chiang said. Mushroom bodies, or corpora pedunculata, are a pair of structures in the brain of insects and other arthropods. The team discovered that several proteins in DAL neurons are necessary for the formation of long-term memory in fruit flies, Chiang said. "This discovery could help humans understand how protein and neurons form memory, and could be conducive to developing ways of curing human brain diseases and enhancing human memory," the professor said. "It may even be applied to the development of intelligent computers," he added. Although the fruit fly brain is much simpler than that of humans, they have many similar genes and proteins that are used in everyday activities such as learning, memorizing, sleeping and exploring, Chiang said. Therefore, the study of fruit flies can be helpful in the study of human brain diseases such as Alzheimer's, Parkinson's and Huntington's, he said. Chang said his team is trying to complete the mapping of fruit fly brain circuits that are involved in the learning and memory processes. It is also hoping to confirm whether the human brain also stores long-term memory in only a few cells, he added. The team's findings have been published in the Feb. 10 edition of Science magazine in the U.S.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202130020
<http://www.taiwantoday.tw/ct.asp?xItem=186267&ctNode=445>

12. Taiwan, France sign cooperation deal

(Central News Agency, 14 02 2012)

Taiwan's Department of Industrial Technology and French financial company OSEO signed an agreement Monday to cooperate in promoting innovation and research and development. OSEO, a French public company that provides financial support for small and medium-sized enterprises and helps them to innovate, will support development and innovation projects between the two countries and help finance the ventures. The signing ceremony took place at Taiwan's representative office in Paris and was witnessed by Representative Michel Lu. "The two sides can upgrade each other's competitive edge through bilateral cooperation," Lu said. OSEO Chairman Francois Drouin said the company helps enterprises with technological innovation and can offer them financial guarantees or loans through co-financing. A total of 84,000 companies raised 31 billion euros in financial assistance through OSEO last year. Taiwan's representative office in Paris said the signing of the agreement will help spur technological cooperation between the two sides and attract French manufacturers to set up research and development operation hubs in Taiwan. OSEO has already signed cooperation deals with Canada, Japan, Israel, China and Mexico.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201202140007

13. Novartis Steps Up Investments in Taiwan

(China Economic News, 16 02 2012)

Novartis, a major pharmaceutical firm in Switzerland, will invest over NT\$500 million in Taiwan this year, with the goal of making Taiwan one of the company's 10 largest clinical testing centers in the world, said Chang Chen-wu,



president of the company's Asian operation. As the world's third largest pharmaceutical firm, Novartis boasted revenue of US\$58.6 billion last year, when it spent over US\$9.6 billion (NT\$283.4 billion) on R&D, triple Taiwan's sci-tech budget of NT\$94.5 billion a year. Chang pointed out that the majority of the clinical tests carried out by Novartis in Taiwan belong to the first-stage tests, which require high technological threshold. The clinical tests will be conducted at National Taiwan University Hospital and four other domestic medical centers. The Swiss company will undertake 100 clinical tests in Taiwan this year, compared with 70 last year, which involved investments less than NT\$500 million. Novartis has been shifting its business focus to Asia and other emerging markets in recent years, according to Chang. Most of the clinical tests in Taiwan are related to new medicines for cancer, with supplementary items including medicines in the fields of blood, metabolism, and cardiovascular ailment. Taiwan boasts the merits of speed, reliability, and low cost in serving as a site for pharmaceutical clinical tests, according to Chang. Novartis, said Chang, owns nine clinical test centers worldwide and Taiwan has the potential to become its 10th clinical test center.

http://cens.com/cens/html/en/news/news_inner_39316.html

14. **Blueberry extract could kill bladder cancer cells: professor**

(Central News Agency, 14 02 2012)

A study by a medical professor has found that an extract from blueberries can help combat bladder cancer and bladder cancer with chemotherapy resistance, a local university said. Wang Ying-jan, a professor at National Cheng Kung University in southern Taiwan, discovered that pterostilbene, an extract from blueberries that is also found in pterocarpus indicus, commonly known as New Guinea rosewood, is helpful in bladder cancer treatment. Wang said the extracted substance can induce apoptosis in bladder cancer cells. Pterostilbene also has antioxidant and antiseptic features and anticancer activity and can lower blood fat levels, he added. The research also found that bladder cancer patients who continue to smoke while receiving chemotherapy tend to present worse post-chemo conditions than those who do not smoke, signaling a chemotherapy resistance feature in nicotine. Wang's research, which was documented in three separate theses, has already been published in 2008 and 2010 in Toxicological Sciences, a monthly medical research journal published by Oxford University in the United Kingdom.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aLIV&ID=201202140038

15. **New measurement for hepatitis B unveiled**

(Central News Agency, 19 02 2012)

A Taiwanese liver disease research team introduced a new measurement that helps to better diagnose hepatitis B infections, which affect roughly 2.5 million people in Taiwan, and gauge whether they are under control. The REVEAL-HBV Study Group, led by Chen Chien-jen, unveiled the new measurement at an annual meeting of the Asian Pacific Association for the Study of the Liver (APASL) in Taipei. The new measurement detects the amount of hepatitis B surface antigens (HBsAg) in a person's body. The antigens are proteins produced by the hepatitis B virus (HBV) that peak with the first appearance of clinical disease symptoms. The new measurement reveals how a hepatitis B carrier's immune system responds to the virus and helps doctors evaluate the effectiveness of certain medications, according to Kao Jia-horng, APASL chief and a professor at National Taiwan University's College of Medicine. Chen, an academician at Academia Sinica, Taiwan's top research institution, said that the new measurement complements existing gauges measuring the amount of hepatitis B virus DNA and will help doctors more accurately assess the risk of hepatitis B infections developing into liver cirrhosis and liver cancer. Liaw Yun-fan, another academician at the meeting, said that a growing body of research shows the amount of HBsAg is indirectly related to how hepatitis B infections come under control. Liaw said the lower the HBsAg level, the more the infection is under control. Among the other existing measurements for hepatitis B infections are age, sex, and liver function index.

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16. **German scientists receive National Science Council award**

(Central News Agency, 20 02 2012)

Three German scientists received the highest academic award that Taiwan presents to foreign scientists, in recognition of their outstanding research. Nobel laureate and virologist Harald Zur Hausen, chemist Klaus Mullen and mathematician Ansgar Jungel were presented with the National Science Council's (NSC's) Tsungming Tu Award, established by the council in 2006 to facilitate closer cooperation between international and local scholars. "We hope



this award will bring the award-winners from Germany to Taiwan to cooperate with Taiwanese researchers in making cutting-edge achievements," NSC Minister Cyrus C.Y. Chu said at the award ceremony in Taipei. Chu said his council and Germany's Alexander von Humboldt Foundation, an academic award organization that jointly sponsored the award with the NSC, will organize an international conference on renewable energy in Taiwan in November. Zur Hausen, who touted the research abilities of Taiwanese researchers, said local studies in the past have led to "enormously prominent results" in the field of cancer research and that he hopes the cooperation with Taiwanese researchers will continue well into the future. Zur Hausen's research on the role of human papilloma viruses in causing cervical cancer won him the Nobel Prize in Physiology or Medicine in 2008. His research paved the way for the introduction of a vaccine in 2006 to control cervical cancer and is believed to have helped save thousands of lives. Meanwhile, Mullen, one of the directors of the Germany-based Max-Planck Institute for Polymer Research, is a winner of numerous international awards on polymer science including the Polymer Award of the American Chemical Society. He has published more than 1,200 papers in international publications. The other receiver of the award, Jungel, is a professor at the Vienna University of Technology's Institute for Analysis and Scientific Computing. His research has contributed to the understanding of multi-scale semiconductor and plasma models. Jungel will be collaborating with Taiwanese researchers on the analysis of spintronic semiconductor models, which could help improve the performance of computer processors in the future. The award-winners, each of whom were awarded a medal, trophy and US\$75,000, have been invited to spend up to six months in Taiwan to collaborate with local researchers. A science profession medal award was also given to Taiwanese researcher and former Department of Health Minister Chen Chien-jen, and another to Tsai Ming-cheng, professor and dean of National Taiwan University's College of Law, in recognition of their contributions to Taiwan's scientific research

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17. Taiwan, U.S. approve trials of locally developed diabetes drug

(Central News Agency, 20 02 2012)

The first phase of clinical trials of a locally developed anti-diabetes drug candidate, code-named DBPR108, will soon be launched both in Taiwan and the United States, the National Health Research Institutes (NHRI) announced Monday. "Both Taiwan and U.S. health authorities have given the green light to phase 1 clinical trials of DBPR108 compound on humans," Chao Yu-sheng, director of the NHRI's biotechnology and pharmaceutical division, said at a news conference. The compound is the first entirely locally developed drug candidate to treat type 2 diabetes, the most common form of diabetes. In type 2 diabetes, with is often weight-related, either the body does not produce enough insulin or the cells ignore the insulin, which is necessary for the body to be able to transform glucose into energy by transferring it from the blood to cells. A lack of insulin results in glucose building up in one's blood. Type 2 diabetes has become increasingly prevalent in Taiwan as more people eat Western diets, Chao said, and there are now about 2 million type 2 diabetes patients in the country. Because type 2 diabetes is also prevalent in many countries around the world, a large number of foreign pharmaceutical conglomerates have invested heavily in developing medications to treat the condition, Chao said. At present, dipeptidyl peptidase-4 (DPP-4) inhibitors, designed to reduce the amount of glucose in the blood, are new and effective medications for type 2 diabetes, with an annual market value of US\$3 billion, Chao said. "The locally developed DBPR108 aims to restore blood glucose levels to normal by increasing insulin sensitivity and raising glucose tolerability," Chao said. Moreover, DBPR108 is safer and has fewer side effects than many other DPP4 inhibitors available on the market, based on toxicity testing on animals, Chao said. The NHRI has spent many years developing the drug, with financial support from a science and technology development fund under the Executive Yuan and six local pharmaceutical companies, including Genovate Biotechnology Co., China Chemical and Pharmaceutical Co., Nan Kuang Pharmaceutical Co., Yung Shin Pharmaceuticals Industry Co., TTY Biopharm Co., and Taiwan Biotech Co. The drug candidate has already been patented in many countries, including Taiwan, the U.S., China, Australia, South Korea and Australia.

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18. New supercomputer to accelerate Taiwan's animation computing

(Central News Agency, 28 02 2012)

A new supercomputer developed by the National Center for High-performance Computing (NCHC) will be launched in the near future to help reduce the computation time required in the production of animation and special effects. Formosa 4, Taiwan's largest self-built cloud-computing system, is undergoing its final test, said Alpha Wang, manager of the planning and promotion division at the NCHC. The system, which encompasses a graphic processing unit (GPU) cluster and is located at the Tainan branch of the NCHC, is expected to come online in mid-June, she said. "Usually it takes about one year to finish the computation of some complicated animations and special effects," she told CNA in a telephone interview recently. "Formosa 4 will be able to shorten the time and help



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companies introduce their works earlier," she noted. The Formosa series has established a "Render Farm" platform to provide cloud-based animation and special effect rendering services for local film and animation industry, the NCHC said. The Render Farm, officially launched in November 2011, has subsequently integrated a dynamic simulation system and animation software to cultivate rendering techniques for special effects, according to the NCHC. "Some companies are using the previous generation cluster computer, Formosa 3, to compute their animations," Wang said, without divulging the names of the companies due to confidentiality agreements. Costing NT\$37 million (US\$1.25 million), Formosa 4 adopted a hybrid computing framework combining a central processing unit (CPU) and GPU to further reduce construction costs and increase energy efficiency. It has an optimal performance of 70 teraflops (trillion floating point operations per second), nearly nine times faster than the 8 teraflops of Formosa 3, which was launched in August 2011. In November last year, Formosa 4 was ranked 234th on the 38th TOP500 supercomputer list released in the SC11 Conference in Seattle based on internal testing that had been conducted up to that point, an indication of Taiwan's strength in cluster and parallel high-performance computing research.

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