PM Lee: Academic medical centres are key components of the healthcare system
Even without the financial crisis, the world order will invariably be transformed in the next 10 to 30 years by the fast-growing economies of Brazil, Russia, India and China, said Minister Mentor (MM) Lee Kuan Yew who was the Guest-of-Honour at the Kent Ridge Ministerial Forum held on 19 October 2009. He noted that for China, the financial crisis has shortened the time by three to five years that the country would have needed to catch up.

When NUS year 4 engineering student Ms Zhang Xiaoying asked him about Singapore’s stand at the upcoming United Nations Climate Change conference to be held in Copenhagen in December, MM Lee said that Singapore would resist pressure from Japan and Australia to commit to firm cuts in emissions. “The Australians want us brought to Category One so that we have to slow down economic growth and the Japanese think so too. We will see, but we have prepared all our arguments and it is not possible to just treat us like an ordinary country,” he said.

MM Lee also answered questions affecting Singaporeans, including the implementation of a minimum wage to narrow the income gap, the issue of migration, as well as developing a recycling culture in public housing estates. In response to a question from NUS year 4 science student Ms Jang Jia Hui on the important values and attitudes that the youth should have for Singapore to continue to thrive and prosper, MM Lee said that they should have the same “we will make it, do or die” attitude as their forefathers. “Had we not had people with that attitude, we would not have today’s Singapore,” he said.

When asked how he would like to be remembered, MM Lee said: “My job is to get what I am doing done well. My motto in life is if you have decided to do something, then do it well, or don’t do it at all.” He added that he would leave it to historians to decide his reputation.

Organised by the NUS Students’ Political Association, this year’s forum explored the topic “What will the next 50 years have in store for Singapore?”. The forum, moderated by Ambassador-At-Large Prof Tommy Koh, kept the 1,200-strong audience riveted on the various aspects of Singapore’s future.

On the topic of which economic sectors Singapore should be focusing on, MM Lee said: “It is very difficult to spot your niches. Whatever we do now, given time, the Chinese will do it better, because they have got more talent. So where do we retain our competitive edge? In my own analysis, it will take a long time to change the system from no protection of intellectual property rights to protection of intellectual property rights; from no rule of law to the rule of law. These areas ... they will not be able to compete with us.” He added that for Singapore, that constitutes a key draw for research and development, as well as for the pharmaceutical industry.
PM Lee officially opens the Duke-NUS Graduate Medical School

Speaking at the official opening of the Duke-NUS Graduate Medical School on 28 September 2009, Guest-of-Honour Prime Minister Lee Hsien Loong said academic medical centres like the Duke-NUS Graduate Medical School (Duke-NUS GMS) and the National University Health System, are key components of the overall healthcare system. They need to develop a ‘triple bottom line’ of delivering good medical care, educating the next generation of doctors well and enhancing our medical capabilities through research.

Set up in 2005 and a collaboration between Duke University and NUS, Duke-NUS GMS aims to pioneer leading-edge graduate-entry medical education and contribute to the biomedical sciences research landscape in Singapore. At the official opening, Duke University President Prof Richard Brodhead said Singapore was chosen for the collaboration with Duke University as it is becoming a leader in biomedical research and education.

NUS President Prof Tan Chorh Chuan said: “Duke-NUS GMS is a very valuable addition to the medical and educational landscape in Singapore. It is highly complementary to the NUS Yong Loo Lin School of Medicine.” He added: “The curriculum of the Duke-NUS is particularly tailored to educate high-quality clinician-scientists.”

Housed in the vicinity of the Singapore General Hospital at the Khoo Teck Puat Building along College Road, Duke-NUS GMS will further its biomedical research programmes and initiatives with a gift of S$80 million from the Khoo Teck Puat Foundation. This gift will be matched dollar-for-dollar by the Singapore government. Duke-NUS GMS has over the years, established five Signature Research Programmes to address key healthcare concerns for Singapore, such as cancer and stem cell biology, and cardiovascular and metabolic disorders. With faculty members from local hospitals and national institutes, the school launched a medical education anchored on TeamLEAD (where LEAD stands for Lead, Engage And Develop), an innovative team-based learning approach.

Duke-NUS GMS received its first batch of students in 2007 with 26 students who had already obtained a Bachelor’s degree. To-date, there are 130 students from 17 countries pursuing the Doctor of Medicine (M.D.) course. Its inaugural class will be graduating in 2011 with a joint M.D. degree from Duke University and NUS – the first such degree in the history of both universities.
International law cannot call itself “international” without the voice of Asia, said Singapore Senior Minister and Co-ordinating Minister for National Security Prof S Jayakumar at the launch of the NUS Centre for International Law (CIL) on 30 October 2009. “The Centre for International Law is a timely development in Singapore’s efforts to become a leading legal hub in Asia,” added Prof Jayakumar. “This Centre, together with the NUS Faculty of Law serving as the Secretariat of the Asian Society of International Law, can be the catalyst to build up a larger international law presence in Singapore and the region,” he noted.

Headed by Founding Director Assoc Prof Robert Beckman, CIL is funded by some S$2 million for the next three years and is a collaboration between NUS, the Attorney-General’s Chambers and the Singapore Ministry of Foreign Affairs. The Centre aims to become an intellectual hub and thought leader for the teaching and development of international law in the region. It also hopes to enable Singapore and the region to play a more important role in the promotion and development of international law.

For a start, the Centre will focus on six thematic areas of immediate concern in the region, namely ASEAN Law and Policy, Ocean Law and Policy, Trade Law and Policy, Aviation Law and Policy, Intellectual Property Law and Policy and International Dispute Settlement. Programmes at the Centre are targeted at key government officials to help them understand international law.

On the future of the Centre, Dean of the NUS Faculty of Law Prof Tan Cheng Han said: “I am also confident that within a few years, CIL will become a thought leader in this field. It will do so not only through the involvement of NUS faculty but also by leveraging off the rich expertise that exists within Government, the Attorney-General’s Chambers, and other academic institutions and think tanks.”

At the event, the audience had the opportunity to gain insights into international law at the colloquium titled “Singapore and International Law: The Early Years”. On hand to share their first-hand experience were Ambassador-At-Large, Ministry of Foreign Affairs and Chairman of CIL’s Governing Board, Prof Tommy Koh, Judge of Appeal Justice Chao Hick Tin, as well as Visiting Senior Research Fellow of the Institute of Southeast Asian Studies, Mr S Tiwari. Attorney General of Singapore Prof Walter Woon was the moderator of the colloquium.
President S R Nathan conferred the inaugural President’s Science and Technology Awards (PSTA) to 11 outstanding research scientists at the Istana on 28 September 2009. Previously known as the National Science and Technology Awards, the PSTA had been elevated to the status of Presidential Award this year so as to recognise outstanding research scientists and engineers for their excellent achievements in science and technology. The Awards also honour exceptional contributions to the development of the research and development landscape in Singapore.

NUS researchers honoured at inaugural President’s Science and Technology Awards

On the award recipients, Chairman of the Agency for Science, Technology and Research, Mr Lim Chuan Poh said: “Their contributions speak eloquently of the potential benefits brought about by mission-oriented R&D. This is especially important as Singapore continues its transformation into a knowledge based, innovation-driven economy.”

Speaking on his team’s win of the President’s Technology Award, Prof Jacob Phang from the NUS Department of Electrical and Computer Engineering and Executive Chairman of SEMICAPS Pte Ltd, highlighted the importance of collaboration between NUS, SEMICAPS and industry partners. He said all three parties played key roles in achieving success. NUS conducted the research and development on the technology, while SEMICAPS, a NUS spin-off company dealing with the development and commercialisation of integrated circuit failure analysis systems, focused on the development and commercialisation of the technology with industry partners. Prof Phang was a winner of the National Young Scientist and Engineer Award in 1988.

Dr Yu Haifeng, winner of the Young Scientist Award from the NUS Department of Computer Science, said that he was interested in conducting research on Sybil attacks as this was considered an important and challenging problem by the research community. Sybil attacks involve attacks launched on computer systems by attackers under the guise of multiple identities. (See profile interview with Dr Yu Haifeng on page 14)
The Keio-NUS CUTE Centre officially opens

The Keio-NUS Connective Ubiquitous Technology for Embodiments (CUTE) Centre was officially opened by the President of the Republic of Singapore, His Excellency S R Nathan on 12 October 2009. The S$20 million centre is a partnership between NUS’ Interactive and Digital Media Institute (IDMI) and Keio University’s Graduate School of Media Design (KMD). Funded by the National Research Foundation and administered by the multi-agency Interactive Digital Media R&D Programme Office, this is Keio University’s first full-scale international research centre located outside of Japan.

Chairman, Board of the Management Committee of the Keio-NUS CUTE Centre, Prof Hang Chang Chieh said: “The establishment of the CUTE Centre reiterates NUS’ commitment towards supporting national development goals and reinforces the leadership position of NUS in interactive digital media related research through its collaboration with Keio University, a world leader in Media Design.”

The Centre is headed by two Co-Directors – Dr Adrian David Cheok, KMD Professor and Associate Professor of Electrical and Computer Engineering at NUS, who is also the Deputy Director (Research) of NUS IDMI; and Dr Masa Inakage, Dean and Professor of KMD. Home to 51 IDM researchers based at NUS and 36 researchers based at Keio University Hiyoshi Campus, the Keio-NUS CUTE Centre aims to be amongst the top 5 most renowned labs in interactive media in the world.

On the aspirations of the Centre, Prof Cheok said: “The new centre opens up exciting new opportunities for both NUS and Keio University in terms of research and education, with a strong focus on new types of multi-modal networked communication for children and families. There will be substantial interaction between researchers and students in NUS and Keio through joint lab projects.”

Keio-NUS CUTE Centre is collaborating with several industry partners, having recently received an industry grant from NEC, Japan, to develop kitchen media that can be used for family communication. For a start, the Centre will conduct research and development in areas of feeling communication, global computing, as well as build a trend-spotting engine of online digital content activities. One of the projects which the Centre has been working on is the Huggy Pajama, where parents and children can “hug” one another via a hugging interface device and a wearable, hug-reproducing pajama connected through the Internet.
150 year-old Malacca townhouses to serve as a Centre for Asian Architecture and Urban Heritage

Officially opened on 26 September by Guest-of-Honour, the Governor of Malacca, TYT Yang di-Pertua Negeri Melaka, His Excellency Tun Datuk Seri Utama Mohd Khalil bin Yaakob, the 150 year-old townhouses at 54-56 Jalan Tun Tan Cheng Lock in Malacca will be used by the NUS Department of Architecture of the School of Design & Environment (SDE) as a field school and resource centre. The townhouses were acquired and restored through a S$1.5 million gift by Ms Agnes Tan, daughter of the late Tun Tan Cheng Lock, a highly-respected Peranakan community leader.

Delivering his speech in Malacca, NUS President Prof Tan Chorh Chuan said: “Embodying the spirit of giving, Ms Agnes Tan has made a very generous gift to NUS that has enabled these two townhouses to be transformed into a rich resource for the study of Asian architectural and urban heritage.”

“By giving these houses a new lease of life, it is my hope that they will perpetuate the vision of my father, a son of Malacca, who believed strongly in the pursuit of knowledge and education, and that they will become a place where many who are passionate about Asian culture and architecture can gain a deeper experience, and encourage meaningful exchanges,” said Ms Tan. Earlier in 2005, Ms Tan presented NUS with a gift of S$4 million for the Baba House in Singapore.

The two townhouses were restored over a period of two years by a group of six NUS academics and undergraduates working with a Malacca-based conservation architect and building contractors. During the conservation work, care was taken to maintain the authenticity of the townhouses and to make them a useful pedagogical tool.

At the opening, Prof Tan also announced the Tun Tan Cheng Lock Scholarships in Architecture for NUS students and Southeast Asian students reading accredited architecture courses. An endowed scholarship made possible by Ms Tan, up to four scholarships at a total value of S$20,000 will be administered through the NUS Department of Architecture at any given time in each academic year. Head of the NUS Department of Architecture Assoc Prof Wong Yunn Chii said the scholarship will allow students to collectively share and understand knowledge on problems special to Asia, particularly on the issue of the pressure of historical areas in urban centres.

A brief historical insight into 54-56 Jalan Tun Tan Cheng Lock

Dating back to the mid-19th century, Unit 54 was first used as a medical facility better known as Ong Maternity House by Dr Ong Bak Hin in the 1930s. Dr Ong was one of NUS’ early medical graduates of the King Edward VII Medical School, the former Straits Settlements and Federated Malay States Government Medical School from which NUS traces its origins. Over the years, the units have assumed many business identities, including a clinic and even a rumah tumpangan or rest-house. Ms Agnes Tan, daughter of the late Tun Tan Cheng Lock, purchased and bequeathed the two townhouses to the NUS Department of Architecture.

Conservation: The original windows of the townhouse that were retained as part of the conservation effort.

Past identity: The sign on the front doorway reveals one of the past identities of the townhouses.
Our world is fast changing and NUS needs to make full use of the window of opportunities to impel the university forward and scale new heights in a changed world. To achieve this, NUS President Tan Chorh Chuan said the University would need to continue to recruit and retain top talent, transform the NUS education and build upon its excellent progress in research to make it world-class.

Delivering his State of the University Address on 30 October 2009 at the University Cultural Centre Theatre, Prof Tan spoke on the implications of the fundamental changes in the world economy and financial system after the global financial crisis for NUS. He also highlighted Asia’s ascent on the world stage and the need for the University to build on its expertise as a well-connected hub by offering a new and integrative understanding of Asia.

Speaking on the implications of the changed world, Prof Tan noted that NUS will have to make three strategic adjustments in the areas of research and institutional development: intensifying efforts to make NUS a pre-eminent knowledge hub in Asia; increasing the University’s agility to be more responsive to change; and thirdly, boosting NUS’ standing as a global university by extending its global reach.

To achieve an integrated understanding of the key issues in Asia, NUS will focus on advancing more integrative research by building five integrative research clusters. In the area of Asia studies, Prof Tan said: “The new NUS Global Asia Institute set up in September this year will provide the platform for integrative Asia-studies (and) an initial set of research themes has been defined following extensive consultations.” He added that a critical output of GAI will be finding solutions to real-world problems.

An Integrative Sustainability Solutions Cluster will also be established to create powerful synergies among the NUS research groups and centres working in the area of environmental sustainability. To meet the breadth of expertise required for such an approach, the University will be drawing on existing staff across NUS and recruiting top-notch faculty. To-date, besides the research clusters in Asia Studies and Sustainability, NUS has embarked on building
Outstanding talent at NUS

During the State of the University Address by NUS President Prof Tan Chorh Chuan, he highlighted faculty members who have made a mark for themselves on the international stage and those who are outstanding achievers in their respective fields such as Prof Chua Tat Seng, Prof Li Baowen, Prof Brenda Yeoh, Prof Deng Yongheng, Prof Phil Koeffler and Prof Prasenjit Duara.

Prof Li Baowen from the Department of Physics has placed NUS on the world map in the new field of phononics, which studies innovative approaches to manipulate the transfer of heat through interdisciplinary research. Department of Geography’s Prof Brenda Yeoh is conducting ground-breaking work in several areas, including transnational migration and global cities. Professor at the School of Computing (SoC) and the founding Dean of SoC, Prof Chua Tat Seng, is leading a group from Computing that is at the cutting edge of multimodal information search and extraction. These faculty members have all distinguished themselves as academic leaders internationally, said Prof Tan. He added that the NUS Teaching Academy comprising 18 past winners of the NUS Outstanding Educator Award, is also leading the push to drive NUS’ education to new heights of excellence.

The three other faculty members cited are top-notch faculty who have joined NUS. Prof Deng Yongheng, one of the most highly cited researchers in real estate finance and urban economics, is the new Director of the NUS Institute of Real Estate Studies. Boosting NUS’ existing strengths in cancer research is one of the foremost authorities in leukaemia research, Prof Phil Koeffler, who has joined the NUS Yong Loo Lin School of Medicine. Prof Koeffler is also Senior Principal Investigator at the Cancer Science Institute of Singapore, NUS. Prof Prasenjit Duara, a renowned historian of China and Asia with deep insights and connections in India, is the Raffles Professor of Humanities and Director (Humanities and Social Sciences Research) at NUS.

Prof Tan noted that the changed world and the growing importance of Asia will present unique opportunities for NUS to make a quantum leap to become a leading global university, but at the same time, it will also pose challenges for the University. NUS is, however, well placed to succeed, he said. “Our talent pool is growing by leaps and bounds. Our dynamism and creativity help us stand out as a global university.”

“Like trekkers on a demanding quest, we cannot stop. We must push harder and with even fiercer energy, impelled forward by our steely resolve, our fire in the belly and above all, our self-belief. It is not just our strategies and our plans, but our mental strength and attitude that will determine if we will succeed or not,” said Prof Tan.
NUS President Prof Tan Chorh Chuan receives Honorary Doctor of Science from Loughborough University

In recognition of his contributions in shaping developments in medical education, healthcare, biomedical sciences research and translational and clinical research in Singapore, NUS President Prof Tan Chorh Chuan was conferred the Degree of Doctor of Science, Honoris Causa, from Loughborough University’s Vice-Chancellor and President Prof Shirley Pearce on 6 September 2009.

A renal physician, Prof Tan obtained his medical training at NUS and research training at the Institute of Molecular Medicine, Oxford. Prof Tan, through many key roles in research, administration and management, has played a pivotal role in shaping developments in medical education, healthcare, biomedical sciences research and translational and clinical research in Singapore.

As Dean of the NUS Faculty of Medicine from 1997 to 2000, he instituted problem-based learning and fostered the integration of clinical and pre-clinical teaching so that students can better connect theory with practical skills. This resulted in subsequent cohorts of medical students being better prepared for clinical service in Singapore’s healthcare delivery system.

In 2003, Prof Tan received the Public Service Star for his outstanding contributions in overcoming SARS in Singapore and in the following year, he received the Public Administration Gold Medal for his work in the Ministry of Health, where he served as the Director of Medical Services from 2000 to 2004. In his capacity as the Deputy Chairman of the Duke-NUS Graduate Medical School Governing Board from 2004 to 2007, Prof Tan played a key role in establishing this prestigious new partnership.

As the inaugural Chief Executive of the National University Health System in 2008, he brought the NUS Yong Loo Lin School of Medicine, the Faculty of Dentistry and the National University Hospital together under a common governance structure.

Prof Tan has been a key leader in the Singapore’s Biomedical Sciences Initiative since its inception in 2000, for which he was awarded the National Science and Technology Medal in 2008. In the course of his career, Prof Tan also garnered other awards such as the Albert Schweitzer Gold Medal from the Polish Academy of Medicine and the 1996 Singapore Youth Award.

GLOBAL HIGHLIGHTS

Building more bridges within IARU

NUS President Prof Tan Chorh Chuan attended the International Alliance of Research Universities (IARU) Senior Officers’ Meeting (SOM), and presided over the proceedings for the first time in his capacity as IARU Chair. The meeting was hosted by University of Oxford from 22 to 23 October 2009.

Besides NUS and Oxford, there were senior staff from the Australian National University (ANU), ETH Zurich, University of California Berkeley, University of Cambridge, University of Copenhagen, University of Tokyo and Yale University. Representing NUS at the meeting were Prof Barry Halliwell, Deputy President (Research and Technology) and Prof Lily Kong, Vice President (University and Global Relations).

Global Summer Programme, which saw participation from more than 300 students in 16 courses run by the member institutions in the most recent northern hemisphere summer. The Campus Sustainability initiatives, which reflect the commitment of the institutions to reduce carbon emission and share best practices through a toolkit, were also commended as successes. The meeting agreed that global educational initiatives and institutional sharing of good practices will continue to be the areas of focus.

Oxford staff and students, who were involved in various IARU activities, were invited to share their ideas and experiences with the senior officers.

Prof Tan also met with Prof Andrew Hamilton, the new Oxford Vice Chancellor, who assumed his appointment on 1 October 2009.

by Denise Chua, International Relations Office
Prime Minister of Netherlands inaugurates the Centre for Aquatic Science Research

Prime Minister of the Kingdom of Netherlands, His Excellency Dr Jan Peter Balkenende, together with Chairman of NUS Board of Trustees Mr Wong Ngit Liong, inaugurated the NUS Centre for Aquatic Science Research (CASR) on 23 October 2009. At the event, H.E. Dr Balkenende also unveiled the Albert Winsemius Lane which connects the upcoming Centre and a Park Connector. The lane is named in honour of the late Dr Albert Winsemius, a Dutchman who had contributed significantly to Singapore’s economic development as an economic adviser from 1961 to 1984.

Gracing the inauguration ceremony were distinguished guests, including RADM (NS) Lui Tuck Yew, Acting Minister, Ministry of Information, Communications and the Arts.

H.E. Dr Balkenende noted that he was proud of the friendship between Singapore and the Netherlands. He said: “This alliance embodies the spirit of collaboration between our two nations, two countries both left uncertain by water issues.”

At the inauguration ceremony, NUS Deputy President (Academic Affairs) and Provost Prof Tan Eng Chye said: “Singapore and the Netherlands are both relatively small countries with limited natural resources. Actually, the greatest resources we both have are those created by our own knowledge and innovation. The Singapore-Delft Water Alliance, or SDWA for short, is one such concrete example of synergetic knowledge creation.”

Slated to be ready by mid-2010, CASR is a result of the synergy of Singaporean and Dutch know-how in water management. It is one of the key initiatives by the Singapore-Delft Water Alliance, a joint Centre of Excellence for Water Knowledge funded by the Environment and Water Industry Development Council, NUS, the Public Utilities Board and Deltares (formerly known as Delft Hydraulics). The first of its kind in Asia, the Centre serves a dual role as an urban freshwater research centre and a public education facility.

To help address challenges faced by large cities, the NUS Kent Ridge campus will be used as a living laboratory to develop smart sustainable solutions. With this new initiative, NUS will continue to develop synergistic partnerships with industry, government agencies and research institutions such as the Agency for Science, Technology and Research to advance Singapore as a living laboratory for urban solutions for future cities.

Speaking on how Kent Ridge campus could become a living laboratory, NUS President Prof Tan Chorh Chuan said: “By using our campus as a test-bed, we can study how the work from different research disciplines can be brought together to produce integrated solutions and platforms that can help reshape our urban environment and raise the quality of life in Singapore and other Asian cities.”

Dean of NUS School of Design and Environment (SDE) Prof Heng Chye Kiang noted that with the huge strain on the quality, efficiency and resilience of urban infrastructure caused by the scale of rapid urbanisation, coupled with the impact of climate changes, a concerted effort is needed to address such issues.

The NUS Faculty of Engineering and SDE, with expertise on “Smart Cities” and “Sustainable Cities” will collaborate on establishing standards and best practices for design and development and the study of how different components of the built infrastructure or system will interact with each other. Currently, SDE serves as the demonstration site for testing practical applications of multi-functional photovoltaic panels, as well as the suitability of various plants in relation to the building substrate on roofs and walls for their insulating properties against heat gain within built structures.

SDE also conducted a micro-climatic study which identified the hot and cool spots of the Prince George’s Park residential area. The climactic map will help NUS planners better understand the environmental implications for future developments and ensure that they are carried out in a sustainable manner.
Seven NUS technology commercialisation projects receive proof-of-concept grants from the National Research Foundation

The National Research Foundation (NRF) awarded the Proof-of-Concept (POC) grant to seven projects from NUS, out of a total of 16 projects from the institutes of higher learning. For the first time, the awarded projects also came from Duke-NUS Graduate Medical School, the Singapore Management University, Singapore Polytechnic and Republic Polytechnic. S$75 million has been set aside for this purpose under the NRF’s POC scheme and the 16 project teams will each receive up to S$250,000 to develop prototypes based on their inventions, bringing them closer to commercialisation.

The POC grant provides funding for researchers with the aim of developing products or commercial applications. The resulting product or application could then be licensed to interested companies or be marketed by a new company. A successful POC demonstrates both technical viability and a high degree of commercial readiness, and it could also encourage the inventors to start-up a new company to commercialise the technology.

Dr Francis Yeoh, Chief Executive Officer of NRF, said: “We expect that the POC scheme will encourage many more researchers to take the step of developing their ideas beyond invention into useful applications for the market.”

The POC scheme is part of the National Framework for Innovation and Enterprise announced by the Singapore Prime Minister at the 3rd Research, Innovation and Enterprise Council meeting in March 2008, with the objective of facilitating the commercialisation of technologies developed in the IHLs.

The following are the seven NUS research programmes that have been awarded the POC grant:
- A Human Monoclonal Biotherapeutic to Target the Dengue NS3 Protein
  Dr Subhash Vasudevan
  Programme in Emerging Infectious Diseases, Duke-NUS Graduate Medical School
- Spin Wave Based Nondestructive Semiconductor Testing Tools
  Dr Yang Hyunsoo
  Department of Electrical & Computer Engineering, NUS
- Single-coil Superconducting Minionulator – The Next Step Towards High-Brilliance Synchrotron Radiation
  Prof Herbert O.Moser
  Director of the Singapore Synchrotron Light Source, NUS
- New Compact, Fast, Parallel-processing Fourier-transform Interferometer (FPP FTIR) Enabling Short-pulse Spectroscopy
  Prof Herbert O.Moser
  Director of the Singapore Synchrotron Light Source, NUS
- Development of a New and Precise Alignment System for Micromanipulation
  Prof Tan Kok Kiong
  Department of Electrical and Computer Engineering, NUS
- A New Endoluminal Device for Duodenal Exclusion in Treatment of Type 2 Diabetes Mellitis and Obesity
  Dr Jimmy So
  Associate Professor of Surgery, NUS Yong Loo Lin School of Medicine, and Senior Consultant, University Surgical Cluster, National University Hospital
- Anti-inflammatory peptide loaded micro emulsion gel formulation as potential therapeutic for post-operative adhesion
  Prof P Gopalakrishnakone
  Department of Anatomy, NUS Yong Loo Lin School of Medicine

NUS first in Asia to house the Helium Ion Microscope

Plasmonics and Advanced Imaging Technology Laboratory officially opens

NUS is the first in Asia to house the Helium Ion Microscope, opening new windows in nanoscale imaging. The microscope is housed at the Plasmonics and Advanced Imaging Technology Laboratory (P&AIT) which was officially opened on 10 September 2009. At the event, a Joint Research and Development Agreement was inked between NUS NanoCore and Carl Zeiss SMT. Under NUS NanoCore, the P&AIT laboratory is an interdisciplinary research collaboration in science and technology at the nano-scale level.

Said Head of the P&AIT Dr Daniel Pickard: “The goal of this laboratory is to push the cutting-edge of imaging. We hope to open up realms previously unseen to develop novel contrast mechanisms.” He noted that there are three major areas - the biological sciences, material sciences and semi-conductor field - where the Helium Ion Microscope will make an impact.

On the collaboration, Managing Director of Carl Zeiss SMT Singapore Mr Manfred Hanke said: “We are proud to be chosen by NUS as a partner to support NUS’ research programmes and to manifest and develop NUS’ position as one of the leading regional academic institutions for research in material analysis and life science applications.”

The Helium Ion Microscope scans the surface of objects with a fine helium formed by a single atom at the tip of a two-metre tall emitter. This produces images below 0.25 nanometre in scale, or the equivalent of 1 million times smaller than the size of a human hair. There are only 12 such microscopes in the world to-date, including one at the University of Southampton in the United Kingdom.

Under the Joint Research and Development Agreement with Carl Zeiss SMT, novel advances made using the microscope will benefit the NanoCore researchers. New applications of the technique discovered by the NanoCore researchers will, in turn, enable Zeiss to further enhance the tool’s capability.
Some eight years ago, semi-cloning was considered science fiction. This year, a team led by Assoc Prof Hong Yunhan of the Department of Biological Sciences, has successfully produced the world’s first haploid embryonic stem cells and semi-cloned fish. Their work was published in the 16 October issue of the highly acclaimed Science magazine.

“While traditional cloning uses a ‘replacement’ strategy, semi-cloning adopts a ‘combination’ strategy. In semi-cloning, scientists combine two haploid nuclei – one haploid nucleus from the embryonic stem cell mimicking the sperm nucleus, and the nucleus of an unfertilised egg (from the mother) – using nuclear transfer,” said Assoc Prof Hong.

“In the practice of nuclear transfer for the production of Holly, we introduced a haploid embryonic stem cell nucleus into a mature egg. In this way, scientists mimic the reproduction process artificially, creating offspring that carry genetic traits from both parents similar to bisexual reproduction,” he added.

For the study, the team worked on the Medaka fish as it shares a number of genes with humans in the area of reproduction. The Medaka fish is also easy to maintain, being small in size and producing 30 to 40 eggs a day.

The findings of Assoc Prof Hong have important implications for reproductive medicine and technology. With semi-cloning, which is 50 to 100 times more efficient than cloning, there is hope for the treatment of infertility, in particular, male infertility. In addition, the NUS team’s study has generated haploid embryonic stem cells which could be used to study the effect of recessive mutations of essential genes that may not be apparent in normal diploid cells. This means that there is a possibility of developing mammalian haploid embryonic stem cell cultures for disease analysis.

Assoc Prof Hong said that the study using the fish model took some five years and a funding of $1.5 million to complete. This included time for the consolidation of ideas, as well as both practical and administrative work. The next step would be to conduct the study on mice which will take approximately another five years. Prof Hong is also currently looking for partners in Asia for collaboration.

The co-authors of the paper are Research Fellow Dr Yi Meisheng and graduate student Miss Hong Ni, both from the Department of Biological Sciences. The study is supported by NUS, the Singapore Agency for Science, Technology & Research and the Singapore Ministry of Education.
Within the span of three years in Singapore, Dr Yu Haifeng has already made a name for himself. Receiving the Young Scientist Award – an accolade given by the Singapore National Academy of Science and supported by the Agency for Science, Technology and Research – is a testament to this rising star. The Award is part of the inaugural President’s Science and Technology Awards (PSTA), the highest honours bestowed to outstanding individuals for their excellent achievements in science and technology, as well as for their contributions to the research and development landscape in Singapore.

The research interest of the Assistant Professor at NUS School of Computing lies in the defence of Sybil attacks and on distributed systems security. Sybil attacks involve attacks launched on computer systems by attackers under the guise of multiple identities. Dr Yu said: “Sybil attacks are considered to be a challenging problem in the research community and some people believe that there are no solutions in this field.” He added that solving this problem was a pre-requisite to achieve security in standard computer systems.

“For the first three to four years, together with my collaborators who are my former colleagues at Intel Research, we developed a series of randomised algorithms for limiting the corruptive influences of sybil attacks with strong, provable and near-optimal end guarantees,” said Dr Yu.

Dr Yu’s research endeavours has gained international recognition, with more than 900 citations and numerous publications to his name. He said that he gains personal satisfaction from the fact that he is able to solve problems to which others have not succeeded in finding solutions, or have yet to begin the search for answers. When not conducting research, Dr Yu’s time is spent supervising PhD students and he hopes to train his students to develop stronger critical thinking abilities.

Previously an Adjunct Assistant Professor at Carnegie Mellon University and a research scientist at Intel Research Pittsburgh in the United States, Dr Yu shared that he was attracted to NUS as it is a leading global university in the region. Dr Yu said the University offered him an ideal research environment to pursue the kind of research that he is most passionate about, one that can generate the most impactful results. His ground-breaking work in addressing the difficult problem of Sybil attacks which garnered him the PSTA Young Scientist Award this year is certainly a testimony to his passion for research excellence.
In recognition of his contributions in promoting education, Dr Lee Seng Tee was conferred the NUS Honorary Degree of Doctor of Letters by Singapore President and NUS Chancellor S R Nathan at the Istana on 1 October 2009.

At the award ceremony, Dean of the Faculty of Arts and Social Sciences Prof Tan Tai Yong said: “Dr Lee Seng Tee’s upbringing shaped his thinking in two fundamental ways: first, a firm belief in the power of education in improving the human condition, and second, his commitment to promote Asian culture, learning and prestige. He never strayed from these beliefs, and exemplified them in his career and lifestyle.”

A noted businessman, philanthropist and patron of education and the arts, Dr Lee supported education through his generous gifts for the building of libraries and reading rooms, the acquisition of published resources to some of the most famous libraries in the world, as well as funding a number of Distinguished Lecture Series in leading institutions such as Princeton University. He said: “I am deeply honoured that my contributions to the development of higher learning have been recognised. Having been raised in a family with a tradition of deep commitment to education, I believe in the importance of education in the advancement and betterment of society.”

For his generosity and spirit of promoting education, Dr Lee had also earlier been conferred honorary degrees and fellowships in America, Europe, Asia and New Zealand.

DOCTOR OF LETTERS: (From left) Mr Wong Ngit Liong, Chairman of the NUS Board of Trustees; Dr Andrew Chew, NUS Pro-Chancellor; Dr Ng Eng Hen, Minister for Education and Second Minister for Defence; Dr Lee Seng Tee; His Excellency S R Nathan, Singapore President and NUS Chancellor; Mrs Nathan; Mrs Lee; Mr Ngiam Tong Dow, NUS Pro-Chancellor; Dr Cheong Siew Keong, NUS Pro-Chancellor and NUS President Prof Tan Chorh Chuan.

AT A GLANCE

- The new facilities at the Risk Management Institute (RMI) were officially opened on 2 October 2009 by NUS President Prof Tan Chorh Chuan and Managing Director of the Monetary Authority of Singapore Mr Heng Swee Keat. To commemorate the event, a one-day symposium on “Advances in Risk Management – Theory and Practice” was held, featuring distinguished speakers from the industry and academia. In his address at the event, Prof Tan spoke on the benefits for Singapore and the region from the improved risk management skills that RMI could facilitate through its education and research programmes. He also said that he hoped the new facilities would provide a powerful stimulus for multidisciplinary research.

- At the International Exchange Day themed “Ask about I” held on 3 September 2009, students had the opportunity to learn about the various overseas programmes and different cultures. Speaking at the event, Deputy President (Academic Affairs) and Provost Prof Tan Eng Chye spoke of how an overseas exposure not only gave students the opportunity to learn from the world, but to also gain international mileage by acquiring linguistic skills and developing cultural sensitivity.

BOOTH STOP: Prof Tan Eng Chye, NUS Deputy President (Academic Affairs) and Provost (far right) and Polish ambassador His Excellency Waldemar Dubaniowski (third from right) together with students from Europe.
His Royal Highness The Prince Andrew graces the Commonwealth Scholarship and Fellowship Plan 50th Anniversary Reception at NUS

Graduate scholarships from NUS to foster closer collaboration with Commonwealth Countries

His Royal Highness The Prince Andrew, The Duke of York, KG graced the Commonwealth Scholarship and Fellowship Plan (CSFP) 50th Anniversary Reception held at NUS on 2 October 2009. The reception was held to celebrate the CSFP’s long-standing tradition of recognising and promoting the highest level of intellectual development. The event was also graced by other prominent figures including the British High Commissioner, His Excellency Mr Paul Madden and Attorney-General of Singapore Prof Walter Woon. CSFP alumni and scholars, together with members of the NUS Board of Trustees and NUS Senior Administrators, were also present at the reception.

During the event, NUS President Prof Tan Chorh Chuan announced that two graduate scholarships under the CSFP will be offered by NUS. The scholarships are aimed at enabling outstanding students to pursue PhD studies in integrated research programmes at the NUS Graduate School for Integrative Sciences and Engineering.

Speaking on the two graduate scholarships offered by NUS, Prof Tan said: “Numerous NUS staff – including myself – have benefitted greatly from the Commonwealth Scholarship Plan, and NUS is indeed happy to give back, by providing opportunities for students from member countries to undertake research studies in NUS. Establishing the CSFP awards in NUS this year is also especially meaningful, as the CSFP celebrates its 50th Anniversary.”

NUS is the first institution in Singapore to offer Commonwealth Scholarships, which are intended to spur talent development, research collaborations and exchanges between Singapore and the Commonwealth countries. Established in 1959, the CSFP aims to provide a network of study opportunities throughout the Commonwealth. Some 26,000 Commonwealth citizens have benefitted from the CSFP awards over the past 50 years.

NUS was ranked 11th in the world in the Financial Times (FT) Executive Master of Business Administration (EMBA) 2009 rankings, making a significant leap from its 20th spot last year. This is the highest ranking ever achieved by any Singapore MBA programme in global MBA rankings. The NUS Business School (BIZ) EMBA was placed in the top group of business schools, while its EMBA is in the top rank among independent EMBA programmes offered by Asian schools.

Said Dean and Stephen Riady Distinguished Professor of Finance of NUS BIZ Prof Bernard Yeung: “This is a great achievement and the School has every reason to be proud of the improvement. We are greatly encouraged by this recognition by our stakeholders in the region and the world. Our ranking as 11th worldwide confirms that we are on track to be Asia’s Global Business School.”

The NUS EMBA programme was ranked first in the “International Students” criteria with the highest percentage of international students in its programmes. It was ranked among the top 10 for offering an “International course experience”. NUS BIZ also moved ahead in other categories such as the “Aims Achieved” and “Career Progress” criteria. For “Aims Achieved”, or the extent to which alumni fulfilled their most important goals or reasons for doing an EMBA, NUS secured the 21st place, moving up 45 spots. It was ranked 25th in “Career Progress”, up from its previous 53rd place.

NUS EMBA alumnus Mr How Ti Hwei, a franchise director, highlighted how the programme offered an Asian perspective on global business issues. “I believe this uniquely structured programme will become increasingly relevant as Asia continues its ascent,” he said. “I attribute a large part of my career advancement in the past few years to learning from a dedicated faculty and passionate exchanges with friends from around the world.”