



31 October 2008

**Science, Technology and Education News from Taiwan
Number 04 — October 2008**

Introduction

Taiwan's government total R&D budget amounts to US\$ 86.9 bio. in 2008.

The share of the National Science Council (NSC) is set at US\$ 36.6 bio. or 42 % of the total and 58 % have been earmarked for other agencies.

US\$ 27.8 bio. (76 % of NSC funding) have been reserved for research grants: 17 % engineering & applied research; 17 % NARL; 14 % life sciences; 13 % natural sciences; 10 % humanities & social sciences; 8 % inter-department programs; 7 % NSSRC; 6 % central processing & researchers' recruitments; 4 % science education, 4 % international cooperation (DIC). The National S&T Program, Inter-ministerial programs and administration take US\$ 7.2 bio. (or 20 % of the NSC budget) and the science park development US\$ 1.6 bio. (or 4 %).

The funding of the Department of International Cooperation (DIC) amounts to US\$ 1.042 bio. Of this amount, 58 % go to general programs for PIs to attend/hold international conferences, to invite lecturers and have research stay abroad, 25 % for bilateral and international programs (under agreement framework) and 17 % for special programs (TTT, IUICRT) and regarding international organizations.

Contents

1.	4 th Asian Space Conference in Taipei	2
2.	Formosa Sumco Unveils Jumbo Wafer Ingot	2
3.	Metal Industries Research & Development Centre to Form Plastic Molding Technology Alliance	2
4.	Oral fish vaccine wins 'Crazy Idea'	2
5.	Scientists see fewer rocks than expected in solar belt	2
6.	Gov't-Funded ITRI in Taiwan Forms R&D Alliance for AC LED	3
7.	STAG goals challenge bio industry	3
8.	Microsoft and CyberLink team up on R&D	3
9.	NTU agrees with IRRI to cooperate on rice research	3
10.	Amphipods set to help toxicity testing of rivers, sediments	3
11.	Horizon Yacht to Unveil Its First Solar-powered Cruiser	4
12.	Researchers extract DHA from algae at Tainan University	4
13.	Local scientist synthesized a stable quintuple-bonded dichromium complex	4
14.	Taiwan completes phase II clinical testing of new cancer drug	4
15.	ITRI wins 'R&D Magazine' award for one-chip AC LED	5
16.	Scientists announce progress in their research on cancer	5
17.	Taiwan team receives IAVI funding for HIV vaccine research	5
18.	Scientist wins new patent and helps environment by playing with mud	5
19.	Taiwan to host conference on role of women in science	5
20.	'Modularly-assembled' target drugs developed by medical researchers	6
21.	NTUH unveils test for newborns	6
22.	Taiwan's CWB aims to be able to detect, report on quakes in 30 seconds	6
23.	Taiwan scientist invents world's first chlorophyll organic battery	6
24.	New cancer drug released to private maker for R&D	7



1. 4th Asian Space Conference in Taipei

(Taipei Times, 02.10.2008)

4th biannual Asian Space Conference and the 3rd annual FORMOSAT-3/COSMIC workshop with attendance of 300 international experts. The FORMOSAT-3/COSMIC — a constellation of six micro-satellites — was launched by a Taiwan-US consortium in 2005. The equipment had already collected "almost 1.31 million units of data and has 842 subscribers at research institutions in 47 countries and it has been incorporated into the weather forecast systems of many countries in Europe, Asia and the US..

The FORMOSAT-3/COSMIC workshop — "COSMIC" being short for Constellation Observing System for Meteorology, Ionosphere and Climate — offers subscribers from around the world a chance to discuss uses for data collected by the equipment.

In related news, the National Science Council unveiled the preliminary findings of its southwest front tracing project, which uses radar and dropsondes to better understand the interaction between seasonal winds and landscape, as well as how that interaction impacts Taiwan's weather.

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/02/2003424814>

2. Formosa Sumco Unveils Jumbo Wafer Ingot

(Central News Agency, 02.10.2008)

Formosa Sumco Technology Corp. recently unveiled a 500-kilogram 300mm silicon-wafer ingot, the heaviest wafer ingot a Taiwanese semiconductor-materials manufacturer has ever produced.

Full Article:

http://cens.com/cens/html/en/news/news_inner_24872.html

3. Metal Industries Research & Development Centre to Form Plastic Molding Technology Alliance

(Central News Agency, 02.10.2008)

To help local plastic mold suppliers improve production capability, Taiwan's Metal Industries Research & Development Centre (MIRDC) has moved to invite industry insiders, government departments and colleges to form two alliances to develop plastic molds for the optoelectronics and auto and motor parts sectors, respectively, on the island, according to industry sources.

Full Article:

http://cens.com/cens/html/en/news/news_inner_24878.html

4. Oral fish vaccine wins 'Crazy Idea'

(Taipei Times, 04.10.2008)

Oral vaccines for fish developed at National Cheng Kung University have won the top prize in the "2008 Crazy Idea" contest — a biotech competition organized by the Industrial Development Bureau.

The vaccines, which have already gained patents both in Taiwan and the US, have been under development for years before a breakthrough was achieved early last year.

During the three-year experiments on nearly 60,000 cobias, the new vaccines helped raise the survival rate from around 40 % to more than 80 % university officials reported. In optimal circumstances, the vaccines can further boost the survival rate to 86 %, which is better than the 64 percent achieved by fish vaccines developed in some European laboratories, they said.

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/04/2003425006>

5. Scientists see fewer rocks than expected in solar belt

(Taipei Times, 06.10.2008)

Two years of collaboration between researchers from Taiwan, the US and South Korea recently found that the outer Solar System might not be as crowded as astronomers thought.

The Taiwanese-American Occultation Survey (TAOS) — a cooperation project between Academia Sinica's Institute



of Astronomy and Astrophysics, the Harvard-Smithsonian Center for Astrophysics, the Lawrence Livermore National Laboratory's Institute of Geophysics and Planetary Physics, National Central University's (NCU) Institute of Astronomy and Yonsei University in South Korea — observed orbiting objects in the Kuiper Belt, the region beyond Neptune, since 2005.

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/06/2003425158>

6. Gov't-Funded ITRI in Taiwan Forms R&D Alliance for AC LED

(Central News Agency, 07.10.2008)

Taiwan's government-funded Industrial Technology Research Institute (ITRI) has teamed up with scores of LED (light-emitting diode) makers to form an R&D alliance, in a bid to integrate industry resources to develop applications for AC LED technology, according to industry resources.

Full Article:

http://cens.com/cens/html/en/news/news_inner_24930.html

7. STAG goals challenge bio industry

(Taipei Times, 09.10.2008)

"One of the main goals is for Taiwan to produce 10 preclinical development drug candidates a year starting in 2010," co-convenor and minister without portfolio Chang Jin-fu said at the conclusion of the 2008 Science and Technology Advisory Group (STAG) BioTaiwan committee (BTC) meeting.

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/09/2003425382>

8. Microsoft and CyberLink team up on R&D

(Taipei Times, 10.10.2008)

Microsoft Corp said that CyberLink Corp would become its first Taiwanese "global independent software vendor" (GISV). Together, the two companies will engage in R&D to develop "a connected, enhanced, digital, multi-media experience for users worldwide through the creation of premium, killer applications to be released with the next-generation Windows operating system."

Full Article:

<http://www.taipeitimes.com/News/biz/archives/2008/10/10/2003425488>

9. NTU agrees with IRRI to cooperate on rice research

(Taipei Times, 11.10.2008)

National Taiwan University (NTU) became the nation's first academic institution to sign a research cooperation agreement with the International Rice Research Institute (IRRI), a partnership in rice-related research to boost global rice production. IRRI selected NTU as a partner because Taiwan is situated in a sub-tropical region that is suitable for rice cultivation and the grain is the main staple of the country. Under the accord, NTU will serve as an intermediary platform between IRRI and Academia Sinica, the Agricultural Research Institute under the Council of Agriculture, as well as other academic institutions specializing in rice research.

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/11/2003425562>

10. Amphipods set to help toxicity testing of rivers, sediments

(Taipei Times, 15.10.2008)

Hyaella azteca, a small amphipod commonly found in the aquatic system in North America, may provide the Environmental Protection Administration's (EPA) National Institute of Environmental Analysis with a new level of sensitivity in its biotoxicity testing of rivers and sediments. Amphipods are an order of animals that includes more



than 7,000 described species of shrimp-like crustaceans. The development was the result of a successful preliminary technical transfer from the US Geological Survey and the US Environmental Protection Agency to Taiwan/

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/15/2003425915>

11. Horizon Yacht to Unveil Its First Solar-powered Cruiser

(Central News Agency, 15.10.2008)

Helped by Germany's SolarWaterWorld with propulsion system technologies and hull design, Horizon Yacht Co., the largest boat-builder in Taiwan, will unveil its first solar-powered yacht next year.

Horizon indicated that the solar-powered yacht has solar plates to store power in batteries to drive electric propulsion systems.

Full Article:

http://cens.com/cens/html/en/news/news_inner_25037.html

12. Researchers extract DHA from algae at Tainan University

(Taipei Times, 16.10.2008)

Researchers at National Cheng Kung University in Tainan have invented a new method that extracts pollution-free docosahexaenoic acid (DHA) from an indigenous species of algae that could revolutionize the way the nutritional supplement is produced commercially. Team members said DHA is normally derived from fish and shellfish, but minute quantities of toxins — such as methyl mercury or dioxins — may migrate from the fish to the DHA, a common additive used in foods and animal feed.

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/16/2003426074>

13. Local scientist synthesized a stable quintuple-bonded dichromium complex

(Taipei Times, 17.10.2008)

The miniscule distance of 0.01 angstrom — or 10-12 meters — has helped a young Taiwanese scientist bag the science equivalent of an "Olympic gold medal" in the global race to find the shortest metal-metal bond in chemistry. The feat has also helped Taiwan gain some recognition on the international scientific stage.

The achievement, reported in the renowned magazine *Science* and the journal *Nature*, came this year when Tsai Yi-chou, an associate chemistry professor at National Tsing Hua University (NTHU), synthesized a stable quintuple-bonded dichromium complex (a molecule that contains two chromium atoms that has five metal-metal bonds between them).

Tsai's discovery broke a four-decade stagnation in chemistry where scientists were previously only able to make very short quadruple-bonded metal-metal bonds, the National Science Council (NSC) said.

Though the compound has yet to find industrial or commercial application, its academic implications are profound, the NSC said, adding that Tsai's breakthrough was published this August in Germany's *Angewandte Chemie* as well as the *Journal of the American Chemical Society*.

Full Article:

<http://www.taipeitimes.com/News/front/archives/2008/10/17/2003426200>

14. Taiwan completes phase II clinical testing of new cancer drug

(Taiwan News, 17.10.2008)

The Taiwanese subproject of a phase II clinical test for a cancer drug ADI-PEG 20 has been successfully completed, and the drug should be on the market some time next year following the phase III clinical testing, researchers at the National Health Research Institute said.

ADI-PEG 20 was first developed by the U.S.-based Polaris Pharmaceuticals several years ago. A subsidiary of the Taiwan-based Hsin Tung Yang group later acquired exclusive distribution rights for the drug in Taiwan and China.



Full Article:

http://www.taiwannews.com.tw/etn/news_content.php?id=765088&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN

15. ITRI wins 'R&D Magazine' award for one-chip AC LED

(Taipei Times, 18.10.2008)

Taiwan's Industrial Technology Research Institute (ITRI), with its one-chip AC LED (alternating current light-emitting diode) technology, has been selected as a winner of this year's R&D 100 Awards sponsored by US-based R&D Magazine. Taiwan is the world leader in LED production in terms of volume, while Japan is taking the lead in production value. ITRI has recognized the importance of technology innovation in order to develop LED products of higher value.

R&D Magazine initiated the R&D 100 Awards competition in 1963 by selecting 100 research teams of technological products or processes expected to enhance efficiency and the quality of life.

This year's winners include Massachusetts Institute of Technology, National Energy Technology Laboratory of the US, Pacific Northwest National Laboratory, NASA Glenn Research Center, Langley Research Center and Goddard Space Flight Center, as well as universities and corporations around the world.

Full Article:

<http://www.taipetimes.com/News/biz/archives/2008/10/18/2003426234>

16. Scientists announce progress in their research on cancer

(Taipei Times, 18.10.2008)

Scientists from three local universities have developed a non-invasive diagnostic tool that combines the functions of virtual biopsy and molecular imaging to significantly improve clinical diagnosis of skin diseases.

Experiments conducted on laboratory animals using the new tool have been successful and results show the tool can effectively detect indications of oral cancer in hamsters, team members said.

Full Article:

<http://www.taipetimes.com/News/taiwan/archives/2008/10/18/2003426207>

17. Taiwan team receives IAVI funding for HIV vaccine research

(Central News Agency, 21.10.2008)

A research team led by the head of Taiwan's top research institute has received a cash award from the International AIDS Vaccine Initiative (IAVI) for its innovation in the development of a defense against the disease.

Wong's team has created a new substance called "glycodendron" in accordance with the chemical characteristics of the HIV-oligomannose glycan combination. The new substance has been proven effective in preventing HIV from latching onto dendritic cells and prompted the immune system to produce antibodies destructive to the virus during experiments on rodents, Wong said.

Full Article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=138043&CtNode=9>

18. Scientist wins new patent and helps environment by playing with mud

(China Times, 22.10.2008)

Chang Chen-nan, chairman of the Department of Environmental Engineering Sciences at Taichung's Tunghai University, used the bread-baking principle to take sludge that was just piling up at transfer stations and combine it with red clay in large amounts, add a leavening agent and bake it to produce a recycled material in the form of pellets that is extremely porous. Used as an aerator stone, it is placed in rivers or aquariums and acts to clean the water. In one fell swoop, the volume of material to be disposed of is reduced and material is recycled and reused.

Full Article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=138250&CtNode=9>



19. Taiwan to host conference on role of women in science

(Taipei Times, 24.10.2008)

Taiwan held Asia's first international conference to highlight the role of women in scientific research from 26-28 October.

Evelyn Fox Keller, a professor from the Massachusetts Institute of Technology, delivered a keynote speech titled "My Life as a Woman Scientist, a Feminist Theorist and a Historian and Philosopher of Science".

Full Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/24/2003426764>

20. 'Modularly-assembled' target drugs developed by medical researchers

(Central News Agency, 24. 10. 2008)

Medical researchers at National Cheng Kung University Hospital have found a new way to produce target drugs that allows physicians to build an optimal combination of "targeting" and "curing" elements based on the characteristics of the cancer under focus, the Tainan-based hospital.

Introducing the idea of "smart ammunition," the researchers explained that a "modularly-assembled" target drug is similar to a smart missile that is made of a targeting unit that can best seek the target under given conditions -- whether it should be heat-seeking, infra-red targeting, or radar guidance -- and an ammunition compartment that can deliver the greatest damage to the designated target -- whether it should be standard, armor-piercing or incendiary.

Full Article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=138616&CtNode=9>

21. NTUH unveils test for newborns

(Taipei Times, 28. 10. 2008)

A team of researchers and doctors in Taipei announced that they successfully carried out the screening of newborns for the early detection of a rare genetic disorder, which could allow for earlier treatment and greatly increase survival rates.

The findings were published in the July issue of Pediatrics, the official journal of the American Academy of Pediatrics.

Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/10/28/2003427107>

22. Taiwan's CWB aims to be able to detect, report on quakes in 30 seconds

(Taiwan News, 28. 10. 2008)

The Central Weather Bureau (CWB) has continued to improve its earthquake monitoring technology and expertise with the aim of being able to detect and report on earthquakes within 30 seconds after they strike, a senior CWB official in charge seismology said.

Full Article:

http://www.taiwannews.com.tw/etn/news_content.php?id=773912&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN

23. Taiwan scientist invents world's first chlorophyll organic battery

(Central News Agency, 29. 10. 2008)

A scientist in Taiwan has invented the world's first chlorophyll organic battery that can supply electricity within 10 seconds of being wetted with water, beverages or even urine.

Chungpin Hovering Liao, a professor at the Graduate School of Electro-Optic and Material Science of National Formosa University in central Taiwan's Yunlin County, told that the battery, when wetted, can provide electricity for two days to a week, while the strength of the battery is about half that of an ordinary battery, its storage capacity is more than that of Japan's water-powered fuel cells. The production cost of the chlorophyll organic battery is very



cheap -- about NT\$1 to NT\$2, Liao said, adding that the battery contains no toxic substances and will not pose an environmental hazard, even if discarded at will.

Full Article:

<http://www.cna.com.tw/CNAeng/RealTimeNews/NewsDetail.aspx?strNewsDate=&strNewsID=200810290037&strType=EM>

24. New cancer drug released to private maker for R&D

(Central News Agency, 31. 10. 2008)

According to National Taiwan University (NTU) in Taipei and National Cheng Kung University (NCKU) in Tainan, the drug – an inhibitor against integrin protein "alpha-nu-beta-3 ($\alpha\beta 3$) " -- will be released to the Taiwanese subsidiary of U.S.-based Anchen Pharmaceuticals under an agreement signed Oct. 30 in Taipei.

Chuang Woei-jeer, a professor of medicine at NCKU, explained that the integrin alpha-nu-beta-3 adheres one cell to another, which can inadvertently trigger angiogenesis -- a process whereby cancer cells encourage the growth of extra blood vessels to acquire additional nutrition. By inhibiting the alpha-nu-beta-3, Chuang said, the drug -- dubbed "alpha-nu-beta-3 disintegrin" -- can effectively suppress angiogenesis and the activity of osteoclasts -- a kind of cell that destroys bone cells.

Full article:

<http://www.cna.com.tw/CNAeng/RealTimeNews/NewsDetail.aspx?strNewsDate=&strNewsID=200810310036&strType=JD>

31/10/2008