The last term was exceptionally eventful, in both the positive and negative connotations of the word.

We were greatly saddened to hear of the death of Dr. Barbara Ferrier. Barbara was a remarkable member of our Biochemistry faculty having come to McMaster in 1969. She was an outstanding advocate of undergraduate education and an innovator in this area. Her involvement in inquiry-based approaches to teaching lead her to a leadership role as the Director of the Arts and Sciences Program for many years culminating in a Lifetime Achievement Award in 2000 presented by the McMaster Student Union. Her research focused on cyclic peptide hormones. We will remember Barbara as a joyful colleague and a rigorous educator who inspired students and faculty members alike.

In undergraduate education, we welcomed our incoming class of over 100 new students who entered our program in the Faculty of Science. I had the pleasure of meeting many of these new students in my welcome address to the incoming class and at our annual Fall BBQ in September. The weather held out for us and the faculty and students had a chance to mingle over burgers and hot dogs.

Seventeen new graduate students joined the Department last term as well and I got the chance to meet many of them, both during our annual Grad Student appreciation lunch in September, and our Research Ethics Retreat in December where we discuss the challenges and behavior appropriate for success in graduate research. This retreat continues to be a favorite of mine and many thanks to the faculty members who volunteer their time to work with the students in discussing this very important subject.

As you will see in this newsletter, we’ve had a fantastic few months of research. Several of us received excellent news about new grant funds and a number of great papers were published. For example, Ray Truant’s work made the cover of the Journal of Biological Chemistry, one of the top journals in the field and read very widely. Work from my lab also got published in Science in January and this resulted in a lot of international press for the Department.

New students, excellent programs, and great new research. Not bad for one term.

Cheers,
Gerard D. Wright, Chair
Undergraduate Program Update

It is that time of year again when our level III specialization students are busy selecting supervisors for their senior thesis. Permission forms for 4P03, 4B06 and 4F09 are due by March 1st in the undergraduate office in HSC 4H43-44. There is one new research course in the department that has gained popularity over the past two years. BIOCHEM 3A03 "Biochemical Research Practice" is a course that offers students the flexibility to conduct a Biochemistry research project during the fall, winter or summer term at a location of their choice to gain valuable research experience. This course may be of interest to students in the Core programme wishing to gain some research experience. Please come to the undergraduate office or go to our website for an application package and more information.

The Science Coop Office will be holding information sessions on February 21 at 6:30pm in GS/102 and March 10 at 1:30pm in GS/330 for students in level II who may be interested in applying to the coop programme for this fall. For more information on the coop programme, please visit http://www.science.mcmaster.ca/cooped/

The BBS undergraduate student society is planning this year’s formal that will take place on Friday March 31st at Carmen’s Banquet Centre. Tickets are $35 and are available from the BBS undergraduate student society.

Lastly, we are very proud of our undergraduate students who were recently the recipients of a number of distinguished university awards. Congratulations to all!

Michelle MacDonald, Undergraduate Coordinator

♦ Pamela An, Kim Blakely, Clinton Campbell, Daniela Damjanovic, Kayleigh Enders, Mark Maraschiello, Laura Marshall, Lindsay Matthews, Wing Mok, Jacob Stewart-Ornstein were awarded the Dr. Harry Lyman Hooker Scholarship for overall academic excellence (full-load avg. of at least 9.5). Value: $1,500.00
♦ Andrew Brown, Li Cao, Andrew Giacomelli, Marcus Jansen, Bartlomiej Kalata, Jessica Lorenowicz, Seiji Sugiman-Marangos, Lijun Wang, Bijan Zakari were awarded The University (Senate) Scholarship. Value: $800.00  ♦ Denise Balkissoon and Song Hon Kim were awarded the E.R.M. Kay Scholarship for outstanding academic achievement. Value: $800.00  ♦ Clinton Campbell was awarded the J.L.W. Gill Prize based on cumulative avg's to students who have completed Level I and 60-75 units of Honours B.Sc. Programs. Value: $325.00  ♦ Marcus Jansen, Jacob Stewart-Ornstein were awarded the University Prizes for Special Achievement for students who exhibit exceptional skill and originality in a creative project. Value: $150.00  ♦ Dana Nyholt was awarded the Society Chemical Industry Merit Award Plaque for highest cumulative average and completion of the program in the normal number of years.  ♦ Clinton Campbell was awarded the Canadian Society for Chemistry Prize Medal for high standing in biochemistry and organic chemistry.  ♦ Neha Egbert was awarded the Rotary Club of Hamilton A.M. Community Contribution Award for outstanding service to the community-at-large.  ♦ Aisha Shamas-Din was awarded the Pioneer Group Leadership Award for students who have demonstrated leadership and community service.

Graduate Program Update

Graduate recruiting has taken on increased significance university-wide, as the Provincial government has announced new funding for MSc and PhD students. This new funding, which will be available as an ongoing program (some funds have been released already) is targeted to universities on the basis of increased graduate enrollment. Given recent growth in Biochemistry & Biomedical Sciences (our numbers have increased from ~65 to ~90, with plans to reach 125 within three years) we are at the forefront of McMaster University’s ability to attract new government funding. How this money will be used by the University administration remains to be seen but it is certain that some of this will directly benefit our programs. This is exceptionally good news!

Our recruiting efforts continue apace. In an effort to attract highly qualified students we are introducing a new means of admission to our PhD program. Starting in September 2006, undergraduate students having exceptional grades and proven research experience will be able to apply for admission directly to our PhD program, rather than entering via the MSc program and transferring. The expectation is that these students will be able to support themselves through external scholarships and that they will need less time to complete PhD degree requirements. The Graduate Recruitment Committee will make decisions on admission on this basis.

Justin Nodwell, Graduate Coordinator
Graduate Awards

M.Sc Defense

Thesis title:  Inhibition of Bacterial Heptose Synthesis

Ph.D Defense

Thesis title:  Genetic and biochemical investigation into the role and mechanism of fungal homoserine transacylase

Thesis title:  Role of the ETS gene PEA3 during stem cell differentiation

Thesis title:  Discovery of the presence of mitochondrial proteins at specific sides outside of mitochondria

THOMAS NEILSON SCHOLARSHIP

Ken Schlosser (Li lab) was the recipient of the 2005 Thomas Neilson Scholarship for his innovative research on selection strategies for generating catalytic nucleic acids.

Transitions

Bob James has retired after 37 years of service as our Undergraduate Laboratory Coordinator.  A wine and cheese reception was held in the Great Hall on December 2, 2005.  The current and four previous Chairs of the Department were also on hand to celebrate.  Bob and his wife Dorrett plan to continue their many humanitarian endeavours.

Left to right: Gerhard Gerber, David Andrews, Karl Freeman, Bob James, Gerry Wright, Hara Ghosh.

New Faculty

Mick Bhatia, a McMaster alumnus, has been appointed professor in Biochemistry & Biomedical Sciences and the first Scientific Director of the McMaster Cancer and Stem Cell Biology Research Institute.  The financial investment is grounded in $10 million devoted for a cancer and stem cell institute as part of the $105 million gift to McMaster from Michael G. DeGroote in 2003. In addition, McMaster is investing $4 million for the laboratory equipment and set-up, along with $3.2 million to support four Canada Research Chair positions.

Mick is a pioneer in Canada in the field of human hematopoietic stem cell biology and embryonic stem cells. He has made several important advancements in human stem cell research, particularly related to blood forming stem cells. Although he believes stem cells can serve as sources for cellular and organ replacement in tissue damaged by trauma or genetic influences, and for disease intervention, the novel thrust of the Institute will be the focus on human cancer, and using human stem cells to understand how cancer begins and how treatment may be revolutionized based on this new knowledge.
**New Faculty continued...**

**Lori Burrows** Lori is an associate professor and joint member with the Department of Pathology and Molecular Medicine. Her research area is in the study of microbial biofilms and how these impact health care and diseases. Lori is a co-applicant on a newly funded, 5yr ($114,442), CIHR grant with Charles Deber (UofT) entitled: Interactions of antibiotic peptides with bacterial membranes and biofilms.

*Left: Lori Burrows
Right—Lori’s lab group: (from left to right): Melissa Ayers (grad student), Dr. Hania Wehbi (PDF) and Hanjeong Harvey*

**John Hassell** was invited to give a talk at an AACR (American Association for Cancer Research) Workshop on Cancer Stem Cells in Landsdowne, Virginia entitled “Sphere assays of normal and malignant mouse breast epithelial cells” (Feb 1-4, 2006). He has also been named a member of the Research Advisory Committee and the Communications Committee of the Canadian Breast Cancer Research Alliance.

**Yingfu Li** successfully organized a symposium entitled “Functional Nucleic Acids” in the Pacifichem 2005 conference in Dec 2005. More than 20 invited speakers from Canada, US and Japan presented latest developments in respective labs on ribozymes, riboswitches and deoxyribozymes. Yingfu gave an invited talk and senior graduate student Razvan Nutiu presented two contributed talks during the same conference at 3 different symposia. Also in December 2005, Yingfu presented an invited seminar at the University of Montreal. In November 2005, PDF Naveen Kumar delivered an invited talk on aptamers in an international meeting held in Quebec City.

**Graham McGibbon** received CFI New Opportunities funding matched by the Ontario MEDT ($340,000) awarded for: “A mass spectrometry system for the determination of protein complexes, structures and modifications. This equipment will be able to analyze biological samples to identify fmol quantities proteins and used to reveal peptides that are phosphorylated, glycosylated or cross-linked to one another.


**Ray Truant’s** lab manuscript, Ataxin-7 can export from the nucleus via a conserved exportin-dependent signal. *J. Biol. Chem.* Feb 3;281(5):2730-9, was selected for the cover of the Feb. 2nd issue of the *J Biol. Chem.* The image chosen is of a live cell expressing ataxin-7-eGFP and stained mitochondria and was done by Anjee Burtnik, a new Master’s student.

**Faculty Highlights**

**Cecile Fradin** and undergrad student Ajit Thakur’s paper made the cover of *CUPJ* (Canadian Undergraduate Physics Journal). The paper describes experiments to assess the effect of introducing quantum dots in live cells.

**Radhey Gupta** was awarded a 3 year CIHR grant ($101,910/yr) entitled: Functional studies on conserved inserts in essential proteins and on conserved proteins of unknown function.


**Ray Truant’s** lab manuscript, Ataxin-7 can export from the nucleus via a conserved exportin-dependent signal. *J. Biol. Chem.* Feb 3;281(5):2730-9, was selected for the cover of the Feb. 2nd issue of the *J Biol. Chem.* The image chosen is of a live cell expressing ataxin-7-eGFP and stained mitochondria and was done by Anjee Burtnik, a new Master’s student.
Truant reports that as of February, most devices are now installed and running in the McMaster Biophotonic Imaging Centre (www.science.mcmaster.ca/biochem/BIF/), a state-of-the-art microscopy facility located within the department on the 4th floor. Devices currently running include a Leica scanning confocal microscope, a spinning-disk confocal microscope, a wide field deconvolution microscope for high resolution imaging of bacteria, a micro-fluidic automated cell sorter, and a high-content screening microscope, unique to academia in North America. By next month, the facility will include capabilities for high-content screening (screening thousands of compounds for biological activity by robotic microscopy), two-photon microscopy, fluorescence correlation spectroscopy (with Dr. Fradin in Physics), fluorescence intensity distribution, fluorescence lifetime, fluorescence energy transfer, and fluorescence recovery after photobleaching. This facility will be one of the most sophisticated in North America, with several new techniques to image cells as well as define protein-protein interactions in living cells. This will give Biochemistry & Biomedical Sciences a unique ability to train students in these new and exciting techniques. Students interested in this technology should see Carly Desmond’s 4B06 poster in March on FRET with aequoria fluorescent proteins.

Geoff Werstuck was awarded a 3 year CIHR grant ($101,828/yr) entitled: Mechanisms by which Diabetes Mellitus promotes the development and progression of atherosclerosis.

Gerry Wright was awarded a 5 year CIHR grant ($317,575/yr) with co-applicant Mike Tyers (Mt. Sinai) entitled: A chemical biology approach to antifungal agents.

Vanessa D’Costa, a Ph.D. candidate in Gerry Wright’s lab is the first author on a paper published in the January 20th issue of Science (D’Costa, V. M., McGrann, K.M., Hughes, D.W., and G.D. Wright. (2006) Sampling the Antibiotic Resistome. Science Vol 311:374-377). The research shows that bacteria found in dirt may be the key in identifying how and why antibiotic resistance happens in bacteria that infect people, predicting future clinical problems, and testing new antibiotics.

Boris Zhorov was awarded a 4 year CIHR grant ($62,238/yr) entitled: Theoretical studies of ligand-receptor interactions in sodium and calcium channels.

Science Career Services (SCS) would like to thank our alumni, faculty and staff for helping to make the 2005/06 school year a success! The office continued to grow with the addition of an Employer Development Officer, working to increase employment opportunities for students and alumni. As Alumni you have access to job opportunities found on eRecruiting: http://careers.mcmaster.ca/. This year has also seen an increase in events. Students lined up for our 2nd annual Job Shadow Week, eager for the opportunity to gain experience in just some of the following fields: optometry, orthopaedic surgery, and radiation therapy. The annual Biochemistry Career Night, held this past October, offered students information about careers in medical laboratory technology, teaching, research, sales and decision support (health care). For information regarding how you can participate in our events, or the services we offer Alumni, please contact Susan Fekecs, SCS Coordinator, at fekecs@mcmaster.ca.

Alumni—Register Online at http://www.mcmaster.ca/ua/alumni so you can keep in touch with former classmates, find lost friends or network with other alumni.