

# THE GRADUATE SCHOOL NEWSLETTER

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Congratulations to Professor Sheung-tat Fan, Chair Professor of the Department of Surgery, on being elected as an Academician of the Chinese Academy of Engineering!

Besides that, Professor Fan and his liver transplant team comprising Professor Chung-mau Lo, Dr Chi-leung Liu, and Dr See-ching Chan, have won the first-class award for the category of State Scientific and Technology Progress Award of the 2005 State Science and Technology Award.

Professor Fan and his team's winning project, entitled "Adult-to-adult Right Lobe Live Donor Liver Transplantation", has been recognized as a breakthrough in the relevant field. Liver transplantation is the most effective treatment for patients with terminal liver diseases but its application is limited by the low organ donation rate in Hong Kong. The other possible source of liver grafts is from the living persons but its application in adult recipients was limited because it was thought that a person could donate a left lobe only but the left lobe is generally too small for most adult recipients. Ever since 1996, Professor Fan and his team have striven to refine the surgical technique of live donor liver transplantation (LDLT) by innovating and developing the procedure of right lobe liver graft. Since then, right lobe LDLT has been widely adopted by numerous liver transplant centres around the world.

*Liver Transplant Team (Left: Dr See-ching Chan, Professor Sheung-tat Fan, Professor Chung-mau Lo, Dr Chi-leung Liu)*

In any tertiary institution found in the world's advanced economies, the pursuit of knowledge and scientific innovation has evolved beyond individual development and accomplishment. Contributions of all members of a university to research and teaching are by all means important determinants of continuous growth of society and, most importantly, improvement of the well-being of mankind. As a member of the University of Hong Kong, I am most honored to have been selected as Academician of the Chinese Academy of Engineering of China and be able to carry out further research in the fields of liver transplantation and hepatobiliary surgery, salvaging even more lives.

In the realm of scientific research, a clear objective is a prerequisite to a successful study. With a clear and well-defined purpose, one is able to start an investigation more efficiently and effectively and broaden the research on the right track. While the sphere

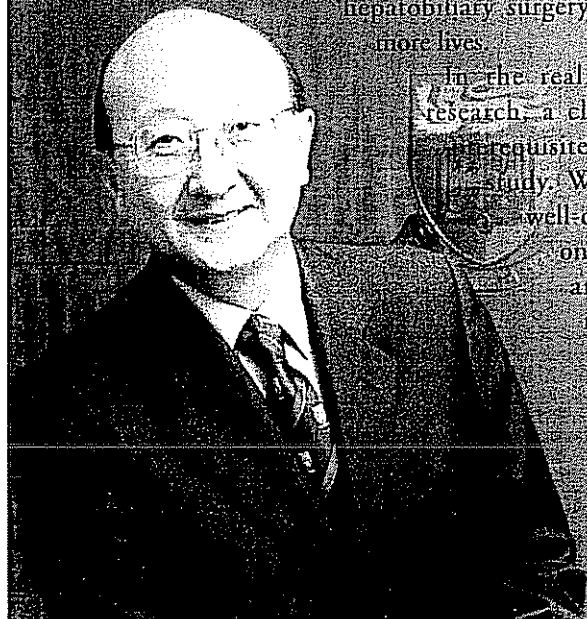
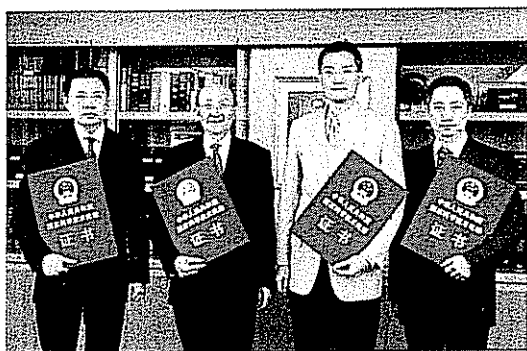
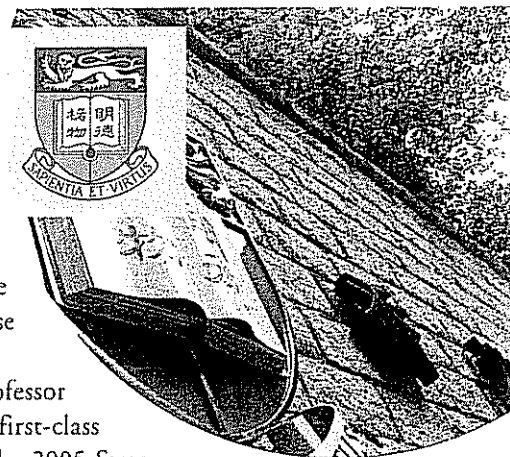
of medical science still awaits us to further cultivate and discover, recognition of particular problems is the first step to effective solutions.

Having established a research goal, it is important to have a thorough understanding of the subject matter and employ appropriate methods to achieve the goal. A logical and meticulous design of a study is a determining factor in the quality of a project and significance of research outcome.

Regardless of the level of importance of results, presentation of data should not be overlooked. In reporting research results in writing, one must ensure that the objectives, methods, results and conclusions are logically and systematically presented. The language used should be appropriate and grammatical in order to attain effective conveyance of your messages. Verbal presentation is equally important. Repeated rehearsal, either by yourself or in front of your teammates, is the prerequisite to a perfect presentation in any conference.

Scientific research cannot be conducted single-handedly. It is a collaborative work. The concepts of sharing and exchanging are of paramount importance in excelling research. Apart from self-conscious reflection, you must learn to seek opinions from others and respond positively to critiques. It is by persistent refinement that excellence will result.

I hope my above experience is of help to all of you in pursuing success and eminence in research.



### Mr. CAI Jing, James *PhD student, Department of Microbiology*

I was awarded the 2005 Endeavour Australia Cheung Kong Awards for a six-month study in the Australian National University (ANU). I arrived in Canberra, the Capital of Australia, in April 2005. Beautiful autumn colours could be seen on many streets in the inner suburbs of the city. The stunning quietness of Canberra, quite different from the dynamic Hong Kong, amazed me immediately, although it should not be strange to me since I had been studying and working in Australia for three years.

John Curtin School of Medical Research (JCSMR), the place I worked this time, is the Australia national medical research institute. JCSMR was created in 1948 as a result of the vision of Australian Nobel Laureate Howard Florey and Prime Minister John Curtin. Within 50 years its scientists have made significant discoveries and contributions to world health and won two Nobel Prizes, including the discovery of the role of the major histocompatibility complex for which Peter Doherty and Rolf Zinkernagel shared the 1996 Nobel Prize for Medicine and elucidation of mechanisms of transmission of signals in the nervous system.

My collaborator was Dr Gavin Huttley, the head of computational genomics laboratory, who is the leading Australian scientist in molecular evolution and statistical genetics. We share the same research interests including eukaryotic genomics, molecular evolution and bioinformatics. One of the questions we tackled was the context dependency of DNA mutation, *i.e.*, how mutation rate of a nucleotide is affected by its neighbouring nucleotides. We developed novel probabilistic models for the context-dependent DNA mutation. These models were numerically optimized with algorithms running in parallel on supercomputers within the Australian National Supercomputer Facilities, more precisely revealing the influence of DNA replication and repair on DNA substitution pattern in genomic evolution. Through the collaboration I solved many problems that otherwise would take me very long time to be solved by myself alone. One journal paper based on the findings of our collaborative work is now ready to submit. Thanks to the Endeavour Australia Cheung Kong Awards, the relationship established in such a way between HKU and ANU in the area of molecular evolution and bioinformatics will create more

win-win situations for both parties.

During the six-month studying in JCSMR, I also took chances to join a few other academic activities. In June 2005, I presented my research in the

international conference of the Society of Molecular Biology and Evolution (SMBE) in Auckland, New Zealand. In the preceding SMBE conference in Pennsylvania, USA, I was awarded the travel support for presenting in Walter M. Fitch Symposium our significant findings about evolution rate of genes, which were achieved under the guidance of my supervisor, Professor Kwok-yung Yuen. In July 2005 the Winter School in Mathematical and Computational Biology at Queensland Bioscience Precinct was held by the University of Queensland. One of the sessions of the workshop was about application of mathematical software in biology. I happened to have developed a software for bio-sequence data analysis in molecular biology and evolution called MBEToolbox, which is highly relevant to the session. When the organization committee of the workshop knew I was within the audience, they created an extra session for me honourably to introduce the underlying theories and to give a live software demonstration. The topic attracted hundreds of audience. MBEToolbox is developed in Matlab, a powerful language for scientific and engineering computation. As one of the leading scientists who apply Matlab in biology, I was later on reported by a feature article entitled "Biology by the Numbers" in *The Scientist* (<http://www.the-scientist.com/2005/6/20/32/1>).

All these above let me experience the importance and necessity of academic exchange. I am grateful to the selection committee of the award, and hope more fellow students may benefit from it.



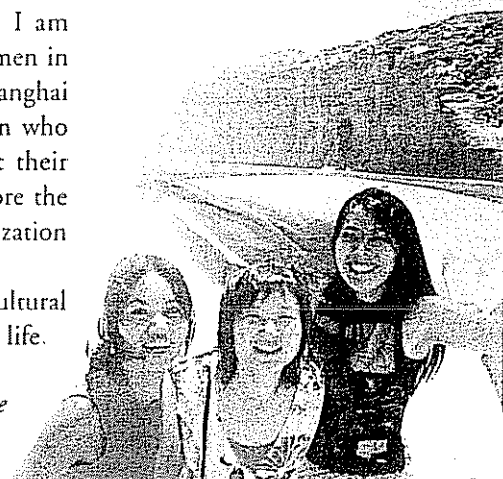
*James and his research fellows in the John Curtin School of Medical Research, ANU.*

### Ms. PEI Yuxin *PhD student, Department of Social Work & Social Administration*

Supported by 2005 Endeavour Australia Cheung Kong Awards, I am conducting a comparative study on sexuality of young Chinese women in Shanghai, Hong Kong, and Melbourne. With the data collected in Shanghai and Hong Kong, I am doing in-depth interviews with Chinese women who now live in Melbourne, trying to understand their reflexivity about their sexual experiences and life politics. What I am trying to do is to explore the comparison between women's negotiation of modernization and globalization and how they deal with the changing society through their sexuality.

I enjoy my research in Melbourne. The different environment and cultural experiences give me some new perspectives to re-think my study and the life.

*"Hello, Sunshine", said Yuxin Pei (middle) and friends in the Great Ocean Road, Australia*



## The 10th Research Postgraduate Symposium

The Research Postgraduate Symposium (RPS) has been a tradition of the Faculty of Medicine for the past 10 years. This annual event aims to broaden the horizons of our research postgraduate students and serves as an interactive platform for them to share with fellow classmates and teachers their research findings and experience. On December 3, 2005, the 10th RPS was held with 172 MPhil, MRes(Med) and PhD students presented their research work and many other postgraduate students and teaching staff members actively participated.

Eminent overseas academics, Professor Mark A Hanson, University of Southampton, UK, Professor Andy JR Porter, University of Aberdeen, UK, Professor Olivier Schwartz, Institut Pasteur, France and Professor Richard J Traystman, Oregon Health and Science University, USA, were invited to serve as Chairpersons for the parallel sessions and external adjudicators of the Plenary Session of the Symposium. They were very much impressed by the high quality presentations of our postgraduate students and shared with them many valuable comments and ideas.

After careful assessment, Ms LIU Jing (PhD candidate in Physiology) finally won the Best Presentation Award and was awarded an economy class return air ticket to the United States sponsored by the United Airlines for carrying out research-related activities. The following students were awarded also Certificates of Merit for their good performance:

Miss CHAN Yuen Fan (MPhil, Anatomy)  
 Mr CHEUNG Kwok Ho Alvin (PhD, Anatomy)  
 Mr KAM Yiu Wing (PhD, Microbiology)  
 Mr NG Ming Him (MPhil, Pathology)  
 Ms TANG Dongjiang (PhD, Clinical Oncology)  
 Miss TSANG Sharon (MPhil, Physiology)  
 Miss WONG Hing Ki Charmaine (MPhil, Pathology)  
 Miss WONG Yee Man Elaine (PhD, Biochemistry)

Professor SK Lam, Dean, presented an air ticket to Ms Liu Jing (PhD candidate in Physiology, left), winner of the Best Presentation Award, for her to conduct research-related activities in the USA



## Mr. TSANG Hing-ho PhD student, Department of Civil Engineering

(Extract from website of University of Melbourne)

### Hong Kong student makes waves with quake research

A 24 year-old Hong Kong PhD student modelling the effects of large scale earthquakes has a plan that could potentially save lives, targeting the same volatile shelf that was devastated by the Boxing Day disaster. Hing Ho Tsang, from the University of Hong Kong, won the 2005 Endeavour Australia Cheung Kong Award enabling him to further his leading research into earthquake engineering. He takes on a six-month tenure at the University of Melbourne.

Mr Tsang will develop new strategies for seismic hazard and risk assessment in areas that remain unprepared for earthquakes, including Singapore and Peninsula Malaysia. He believes that this has the potential to save lives, especially in nations with limited infrastructure.

His Melbourne research, based at the university's Department of Civil and Environmental Engineering, builds on eight years of earthquake research collaboration between Melbourne and Hong Kong universities.

"Earthquakes kill many people, with nine out of 10 deaths occurring in developing countries," he says. "We want to develop technologies to assess hazard and reduce loss in the event of an earthquake."

"I hope that what I develop now can be useful in the future - useful to all mankind. This is my ultimate goal."

The proposed model will assess probability factors, analyzing seismic data collected in the region over the past few hundred years. Research will focus on the factors that could cause the ground to shake and investigate the damage to structures as a consequence.

Mr Tsang is hopeful that his research can be generalized to help all areas of the world. He says that the Boxing Day earthquake has raised the profile of this issue worldwide and that governments are now more receptive than ever to discussions and research into this topic.

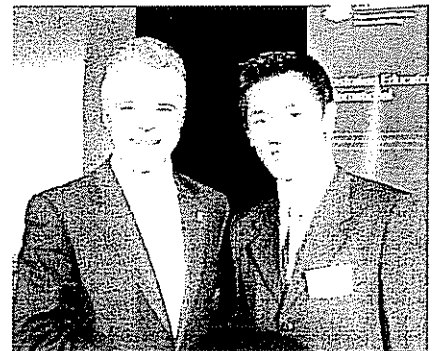
"The cutting-edge knowledge will be transferred to Hong Kong, and other parts of the Asia-Pacific region. The whole methodology will be further developed and I will definitely play an important role in those collaborative works."

The \$25,000 Endeavour Australia Cheung Kong Awards provide financial support for Asian postgraduate and postdoctoral fellows to undertake research in Australia.

Mr Tsang says he was very grateful to receive the award and hopes it will help him contribute to society in the future.

"I want to do earthquake engineering research because I want to do something interesting, challenging and meaningful," he says.

Mr Tsang Attended two conferences during his stay in Australia and was awarded the RNSA Highly Commendable Paper Award at the Sixth International Conference on Shock and Impact Loads on Structures at Perth, Western Australia, December 7-9, 2005, awarded by the Research Network on Securing Australia



A picture taken in the reception by the Minister for Education, Science and Training, the Hon Dr. Brendan Nelson MP, on Mr. Tsang Hing-ho's arrival to Australia