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- BioBusiness Asia 2011 was held in Taipei from 19-20 July. The forum, sponsored by Industrial Technology Research Institute (ITRI) of Taiwan, became one of the most important biotech information platforms in Asia, devoted to the exchange of biotechnology business opportunities. The theme of this year's forum was the New Asian Paradigm for creating biotechnology businesses. More than 300 venture capitalists, biotechnology experts in the medical science and pharmaceutical professionals took part in the event. Taiwan would like to play one of the key roles in driving the Asian biomedical industry as a gateway to the Chinese market. Its 'Biotechnology Take Off Diamond Action Plan' is composed of four parts, including translational research in pharmaceuticals and medical device, Taiwan Food and Drug Administration (TFDA) establishment, Biotech Venture Capital Fund (BVC) establishment, and Supra Incubation Center (SIC) establishment. From 2009-2013, the government is to invest US\$ 1.2 bio. into the program. One objective is to strengthen the commercialization process and bolster the industrial value chain. The first case sponsored by BVC fund is called Taiwan Medtech Fund (TMF) and it will focus on medical device product investment. SIC has been created to provide pharmaceutical and medical devices and equipment businesses with comprehensive services that include fund raising, legal consultation, and technology and management support.
- Wong Chi-huey, head of Academia Sinica (Taiwan's top research institution), expects research and development efforts backed by the institution to help upgrade Taiwan's biotechnology industry. Academia Sinica has been an incubator for advanced studies in areas ranging from stem cells, DNA sequencing and atomic sciences to history, literature and linguistics. It is in the vanguard of promoting Taiwan's biotechnology sector. According to Wong, at least 60 new drugs developed by Taiwanese companies are undergoing clinical testing, with 30 complying with U.S. Food and Drug Administration standards. These efforts include an antibody for HIV by TaiMed Biologics Inc. and antibiotics targeting cancer by TaiGen Biotechnology Co. Ltd. Numerous new drugs coming from Taiwan should appear on the market in the next few years, he said. Wong believes such drug development efforts will enjoy better resources as the government moves to provide a more encouraging environment, a key part of which will be a biotech park proposed by Academia Sinica. To facilitate a cluster effect for drug development, which typically consists of drug discovery, preclinical research and clinical trials on humans, the biotech park, adjacent to the institute in Taipei's Nangang District is set to become headquarters for key participants in drug discovery and testing. Slated to open in 2017, it will be home to Taiwan's leading research in translational medicine. Representative offices of the National Science Council, Ministry of Economic Affairs, National Laboratory Animal Center and TFDA, under the Department of Health, will provide on-site support for the NT\$ 22.5 bio. initiative.

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1. "ITRI Today": series of new motion sensor-related technologies

"ITRI Today", 2Q 2011, no. 62: ITRI South has recently developed a series of new motion sensor-related technologies which can be applied to enhance human-machine interaction, home network systems, ICT-enabled healthcare programs, green manufacturing, and laser application and micro system technologies.

<http://www.itri.org.tw/chi/publication/publication-detail.asp?RootNodeId=00J&NodeId=00J1&BookNodeId=00J103&ArticleNBR=3381>

2. Breakthrough in stealth technology?

(Central News Agency, 04 07 2011)

Local media reported that Taiwan has scored a breakthrough in the development of stealth technology by developing a radar-absorbent material. According to a United Daily News (UDN) report, the Republic of China Navy has collaborated with the Armaments Bureau to develop a radar-absorbent material that has allowed a 50-ton Navy Seagull-class missile boat coated with the material to evade radar detection.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?ID=201107040038&Type=aTOD

3. National Science Council signs MOU with Central European group

(Central News Agency, 05 07 2011)

The National Science Council (NSC) sealed a memorandum of understanding (MOU) with the International Visegrad Fund (IVF) on 4 July to expand technology cooperation between Taiwan and Central Europe. They previously signed a Technology Letter Of Intent last September. Under the deal, the NSC will cooperate with the international organization to launch short-term research exchanges for young scholars beginning in the second half of the year and hold a bilateral information and communications technology seminar this fall.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aTPS&ID=201107050009

4. ITRI unveils innovative remote-sensing technologies, incl a visual jigsaw for deconstructing IC designs, a smart vehicle capable of exchanging messages with other cars, a solar energy converter to be built into mobile devices, magic perception aquarium, an intelligent TV interface that adjusts volume and subtitle size for each family member.

(Taiwan Today, 05 07 2011)

Taiwan's Industrial Technology Research Institute announced a dozen innovative information and communications technologies featuring user-friendly applications of remote sensing. Information and Communications Research Laboratories showcased a range of devices that run counter to the stereotyped impression of complexity, including a visual jigsaw for deconstructing integrated circuit designs, a smart vehicle capable of exchanging messages with other cars on the road, and a solar energy converter to be built into mobile devices. ICRL General Director Wu Cheng-wen cited the Magic Perception Aquarium as an easy-to-use gadget. This is a wireless system connecting household sensors such as thermometers, hygrometers or voltmeters to a TV screen, displaying their readings in the form of fish. "A jellyfish or puffer, for instance, will register the level of carbon monoxide in the air," Wu said. "And when the poisonous gas goes beyond safe limits, the animal will swell and send warnings to you." Wu said the system is expected to be applied to mobile phones, and has already been adopted by a Japanese telecommunications company. The lab has also developed an intelligent TV interface that adjusts volume and subtitle size for each family member. Using mounted cameras and face recognition technology, the ICRL said, the monitor enlarges subtitle fonts for older viewers, while a child sitting too close to the set will trigger a "Harmful to your eyes!" message on the screen.

<http://www.taiwantoday.tw/ct.asp?xItem=170104&ctNode=445>

5. AEC unveils breast cancer diagnosis technology

(Taiwan Today, 12 07 2011)

Developed by the Atomic Energy Council, the INER BreastPET will make breast cancer diagnosis more accurate and comfortable: Taiwan's Atomic Energy Council said that it has developed the country's first positron emission tomography specifically designed for breast cancer diagnosis. According to the AEC's Institute of Nuclear Energy



Research, the INER BreastPET offers more accurate and comfortable screening at a lower cost than techniques currently in use. The device, the result of a joint project by the AEC and the Ministry of Economic Affairs, is now being tested in clinical trials at Taipei-based National Taiwan University Hospital, and is expected to become commercially available in four years, she added. According to the AEC, the global market for high-end medical imaging amounted to US\$16 billion in 2010. The sector is also one of the strategic industries heavily promoted by the government. Under the Executive Yuan's biotechnology development plan, Taiwan is expected to become one of the top three suppliers of advanced medical imaging devices in the world by 2020.

<http://www.taiwantoday.tw/ct.asp?xItem=170891&ctNode=445>
<http://www.taipeitimes.com/News/taiwan/archives/2011/07/12/2003508032>

6. Taiwan's largest telescope to be completed in 2016

(Central News Agency, 12 07 2011)

The construction of the largest telescope in Taiwan by National Central University (NCU) will be completed in 2016 and is expected to significantly boost Taiwan's ability to conduct astronomical observations. The 2-meter optical telescope will raise the country's astronomical observation capacity by at least 10 times with its four-color simultaneous imager that enables accurate color measurements, and fully depleted charge-coupled devices, which can achieve higher sensitivity, said officials. It will be used to track and conduct follow-up observations on new discoveries made by the U.S.-proposed Panoramic Survey Telescope and Rapid Response System (Pan-STARRS), to search for celestial objects that might collide with earth, officials said. The NCU's telescope will be located at the university's Lulin Observatory, situated in Yushan National Park, is at an altitude of 2,862 meters, making it one of the highest observatories in Asia. Established in 1999, the Lulin Observatory currently houses the Taiwan-American Occultation Survey 0.5-meter wide-field telescopes, and a one-meter telescope, which has already been instrumental in making Taiwan's first asteroid and comet discoveries. The NCU telescope, which has been under construction for three years, will be completed with the financial support of the Ministry of Education and Taiwan's Delta Electronics Inc., one of the world's leading providers of power supplies.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201107120053

7. Tatung University unveils chopper remote control software

(Taiwan Today, 14 07 2011)

A software enabling video camera-equipped model helicopters to be controlled via WiMAX android tablet computers and cell phones during search and rescue missions was unveiled by Taipei-based Tatung University. The Taipei-based university has been a pioneer in Taiwan in adopting wireless Internet technology, spending roughly NT\$12 million to launch the country's first WiMAX campus network in 2009. In 2010, the university purchased five German-made remote-controlled model helicopters equipped with video cameras and successfully converted them from their original Wi-Fi to enable them to receive WiMAX signals. "This modification extended the helicopters' monitoring range from just 50 meters to nearly 3 kilometers," Hsu said. The university said the new system would initially be used for campus safety patrols, allowing security guards to monitor the school grounds from a control room and respond quickly to any emergency.

<http://www.taiwantoday.tw/ct.asp?xItem=171263&ctNode=445>

8. Taiwan, Germany sign scientific cooperation pact

(Taiwan Today, 14 07 2011)

Taiwan's National Science Council signed a memorandum of understanding with the German Research Foundation (DFG), paving the way for joint scientific research programs between the two nations. Signed by NSC Minister Lee Luo-chuang and DFG President Matthias Kleiner, the MOU will bolster academic exchanges and collaboration between Taiwan and Germany, the NSC said. The newly inked pact will allow universities or research institutions from both sides to form International Research Training Groups, consisting of at least five professors and 15 researchers from each nation. The research groups will focus on doctoral researches, with the aim of shortening the time required for completing a doctoral dissertation by up to two years, the NSC said. The joint program will also provide scholarship opportunities for postdoctoral students to conduct research in partner institutions for up to one year, the NSC added. In related news, the NSC's Science and Technology Program for Energy has partnered with Germany's Leibniz Institute of Marine Sciences (IFM-GEOMAR) in Kiel University on a project in search of methane hydrate near Taiwan. It has been estimated the hydrate reserve in the Taiwan Strait has the potential to become a



major energy source, providing for the nation's energy needs for at least 50 years, an NSC official said. Starting 2012, German research vessels will explore the areas off Taiwan's southwestern coasts for the new energy source, the NSC said.

<http://taiwantoday.tw/ct.asp?xItem=171235&CtNode=413>

9. Scientists unveil keys to refine chemotherapy drugs

(Central News Agency, 22 07 2011)

A team of Taiwan scientists uncovered how a common type of anti-cancer medicine fights off malignant cells, a mechanism that was unknown to science, said National Taiwan University (NTU). Describing the discovery as a "milestone" in cancer drug development, Chan Nei-li, a specialist in structural biology and a faculty member of NTU's College of Medicine, said that the finding could help pharmacists worldwide come up with drugs that have fewer side effects on cancer patients. Chan and his research team found that etoposide, a widely used chemotherapy drug, kills cancer cells by interacting with type II topoisomerases, which cancer cells rely on heavily for existence. Type II topoisomerases is an enzyme that can cause DNA strands of cancer cells to break permanently, and by doing so kills them. "Although etoposide has been around for 30 years, we were still unsure of its cancer cell killing mechanism," said Li Tsai-kun, a research member. "Now that we understand how it works, our next step is to modify the chemical structure of the drug to reduce complications." The anti-cancer agent is prescribed for various cancers and its side effects include low blood pressure, hair loss, pain, constipation, and acute myeloid leukemia. The finding was published in the renowned journal Science on 22 July 2010.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aTPS&ID=201107220010
<http://www.taiwantoday.tw/ct.asp?xItem=172619&ctNode=445>

10. Taiwan researchers invent 'cosmetic chip' to detect skin problems

(Central News Agency, 23 07 2011)

Researchers from the National Chiao Tung University have developed a "cosmetic chip" device that can detect skin problems and gauge the effects of skin care products. The device, which utilizes light-based photoplethysmography (PPG) technology, helps determine skin conditions through the use of an infrared light, said Huang Sheng-chieh, head of the research team. It measures the amount of light that is reflected from small blood vessels in the skin to a light sensor, he said. The sensor, pressed against the user's skin, records the amplitude of the reflected light wave, which is then transmitted to a computer database for analysis. The smaller the variations in the amplitude of the light wave, the better and healthier the skin, as it means that nutrients are spread more evenly across the small blood vessels under the skin, Huang said. As the chip allows people to measure the changes on their skin, it would, therefore, allow them to gauge the effects of their skin care products and whether a certain product is suitable for them, the professor said. Huang and researchers from the biomedical system-on-chip research laboratory under the university's electrical engineering department worked with dermatologist over a period of six years to develop the device. He said more than 20,000 people have already used the device to test their skin conditions. The current goal of the team is to make the chip device smaller and more refined so that it can fit into popular and portable devices such as mobile phones and MP3 players, the professor said. The ultimate goal is to make the chip available to everyone at a low cost, he added. Huang said that his team, which comprises doctors specializing in Chinese medicine, is also expanding its database so that Chinese medical views about the body and its circulatory system can also be provided to skin patients through the device. The professor also said that his team is working to improve the therapeutic functions of the chip. He said the device is equipped with light emitting diodes (LEDs) that can emit red, blue and other lights that have been found to have a therapeutic effect on the skin. Huang said his team has chosen light therapy over other forms of skin treatment such as laser, intense pulsed light and mesotherapy, because of its non-invasive, painless and easily accessible.

http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aECO&ID=201107230021

11. Construction of Taiwan's aquarium fish R&D center on schedule

(Taiwan Today, 25 07 2011)

The construction of Taiwan's aquarium fish research and development center remains on target, and the facility will begin operations next February as scheduled, the Council of Agriculture said. The center is part of a COA plan that aims to develop ornamental fish into one of Taiwan's major agricultural export products. Covering 5.5 hectares of land in the southernmost county of Pingtung, the NT\$1.19 billion (US\$41.28 million) center will serve as an R&D base



and export park for Taiwan's ornamental fish industry. The zone will include an R&D center with staffers from COA-sponsored research bodies and National Pingtung University of Science and Technology to provide expert support as well as standardized facilities for aquaculture operation.

<http://www.taiwantoday.tw/ct.asp?xItem=172623&ctNode=445>

12. Local university and company develop 'green' eating utensils

(Liberty Times, 28 07 2011)

Environmentally friendly eating utensils made of unhusked rice and glutinous rice have been co-developed by Kun Shan University and Song Yuh Technology. The plasticizer-free items are able to withstand high temperatures and can be recycled to become boiler fuel or pig feed, making them a big step closer to the green life concept.

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=232377&CiNode=9>

13. Universities unveil range of efficient new technologies: car theft prevention, low-cost person's pupil recognition equipment

(China Post, 28 07 2011)

A research team led by Professor Tsai Wen-Hsiang at the National Chiao Tung University (NCTU) has successfully developed an easier and more efficient way to prevent possible theft of vehicles. A separate team headed by Professor Shih Sheng-Wen at the National Chi Nan University has come up with low-cost pupil recognition equipment with a price only about one-tenth of imported products. It normally takes much time in a slow process to screen the surveillance images grabbed by monitoring equipment when vehicles are damaged or stolen, according to Tsai at the NCTU's Computer Vision Lab and the Department of Computer Science and Information. The new system developed by his team can use the odometer already installed in a vehicle to send images about any unusual activities of strangers approaching the car to a control center. Car owners can easily retrieve images related to their cars by simply keying in license plate number or the time when the cars were stolen or damaged, he said. The search time will be six times faster than conventional methods, Tsai said. This will not just help car owners to quickly gather useful information concerning their vehicles but also significantly reduce the workload for police officers investigating car theft cases.

Tsai said his team is now taking a further step to develop ways of hooking the system to mobile phones so that people can be instantly alerted to any unusual movement around their cars.

Shih of the Department of Computer Science and Information at the Chi Nan University said many security systems in use need a lot of time to precisely focus on an individual's pupil, forcing personnel to stare at the monitoring equipment for a long time. But it takes the new system developed at Chi Nan University only 0.1 second to take image of a person's pupil and match it to data stored in backups to quickly identify a person. The accurate recognition rate for his security system can be as high as 99 percent, said Shih. He said the entire hardware system designed to be used by companies, public buildings or institutions will cost only about one-tenth of the prices — ranging from NT\$500,000 to NT\$600,000 — of similar systems made in foreign countries. Shih said his team is in process of filing patent applications in the U.S.

<http://www.chinapost.com.tw/taiwan/national/national-news/2011/07/28/311402/Universities-unveil.htm>