生物化學系(理學院)
Biochemistry(Science)

中大生物化學系通訊
CUHK BCH Newsletter-Helix

Helix

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Issue 5
Not for Sale

Message From Chairman

Thanks for reading Helix. Owing to the development of the University, our Department has proliferated into Department of Biochemistry (Science) and Department of Biochemistry (Medicine) last autumn. I have taken up the duty to head the Department in the Science Faculty. Besides engaging in active research, our colleagues continue the tradition of teaching Biochemistry major students and students of other joint programmes in the Science Faculty. We always have high regard in teaching and continue to do our best to make the curriculum more coherent, promote critical thinking, create opportunities for overseas exchange and internship activities and non-classroom learning.

We have now formally spelt out the missions of our Department in teaching, which include:

(1) To provide quality education on the basic concepts and mechanism of biochemical processes, with emphasis on clinical and biomedical sciences.

(2) To provide training on the latest biochemical technology and opportunity of independent research.

(3) To cultivate the ability of critical thinking, a proactive and responsible attitude and efficient communication skills for high competitiveness in further study and in the job market.

In view of the increased diversity of student sources and the launching of the four-year curriculum in 2012, we are now re-designing our curriculum to fit the changes.

On research, we have recently secured two equipment grants of over HK$24M from the University Grants Council and the University, for upgrading our equipment in protein research. We have also got a new research assistant professor, who is an expert in protein crystallography.

We are grateful to your continuous support for the development of the Department. We also value your advice, which helps us to formulate the best approach for training our younger generations. Enjoy your reading and please keep in touch.

P.C. Shaw
Chairman
Department of Biochemistry (Science)

New Professor

Professor Ngo (pronounced as “Oh”) Chi Ki Jacky received his BSc, MSc and PhD from University of California San Diego and his postdoctoral training from Harvard Medical School. Now he serves as a research assistant professor in our department. Professor Ngo’s specialty is protein X-ray crystallography which fascinates him not only because it is a cutting edge area, it is also an art in science. He has been working towards understanding the molecular features of protein factors involved in the pre-mRNA splicing pathway, in particular, the SR proteins and their upstream kinases - SRPKs. His research also focuses on studying the roles of these splicing factors during different viral infections and cancer development.

Hoping to make impacts in science, Professor Ngo believes that there are opportunities in protein science research in Hong Kong. He added “the development of the Biochemical/Clinical research slows down in US, while Europe and Asia is booming in this field.” For the above reasons, he decided to return to Hong Kong. He added “CUHK is a wonderful institution with many remarkable scientists, outstanding students, and cutting-edge facilities”. He is also impressed by the fact that both students and staff members participate actively in various departmental activities; this creates a strong bonding among different members of the biochemistry family. Prof. Ngo will start to give lectures to undergraduates from next semester, therefore he will have more chances to interact with students. When asked about his teaching approach, he said that he aims to engage students more in his lectures through discussions and may offer open-ended examination questions which are more challenging to students. He added, “opposing views from the students are always welcome as they can promote the interaction between students and teachers”. Asked about his expectation to students, Professor Ngo said “be responsible, creative, and able to use their knowledge in their studies”. It seems not to be easy for students to achieve his expectations. However, he added, “I am prepared to help students side-by-side. Please don’t be shy to ask for my help and opinions”. Ask Professor Ngo about his advice to Biochemistry students, he said “Although Biochemistry is a challenging subject, I believe students who choose to study biochemistry because of their interests in science. They must keep this initial intention in mind and never give up when facing difficulties”. Additionally, Professor Ngo believes hard-working is a key to success in science. With this faith, he devotes much of his time in his research.

Lastly, Professor Ngo mentioned that he would like to develop friendship with students outside classroom and laboratory, and therefore he prefers students just call him Jacky.

By student reporter - Yao Na BCH/3

Faculty Exemplary Teaching Award 2008

Interview of Professor Leung K.N. : the recipient of the Faculty Exemplary Teaching Award 2008

“Quest for excellence and never give up!” This is the motto from Professor Leung Kwok Nam, recipient of the Faculty Exemplary Teaching Award 2008.

Prof. K.N. Leung is one of the experienced professors in our department. He has been teaching in CUHK for 25 years. He has taught more than 30 different courses, and currently he is teaching Basic and Applied Immunology (BCH), Introduction to Medical Nutritional Therapy (FNS) and Biochemical Basis of Life and Disease (BCM). His research field is immunology and cancer. He chooses immunology as this is the field in his PhD study. He is also interested in cancer research as cancer is the first killer in Hong Kong, he wants to know more about it and to develop novel drugs for the treatment of cancer patients.

Professor Leung and his students

As the recipient of the Faculty Exemplary Teaching Award 2008, Prof. Leung thinks teaching skills and attitude are very important. He teaches with enthusiasm and great passion. Moreover, he thinks being a teacher should be responsible and patient. Not only delivering lectures to students, he also cares about his students. He believes that a teacher should be a role model for the students as he thinks teacher will influence students in terms of life and character.

Concerning teaching, he spends much time in preparing his lectures and systemically organizes the lecture notes. He prefers to use an interactive approach to teach and also encourages students to ask in order to raise the interest of students. He likes to stay in the lecture theaters during the lecture breaks and talks proactively to students. When students are having problems or questions, he encourages them to visit him. Furthermore, students’ feedback in course evaluation is a driving force for him to improve his teaching.

Regarding some students in our department who want to be a teacher after graduation, Prof. Leung has the following advice. He thinks teachers should be enthusiastic and dedicated in teaching. Teachers should also show love and caring for students and be patient. He points out that teachers should have wisdom in dissemination of knowledge and teach students not by words but by acts. Although there are some administrative work besides teaching, teaching is a really rewarding profession as you can see the growth of students and have good and life-long relationship with them.

Being a tutor when he was in secondary school, Prof. Leung chose to be a teacher because he thinks teaching is really exciting and is a process of knowledge sharing with students. He thinks that research and teaching cannot be separated because the quality of teaching and research are directly affecting each other.

Prof. Leung chose CUHK to start his job because he was a graduate from our department. Also, the beautiful scenery of the CU campus also impresses him. He has the strongest sense of belonging towards here and he especially enjoys the college atmosphere in CUHK. He is currently the Dean of General Education in Chung Chi College.

As a professor in the department of biochemistry, he thinks biochemistry is an important branch of life science and takes an integrative approach to unravel the mystery of life. It has close ties to other programmes and departments such as FNS, ENS, BCH, BIO and MBT, etc, in terms of research. He also thinks the department not only provides basic life science training to undergraduates but also giving specialized training to postgraduates in many different disciplines which can equip the graduates for professional employment in the biotechnological and biomedical fields in the future.

$18M Grants from UGC to Support Protein Research

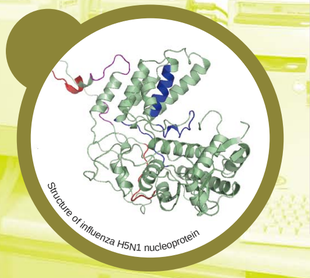
Our Department has recently received two major grants from University Grants Council (UGC) with a total amount of $18 million to build the infrastructure for protein structure-function studies. In 2008, the Government allocated a sum of $200 million to UGC for setting up a one-off Special Equipment Grant to enhance the research capabilities of universities in Hong Kong. In this competitive funding exercise, the Chinese University of Hong Kong has won $40M in 6 projects, and our Department has won two of them. $8M was awarded to Prof. Pang-Chui Shaw for the project **"Establishment of a platform for high capacity protein purification, crystallization and crystallography"**, and $10M to Prof. Kam-Bo Wong for **"Acquiring a high-field NMR spectrometer for chemical and structural biology – from macromolecular structures and dynamics to biomolecular interactions"**.

"X-ray diffraction setup"

"Circular Dichroism"

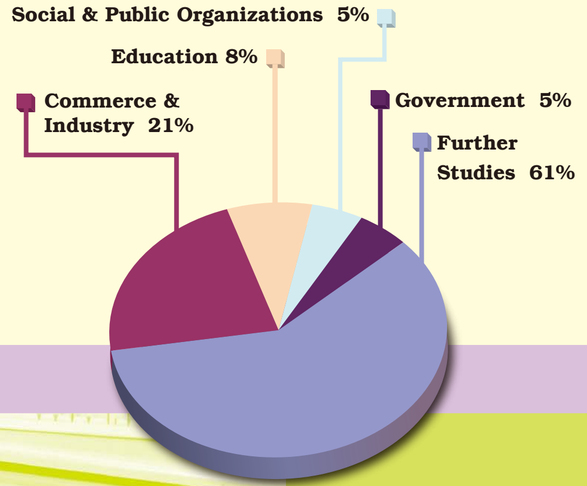
Phoenix system

Our Department has a strong track-record in protein research. In 2005, we have established the Centre for Protein Science and Crystallography, which houses the first state-of-the-art crystallographic setup in Hong Kong for high-resolution protein structure determination. We have also installed the first robotics system to automate protein crystallization experiments, which were tedious to set up by hand. Members of the Centre have received grants from various sources, like Research Grants Council, Research Fund for the Control of Infectious Diseases, and Croucher Foundation, and published scientific papers in prestigious international journals like FASEB Journal and Nucleic Acids Research. For example, Prof. Shaw's and his collaborators have recently determined the crystal structure of the influenza virus A H5N1 nucleoprotein. The work sheds novel insights into how this protein interacts with the RNA genome of the virus and provides a good basis for future vaccine design to battle the epidemic bird flu. With the support of these two grants, we will acquire a new X-ray diffractometer with the brightest in-house X-ray source in the world, and a state-of-the-art 700 MHz superconducting NMR spectrometer with cryogenic probe detection system, which will further strengthen our leading position in the field of protein research in Hong Kong.



Structure of influenza H5N1 nucleoprotein

Careers of Biochemistry BSc Graduates 07 - 08



Dedicated Research Exchange and Mentorship (DREAM) Programme 2008 Summer

Tang Walfred

I enjoyed a full-year exchange at UBC in Canada during Year 2. In the following summer, I participated in a 2-month internship at a local biotechnology company. Still, the DREAM programme at National Institute of Health last summer was an exceptional experience for me.

DREAM was a combination of exchange and internship. On one hand, I had to live independently in a different culture. On the other hand, I was exposed to advanced biochemical researches and technologies in a world-class institute. Working under Prof. Wai-Yee Chan on developmental genetics gave me a real taste of being a scientist: conducting research on a specific topic, analyzing data, solving problems, enjoying the process of discovery as well as failure. In the 3-month guided studies at NICHD of NIH, I discovered a family of 2 novel genes specifically expressed at post-meiotic stage of spermatogenesis, which may play potentially vital roles in the developmental pathway. The feeling of satisfaction on new discovery was beyond description.

I hereby would like to thank Prof Wai-Yee Chan, colleagues at NICHD and Department of Biochemistry for this invaluable experience.

GU Shen

For me, the DREAM programme last summer is a precious and unforgettable experience. I had a chance to study in a more advanced laboratory, and more importantly, to receive first hand learning about the way that biochemical researchers work in the US. They're extremely enthusiastic about their work, and they need to work really fast to retain in the top of the field. Especially, I learned a lot during each Monday morning's discussion, when everyone from the lab presented the data that obtained in the past week. In addition, everybody from the lab was willing to teach me and help me, especially my supervisor, Dr. Tang, who offered great help to guide me. Therefore, I could finish my project successfully, and come back with more skillful operation to do experiments and more broad knowledge about my project's topic.

Supervisor	Topic	Institution	Student
Prof. Wai-Yee Chan	Spermatogenesis / human development	National Institute of Health, USA	Tang Walfred
Dr. Veronica Yu	Eukaryotic chromatin dynamics	Imperial College, UK	Lau Tsz Wing
Prof. Shu-Wing Ng	Ovarian Cancer	Harvard University, USA	Choi Pui Wah
Prof. Daniel Schlenk	Aquatic Ecotoxicology	University of California, Riverside, USA	Chan On Hang
Prof. Shuk-Mei Ho	Carcinogenesis in the prostate	University of Cincinnati, USA	Chung Lai Yin
Prof. Careen Tang	EGFR family receptors in cancer progression	Georgetown University, USA	Gu Shen

Chan On Hang

I think that my experience is precious. To me, staying in a foreign country is not something new; however staying alone in somewhere I do not know anything about for a whole summer is something fresh and challenging. Probably this experience is the most memorable one in my university life yet. I felt really fortunate to be in this programme and to be in an awesome place like California. The research nature of the programme really helped me spark interest in biochemistry and improved my laboratory skills. I met some new friends too. Even now I am still staying in touch with them. All in all, the DREAM programme was indeed a wonderful experience for me.

Choi Pui Wah

I went to the laboratory of the Brigham and Women's Hospital, Harvard Medical School this summer.

In the laboratory, I have learnt and applied a number of biochemical experimental techniques in the studies of pathological biomarkers in ovarian cancer. The participation in this laboratory has broadened my knowledge of cancer research. And now, I am going to share some of my experience.

I have leant some advanced techniques this summer. Before I went there, I decided to bring new techniques back to Hong Kong. And now, I really do. I am so glad that my experience in Harvard is not only beneficial to me, but also to my department.

Lastly, I got chances to go to seminars to meet famous scientists. Boston is a place full of famous universities and scholars. The scholars exchanged their ideas with students in the seminars and the seminars were opened to all. I got some chances to attend those seminars and gained a lot of edification from those scientists. It was absolutely valuable that I could exchange ideas face to face with successful scientists and scholars in those seminars.

Chung Lai Yin

The Dream programme enriched my research experience in a widely-recognized research team. Working with them, I was conscious of their ambition and commitment to research in life science. I also saw their devotion to nurturing future scientists. Thanks to Dr. Ho and her helpful team, I had ample opportunities of learning various techniques.

The Dream programme also gave me a chance to have a taste of American life. I made many friends. Especially thanks to Jared Isaac, he made much fun for me.

The experience became my valuable asset and I definitely felt regret if I did not join this programme.

Lau Tsz Wing

It's not only a dream but one that has come true!

In the summer of 2008, by joining the 2008 DREAM programme, I've spent three months in London. I've joined the Eukaryotic Chromatin Dynamics Group led by Dr. Veronica Yu. Thanks to her encouraging guidance, together with the support from my lovely group mates, I've learned and grown a lot within the three months. With the exposure to the cutting-edge techniques and seminars held by distinguished scholars, the DREAM programme is truly an eye-opening experience. Besides, the people I met in the lab are hardly British, which is really unexpected. Instead, they are international! Ranging from Italian to Spainish, some are even Japanese and Indian. The metropolitan culture has always been our daily joke. After the trip, my attitude towards the world has changed and now, I understand the career as a researcher better than ever. Therefore, I would like to thank the Biochemistry Department for offering me this valuable experience.

Where are our Alumni?

Mr. Chan Pat Chun

Mr. Chan Pat Chun obtained both his Bachelor and Master degrees from the Department of Biochemistry CUHK. He now works as a biology teacher in a high-school and also serves as the head-teacher of his class. Mr. Chan chose education as his career for a noble reason. In addition to knowledge, he wants to pass good and positive attitudes to the next generation, and protect them from the temptations surrounded. However, he never imagined himself to be a teacher before. Mr. Chan said "At the time I graduated, being a teacher was the last career choice in everyone's mind including me."

With this thought, Mr. Chan's first job was not related to education at all. Subsequently, he started to realize that there was a great need in education in our society, and he decided to contribute himself to education. When asked about the most memorable moment in biochemistry, he smiled, "working in laboratory impressed me the most as we were allowed to operate some sophisticated equipment." The training from biochemistry plays an essential part in every aspect of his life as the programme helps him to develop a scientific and logical way of thinking. In fact, this is another important attribute that Mr. Chan wants to pass to his students. To further motivate his students in learning science, Mr. Chan and his colleagues managed to acquire a number of research-type apparatus including PCR machines for student experiments.

Asked about the career advices, especially in the education sector, for biochemistry students, he said "it doesn't really matter what you will do after graduation, a good mastery of knowledge is crucial for the success of one's career". He added "If you are a warm-hearted person and always willing to help, teaching would be a rewarding career".

By Student reporter — Yao Na BCH/3

Mr. Tang Yan Chi

Mr. Tang Yan Chi Matthew was an MPhil graduate from the Department of Biochemistry CUHK in 1999. He is now the Head of Biology Department and the Dean of Discipline Committee in his school.

When Matthew was a secondary school student, he visited the Department of Biochemistry and was impressed by the information given at the admission talk in the information day. He explained that "The 19th century was the era of computer technology whereas the 20th century was the era of biotechnology". Therefore Matthew chose Biochemistry in CUHK as his major. In fact, it was the right choice as he really enjoyed his life in CUHK both inside and outside classroom. He recalled many memorable moments in CUHK, and the Biochemistry shield competition was his favorite in which he actively participated. For example, he was the goal keeper in the football team of his year. He also treasured the time of his post-graduate study as a strong relationship was developed with people in his research team as well as the department.

After graduation, Matthew stayed in CUHK for another year as a research assistant. During that time, he thought about his future plan and decided to pursue a career that could allow him to interact with people from different backgrounds and also to use his knowledge acquired from biochemistry. As the result, he became a biology teacher in secondary school.

In his MPhil study, Matthew learned many essential thinking skills for science from his mentor, Prof. YM Choy. He truly believes that a good thinking skill is essential for studying science. Therefore, instead of just memorizing facts, he helps his students to develop similar thinking skill in order to understand the concepts in biology and science. He uses various tools in his classroom teaching such as animation and video to demonstrate certain scientific concepts. He also tries to link the concepts with some day-to-day issues such that students' interest towards science can be raised. Being the Dean of Discipline Committee, Matthew has many opportunities to interact with his students outside classroom. Although he has to spend extra time to take care of students who are in need of help, seeing the improvements of the students make him happy.

Asking Matthew about what makes a good teacher, he replied "good EQ, open-mind and high moral standard are the essential characteristics of teachers". He added "good communication skill is also important". He needs to deliver knowledge in a way that students can understand, and have to listen from students. Additionally, Matthew also needs to communicate with parents regularly to discuss students' issues. He has found that this is a challenging task as different parents have different expectations toward their children.

As teaching professional is always a favorite career choice for biochemistry students, Matthew has the following advices to them. He said "enthusiasm plays an important part in education as things will go better if you are interested in". At the end of this interview, Matthew encourages all students to give full effort in their study and explore more in the university.

By Student reporter - Candice Ko(BCH/3)

Mr. Tang was celebrating his birthday with his students!

Nobel Laureate visit

Nobel Laureate visit

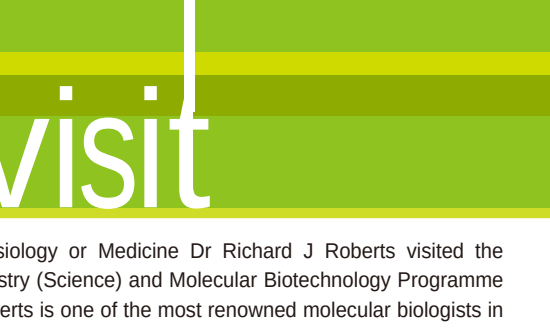
Nobel Laureate in Physiology or Medicine Dr Richard J Roberts visited the Department of Biochemistry (Science) and Molecular Biotechnology Programme in January 2009. Dr Roberts is one of the most renowned molecular biologists in the world. He was made Nobel Laureate in 1993 for his discovery of gene splicing at Cold Spring Harbor Laboratory in New York. Currently, he is the chief scientific officer of New England Biolabs, a leading biotechnology company in the US.

Dr Roberts has a long association with our department and the CUHK. He was keynote speaker in a number of conferences and symposiums hosted by the department and a Wei Lun Visiting Professor in 1996. In this visit, Dr Roberts gave two lectures entitled “My experiences in Academic and Industry” and “New England Biolabs-An Unusual Blend of Basic Research and Commercial Profit” in the university. In the talks, he told us his career path, explained the differences between industrial and academic research and answered many interesting questions from our students including his experience in getting Nobel prize. At the end, he encouraged our students to engage in life science research

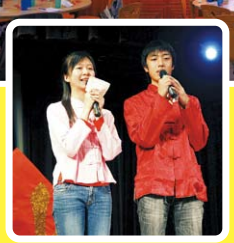
Student activities

Basketball Competition – Biochemistry Shield
Date: 27-2-2009

Department Picnic
Date: 10-1-2009



UNO Competition – Biochemistry Shield
Date: 3-3-2009



Lunar New Year Dinner
Date: 6-2-2009

All the photos are taken by Ip Chun Wai, David (BSc 2009)

Donation - Reply Slip

I would also like to make a donation to the Department of Biochemistry, The Chinese University of Hong Kong for future projects and development. (Please tick the appropriate box)
Donation amount:
□ HK$200 □ $500 □ $1000 □ $2000 □ Others (Please specify) HK$_____ (Cheque no:_____)

Purpose of donation:
□ Development Fund
□ Student Scholarship and Prize Fund

Name:_____ Degree(s) Awarded & Year(s) of Graduation: BSc_____ MPhil_____ PhD_____
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(All crossed cheques should be made payable to “**The Chinese University of Hong Kong**”. Please write your name and contact telephone at the back of the cheque. Completed reply slip and payment cheque(s) should be posted to:“Department of Biochemistry (Science) , The Chinese University of Hong Kong, Shatin,N.T.,Hong Kong.”using the provided prepaid envelope. An official receipt will be issued for application of tax exemption.)