



31 May 2009

## **Science, Technology and Education News from Taiwan Number 11 — May 2009**

### **Introduction**

The first European Union Center (EU Center) opened in Taiwan on 22 May in a collaborative effort by seven Taiwan universities led by National Taiwan University (NTU) to promote exchanges and mutual understanding between Taiwan and the European economic bloc. The program in Taiwan will help create a foothold for EU studies in Taiwan's higher education circles and serve as an information resource for a broad Taiwan audience.

The European Commission is providing a grant of 1.1 mio. euros over the next four years for the project, while the rest of 1.5 mio. budget will be covered by the participating institutes: NTU and National Chengchi, National Chung Hsing, National Sun Yat-sen, National Dong Hwa, Tamkang and Fu Jen Catholic universities.

The main activities of the EU Center, which is located on the NTU campus, will include regular workshops and seminars on EU policies as well as summer school for high school teachers that will allow them learn more about the EU. The seven participating universities will also launch their own EU study programs, whether at undergraduate or graduate levels.

The EU Center network in the Asia-Pacific region includes South Korea, Japan, Australia and New Zealand. Taiwan is the third East Asian country to join the network, which was launched in 1998 and is funded by the European Commission. .

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### **1. Taiwan scientists find ways to improve cancer-fighting drugs**

(Central News Agency, 03 05 2009)

A Taiwanese research team has isolated more than 10 peptides that can improve the efficacy of cancer-treating drugs by helping guide them to home in on tumor cells.

According to team leader Wu Han-chung, associate research fellow at the Institute of Cellular and Organismic Biology of Academia Sinica -- Taiwan's leading research organization -- the peptides could increase the effectiveness of chemotherapy by five to 12 times, while reducing its side effects.

Full article:



[http://english.cna.com.tw/ReadNews/Eng\\_TopNews.aspx?ID=200905040016](http://english.cna.com.tw/ReadNews/Eng_TopNews.aspx?ID=200905040016)

## 2. Taiwan's ITRI Develops 3D Imaging and Display Technologies

(Taiwan Economic News, 05 05 2009)

The Industrial Technology Research Institute (ITRI), a national technology research organization in Taiwan, recently announced its successful development of 3D imaging and display technologies.

Quoting statistics compiled by market-researchers, ITRI said that the 3D imaging and display market in 2008 was only about US\$140 million, but the value is expected to jump to US\$15.8 billion by 2015, with an average annual growth rate of 95%.

The ITRI also indicated that 3D imaging and display would create many new and lucrative business opportunities amid the global recession. To further promote the industry, ITRI has tied up with more than 20 local private companies to set up the 3D Interaction & Display Alliance (3DIDA).

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27471.html](http://cens.com/cens/html/en/news/news_inner_27471.html)

Related article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27515.html](http://cens.com/cens/html/en/news/news_inner_27515.html)

## 3. U-Tech Strikes Gold in Netbook PCs With Cutting-edge IMD Technology

(Taiwan Economic News, 05 06 2009)

Following four years of effort on development of IMD (In-mold decoration) technology, Taiwan-based U-Tech Media Corporation, a leading supplier of pre-recorded optical media on the island, has recently contracted with 5 Taiwanese netbook PC makers to apply the technology to the manufacturing of the products, expecting a promising future in the segment.

U-Tech noted that IMD is an innovative and economical production technology used to decorate plastic surfaces. The process well incorporates molding, injecting, forming and painting and can enhance durability of processed plastic surfaces, allowing more variety of colors, materials and shapes in plastic surfaces and assuring better production efficiency than traditional technologies, such as IMR (In-mold roller). The firm has already had the technology protected by multinational patents, effectively gaining an upper hand in the segment.

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27502.html](http://cens.com/cens/html/en/news/news_inner_27502.html)

## 4. Taiwan hospital develops new method to screen for cervical cancer

(Central News Agency, 07 05 2009)

Tri-Service General Hospital unveiled a new cervical cancer screening method that it says can achieve a 99 % accuracy rate by looking for a chemical change called DNA methylation in cervical tissues.

According to obstetrician and gynecologist Lai Hung-cheng, the method involves the identification of four tumor-suppressor genes in the cervical tissues -- SOX1, PAX1, LMX1A and NKX6-1 -- and measures their altered methylation patterns.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200905070019&pType1=HH&pType0=xDLNLHH&pTypeSel=0>

## 5. ARTC Inaugurates Taiwan's First Automotive Optic Design Center

(Taiwan Economic News, 08 06 2009)

Taiwan's Automotive Research & Testing Center (ARTC) inaugurated the Automotive Optic Design Center (AODC) to help vertically integrate the island's automotive-lighting industry. ARTC also unveiled its latest R&D achievements in automotive lighting: an Image Adapted Headlamp (IAH) and Distributive Lighting System (DLS), both of which are claimed to incorporate the most advanced technological innovations in the field. In addition, the ARTC signed



technology-transfer and consulting agreements with Gsharp Corp. and Mycarr Lighting Technology Co., local firms which will commercialize the products as soon as possible.

ARTC president Joe Huang pointed out that with long-term support from the government's Industrial Technology Development Program, his organization has been moving vigorously into new fields of automotive lighting so as to help the island's producers find new market niches. The ARTC has continuously developed advanced and innovative products and technologies such as the AFS (Adaptive Front-lighting System), LED automotive and powered two-wheeler (PTW) headlamps, and LED bicycle lights.

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27567.html](http://cens.com/cens/html/en/news/news_inner_27567.html)

## **6. Academia Sinica research confirms ozone depletion theory**

(Central News Agency, 08 05 2009)

A study by local scientists has confirmed that emissions of chlorofluorocarbons -- major ingredients in refrigerants and propellants -- cause ozone layer depletion, a theory that has been cast into doubt in the past two years.

Jim J. Lin, the joint appointment associate research fellow of Academia Sinica's Institute of Atomic and Molecular Sciences and National Chiao Tung University's Department of Applied Chemistry, was able to reach his conclusion by precisely measuring chlorine peroxide (ClOOCl) -- generated when chlorofluorocarbons decompose -- in a laboratory environment.

Chlorine peroxide has long been thought to trigger ozone destruction when the molecule absorbs sunlight and breaks into two chlorine atoms and an oxygen molecule, a process known as photolysis.

The larger the absorption cross section of chlorine peroxide, the faster chlorine peroxide absorbs sunlight and the faster chlorine atoms are generated, depleting the ozone layer at a rapid pace.

That fundamental theory was challenged, however, in 2007 when F.D. Pope and his co-workers from the Jet Propulsion Laboratory at the California Institute of Technology presented contradictory data.

According to an Academia Sinica statement, Pope measured absorption cross sections -- a method to test the rate of photolysis -- of ClOOCl that were about 10 times smaller than previously accepted values.

That meant "it would be impossible to produce enough chlorine atoms to explain the observed ozone loss via any known chemical mechanisms," the statement said.

But Lin's work, the results of which were published in Science Friday, proved that traditional explanations of ozone layer depletion were valid.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200905080022&pType1=ST&pType0=xEMST&pTypeSel=0>

## **7. Agricultural research station develops healthcare products**

(Central News Agency, 10 05 2009)

An official of the Hualien District Agricultural Improvement Station announced that the station has developed several healthcare product prototypes in view of the huge growth potential in the healthcare industry despite sagging domestic consumption as a result of the current economic downturn.

At a presentation of its research achievements, the station unveiled an array of newly developed beverages and domestic products featuring claimed health benefits, including items that include ingredients derived from winter plums, Chinese St. John's wort and white wild peony flowers.

Station chief Huang Peng also announced that the station welcomes talks with companies that are interested in venturing into the healthcare product market and turning the prototypes into commercial products that can be used as muscle relaxants, anti-depressants, aids to restful sleep and beauty products such as facial masks and skin lotion.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200905100006&pType1=HH&pType0=xJDLNHH&pTypeSel=0>

## **8. NCTU students form biopharmaceutical firm based on nanotechnology**

(Central News Agency, 13 05 2009)



A research group comprised of professors and students at National Chiao Tung University (NCTU) in Hsinchu, northern Taiwan, has recently founded a biopharmaceutical company to produce magnetic-sensitive microcapsules using nanotechnology that can be used in cancer, cosmetics and other biomedical applications.

The group is composed of two professors at NCTU's Graduate Institute of Materials Science and Engineering, who serve as consultants, and four postgraduate students from the institute, including Liu Kun-ho, a Ph.D who serves as general manager of the newly formed Advanced Delivery Technology Inc. (ADT).

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200905130009&pType1=ST&pType0=xEMST&pTypeSel=0>

Related article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/14/2003443573>

## **9. Trash incinerators produce electricity**

(Taipei Times, 13 05 2009)

Advances in recycling have enabled all 24 trash incinerators around the country to double as biomass electricity plants, Environmental Protection Administration (EPA) officials said, adding that the efficiency of these plants was expected to increase with time. Trash incinerators already contribute a small percentage of domestic electricity output.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/13/2003443478>

## **10. High-tech test center for PV energy inaugurated in southern Taiwan**

(Central News Agency, 13 05 2009)

The Institute of Nuclear Energy Research (INER) under the Cabinet-level Atomic Energy Council inaugurated its high-tech testing center for photovoltaic energy at the Kaohsiung Science Park in southern Taiwan.

According to the INER, the center's laboratory will provide testing services in 17 categories for Taiwan's solar energy industry, and help local photovoltaic companies to obtain international certification and explore the overseas market. According to Kuo Cherng-tsong, a scientist of the INER who is leading the demonstration project, the 3.4-hectare farm will have the largest high-concentration photovoltaic system in Asia. It is scheduled to be completed by the end of this year. Kuo explained that the photovoltaic system on the demonstration farm will use high-efficiency III-V solar cells that can absorb direct solar irradiation and are better than silicon and thin-film solar cells.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200905130023&pType1=ED&pType0=xEMST&pTypeSel=0>

## **11. Thailand and Taiwan to Begin Biotech Cooperation Plan**

(Central News Agency, 14 05 2009)

Korn Dabbaransi, former Deputy Prime Minister of Thailand, recently confirmed that his nation and Taiwan would set up a biotech cooperation program participated by government, academia and industry.

The program will initially develop cosmetics, pharmaceutical, and health-food products for the Thai market, which will also be sold in Taiwan and other Association of Southeast Asian Nations (ASEAN) markets.

Under the partnership, Korn pointed out, Thailand would supply natural ingredients as herbs, while Taiwan would handle the production techniques and marketing.

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27626.html](http://cens.com/cens/html/en/news/news_inner_27626.html)

## **12. HP to Adopt Quanta's Optical Touch-screen Technology**

(Central News Agency, 15 05 2009)



Focusing on applications of touch screen technologies, HP, world's largest PC brand, is going to widely use the newest optical touch technology developed by Taiwan-based Quanta Computer Inc., the leading notebook PC maker, in its touch screen desktop PCs, according to industry sources.

Cooperating with system integration companies, HP recently launched a couple of touch screen technology applications for use in interactive multimedia tours for libraries and hotels. In fact, the brand has actively promoted touch PCs for three years, and with Microsoft's Windows 7 operating system to hit the market, plans to launch multi-touch screen applications this year, according to Monty Wong, vice president and general manager of HP Taiwan's personal system group.

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27642.html](http://cens.com/cens/html/en/news/news_inner_27642.html)

### **13. Local scientists may have found secret of longevity**

(Taipei Times, 16 05 2009)

A group of Taiwanese scientists said that they may have identified a gene that could hold the secret to human longevity.

The research was conducted by a 12-member team led by Tsai Ting-fen, an associate professor in the department of life sciences at National Yang-Ming University. Tsai is also head of the Mouse Genetics Laboratory in the school's Institute of Genome Sciences.

Tsai and her associates told a press conference that while trying to identify a gene linked to liver cancer in mice, they accidentally discovered that an eight-week-old black mouse deprived of the *Cisd2* gene showed signs of premature aging.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/16/2003443723>

### **14. Taiwan student wins top prize at int'l science fair**

(Central News Agency, 16 05 2009)

A Taiwan high school student won a major prize at the Intel International Science and Engineering Fair for her discovery of bacteria that breaks down Styrofoam.

On the eve of the conclusion of the May 10-16 fair in Reno, Nevada in the United States, Tseng Yi-ching, a student of National Taichung Girl's Senior High School in Taichung City was awarded the top prize in microbiology, according to a press release issued here Saturday by the National Taiwan Science Education Center.

Tseng won the prize for her discovery of bacteria in the digestive ducts of live mealworms that can decompose Styrofoam, which is not biodegradable.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200905160017&pType1=ST&pType0=xEMST&pTypeSel=0>

Related article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/18/2003443892>

### **15. Research team develops cancer immunotherapy**

(Taipei Times, 17 05 2009)

A clinical trial developed by a Taiwanese research team has offered a glimmer of hope for patients of neuroblastoma, a malignant cancer that appears in early childhood, a press statement released by the Academia Sinica said.

The research team at the research institute has proven that a combination of anti-cancer monoclonal antibodies (mAbs) with cytokines (natural hormones that help the immune system) is an effective anti-cancer therapy.

The new immunotherapy treatment pioneered by the research team, headed by Alice Yu, deputy director of Academia Sinica's Genomics Research Center, is the first study that confirms that immunotherapy is effective in improving cure rates for this childhood cancer, the statement said.

Full article:



<http://www.taipeitimes.com/News/taiwan/archives/2009/05/17/2003443805>

#### **16. NCKU unveils 'world's smallest' voice-activated robot**

(Taipei Times, 23 05 2009)

National Cheng Kung University (NCKU) yesterday unveiled what it said is the world's smallest voice-activated robot that can understand instructions in several languages.

Wang Jhing-fa, a professor of electronic engineering at NCKU, told a press conference that the robot — 15cm in height — could take instructions and perform different tasks, such as performing tai chi, kneeling down or shaking hands with humans.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/23/2003444329>

#### **17. Team makes discovery in search for new antibiotic**

(Taipei Times, 24 05 2009)

A Taiwanese research team made a breakthrough in the development of a new class of antibiotic that can give humans new leverage in their never-ending battle with bacteria, a statement released by Academia Sinica said.

The research team, led by Alex Ma, an assistant research fellow at the research institute's Genomics Research Center, developed a complete three-dimensional model structure of the membrane protein that resides on the surface of the Escherichia coli bacteria, or E. coli.

This marks the first time a mechanism that holds the key to bacterial cell wall formation has been modeled in detail and could lead to the development of a new generation of antibiotics, the statement said.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/24/2003444403>

#### **18. New Research Park to Go Up on the Former Provincial-Government Site**

(Taiwan Economic News, 25 05 2009)

The Executive Yuan (the Cabinet) has decided to develop Zhongxing New Village, site of former Taiwan Provincial Government, into a high-level research park, accommodating the research units of 200 firms, mainly in the fields of energy, optoelectronics, local core industries, and environmental protection. The preparatory office for the park is scheduled to be set up in November.

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_27727.html](http://cens.com/cens/html/en/news/news_inner_27727.html)

#### **19. Mutation in gene allows cancer to spread: research**

(Taipei Times, 28 05 2009)

A group of scientists sponsored by the National Science Council (NSC) publicized the results of their research into how tumor cells migrate from one part of the body to another, a key complication that counters cancer treatment. The breakthrough was published in the journal Nature Cell Biology this month.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/05/28/2003444737>