



31 October 2009

Science, Technology and Education News from Taiwan Number 16 — October 2009

Highlights of major news from the scientific world in Taiwan in October 2009:

ITRI won the first prize in the Consumer Electronics category of the Wall Street Journal Technology Innovation Awards with a highly innovative, paper-thin, flexible speaker dubbed the "fleXpeaker". - PharmaEssentia received US/Canadian approval for its third-generation interferon drug candidate P1101 (PEG/P/IFN-alpha-2b) to treat hepatitis B and C. - Academia Sinica is to cooperate with Seattle-based Infectious Disease Research Institute to develop new medications for drug-resistant strains of tuberculosis. - ITRI unveiled new types of hydrogen-powered battery chargers for cellphones. - Umbilical cord transplants have shown good results in treatment of strokes, spinal cord and brain injuries, according to trials conducted by Chi Mei Medical Center. - The National Chung Cheng University created a technique of using micro-nano testing to detect aging knee joints in the early stage. - ITRI won the R&D Magazine R&D 100 Awards for its high-safety lithium battery material, the STOBA, a nano-grade high-molecular material added to lithium battery to form a protective film automatically. - Academia Sinica research hope molecule vaccine can be marketed within 10 years. - Taiwan developed the first ever electro-thermal diving suit for deep, cold underwater environments. - ITRI introduced a portable sleep diagnostic device that can carry out comprehensive sleep studies right at home and it also presented a sleep respiratory treatment device, which could lower observances of sleep apnea and a point-of-care testing apparatus for metabolic syndrome Three - Academia Sinica scholars were elected members of the Academy of Sciences for the Developing World. - National Chiao Tung University, ASUS and NVIDIA presented the fastest personal super computer in the world. The novel super PC, ASUS ESC1000, is ten times efficient than the present super computers, the computing capacity of the former reaching teraflops (one trillion floating point operations per second) while the latter staying around gigaflops (one million floating point operations per second).

Contents

1.	Taiwan makes headway in new drug development	2
2.	Academic-enterprise cooperation pact inked to promote green energy	2
3.	Paper-thin "fleXpeaker" Features Revolutionary Speaker Design	2
4.	Taiwan to Roll Out 1st Homegrown Hybrid Bus in 2011	2
5.	Academia Sinica targets drug-resistant TB strains	3
6.	ITRI unveils revolutionary batteries	3
7.	Pingtung biotech park to reach NT\$18 billion output by 2013	3
8.	Daily folic acid intake helps reduce cancer risk: local research	3
9.	Umbilical cord blood transplant effective in stroke treatment: trials	4
10.	ARTC in Taiwan Wins Two Silver Medals and Improves Driving Safety	4
11.	Da-Yeh University makes breakthrough with disc recycling technique	4
12.	Using nano technology to lower joint disease treatment costs	4
13.	ITRI's STOBA Technology for Li Battery Wins R&D 100 Award	5
14.	Researcher hopes molecule vaccine can be marketed within 10 years	5
15.	Taiwan develops first electro-thermal deep-sea diving suit	5
16.	Taiwan successfully traces buzzard migration route	6
17.	Taiwanese amateur astronomer discovers a brand new asteroid	6
18.	Taiwanese scientist wins international agriculture award	6
19.	Three Academia Sinica scholars elected to global organization	6
20.	Taiwan indigenous algae strain rich in DHA content: NCKU	7
21.	ITRI unveils new point-of-care sleep device for apnea	7
22.	Taiwan Presents the First Super PC in the World Which Is Ten Times Efficient than the Traditional Super Computer	8



1. Taiwan makes headway in new drug development

(Central News Agency 23 09 2009)

Taiwan has made encouraging progress in biopharmaceutical development, as two new drugs developed by local companies with government assistance have received international recognition recently.

PharmaEssentia, a Taipei-based pharmaceutical company founded by a group of Taiwanese-American scientists in 2003, has received Investigational New Drug (IND) approval from U.S. and Canadian authorities for its third-generation interferon drug candidate P1101 (PEG-P-IFN-alpha-2b). The drug, which treats hepatitis B and C and is particularly long-acting compared to the two other pegylated-interferon drugs currently on the market, will begin phase 1 clinical trials in both Canada and Taiwan later this year.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200909230016&pType1=ED&pType0=xEMST&pTypeSel=0>

2. Academic-enterprise cooperation pact inked to promote green energy

(Central News Agency 24 09 2009)

Taiwan Cement Group (TCG) and the Industrial Technology Research Institute (ITRI) signed a letter of intent Thursday to expand cooperation in developing clean energy businesses by integrating technology in research, development and mass production.

Under the agreement, the two sides will focus on developing and producing carbon nanotube materials, energy storage and use systems for motor vehicles, and promoting energy conservation and carbon reduction services.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200909240028&pType1=ED&pType0=&pTypeSel=0>

3. Paper-thin "fleXpeaker" Features Revolutionary Speaker Design

(Taiwan Economic News, 25 09 2009)

The Industrial Technology Research Institute (ITRI), Taiwan's foremost technology research organization, beat over more than 500 competitors (including HP, Livescribe, and Motorola) to win first prize in the Consumer Electronics category of the Wall Street Journal Technology Innovation Awards with a highly innovative, paper-thin, flexible speaker dubbed the "fleXpeaker."

The fleXpeaker is lightweight and consumes little power, and can be combined to produce high-fidelity speaker systems of almost any size. ITRI says it is seeking to license its new technology or use it to create a spin-off company that will commercialize the speaker.

Full articles:

http://cens.com/cens/html/en/news/news_inner_29334.html

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910160022&pType1=ST&pType0=xEMST&pTypeSel=0>

<http://www.itri.org.tw/eng/news-and-events/news-detail.asp?RootNodId=050&NodId=0501&NewsRoomNBR=185>

4. Taiwan to Roll Out 1st Homegrown Hybrid Bus in 2011

(Taiwan Economic News, 29 09 2009)

Taiwan is building independently its first hybrid bus that will likely be operational in 2011, according to the Automotive Research & Testing Center (ARTC), the largest transportation-vehicle testing and R&D organization on the island.

The ARTC set up the "Low Chassis Hybrid Bus R&D Alliance" recently to focus on building a homegrown, including design, bus driven by electric/diesel power, aiming to develop a competitive bus for Taiwan, with annual output to total about 2,000 vehicles and export sales.

Previous to the hybrid bus alliance, the Taiwan Automotive Research Consortium (TARC) had set up the Electric Vehicle R&D Alliance to integrate resources available in government, industry, academia, and research institutes on the island.



Full article:

http://cens.com/cens/html/en/news/news_inner_29354.html

5. Academia Sinica targets drug-resistant TB strains

(Taipei Times, 30 09 2009)

Academia Sinica and the Seattle-based Infectious Disease Research Institute (IDRI) signed an agreement to develop new medications for drug-resistant strains of tuberculosis (TB). The initiative's primary partners are Eli Lilly and Company and the IDRI.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/09/30/2003454798>

6. ITRI unveils revolutionary batteries

(Taipei Times, 02 10 2009)

The Industrial Technology Research Institute (ITRI) unveiled new types of hydrogen-powered battery chargers for cellphones that their inventor said would set a new trend in battery use across the world.

Speaking at a news conference marking the release of the energy-effective new devices, Yeh Hui-ching, director of the Ministry of Economic Affairs' Bureau of Energy, announced the arrival of a new era of hydrogen energy and gave the government's full endorsement to the local hydrogen fuel cell sector.

"The government hopes to position itself in the global green energy industry's production chain with hydrogen fuel cell technology and will seek to develop expertise in the sector by 2012 and begin commercial production as soon as possible," Yeh said.

One eye-catching item among the newly created devices displayed at the news conference was an electricity ball, which is capable of releasing hydrogen after charging water into it. The hydrogen-powered device can serve as a battery charger for cellphones.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/10/02/2003454976>

7. Pingtung biotech park to reach NT\$18 billion output by 2013

(Central News Agency 03 10 2009)

The first stage of construction of the Pingtung Agricultural Biotechnology Park (PABP) has been fully completed and is expected to have reached an annual output value of NT\$18 bio., with more than 6,000 employees upon completion of the third stage of construction in 2013, the Council for Economic Planning and Development (CEPD) said.

According to the CEPD, 20 factories and one incubation center have already set up operations at the park. Among them, the Hokuto Corp., a Japan-listed company that produces mushrooms, has the largest investment at NT\$430 mio.

Total investment in the first-stage construction area has reached NT\$3.86 bio., the CEPD said, adding that the second stage will be completed by March 2010, with the third scheduled for completion by the end of 2013.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910030017&pType1=ED&pType0=xEMST&pTypeSel=0>

8. Daily folic acid intake helps reduce cancer risk: local research

(Central News Agency 06 10 2009)

Adequate folic acid intake can help reduce cancer risk, particularly the risk of incurring breast cancer, a local researcher said. "Eating a plate of dark green vegetables daily could help lower the risk of breast cancer by 20-40 %," said Sun Chien-an, a professor at Fujen Catholic University's Department of Public Health. "Eating a bit of pork liver occasionally is also helpful in reducing cancer risk," he added.



Sun made the comments based on the findings of a research project that he has been conducting over the past 10 years at the request of the Cabinet-level Department of Health (DOH) on the correlation between local people's folic acid intake and the risk of cancer.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910060029&pType1=HH&pType0=xJDLNHH&pTypeSel=0>

9. Umbilical cord blood transplant effective in stroke treatment: trials

(Central News Agency 06 10 2009)

Umbilical cord blood transplants have shown good results in the treatment of strokes, spinal cord injuries and brain injuries, according to trials conducted on animals recently by the Chi Mei Medical Center (CMMC) in Tainan County. The findings indicate that umbilical cord blood transplants, which have been used in the treatment of childhood leukemia and severe thalassemia, may have broader applications.

Chen Sheng-hsien, director of CMMC's department of obstetrics and gynecology, said researchers at the medical center have used mice to test the effectiveness of umbilical cord blood transplants in treating paralysis, a common post-stroke symptom, and it was found that a transplant helped improve the mice's conditions.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910060025&pType1=JD&pType0=xJDLNHH&pTypeSel=0>

10. ARTC in Taiwan Wins Two Silver Medals and Improves Driving Safety

(Taiwan Economic News 08 10 2009)

The Automotive Research & Testing Center (ARTC), a benchmark automotive R&D institute in Taiwan, may have broken new ground-coming up with effective solutions to address age-old problems as clearing blind-spots and adjust headlights to better illuminate curving roads-in its program to develop innovations that advance automotive operation and safety.

The ARTC entered two automotive innovations to compete in the 2009 Taipei International Invention Show & Technomart. One is the image type adaptive front-lighting system (IAFS) and the other the blind-spot detection system for semi-trailer rigs or 18-wheeler trucks. Both entries won Silver Medals for cutting-edge technology and innovation that specifically aim to minimize blind-spot hazards related to trucking and driving at night.

Full article:

http://cens.com/cens/html/en/news/news_inner_29674.html

11. Da-Yeh University makes breakthrough with disc recycling technique

(Central News Agency 12 10 2009)

Researchers at the Changhua County-based Da-Yeh University have recently made a breakthrough in recycling CD/DVD ROM discs by using a leaching technique that can clean all the coating from the discs in a few minutes without damaging them.

The technique, involving alcohol and nitric acid leaching and supersonic cleaning, won a gold medal at the 2009 Taipei International Invention Show and Technomart in late September.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910120007&pType1=ED&pType0=xEMST&pTypeSel=0>

12. Using nano technology to lower joint disease treatment costs

(Central News Agency 13 10 2009)

A National Chung Cheng University (CCU) research program has created a technique of using micro-nano testing to detect aging knee joints in the early stage in an effort to reduce the high cost and medical burden of treating



osteoarthritis (OA) , a degenerative joint disease. CCU researchers found that most OA cases could be easily controlled with a cheaper minimally invasive procedure, CCU said.

With the research results, the CCU-Tzu Chi hospital joint venture has developed a comprehensive health care model for OA patients, using micro-nano scale testing measurement, computer simulation model and biochemical methods to offer improved OA-targeted treatment services and increase the recovery rate, the CCU statement said.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910130013&pType1=HH&pType0=xJDLNHH&pTypeSel=0>

13. ITRI's STOBA Technology for Li Battery Wins R&D 100 Award

(Central News Agency 14 10 2009)

The Industrial Technology Research Institute (ITRI) recently announced that it won the R&D Magazine R&D 100 Awards for its high-safety lithium battery material, the STOBA.

For 47 years, the prestigious R&D 100 Awards have identified revolutionary technologies newly introduced to the market. Many of these have become household names, helping shape everyday life, the research institute said.

Material and Chemical Research Laboratories (MCL) under ITRI's deputy general director Alex Peng, explained that STOBA is a nano-grade high-molecular material added to lithium battery to form a protective film automatically. "When a lithium battery encounters the excessive heat, external impact or piercing," Peng furthered to explain, "the STOBA would immediately generate the locking effect to avoid short-circuit of the battery, interrupts electrical and chemical actions to prevent excessive heat, and ensure the safety and practicality of the 3C (computer, communication, and consumer electronics) or electrical vehicle (EV) batteries.

STOBA technology has already passed the mandatory shorting and piercing experiments, which is more stringent than the international safety standard, MCL claimed. "Currently, STOBA is the only technology in the globe using innovative material that has fundamentally resolved the lithium battery safety issue," the laboratory stressed.

In the past, the general director stressed, safer lithium batteries were not available because there was no really-effective solution. "The newly developed STOBA material can greatly enhance the safety of lithium battery," Liu said, "the technology has won 9 patents in 29 projects, and this material technology will make Taiwan's lithium-battery industry stand out in the international arena."

Full article:

http://cens.com/cens/html/en/news/news_inner_29795.html
http://cens.com/cens/html/en/news/news_inner_29773.html

Related article:

<http://www.itri.org.tw/eng/news-and-events/news-detail.asp?RootNodId=050&NodId=0501&NewsRoomNBR=184>

14. Researcher hopes molecule vaccine can be marketed within 10 years

(Central News Agency 14 10 2009)

After announcing a discovery that the size of sugar molecules on the hemagglutinin (HA) protein on influenza viruses plays a decisive role in immune responses, Academia Sincia President Chi-Huey Wong said it is hoped that human trials of the vaccine produced based on the findings can be completed within five years, and it can be marketed within 10 years.

The findings have been published in the latest online issue of U.S.-based Proceedings of the National Academy of Sciences.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910140032&pType1=PD&pType0=xPDCS&pTypeSel=0>

15. Taiwan develops first electro-thermal deep-sea diving suit

(Central News Agency 15 10 2009)

Taiwan, one of the world's largest suppliers of diving suits, has developed the first ever electro-thermal diving suit for deep, cold underwater environments, Taiwan Textile Research Institute (TTRI) said. The market potential of this new product is estimated at NT\$100 million. The new electro-thermal diving suit is made from a special fiber, heated



by batteries, and can sustain water pressure at 50 meters below the surface, which is a first, according to TTRI's Product Department Deputy Director Lee Chen-liang.

Full article:

http://english.cna.com.tw/ReadNews/Eng_TopNews.aspx?ID=200910150017

http://www.etaiwannews.com/etn/news_content.php?id=1082450&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN

16. Taiwan successfully traces buzzard migration route

(Central News Agency 15 10 2009)

Taiwanese raptor experts recently succeeded in tracing the migration patterns of the endangered grey-faced buzzard, the Forestry Bureau under the Council of Agriculture said.

The research team, which was financed by the Forestry Bureau, released its findings that showed that grey-faced buzzards, an Asian bird of prey, usually stop over in Taiwan every October on their way south to winter in the Philippines.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910150013&pType1=JD&pType0=xJDLNHH&pTypeSel=0>

17. Taiwanese amateur astronomer discovers a brand new asteroid

(Central News Agency 21 10 2009)

Tsai Yuan-sheng discovered the asteroid along with an assistant at the Lulin Observatory on Yushan, also known as Jade Mountain, March 20 and tentatively named it "Kaohsiung" after his hometown.

In August, the International Astronomical Union's Committee on Small Body Nomenclature - an international organization responsible for the naming of asteroids and comets - formally approved the designation and gave Tsai's discovery a permanent number "215080."

Tsai and Lin Chi-sheng, an astronomical observation assistant at Lulin Observatory, spotted the asteroid using highly advanced digital equipment.

Full article:

http://www.etaiwannews.com/etn/news_content.php?id=1086515&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN

<http://taiwantoday.tw/ct.asp?xItem=70761&ctNode=454&mp=9>

18. Taiwanese scientist wins international agriculture award

(Central News Agency 22 10 2009)

A professor at National Cheng Kung University in southern Taiwan has won the 2009 prize in agricultural sciences presented by the Academy of Sciences for the Developing World (TWAS). Yang Hui-lang won the prize for his outstanding achievements in the research and development of immunology, oral vaccines and prevention of viral infections in grouper aquaculture.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910220043&pType1=ED&pType0=xJDLNHH&pTypeSel=0>

Related article:

<http://www.sinica.edu.tw/manage/gatenews/showpost.php?rid=2752>

19. Three Academia Sinica scholars elected to global organization

(Central News Agency 23 10 2009)

Three scholars from Taiwan's top academic research institute, Academia Sinica, were elected recently as members of the Academy of Sciences for the Developing World (TWAS), the institute announced.



One of the three new TWAS members is Li Wen-hsiung, director of the Biodiversity Research Center and professor at the University of Chicago's Department of Ecology and Evolution. He specializes in bioinformatics and the use of informatics tools and techniques to study the field of evolutionary biology.

Shen Che-kun, a distinguished research fellow at Academia Sinica's Institute of Molecular Biology, was also elected as one of the TWAS members. His research focuses on the mammalian globin gene switch and genes that play roles in learning and memory in specific neurodegenerative diseases, according to Academia Sinica.

The third new member, Lih J. Chen, is the incumbent deputy minister of the National Science Council, whose major research interests are the synthesis and applications of low-dimensional nanomaterials, atomic scale structures and dynamic processes of advanced materials and the metallization of integrated circuit devices.

Meanwhile, four other Taiwanese scholars received TWAS awards.

Yang Huey-lang, a distinguished professor at the Institute of Biotechnology and director of the Center of Biotechnology, National Cheng Kung University, was awarded the Agricultural Science Prize.

Chen Liang-gee, the deputy dean of the College of Electrical Engineering and Computer Science and a distinguished professor at the Graduate Institute of Electronics Engineering, National Taiwan University, received an Engineering Sciences award, while Academia Sinica scholar Wu Cheng-wen was awarded the TWAS Regional Prize. Alex Ma, an assistant research fellow at Academia Sinica's Genomics Research Center, was elected as a 2009 TWAS Young Affiliate, an honor given each year to exceptional scientists under the age of 40.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910230013&pType1=DD&pType0=xSPDD&pTypeSel=0>

20. Taiwan indigenous algae strain rich in DHA content: NCKU

(Central News Agency 26 10 2009)

A National Cheng Kung University (NCKU) research team has discovered an indigenous algae that is rich in docosahexaenoic acid (DHA), containing 10 times as much of the omega-3 fatty acid as existing DHA supplements such as fish oil.

The indigenous DHA-rich algae strain, called BL10, was discovered after the team isolated, cultivated and identified marine microalgae from 10 marine habitats around Taiwan, Yang Huey-lang, a distinguished professor in NCKU's Institute of Biotechnology. "BL10 proved to have the highest DHA yield among all studied algae strains and could become an excellent source of microbial DHA," Yang said at a news conference.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200910260015&pType1=ED&pType0=xEMST&pTypeSel=0>

Related article:

<http://web1.nsc.gov.tw/techwp.aspx?id=0981026002&ctunit=208&ctnode=287&mp=7>

21. ITRI unveils new point-of-care sleep device for apnea

(Chinapost 31 10 2009)

The cause of fatigue as a result of sleep apnea often eludes insomniacs, who often do not realize they are suffering from the condition. A national research organization recently introduced a portable sleep diagnostic device that can carry out comprehensive sleep studies right at home. Unlike traditional sleep studies where the patient is wired up and monitored overnight, the handheld diagnostic simply requires the pulse oximeter to be clipped onto a fingertip for a duration of six hours.

ITRI has also presented a sleep respiratory treatment device, which could lower observances of sleep apnea. The device, to be used orally like a pacifier, removes the discomfort that comes with continuous positive airway pressure (CPAP) masks, which help keep a patient's airway open through the introduction of pressurized air into the throat.

Amid an ongoing A(H1N1) epidemic where most A(H1N1) flu-related fatalities have involved those with pre-existing conditions, the institute has also unveiled a point-of-care testing apparatus for metabolic syndrome that researchers hope will bolster disease prevention.

Full article:

<http://www.chinapost.com.tw/life/2009/10/31/230816/ITRI-unveils.htm>



22. Taiwan Presents the First Super PC in the World Which Is Ten Times Efficient than the Traditional Super Computer

(Sci-Tech Taiwan 30 Oct. 2009)

National Chiao Tung University, ASUS and NVIDIA together presented the fastest personal super computer in the world, which is made possible mainly via the integration of high speed connectivity and parallel graphics computing techniques. The novel super PC, ASUS ESC1000, is ten times efficient than the present super computers, the computing capacity of the former reaching teraflops (one trillion floating point operations per second) while the latter staying around gigaflops (one million floating point operations per second).

NCTU President Chung-Yu WU points out, in the past, one stationary super computer can take up one room; now, it could be made in the size of a personal computer, which definitely makes itself a super breakthrough regarding the evolution of personal computer, and, moreover, scientists, engineers and scholars can conduct massive complicated computings in the labs or at home. NCTU now has introduced the strong equipment into the medical applications such as dynamic analysis of electromagnetic waves, and 3D animations or games.

ASUS says, the programs which used to take one month with the old super computers, only take a week with ESC1000. ESC1000 can simultaneously support four NVIDIA quadros, and its computer cores the best can reach 968, offering highly powerful calculation capacity for computing solutions.

Full article:

<http://web1.nsc.gov.tw/techwp.aspx?id=0981027003&ctunit=208&ctnode=287&mp=7>