



RESEARCH'S RAPID RISE

The Office of Research at Duke-NUS Graduate Medical School has enjoyed exponential growth since the recruitment of the first faculty member in September 2005. The number of regular rank faculty has grown to 73, with about half of these full-time, and most of the faculty arrived in 2008 and 2009. "Our research programs are really just beginning to take off – that growth will continue for another couple of years," said Professor Patrick Casey, Senior Vice-Dean of Research at Duke-NUS.

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Singaporeans in
America

Americans in
Singapore

Education at Duke – a Global Experience

You could hardly find two cities so different and so far apart – Durham and Singapore. One, a civil war heritage city set in the beautiful state of North Carolina in America's east, the other, a historic Southeast Asian trading center and now an impressively modern city at the tip of the Malay Peninsula. Yet, for Duke Faculty and students, the two places have been closely tied ever since the opening of the Duke-NUS Graduate Medical School Singapore in 2007. Every year since then, a handful of adventurous American students from Duke and intrepid Singaporean students from Duke-NUS have taken up opportunities to pursue their third year of research a world away, in the other locale.

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Talented Trio Win Major Research Funding

The value and importance of ongoing cutting edge research being conducted by three top cancer scientists at Duke-NUS Graduate Medical School have been recognized by independent government funding agencies in Singapore.

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Project KAREn 2010

As a member of the Duke-NUS Project KAREn team, I was fortunate to have the opportunity to spend time in the Karen hill tribe village of Hoay Khao Lip (HKL) near Chiangmai in northern Thailand in January and May 2010. This project was the first student-initiated community service project.

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Strength, Courage and Compassion at Sentosa

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VITAL SCIENCE

Editor: **Greg Lee**

Production and copy-editing: **Adeline Sim**

Vital Science is a quarterly publication produced by the Office of Communications and Development.

For this issue, the banner features a confocal microscopy image depicting cancer cells with autophagosome and lysosome vesicles (Image provided by Assistant Professor Mei Wang, Laboratory of Cancer Molecular Pharmacology).

Duke-NUS Graduate Medical School Singapore

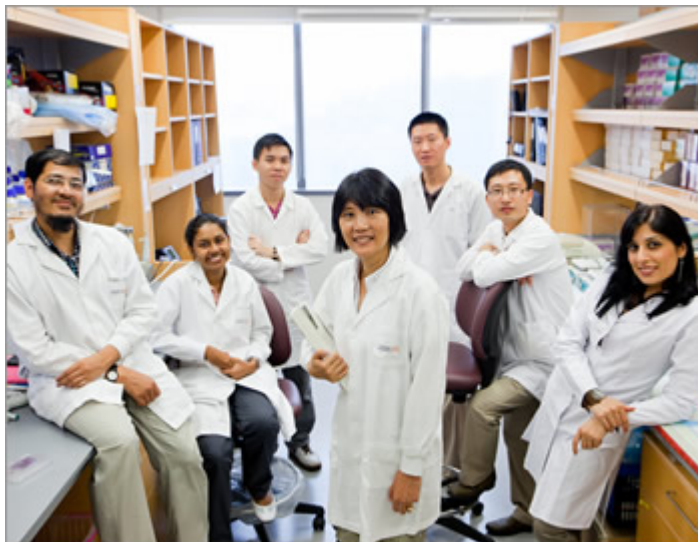
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The number of medical students in residence will increase to nearly 200 this month and the addition of the new PhD program in Integrated Biology in Medicine (IBM) will provide significant new dimension on the research front. The IBM Program is a cross-disciplinary training program in which students learn fundamentals of research from basic science through to translational medicine, and also to how new therapeutics are developed and delivered to the community, all within the first semester. Subsequently, students will spend roughly 4 years in one of the school's research laboratories before submitting their thesis.



Associate Dean of Research, Professor Shirish Shenolikar.

"The aim of this innovative [IBM] program is to train PhDs that can effectively partner with clinicians to drive future research aimed at improving the diagnosis and treatment of diseases that impact Singapore and surrounding nations," said Associate Dean of the program Professor Shirish Shenolikar. "In addition to teaching them science, we hope to provide our students the skills to build effective research teams, understand the critical need for collaborations and fundamentals of project management to make maximum impact in biomedical research in the years to come."

Research productivity at Duke-NUS has tracked higher and higher over the past few years, with the department scoring well in the two main measurements for determining research productivity: the number of publications in international journals and competitiveness for external funding. Since 2006, Duke-NUS faculty members have published nearly 200 research papers in peer-reviewed journals and have been awarded over S\$77 million in competitive support funding from both local and overseas funding agencies.

National and international awards have also come the way of Duke-NUS faculty for their pioneering research and academic achievements. In the past 4 years, these have included four Singapore Translational Research (STaR) Investigator Awards, four Clinician Scientist Awards and three National Research Foundation Fellowships.

Other formal modes of recognition include appointments of individuals to societies, associations and editorial boards. Recently, Associate Professor Tan Eng King became the first Singaporean to be elected into the American Neurological Association (ANA) on the basis of his contributions as a clinical neurologist, scientist and educator. As well as his involvement with Duke-NUS, Associate Professor Tan is also a senior consultant with the neurology department at the National Neuroscience Institute (NNI) in Singapore.

Collaborations are an integral component of Duke-NUS research activities, with faculty members actively working with investigators in other academic and healthcare institutions, private and public organizations, and pharmaceutical and biotechnology companies, both in Singapore and abroad.

The collaborative research involvement with Duke University in the US is of particular importance to Duke-NUS. "We have already a number of programs that are developing jointly," said Professor Casey. "We are going to spend a fair amount of time trying to develop these programs to link research and to foster collaborative opportunities between the two campuses."

Duke-NUS also places great value on the development of links with various research sites around the Southeast Asian region. "We see unique opportunities in our research programs to make an impact on medicine here in unique ways because of patient populations and because of unique demographics in Singapore," said Professor Casey.



*Associate Professor
Tan Eng King.*



Since 2006, Duke-NUS faculty members have published nearly 200 research papers in peer-reviewed journals and have been awarded over \$77 million in competitive support funding from both local and overseas funding agencies.

The research projects highlighted below are by the Duke-NUS faculty members – (pictured here from left to right): Associate Professor Gavin Smith, Assistant Professor Joshua Gooley, Professor Ranga Krishnan, Professor Patrick Casey, Assistant Professor Mei Wang and Assistant Professor Vijaykrishna Dhanasekaran. Not in picture: Associate Professor Lee Tih-Shih and Research Assistant Stephanie Teng.

Highlighted Projects

Program in Emerging Infectious Diseases - Laboratory of Ecology & Evolution of Influenza and Other Viruses

Research conducted by **Associate Professor Gavin Smith**, **Assistant Professor Vijaykrishna Dhanasekaran** and colleagues at the University of Hong Kong was published in the journal *Science* on June 18, 2010. The results of their studies, which involved surveillance of H1N1 influenza viruses in pigs at an abattoir in Hong Kong, "raise the concern that more novel viruses containing elements of human and swine strains are being generated through reassortment and could potentially emerge to infect humans," according to the researchers.

Program in Cancer and Stem Cell Biology
- Laboratory of Cancer Molecular Pharmacology

Assistant Professor Mei Wang and her team have had a paper published in *Oncogene*, a leading cancer research journal, on July 12, 2010. Their studies have shown that inhibiting an enzyme called *Icmt* induces a highly regulated process termed autophagy, or "self digesting". Significantly, the much elevated autophagy leads to cancer cell death. Assistant Professor Wang and her team found that the new inhibitor not only induces cell death in cultured cancer cells through autophagy induction, but also in human tumours grown in mice. "We are working to find out exactly how this new class of drugs regulates... self-digestive activity, and its link to cancer cell death," said the study authors. "By doing so, we hope not only to advance the basic understanding of autophagy and cancer cell death, but also to accumulate needed information for further clinical development of new experimental anticancer drugs."

Program in Neuroscience & Behavioral Disorders

A commentary by **Professor Ranga Krishnan** was published in the July 15 issue of *Biological Psychiatry* on potential links between fish oil (omega-3 fatty acid) intake and vascular disease and depression. [*Biol Psychiatry* 2010;68:116-117] "Vascular disease – in particular ischemic heart disease – and depression are two of the most prevalent and devastating health problems," said Professor Ranga. "It is not unexpected that these two conditions often coexist. However, the relationship between vascular disease and depression is indeed complex."

Professor Krishnan highlighted the results of population-based studies and meta-analyses which strongly implicate a relative lack of omega-3 fatty acid intake as a potential cause of both conditions. He also detailed treatment studies which have shown that dietary supplementation with omega-3 fatty acids may have both anti-depressant and cardioprotective effects. "The mechanism through which omega-3 reduces cardiovascular disease and depression is not certain. One mechanism could be the reduction of endothelial dysfunction," said Professor Ranga. "This perspective suggests a pathway for future studies in this area."

- Laboratory of Neurobehavioral Genomics

Professor Ranga Krishnan, Associate Professor Lee Tih-Shih and **Research Assistant Stephanie Teng** studied the use of a brain-computer interface-based device in children with attention deficit hyperactivity disorder (ADHD), in collaboration with investigators from the Institute for Infocomm Research of A*STAR and the Institute of Mental Health. [*Psychopharmacol Bull* 2010;43(1):73-82] "In this pilot study of 20 medication-naïve kids with ADHD we wanted to know if an electroencephalographic-based, brain-computer interface device could help improve their attention, said Associate Professor Lee. "Ten children were given 20 sessions of therapy over a 10-week period; playing a game that required them to focus their concentration to direct game icons on a computer screen 'hands-free'. Compared to matched controls, the children were found to have improved levels of concentration after this treatment regimen. The team is now embarking on a larger-scale study involving over 250 children in Singapore and the US. And we hope to see more positive results."

- Chronobiology and Sleep Laboratory

Assistant Professor Joshua Gooley and his colleagues at Harvard Medical School conducted a study into the effect of irradiance and duration of exposure to light on spectral responses of the human circadian system. [*Science Translational Medicine* 2010;2(31):31ra33]. In this study involving 66 young healthy subjects, cone photoreceptors used for color vision, and most responsive to green light, were shown to also influence circadian patterns. Assistant Professor Gooley and colleagues concluded: "Our findings may have implications for the development and optimization of light therapies for a number of disorders, including circadian rhythm sleep disorders, seasonal affective disorder and dementia, and the use of light as an alerting stimulus to counter the sleepiness associated with misalignment of circadian phase, particularly during night shift work."

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Education at Duke – a Global Experience

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Every year since then, a handful of adventurous American students from Duke and intrepid Singaporean students from Duke-NUS have taken up opportunities to pursue their third year of research a world away, in the other locale.

As the 2009-2010 academic year came to a close, Vital Science caught up with the outgoing batch of American and Singaporean students from each campus.

Singaporeans in America

Low Ying Hui has returned to Duke-NUS in Singapore, having spent her third year at Duke in Durham. "I was looking for clinical research projects related to sleep medicine and wanted to see what research and clinical work was like at Duke," said Ying Hui. After being involved in research and running a clinical trial in Singapore during my second year, I thought it would be interesting to see how similar or different it might be at another place."

Ultimately, Ying Hui's year in Durham was a huge achievement for her and one that she says was very enjoyable. Working in the sleep lab run by her mentor Dr. Andrew Krystal, she ran a clinical trial looking into novel treatments for insomnia in patients with HIV.

"It's been really great," she said. "Most students and faculty I've met here have been very helpful and friendly, and the culture of teaching and learning is very strong. Research-wise, my mentor lets me take the reins on my project, and I feel like I've been working more independently than I've been used to. He's also very supportive..."

Another major highlight of Ying Hui's year was her continuity clinic sessions in Family Medicine. "Interacting with patients both in running my clinical trial and in the Family Medicine clinics has also been a truly eye-opening experience," she said. "I got to learn about American healthcare at the same time that it was being debated in the news."

Ying Hui also participated in the First-year Practice Course Physical Exam (PEX) week, which gave her the chance to help teach first year students on their first physical exam lessons and to compare the classroom experiences between there and Singapore. "I realized that giving students the opportunity to teach other students was a pretty good idea," she said.



American students Timothy Koo (L standing) & Luke Bulthuis (L seated) at Duke-NUS with their mentors.



Low Ying Hui at Duke Durham.



Low Ying Hui (R) with fellow classmate Angela Dharmawan (L).

Travel to other parts of the US was also possible for Ying Hui, predominantly for medical conferences or exams, to places like Los Angeles, New Orleans and San Antonio. "I was [in] San Antonio for the Sleep 2010 Meeting of the Associated Professional Sleep Societies, and I must say I really like their river walk," she said. "Given the similar heat and humidity, Singapore could really use a similar concept – it made me feel like a real tourist on the daily walk from my hotel to the convention center."

Another Singapore student at Duke, Angela Dharmawan, spent her third year at Duke doing research in the field of tissue engineering and regenerative medicine. "I have been very lucky to be given the opportunity to be able to go over to Durham and experience the Duke culture first hand," said Angela. The year had been very enjoyable, she added. "I think the experience I had and the skills I picked up throughout my 10 months here at Duke are truly priceless."

Americans in Singapore

Duke student Luke Bulthius spent the 2009-2010 academic year in Singapore doing his third year of research at Duke-NUS. Prior to his arrival last year, New Mexico native Luke said he was very excited about the prospect of living in a completely new environment. "I'd never been to Asia before. I didn't know a lot about Singapore but I knew that it was a booming area... it seemed like an exciting place to be."

As part of the Cardiovascular and Metabolic Diseases laboratory at Duke-NUS, Luke spent his year studying diabetes and insulin resistance at the cellular level and in animal models. His focus was the interplay between diabetes and oxidative stress, when cells are starved of oxygen then re-oxidated. "It seemed like an interesting way to branch out," said Luke.

In terms of the facilities at Duke-NUS, Luke was impressed. "It's a fabulous building," he remarked. "The facilities are very nice [and] our lab is a good set up – it's still a new lab." He also found time to get involved with the Duke-NUS medical students coming through in the second year. "Luke really contributed to the personality of the lab and made it a fun place to be," said Luke's mentor Associate Professor Scott Summers. "Bringing in these medical students adds an interesting dynamic to the lab. In some ways, he's been a bridge for me [giving me] a chance to meet my medical students here at Duke-NUS".



Luke Bulthius at the Cardiovascular and Metabolic Diseases Laboratory - removing frozen tissue extracts from a liquid nitrogen storage container.



Luke Bulthius's mentor Associate Professor Scott Summers says, "I think Luke had a good life experience... I hope students at Duke take advantage of [such opportunities] and hope our students here do the same."



Timothy Koo with his mentor Professor David Matchar.

During the year, Luke made many friends in Singapore and managed to do some traveling around the region. "[Singapore is] a great place to pop off for other travel," he said. "If you have your work and fun separated, you can get a lot done in both areas."

Asked about his highlights from Singapore itself, Luke said: "I think it's the MRT." The Singapore MRT (Mass Rapid Transit) system is a modern and efficient train network linking most parts of the island. What he found most unusual at first were the posters in the stations featuring a very odd looking character called Phua Chu Kang from a local sitcom, educating commuters on the merits of good manners.

Like Luke, American student Mr. Timothy Koo also spent his third year doing research at Duke-NUS. "I've been conducting research within the Health Systems and Services Research (HSSR) department," said Tim. "The unique health system and cultural diversity ... made Singapore especially compelling as a place to spend my third year... It's one of the few places in the region, and probably the world, that's got such an amazing diversity of people in one country."

Happy traveling

The positive feedback from the students and their mentors is a strong indicator of the value of student exchanges between Duke in Durham and Duke-NUS in Singapore. From all accounts, those who have managed to find the opportunity to work in the other campus have enjoyed their cross-curricular and cross-cultural experiences.

These opportunities certainly align with one of Duke's strategic goals – to expose its learners to a greater diversity of cultures, beliefs and practices in the healthcare arena.

Vital Science wishes the next batch of traveling third year research students all the best for their 2010-2011 year away!



Says Timothy, "I've grown very fond of Singapore... it reminds me a lot of the US, where the confluence of all these different cultures has created things unique to the country".

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Talented Trio Win Major Research Funding



(From left to Right): Associate Professor Pierce Chow, Assistant Professor Charles Chuah and Assistant Professor Mei Wang.

The value and importance of ongoing cutting edge research being conducted by three top cancer scientists at Duke-NUS Graduate Medical School have been recognized by independent government funding agencies in Singapore.

The Clinician Scientist Awards (CSAs), which come packaged together with major research funding, have been won by Assistant Professor Mei Wang and Assistant Professor Charles Chuah (both in the Investigator funding category), and Associate Professor Pierce Chow (in the Senior Investigators funding category).

Vital Science previews the ongoing work of this talented trio:

Assistant Professor Mei Wang, from the school's Program in Cancer and Stem Cell Biology will be studying a novel class of drugs which can block the effects of cancer-causing proteins. A recent study published by her team in *Oncogene*, a leading cancer research journal, found that an *lcm1* enzyme inhibitor induced tumor cell death in cultured cancer cells, as well as in human tumors cultivated in mice. Assistant Professor Wang and colleagues will continue to investigate the pharmacological actions of these experimental drugs in the laboratory, information that is crucial before clinical trials can be initiated.

Assistant Professor Charles Chuah, principal investigator in the Laboratory of Leukemia Therapeutic Strategies, within the school's Program in Cancer and Stem Cell Biology, will be studying the use of combination drug therapies to eliminate leukemia stem cells. These stem cells are well known for being difficult to eradicate and have been associated with recurring disease. In addition to his research work at Duke-NUS, Assistant Professor Chuah is a senior consultant in the Department of Hematology at Singapore General Hospital (SGH).

Associate Professor Pierce Chow, a course director within Duke-NUS' Education faculty, will be conducting a multicenter phase III trial to compare the clinical benefits of two known therapies in patients with primary liver cancer. "The team has been conducting clinical research in liver cancer for many years so getting the award is, I suppose recognition of the quality of our research," said Associate Professor Chow. "This is also our largest study by far and from a practical point it would have been impossible to embark on this multi-center clinical trial without the award."

Associate Professor Chow is also a senior consultant at SGH, in the Department of General Surgery. "At the personal level, the award allows me the latitude to seriously pursue positive leads from my previous clinical studies," he added. "Hopefully, better treatment for patients with liver cancer can come out of this."

Three other researchers in Singapore from National University Hospital (NUH) also received CSAs for their work in the areas of cardiology, oncology and infectious disease. Altogether, the six scientists from Duke-NUS and NUH will receive a total of S\$5.3 million in research funding.

CSAs are an integral component of a talent funding program of the country's Biomedical Sciences (BMS) Initiative. Funded by the National Research Foundation and administered by the National Medical Research Council of the Ministry of Health (MOH), the program aims to provide clinician-scientists in Singapore with a conducive environment for medical research that can eventually be moved into clinical practice.



"We are delighted that so many of our clinician-scientists have been receiving national awards to support their efforts," said Professor Patrick Casey, Senior Vice-Dean of Research at Duke-NUS. "The support of these investigators is critical to the translational research enterprise because they bring the perspective of asking specific questions based on patient contact."

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Project KAREn 2010

By Ong Li Ming (MS4, Class of 2011)

Assistant Team Leader (Project KAREn 2010)

As a member of the Duke-NUS Project KAREn team, I was fortunate to have the opportunity to spend time in the Karen hill tribe village of Hoay Khao Lip (HKL) near Chiangmai in northern Thailand in January and May 2010. This project was the first student-initiated community service project.

On our first trip, we sponsored a lunch for the children of the primary school. This "special" lunch which included chicken and eggs was a treat for these children. This is because their normal meals typically consist of rice and soy bean paste. We could sense their gratitude and joy as they tucked in happily. At the school, we also had the chance to interact with the teachers who showed us their traditional way of hair lice eradication which involved mashing up apple custard leaves and alcohol into a paste and applying it on the hair of affected children for 20-30 minutes.



HKL children waiting for games to start.



Our living accommodation in Chiangmai - Sleeping bags in wooden stilt houses.

At HKL village, we successfully conducted several important public health measures. We designed health record books to chart the anthropometric data of the children and maintain their health records such as vaccination schedules. The HKL children were found to have high incidences of hair lice, dental caries and skin conditions. Thanks to the care and generosity of Duke-NUS staff and students, we also had eight large boxes of toys in our possession. Toys are luxury items for HKL children. Their innocent eyes lit up with delight and excitement as we distributed them. At the same time, we were amazed at how polite and orderly they were during the toy distribution.

The dedicated team of Project KAREn brainstormed and came up with a detailed questionnaire and history taking forms to help screen for the most common medical conditions such as gastric and respiratory conditions. We also decided to chart the anthropometric data of the adults in the HKL village. Doctors and nurses at Mae Wang Hospital in Chiangmai informed us that a medical van travels to various villages in the Karen Hill Tribe region on a monthly basis to conduct general health and dental screening. However, the HKL villagers had yet to benefit from this government-funded initiative. Therefore, we decided to conduct health screening for adults in the village on our second trip to Chiangmai.



Team Leader, Ee Tat Xin, presenting a token of appreciation to the CEO of Mae Wang Hospital.

Often in health screening, one may run into the danger of overscreening and not target the most prevalent chronic illnesses in the village. Fortunately, we met up with Dr Jay and other senior nurses from Mae Wang Hospital to understand more about the health profile of these villagers. Mae Wang hospital is a secondary hospital that sees all health conditions that cannot be managed by the primary care facilities. These sites, which are also known as anamais in Thai, are usually scattered within the subdistricts and hill tribes, and are similar to the Singapore polyclinics, except that they are manned by nurses due to a shortage of doctors.

During our health screening visit, we performed blood glucose, urine tests and general physical examinations and screened 72 patients over 2 days. More serious medical conditions were referred to either the anamais or Mae Wang hospital. Our work received tremendous support from the locals. Nurses from Mae Wang hospital travelled up to the village with us and spent their entire weekends tirelessly helping us with translation. Thank you Pi-Laa, Pi-Tick and Pi-Pom!

Our efforts saw us take two patients to Mae Wang hospital, one of whom, a 42 year old lady, came to us delirious and confused with a suspected severe psychiatric condition. We took her vital signs and found that she had a very rapid heart rate and high fever of 39°C. Physical examination revealed symptoms suggestive of pneumonia and incidental goiter. She was rushed to the hospital and diagnosed with decompensated heart failure secondary to pneumonia. Fortunately, she was sent to the hospital in time and received intravenous antibiotics. Another highlight of our trip was when we diagnosed a lady to be in labor and rushed her down to the hospital. The last we heard, she delivered a healthy bouncing baby boy who weighed 3.2 kg!

Smaller projects such as dental screening, dental hygiene education, education on hair lice eradication as well as soy bean projects also allowed us to build rapport with the villagers and educate them on simple health care practices. In many ways, I felt that such work cannot be underestimated and that even a medical student can save lives.

Quoting Oscar Wilde: "The smallest act of kindness is worth more than the grandest intention." Project KAREn was one of the most fulfilling experiences I could ever have had during my Duke-NUS years. It taught me so much and I will never forget the beautiful memories and strong friendships forged in HKL village.



Stream of patients on day of health screening.



First-aid for an infant with a bleeding finger.

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Never Too Early to Run for a Good Cause

As dawn broke on Sunday June 13, 2010, 40 Duke-NUS medical students and staff set off on the Mizuno Mount Faber 10km Run. This was no mere sporting event but a sincere effort from the Duke-NUS staff and students to show their collective support for Governing Board member, Mr. Michael Dee. Tough as the hilly terrain was challenging for most, each participant was mindful that two weeks later, Michael would be running a race that will be at least 25 times tougher.

Michael was setting off on the Gobi March, one of the "Racing The Planet" runs where competitors cover 250km through the Gobi Desert over seven days carrying 10kg of equipment and food. Michael participated in this grueling race to raise awareness and scholarships for Duke-NUS medical students that have financial needs. Having come from humble beginnings himself, Michael believes that the young aspiring clinician-scientists determination to serve the sick and research on prevention of diseases should not be denied.



Duke-NUS Governing Board member, Mr. Michael Dee.

"Going through the hilly terrain, I thought to myself, 'I should try to get through this in support of Michael's brave, determined and sacrificial attempt at the grueling Gobi Desert race!' We are truly grateful to him for putting all the effort to raise funds for fellow passionate and dedicated medical students in need of the financial support to fulfill their calling to serve the community at large as a doctor". - Duke-NUS medical student, Rachel Ng (Class of 2013)

Michael's race started on June 27 and he had managed to run 130km over four consecutive days in the intense heat of the Gobi Desert. Unfortunately, the combined effects of sun and exhaustion finally got to Michael during stage 5 of 6 and he had to pull out for health and safety reasons after starting more than 22 hours earlier.

Added Dr. Craig Stenberg, Associate Dean, Student Affairs & Admissions, "Duke-NUS is all about going the extra mile in order to transform medicine and improve lives. Michael exemplifies that ethic, and I am grateful to him and our students for raising awareness and supporting the school in a tangible way. Striving together, giving our best, we can make a difference".

At present, we have raised over S\$34,000. We would like to thank Michael for every step he took for our students and to all our kind donors for their generosity.

If you are moved by Michael's brave effort and want to show your support, please contact us at development@duke-nus.edu.sg.



Duke-NUS medical students and staff supporting Governing Board member Mr. Michael Dee's efforts.



Duke-NUS medical student Rachel Ng (1st row, 2nd from left) with her fellow classmates.

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Duke-NUS Collaborating to Develop Made-in-Singapore Flu Vaccine



Associate Professor Ooi Eng Eong is the Principal Investigator at the Emerging Infectious Diseases Program in Duke-NUS.

The Duke-NUS Graduate Medical School is in a multi-agency collaboration with Swiss company Cytos Biotechnology and Singapore's Agency for Science, Technology and Research (A*STAR) to develop a made-in-Singapore flu vaccine.

Under an agreement announced on July 15, 2010, Cytos will work with Duke-NUS, A*STAR's Experimental Therapeutics Centre (ETC) and Singapore Immunology Network (SIgN) to develop and produce a vaccine targeting influenza.

The vaccine candidate will be further evaluated in preclinical studies by Duke-NUS and DSO National Laboratories (DSO), following which a proof-of-concept study will be conducted by the Singapore Clinical Research Institute and Duke-NUS to evaluate its safety and efficacy.

The collaborative group will take the project from basic research right through to initial human trials. The partnership could result in the availability of an independent supply of seasonal flu vaccines for Singapore and other ASEAN countries, enabling for faster access to stocks and markedly reduced cost. The vaccine is expected to enter the initial stage of human testing by early next year, after which the group hopes to attract investors to license the vaccine for further trials and production. When it is commercialized, A*STAR subsidiaries will be entitled to manufacture the vaccine for Singapore and other ASEAN countries and earn royalties for worldwide sales.

The lead investigator, Associate Professor Ooi Eng Eong from Duke-NUS' Emerging Infectious Diseases Program, was quoted in a Straits Times report as saying that: "Singapore has invested a sizeable amount in biomedical research, and we want what we're doing to directly benefit the Singapore community."

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Medical Greats Honored

On May 19, 2010, Duke-NUS proudly named its four advisory colleges after well known leaders and luminaries in the medical field. Now known as Benjamin Sheares College, Gordon Arthur Ransome College, Seah Cheng Siang College and Eugene Stead College, the new names were carefully chosen by students and the faculty at Duke-NUS and Duke in Durham in honor of these renowned individuals and their corresponding colleges.

Benjamin Sheares College

Dr. Benjamin Henry Sheares (1907-1981) was most notably the second President of Singapore. Beginning his career in Obstetrics and Gynaecology in 1931, he later became the first Singapore-born doctor to be appointed Professor of Obstetrics and Gynaecology at the King Edward VII College of Medicine. He was also the first Singaporean obstetrician to qualify as a member of the Royal College of Obstetricians and Gynaecologists in England. Dr. Sheares also pioneered the Lower Segment Caesarean Section, which is now the gold standard and used extensively today. He also created the vaginoplasty surgical procedure, which was named after him, and became internationally recognized after he published a paper on it in 1960.



Benjamin Henry Sheares

Gordon Arthur Ransome College

The late Emeritus Professor Sir Datuk Gordon Arthur Ransome (1910 –1978), a legendary figure in Singapore medicine, is remembered fondly as an esteemed physician, teacher and friend. He was a pioneer, founding the Singapore Academy of Medicine and was its first Master. His innovative use of Ryle's tube – then used largely in gastric aspirations – for the care of unconscious cerebral malaria patients, saved lives and is still widely seen in use till this day.



Gordon Arthur Ransome

Seah Cheng Siang College

Professor Datuk Seah Cheng Siang (1922–1990) was Clinical Professor at the University of Singapore, and headed medical units at Singapore General Hospital and the then Toa Payoh Hospital. Widely recognized as the founder of Gastroenterology in Singapore, he was also extolled by his peers and students as a consummate master clinician whose flair in diagnosis was matched unerringly by his excellent bedside manner. His interest in undergraduate and postgraduate medical training in Singapore led him to set up the MRACP courses for internal medicine, and he often encouraged students to specialize and obtain higher degrees.



Seah Cheng Siang

Eugene Stead College

Professor Eugene Anson Stead, Jr. (1908 –2005) was a visionary leader at Duke who saw the potential in computers and medicine very early on. Serving as Chairman of the Department of Medicine at Duke University School of Medicine (Duke SOM), after serving as Dean of the School of Medicine at Emory University, he helped shape the Duke SOM to its present-day success. He is widely recognized as an outstanding medical educator, believing strongly that a faculty has to join its students as fellow learners, with responsibilities of aspiring them to be engaged, motivating their curiosity, and helping to maintain their compassion and idealism. Professor Stead was a strong influence on Duke-NUS' development of an instructional strategy, TeamLEAD.



Eugene Anson Stead, Jr.

The Duke-NUS Advisory Colleges are a local adaptation of the Advisory Dean System instituted by Dr. Doyle Graham in 1987, then Dean of Medical Education at Duke University's School of Medicine.

"There are many pressures in medical school and sometimes students can feel overwhelmed and isolated. I believe the main purpose of the colleges is to provide a community and mutual support system for our students. The first year students build close relationships when they meet every week. The seniors share information and provide encouragement. Colleges enable students to have "vertical" relationships with other students in the classes that are three years before and after theirs. As masters, we are part of the same community and try to be helpful and supportive of our students."

Associate Professor Paul Michael Yen - Research College Master, Benjamin Sheares College.

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From Engineering to Medicine

While most are able to get their B. Eng degree in four years, Ms. Swati Jain received her scroll in July – after only three years.

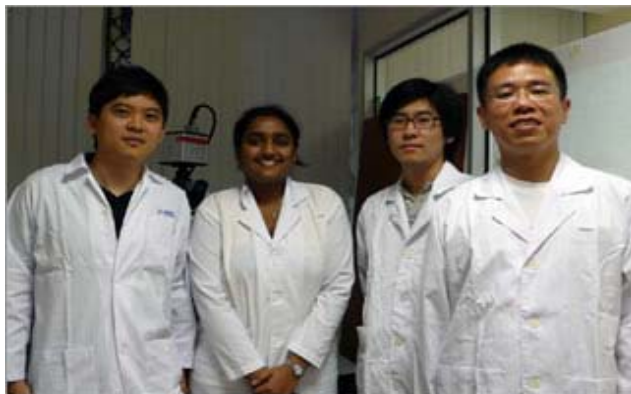
In fact, she is the first student from the Division of Bioengineering to complete the degree in three years. In the last 10 years, only seven students at the Faculty (from various departments) managed to complete their B. Eng in three years.

In August, she started her second degree, Doctor of Medicine (MD) with Duke-NUS Medical School. For Swati, research is her passion. She has worked at the Institute of Bioengineering and Nanotechnology at their Drug and Gene Delivery Lab during her holidays when she was in Year 1. That was her first hands-on experience. Since then she has been “hooked” on doing research and has continued to work as a part-time research assistant with the Microhemodynamics Lab at the Division of Bioengineering for the past two years.

Her paper which was based on her final-year project on the formation of cell-free layer in arterioles in a rat cremaster muscle model, was accepted for the 5th Pacific Rim Conference on Rheology to be held in Hokkaido, Japan in August this year.

Swati said the greatest challenge in completing her studies in three years was arranging her schedule round the various modules she needed to take. “I had to take more modules along with my final-year project compared to my peers. I was worried that I would not have enough time to do my project. However, my professor Dr Kim Sangho and lab supervisor, Ong Peng Kai, a PhD student, were very helpful. With their encouragement and support, I was able to maintain a balance between my research and studies. I would also like to thank Professor Toh Siew Lok who allowed me to start my final-year project at the end of Year 2. This has helped me towards fulfilling my aim of finishing my studies in three years,” said Swati.

Swati chose NUS for her studies though she was offered to study Bioengineering at a prestigious university in London. “I am glad that I chose NUS because the experience at the University which offers a combination of studies, research and other CCAs, is the best I have ever had. The experience is something that will always be a source of inspiration to me in my future studies and endeavors,” she said.



Ms Swati Jain (2nd from left) will be furthering her studies at Duke-NUS

This article first appeared in the NUS Faculty of Engineering homepage.

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International Visitors Tour Duke-NUS

Czech Republic delegates

Duke-NUS welcomed nine delegates from the Czech Republic to the school campus on June 10, 2010. The delegation was headed by Mr. Martin Plachý, First Deputy Minister of Regional Development of the Czech Republic.

The delegation comprised representatives from the Czech Ministry of Education, South Moravian Regional Government (Brno), Middle Moravian Regional Government (Olomouc) and Moravian College Olomouc.

Said Mr Plachý, “we were really impressed by the innovative approach to teaching and by the cosmopolitan, competitive but at the same time friendly environment and atmosphere at Duke-NUS. The emphasis on creative and critical thinking, communication and learning to work in teams generates new modern students with much higher potential to succeed in their future careers as well as their private lives”.

Duke University folks



Dr. Blair Sheppard and Dr. Gregory Jones by the Duke stone wall at the Singapore campus.



Vice Dean of Education Professor Bob Kamei (centre) with Mr. Martin Plachý (4th from right) and team.

Two special guests from Duke University, Durham, visited Duke-NUS on June 14, 2010. Dr. Gregory Jones, Vice President & Vice Provost for Duke Global Strategy & Programs, and

Dr. Blair Sheppard, Dean of Duke University's Fuqua School of Business, Chair & Founder of Duke Corporate Education, were hosted by Professor Patrick Casey, Senior Vice-Dean of Research; Dr. Sandy Cook, Senior Associate Dean, Office of Education and Ms. Giselia Giam, Vice Dean of Corporate Services, to a series of briefings and a tour of the school.

Said Dr. Gregory Jones in summary of the occasion: “A wonderful visit – a great building, terrific people and the team-based learning was terrific.”

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Strength, Courage and Compassion at Sentosa

By Sheila Soh

*Photos by Kenneth Goh & Lie Tjen Sin
(Class of 2013)*

On May 28, 2010, a group of children and student volunteers headed to Sentosa to begin the 3-day Camp Simba program of fun activities and games.

Camp Simba brings together Singapore children who have a family member who is afflicted with cancer. The camp, which was started in 2009 by Duke-NUS and NUS Yong Loo Lin School of Medicine (YLL SoM) students, provides these children with a chance to be themselves, have fun and meet new friends. This year, a total of 38 children participated in fun games and competitions, singing and drama performances, as well as a celebratory BBQ and campfire.

All in all, Camp Simba was a marvellous success thanks to the enthusiastic participation of the children, the volunteers (who served in a variety of roles), and support from Duke-NUS, YLL SoM and SingHealth.



Volunteers try out the games during a dry run prior to the camp.



Two campers protect their comrade from an impending water bomb attack.



Activities during the camp included beach games and the Luge ride.



Volunteers barbecue food in preparation for campfire night.



Volunteers and children belt out songs from The Lion King.



Prize presentation ceremony on the last day. Guests included Professor Tan Ser Kiat (Group CEO, SingHealth), Professor Bob Kamei (Vice Dean of Education, Duke-NUS), Associate Professor Koh Dow Rhon (Vice Dean of Education, YLL SoM), Associate Professor Koo Wen Hsin and Dr. Lim Soon Thye (National Cancer Centre Singapore), as well as Dr. Lee Ee Lian (College Master of Ransome College, Duke-NUS and Senior Consultant Psychiatrist, SGH).

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