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Taiwan was ranked No.1 for patent activity in the latest innovation index published by Bloomberg. According to the index, the country's ranking took into account resident patent filings per 1 million residents and per US\$1 million of R&D spent, as well as patents granted as a percentage of the world total. Taiwan was also listed among the top 10 countries for innovation, finishing second in two of the seven categories: high-tech density and tertiary efficiency. The top three nations overall for innovation were South Korea, Sweden and the U.S. More than 200 countries and sovereign regions were assessed in compiling the index.

The 10 "[Most Innovative in the World 2014: Countries](#)"; *Bloomberg*

Rank	Country	Total score	R&D intensity rank	Manufacturing capability rank	Productivity rank	High-tech density rank	Tertiary efficiency rank	Researcher concentration rank	Patent activity rank
1	South Korea	92.10	3	2	33	3	3	6	2
2	Sweden	90.80	4	22	7	5	13	8	26
3	United States	90.69	10	24	10	1	37	12	5
4	Japan	90.41	5	6	14	8	30	9	3
5	Germany	88.23	9	3	20	6	25	17	6
6	Denmark	86.97	6	56	6	17	27	3	14
7	Singapore	86.07	17	14	15	14	24	4	34
8	Switzerland	86.02	8	16	3	9	35	22	29
9	Finland	85.86	2	21	12	32	5	2	15
10	Taiwan	83.52	7	N/A	30	2	2	5	1

However, Taiwan has been unable to translate its edge in patent activity into national competitiveness because the patents are not "core" enough, Wang Mei-hua, head of the MOEA's Intellectual Property Office, said. Most of Taiwan's patents generally only improve on the ideas of others and are not the "basic patents" with pioneering ideas that can generate higher incomes, she said. Patent royalties paid by Taiwan far outstrip the income Taiwan earns on its patents, and although South Korea faces a similar situation, its patent income has been growing steadily while Taiwan's has remained flat. Taiwan also needs to pay attention to China, saying it has made great strides in its number of patents, led by such telecommunications giants as Huawei Technologies Co., and ZTE Corp, Wang noted. The National Science Council warned that Taiwan has not built enough momentum in innovation in recent years and that patent holders have been unwilling to share their innovations, meaning that their patents often end up going nowhere.

Contents

1.	Taiwanese university unveils early way to detect shrimp killer	2
2.	Researcher develops smarter goose breeding with RFID technology	2
3.	Method developed for improving antibody drug production	2
4.	Taiwan unveils new 3D-IC technology	3
5.	Taiwan develops plant oil mixture to replace pesticide	3
6.	NTU team improves auto-focus in digital cameras	3
7.	Taiwan study gives new hope for bipolar disorder	4
8.	Taiwan, Japan to collaborate on space research	4
9.	Wong Chi-huey wins Wolf Prize in Chemistry	5
10.	Local lecturer leads nanowires research	5
11.	NTU creates pest-control system	6
12.	Taiwanese researchers identify compound that revives heart muscles	6
13.	Major medical journal publishes Academia Sinica autism research	7
14.	Researchers find better way to design flu vaccines	7



1. Taiwanese university unveils early way to detect shrimp killer

(Central News Agency, 06 01 2014)

A Taiwanese university unveiled a technology Monday that allows shrimp farmers to identify early a bacterium that causes mass die-offs among cultured shrimps in many countries. The technology, co-developed by National Cheng Kung University in Tainan, enables farmers to conduct a test to find out within a day whether their shrimps are infected with the bacterium that causes a disease that has swept several Asian countries since 2009, causing huge losses. The technique can help prevent the disease from spreading in the early stages, thereby reducing losses. Baby shrimps with the disease, dubbed early mortality syndrome, display symptoms about 10 days after being released into aquaculture ponds and die in large numbers soon afterward, according to Grace Low, head of the university's college of bioscience and biotechnology, who led the research team. Massive shrimp die-offs caused by the disease have been reported in China, Vietnam and Thailand, causing losses topping US\$1 billion annually per year, according to Low. The affliction is officially named acute hepatopancreas necrosis syndrome and the research team is offering free access to the technology for shrimp farmers around the world.

<http://focustaiwan.tw/news/asoc/201401060024.aspx>

2. Researcher develops smarter goose breeding with RFID technology

(Central News Agency, 06 01 2014)

A local researcher has turned goose-breeding "smart" with the use of radio-frequency identification (RFID) technology to keep track of geese which are particularly fruitful when it comes to birthing goslings. Chang Shen-chang, an assistant researcher at the Livestock Research Institute under the Council of Agriculture, spent four years of trial and error adapting the technology, commonly seen in many high-end smartphones, to the task of tracking specific geese. Chang developed a waterproof RFID tag that attaches to the waterfowl's leg, providing data on how often and when they visit their cages and how long they stay. Innovative technology, which he declined to describe in detail as the relevant patents are pending in Taiwan and China, makes it easy to determine which geese lay more eggs. Up to 20 percent of female geese "do not lay" fertile eggs, he said, explaining that the system allows farmers to focus on those which do. "(The invention) can help identify which geese are more productive to help farmers cut down breeding costs and raise productivity by focusing on the more fertile ones," he said. Chang estimated that the RFID system can save NT\$700,000 (US\$23,271) a year for a farmer of 3,000 geese and help produce 18,000 more goslings than usual. He plans a similar system in 2015 for ducks and other livestock.



<http://focustaiwan.tw/news/ast/201401060041.aspx>

3. Method developed for improving antibody drug production

(Central News Agency, 07 01 2014)

A research team from Kaohsiung Medical University has developed a new genomic reconstruction method called antibody locker that can be widely applied to antibody drugs and has huge business potential, according to team leader Cheng Tien-lu. The new development is expected to aid in constructing more selective "second-generation antibody drugs" to achieve selective target therapy, said Cheng, a professor at the university's Biomedical Science and Environmental Biology Department. The technique, the first of its kind in the world, can be used to produce drugs to kill cancer cells and can reduce side effects caused by these drugs, said Cheng. Cheng said the team has applied for international patent protection, including the Paris Convention Treaty and the Patent Cooperation Treaty, for the technique. It also plans to apply to patent the invention in over 140 countries in 30 months. He added that some domestic and foreign pharmaceutical companies have consulted with the team for transfers of the technology for targeted drug production. Last year, the value of global output of targeted drugs reached US\$54 billion. The development is expected to create US\$10 billion in economic gains through technology transfer related to medical products and local production, Cheng said.

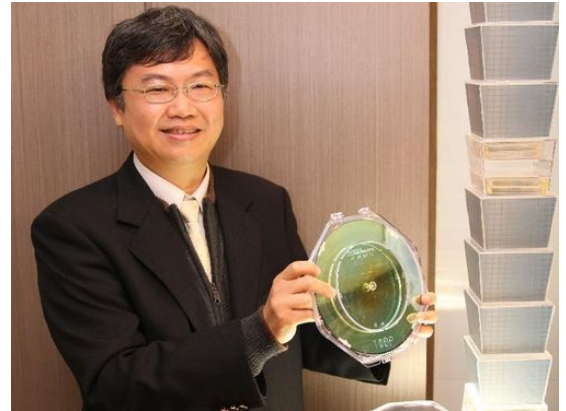
<http://focustaiwan.tw/news/asoc/201401070031.aspx>



4. Taiwan unveils new 3D-IC technology

(Central News Agency, 07 01 2014)

Taiwan's National Applied Research Laboratories (NARL) unveiled on a new three-dimensional integrated circuit (3D-IC) technology that it said can be used to make "super chips." The laboratory said it has spent NT\$500 million (US\$16.61 million) over the past 10 years developing the "Monolithic 3D-IC" technology, which chip makers can use to stack multiple layers of chips, allowing for more functions at a lower power consumption level. "We have developed a very critical core technology in line with industrial trends," said Shieh Jia-min, who is in charge of the project. Currently, only French research-and-technology organization Leti is working on a similar Monolithic technology, but the NARL can provide better performance and offer more components with its solution, Shieh said. The new technology enables 150 layers of chips to fit in space once used to stack a mere two chips using traditional technology, and helps improve signal propagation speed, provides a higher order of connectivity and offers new design possibilities, Shieh said. Shen Chang-hong, another researcher on the team, told CNA that a Taiwanese flat panel maker is currently collaborating with the team and plans to release new products using the technology in April at the earliest. "We're promoting technical cooperation at the moment, and looking forward to technology transfer in the future," Shen said. The laboratory plans to enhance the technology and expects it to mature to a level suitable for use by memory chip makers or contract chip makers within five years, he said. The technology can benefit the telematics, aerospace, cloud computing and information and communications sectors, according to researchers.



<http://focustaiwan.tw/news/ast/201401070017.aspx>

<http://www.chinapost.com.tw/taiwan/national/national-news/2014/01/08/397866/Taiwan-unveils.htm>

5. Taiwan develops plant oil mixture to replace pesticide

(Central News Agency, 08 01 2014)

The Taiwan Agricultural Research Institute has developed a mixture of essential and plant oils to replace pesticide when growing vegetables and fruit, as part of the government's efforts to promote healthy agriculture. Yu Jih-zu, an assistant researcher at the institute, told CNA that his team has developed "a great substitute (for pesticide)" after seven years of trial and error. The mixture contains five essential oils and three to four plant oils, Yu said, but he declined to give further details, citing commercial confidentiality. The institute has transferred the know-how to three local companies, he added. "The combination can enhance the effectiveness of other natural pesticides, such as a mixture of lime and sulfur," Yu said. The newly developed oil mixture has been used for growing cucumbers, peas, tomatoes, jujubes, papayas and strawberries, according to the institute. Tsai Jyh-nong, a deputy researcher at the institute, said that farm management still plays an important role, as "timing is very critical." Greenhouses provide the best environment for crops, and farmers can use small-mesh nets to lower building costs, the researcher told CNA. Weeding is crucial, Tsai went on, claiming that a lot of farmers do not know that weeds can be a perfect breeding ground for parasite eggs and diseases. Farmers should also pay great attention to what kind of pests are invading their crops and what diseases are infecting their crop, he said. "Such low-cost preventions and cures have proved effective. Most important of all, the crops are free of pesticide residue," Tsai said. "It not only ensures the health of consumers, but also preserves the ecosystem," he added.



<http://focustaiwan.tw/news/ast/201401080018.aspx>

<http://www.chinapost.com.tw/taiwan/national/national-news/2014/01/09/397921/Plant-oil.htm>

6. NTU team improves auto-focus in digital cameras

(Taipei Times, 09 01 2014)

A research team from National Taiwan University (NTU) has developed technology that improves the speed and accuracy of auto-focusing in digital cameras and video recorders, and projects images onto different screen



surfaces more accurately. The National Science Council-funded team, led by Homer Chen, a professor at NTU's Graduate School of Communication Engineering, demonstrated the results of their research at the council. Holding a book in front of a digital camera and moving the book further away from a lens equipped with the team's software, and comparing the projection with a camera that did not have their technology, the team showed that their software enabled cameras to auto-focus faster and more accurately. The team also demonstrated that a smartphone that usually has a minimum focus distance of about 5cm to 6cm from an object, can be improved with their software to auto-focus on objects within less than 1cm from the lens.

<http://www.taipeitimes.com/News/taiwan/archives/2014/01/09/2003580899>

7. Taiwan study gives new hope for bipolar disorder

(Taiwan Today, 15 01 2014)

Taiwan scientists from the Institute of Biomedical Sciences at Taipei City-based Academia Sinica, together with psychiatrists from 44 local hospitals, identified a gene that can predict response to lithium therapy in Han Chinese sufferers of bipolar disorder, the institute said Jan. 15. The findings will help in the design and development of new drugs to treat the disorder, as well as clinical testing kits, Academia Sinica said. The research was published Jan. 9 in *The New England Journal of Medicine*. The study found three genetic variants in the gene encoding glutamate decarboxylase-like protein 1 (GADL1) can predict response to lithium maintenance treatment in bipolar I disorder sufferers of Asian ancestry, Academia Sinica said. These variants are rare in persons of Caucasian and African ancestry, but it is possible that other GADL1 alleles, or genetic variants, specific to these populations could also be linked to lithium efficacy. Bipolar disorder, commonly known as manic depression, is a mood disorder characterized by episodes of mania and depression, with a high risk of suicide in some patients. Lithium has been the first-line drug of choice for maintenance treatment of bipolar disorder for almost 50 years, with about 30 percent of patients showing complete symptom remission and 80 percent a partial response in Caucasian populations, the institute said. However, many patients have a poor or no response to lithium, and this study is the first to find genetic markers that can be used to select alternative treatment regimes. Patient recruitment and lithium efficacy assessment were conducted by a team led by Andrew Cheng at Academia Sinica and Lee Chau-shoun at the Department of Psychiatry, Mackay Memorial Hospital in Taipei. Genomewide association study, genotyping and sequencing were conducted by a team led by Chen Yuan-tsong and including Chen Chien-hsiun, Michael Lee Ming-ta and Wu Jer-yuarn at Academia Sinica. According to Academia Sinica, little is known about the physiological function of GADL1, but it may be similar to that of glutamate decarboxylase, which is involved in the decarboxylation of glutamate and other amino acids and is also a key enzyme in the biosynthesis of gamma-aminobutyric acid (GABA). Glutamate acts as the primary excitatory neurotransmitter and GABA is a major inhibitory neurotransmitter in the human brain. The research suggests the importance of the glutamate pathway in bipolar disorder and the possibility that lithium may affect glutamate-based neurotransmission. A total of 47.2 percent of the 1,761 bipolar patients in this study carried the response allele T in one variant of GADL1, a prevalence similar to that in the general Han Chinese population, suggesting that approximately half the patients with bipolar I disorder in Taiwan may benefit from lithium therapy, but that alternative treatments may be more appropriate for the other half.

<http://www.taiwantoday.tw/ct.asp?xItem=213653&ctNode=445>

8. Taiwan, Japan to collaborate on space research

(Central News Agency, 17 01 2014)

Academia Sinica, the country's top research institute, signed an agreement with a Japanese space research institution in Taipei to participate in a Japan-led mission that will study the physics of outer space near the Earth. Signed by Academia Sinica President Wong Chi-huey and Saku Tsuneta, director general of the Institute of Space and Astronautical Science (ISAS), the five-year agreement represents the first formal space research mission in which Taiwan will work with a world-renowned space institution, Academia Sinica said in a statement. In Taiwan, the project will be led by the Academia Sinica Institute of Astronomy and Astrophysics (ASIAA) in partnership with National Cheng Kung University. The mission, called Exploration of energization and Radiation in Geospace (ERG), involves a small scientific research satellite that will study the behavior of highly charged electrons in the magnetosphere, the region of outer space near the Earth. That is where the Van Allen radiation belt captures a huge volume of the highly charged energy particles that are the focal point of the study. Japanese scientists hope that data from the satellite will help them explain how these high-energy electrons are born as they generate and vanish repeatedly during space storms, and how space storms themselves develop. The Taiwanese team will deliver one of the project's five key instruments, an LEP-e analyzer that collects low-energy electron data, to help the ERG satellite observe the distribution of energy and density of low energy electrons surrounding Earth, Academia Sinica said. The other four instruments involved in the project include middle- and high-energy electron analyzers as well as low- and middle-energy ion analyzers. With all the data collected, researchers "can paint a



comprehensive picture of the magnetosphere," said Wang Shiang-yu, a research fellow at Academia Sinica. By paving the way for future international opportunities in space research, the agreement will allow Taiwanese scientists to access ERG data for advanced research in geospace physics and increase their world-class space research opportunities. It will also strengthen Taiwan's capability in building top-notch instruments for space science missions, Academia Sinica said. Under the Japan Aerospace Exploration Agency (JAXA), ISAS leads Japanese scientific satellite mission developments. The JAXA is one of the world's major space agencies, together with the National Aeronautics and Space Administration and European Space Agency

<http://focustaiwan.tw/news/ast/201401170033.aspx>

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9. Wong Chi-huey wins Wolf Prize in Chemistry

(Taiwan Today, 20 01 2014)

Academia Sinica President Wong Chi-huey was named winner of the 2014 Wolf Prize in Chemistry Jan. 17 in recognition of his "numerous original contributions to the programmable and practical synthesis of complex carbohydrates and glycoproteins," Taipei City-based Academia Sinica said. Founded by Ricardo Subriana y Lobo Wolf and his wife Francisca, Wolf Prizes are awarded annually to those who have made outstanding contributions in the sciences of arts, Academia Sinica said. Five or six prizes are awarded each year in agriculture, chemistry, mathematics, medicine and physics, with one prize awarded in the arts. The prizes were first presented in 1978. The awards are bestowed by the President of Israel at a ceremony in Jerusalem. The prize has a status approaching that of the Nobel Prize. According to Academia Sinica, Wong is responsible for important advances in carbohydrate chemistry and biology associated with cancer progression, bacterial and viral infection and immunological function, as well as the development of vaccines, therapeutics and glycan microarrays for the analysis of protein-carbohydrate interaction. Wong's team has recently made several important discoveries in the area of glycoscience, the institution said, including the synthesis of cancer vaccines and advances in anti-viral and anti-bacterial research, making him an undisputed world leader in this field. Wong has published more than 700 academic papers and four reference books, and obtained more than 100 patents. Wong has received numerous accolades throughout his long career, Academia Sinica said. Most recently, in 2012, he won the American Chemical Society Arthur C. Cope Award, the society's highest honor, and the Nikkei Asia Prize for Science, Technology and Innovation. Wong currently serves as Chief Scientific Advisor to the ROC Cabinet. Former Academia Sinica Vice President Yang Shang-fa was awarded the Wolf Prize in Agriculture in 1991, and the Wolf Prize in Mathematics was bestowed on Academician Yau Shing-tung in 2010. Wong is the first scholar based in Taiwan to receive the award.



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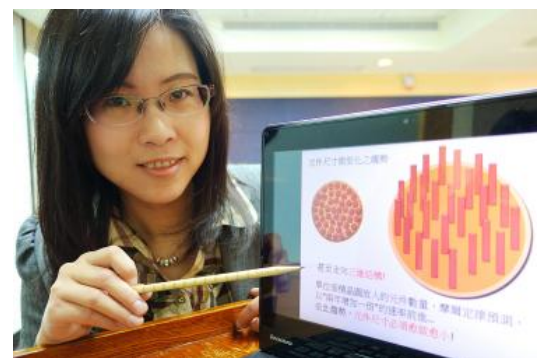
<http://focustaiwan.tw/news/ast/201401170023.aspx>

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10. Local lecturer leads nanowires research

(Central News Agency, 23 01 2014)

An assistant professor at National Chiao Tung University's department of electrophysics, Chou Yi-chia, recently became the school's youngest lecturer to publish a research paper as the principal author in the globally renowned academic magazine Science. Chou, 30, coauthored the paper "Atomic-scale variable and control of III-V nanowire growth kinetics" along with research fellows and academics at Lund University in Sweden. The multinational research team has derived a growth model for nanowires that could contribute to the development of cheaper technologies for the production of the next generation of computer chips. With the cost of building next-generation semiconductor chip factories expected to keep rising, researchers in Silicon Valley are developing new types of materials that could reshape the computing world in the next decade. According to a recent New York Times report, semiconductor designers are developing chemical processes that can make it possible for circuits to "self-assemble," by causing materials to form patterns of ultrathin wires on a semiconductor wafer. They believe that combining these patterns of nanowires with conventional chip-making techniques will lead to a new class of





computer chips that could be cheaper to produce. For a range of nanotechnology applications, semiconductor nanowires will need to be grown with high precision and control. Chou's team studied the growth of gallium phosphide (GaP) nano-wires using chemical vapor deposition within a transmission electron microscope, and worked out conditions that could generate regular and predictable wire growth. The team measured the growth kinetics of III-V nanowires under different conditions. They derived a growth model in self-assembling nanomaterials that is expected to contribute to the development of a new generation of microprocessor chips and inspire an upgrading in the consumer electronics industry. Chou and her colleagues completed the experiment when she was conducting post-doctoral research at IBM Thomas J. Watson Research Center in Yorktown Heights, New York. She began to analyze and record the research findings after she returned to Taiwan to teach at National Chiao Tung University about two years ago. It took her one-and-a-half years to complete the paper. Chou became enamored with scientific research after participating in a science fair as a student at Chiayi Girls' Senior High School in southern Taiwan. Although her parents wanted her to study medicine, she decided to pursue a career in science. After graduating from National Tsing Hua University's Department of Material's Science and Engineering, she went to the US to study semiconductor dynamics at the University of California-Los Angeles. She obtained her doctorate at the age of 26. Chou said in an interview on Friday last week that "while some people say research is lonely work, I've never had that feeling," adding that she never thinks research is toil even if she sometimes has to work for 12 hours straight, without even having a meal.

<http://www.taipeitimes.com/News/taiwan/archives/2014/01/23/2003581954>
<http://focustaiwan.tw/news/atod/201401180027.aspx>

11. NTU creates pest-control system

(Taipei Times, 23 01 2014)

A research team from National Taiwan University (NTU) said they have developed a world-leading wireless agroecological monitoring system that can effectively collect pest information in fruit orchards and transmit the data every 30 minutes for analysis, as well as provide a seven-day forecast of possible pest outbreaks. The interdisciplinary research was funded by the government's science and agricultural agencies and started in 2006. The research team was led by Jiang Joe-air, a professor at NTU's bio-industrial mechatronics engineering department, in cooperation with other departments and the National Taipei University of Technology. Although Taiwan has been known as the "kingdom of fruits," the reality is that local farmers face serious damage to their crops from pests, which cause losses of tens of billions of New Taiwan dollars every year, Jiang said. "I've often dreamed of farmers one day managing their farms using their personal computers or smartphones, becoming technological farmers," he said. Jiang added that new user-friendly technologies can help achieve that goal, just as the system they have developed can help farmers to easily monitor pests in their orchards, as well as the damage they cause. The world-leading agroecological monitoring system incorporates technologies and knowledge from insect research, climate monitoring, a wireless sensor network, cloud computing and a geographic information system, and 24 systems have been set up throughout the nation so far. The research team identified the prevention of damage by *Bactrocera dorsalis* as the main target of their initial experiments, for which they developed an infrared automatic insect-counting cylinder. *Bactrocera dorsalis* is a variety of oriental fruit fly that is considered one of the most serious threats to the nation's fruit industry, causing damage to more than 80 types of fruit and losses that run into billions of New Taiwan dollars each year. The automatic insect-counting cylinder attracts the fruit flies by releasing a chemical attractant or pheromone. Its infrared sensor counts the number of flies caught in the cylinder, while the information is transmitted through a wireless network to a database used for estimating pest damage. Jiang said while the Council of Agriculture has installed more than 600 pest data collection stations throughout the nation and uses manpower to collect the caught insects every 10 days for further analysis, the information is often released too late for farmers to conduct pest prevention measures in their orchards. "By forecasting how many flies are likely to attack the orchard the next day or the day after, farmers can decide how to prevent damage to their fruit, such as cleaning up the environment, bagging the fruit, or even spraying a certain amount of pesticides," he said. Jiang added that the time of bagging the fruit can affect their quality, especially in high-priced fruit such as high-quality export mangoes.

<http://www.taipeitimes.com/News/taiwan/archives/2014/01/23/2003581946>

12. Taiwanese researchers identify compound that revives heart muscles

(Central News Agency, 28 01 2014)

A research team at National Cheng Kung University has found that an organic compound used to induce term labor can revive heart muscle cells, which had been seen as impossible to regenerate after the first month of birth. Patrick Hsieh, the stem cell team leader at the school's Institute of Clinical Medicine, said that prostaglandin E2 (PGE2) can regulate cardiac stem cell activity and induce heart regeneration in mice, even in aged mice. Prostaglandins are a group of lipid compounds that are derived enzymatically from fatty acids and have important functions in the animal body. They have had clinical applications in obstetrics and gynecology, with PGE2 used for



the induction of term labor, but this latest study found that PGE2 can also stimulate spontaneous cardiac repair and may one day be seen as an alternative to heart transplants, the team said. Hsieh said the team has applied for patents in many countries and is working on developing new drugs based on the findings, but he did not give a timeframe on when PGE2-based heart medications might become available. Describing the compound's effect as "bringing (cells) back to life" and "rejuvenation," Hsieh said the compound revives heart muscle cells by removing factors contributing to aging. Hsieh said the team spent seven years on the study, which has been published in the European journal EMBO Molecular Medicine. Should the findings result in viable medications for humans, it would represent a major breakthrough because cardiovascular disease, such as congestive heart failure, is a leading cause of morbidity and mortality throughout the world. There are currently about 6 million patients suffering from congestive heart failure in the United States and about 400,000 in Taiwan. Despite intensive medical or surgical treatment, 80 percent of patients die within eight years of diagnosis, Hsieh said.

<http://focustaiwan.tw/news/ast/201401280003.aspx>

13. Major medical journal publishes Academia Sinica autism research

(The China Post, 28 01 2014)

Research conducted by Academia Sinica in which scientists established the connection between autism and defective neural development was recently published in the journal Nature Neuroscience. The neuron-specific transcription factor T-box brain 1 (TBR1) regulates brain development. Disruptive mutations in the TBR1 gene have been repeatedly identified in patients with autism spectrum disorders (ASDs). Dr. Hsueh Yi-ping at the Institute of Molecular Biology of Academia Sinica has been studying TBR1 for an extended period of time. Scientists know that TBR1 is influential in the development of the cerebral cortex and amygdala, but only started to suspect that TBR1 is related to autism in the last couple of years. Loss of a specific protein will lead to a disconnect between the two halves of the amygdala as well as neural circuit anomalies, scientists found. TBR1 is a special gene that controls 15 other neurons, according to researchers at Academia Sinica. The public is unsure about the causes of autism. But with the new discovery, patients may undergo an MRI in a hospital to verify if there are any relevant gene abnormalities. If abnormalities do exist, patients may undergo further examination to check the condition of TBR1 and other related genes. This is the first research to establish a connection between autism and defects in neural circuits. The research team also found that D-cycloserine can remedy defects in neural circuits and treat autism in mice. The research took place over nine years and provided an explanation of the causes of autism and even suggested clinical medicine that may treat the condition.

<http://www.chinapost.com.tw/taiwan/national/national-news/2014/01/28/399407/Major-medical.htm>

14. Researchers find better way to design flu vaccines

(Central News Agency, 28 01 2014)

Taiwan's top research institute has found a better way to design influenza vaccines that do not require frequent updates and annual immunizations. A research team at the Genomics Research Center of Academia Sinica has engineered a glycoprotein-based flu vaccine that induces a greater immune response and greater protection against H1N1 flu virus strains in mice and ferrets than the traditional vaccine, the institute said in a statement. The research, led by Academia Sinica President Wong Chi-huey, Associate Research Fellow Che Alex Ma and Associate Research Fellow Lin Kuo-i, received front-page coverage in the Proceedings of the National Academy of Sciences on Jan. 28. The new vaccine, which uses monosaccharide -- the most basic carbohydrate unit -- can induce broader protection against different flu strains and can lead to better flu vaccine design, according to the institute. "This strategy could also map out a new direction for the development of universal flu vaccines and could be applied to vaccine designs for other human viruses," the researchers said. The research into cases of avian flu caused by the H5N1, H7N9 and H6N1 viruses in Asia highlight the particularly pressing need in the region for an improved vaccine design that does not require frequent updates and annual immunization, and that can provide cross-strain and cross-subtype protection. The research also brings Wong one step closer to his ultimate goal of developing a universal vaccine. On Jan. 17, it was announced that Wong will be awarded the 2014 Wolf Prize, a major scientific accolade.

<http://focustaiwan.tw/news/ast/201401280016.aspx>