News from Biochemistry Centres

University of British Columbia

Department of Biochemistry and Molecular Biology

Correspondent: Dr. E. Peter M. Candido

The Department continued its strong record of teaching and research in 2000/2001. The present graduate student population stands at approximately 65, and 2000 saw the graduation of 4 M.Sc and 5 Ph.D students. The Department's research support totalled approximately $5.3 M in 1999-2000. In addition, the Department had a major role in funding the innovative Laboratory of Molecular Biophysics (LMB; further details below), which received combined funding of $8.75 M from the Canadian Foundation for Innovation, the Blusson Endowment to UBC, and the BC Knowledge Development Fund.

Faculty News

Ian Clark-Lewis, Professor and member of the Biomedical Research Centre, received a CIHR Scientist Award in 2000. Dr. Clark-Lewis is interested in the structure and function of protein growth factors and their receptor interactions, with special focus on the structure-activity relationships of cytokines and their receptors, and protein engineering using chemical synthesis.

Pieter Cullis, Professor, was the recipient of the Alec D. Bangham Award at the Liposome Research Days Conference at Napa Valley, CA., April 13, 2000. This is a lifetime achievement award and is bestowed upon scientists who have a highly productive and illustrious history of research, publication and teaching in the liposome field.

Shoukat Dedhar, Professor, was appointed a Terry Fox Cancer Research Scientist of the National Cancer Institute of Canada. He is a Senior Scientist at the British Columbia Cancer Agency/ British Columbia Cancer Research Centre. His research interests focus on integrins, their interactions with the extracellular matrix, and on receptor-mediated signal transduction.

Patrick Dennis, Professor, is currently on a two-year leave of absence in Washington, DC, where he is serving as a Program Officer for the National Science Foundation. His research focusses on ribosomal RNA processing, ribosome biogenesis and molecular evolution of archaea.

Dana Devine, Professor, Department of Pathology and Laboratory Medicine and Associate Member of our Department, has been appointed Director of Research and Development for Canadian Blood Services. Recently, Dr. Devine was instrumental in founding UBC's Centre for Blood Researchz, a new initiative comprising an interdisciplinary group of UBC faculty members (see further details below). She also received this year's award for Science, Research and Medicine from the YWCA at their annual "women of distinction" awards ceremonies. Her laboratory is interested in the activation and regulation of the complement system.

Brett Finlay became a CIHR Research Scientist and, more recently, received a CIHR Distinguished Investigator Award. Brett was also the recipient of a renewed Howard Hughes International Scholar Award, and was recently elected a Fellow of the Royal Society of Canada. Brett is a member of the Biotechnology Laboratory at UBC and holds appointments as Professor of Biochemistry and Molecular Biology as well as Microbiology and Immunology. His research focusses on the processes by which pathogens adhere to, enter, survive in and exit host cells.

Philip Hieter, Professor of Medical Genetics and an Associate Member of our Department, has assumed the Directorship of the UBC Biotechnology Laboratory. The objective of the Laboratory, which was established in 1987 with our late colleague **Michael Smith** as Director, is to foster research and teaching in interdisciplinary areas, with particular emphasis on fermentation and process engineering, on protein engineering, on forest, plant and fungal molecular genetics, and on animal and human molecular genetics.

Grant Mauk, Professor, was awarded a Canada Research Chair in Blood and Transfusion Medicine. His research interests centre on metalloprotein structure and function, including mechanisms of hemoprotein electron transfer and catalysis, protein-protein interactions, and multicopper oxidases. Grant also provided major lead-

ership in establishing the UBC Laboratory of Molecular Biophysics (LMB). The LMB provides investigators at UBC with sophisticated research instrumentation that will also be accessible to neighbouring universities and companies. These facilities will include macromolecular NMR spectroscopy, macromolecular X-ray crystallography, a laser laboratory, a light scattering laboratory, a microcalorimetry facility, a surface science and clean room facility, and a kinetics laboratory. Shared instrument facilities will include FT-Raman spectroscopy, fluorescence spectroscopy, and circular dichroism spectroscopy. New service laboratories will provide access to electrospray and MALDI mass spectrometers, analytical ultracentrifuge, and surface plasmon resonance (BiaCore). Other members of the Department on the LMB Steering Committee are **George Mackie** (Professor and Department Head), **Lawrence McIntosh** (Associate Professor, Chemistry and Biochemistry and Molecular Biology), and **Steve Withers** (Khorana Professor, Chemistry and Biochemistry and Molecular Biology).

Ross MacGillivray, Professor, has been appointed Chair of the Senior Scholar and Scientist Committee for the newly created Michael Smith Foundation for Health Research (MSFHR), an important new source of support for biomedical research in BC. The MSFMR succeeds the former BC Health Research Foundation. Dr. MacGillivray was also recently appointed Director of the new UBC Centre for Blood Research (CBR). His research interests lie in the structure, organization and expression of genes coding for clotting factors and metalloproteins. The mission of the CBR is to apply cutting-edge methods of biotechnology to the study of blood and blood processing in an integrated, interdisciplinary manner. The CBR approach will combine laboratory and clinical research with engineering innovations to create new knowledge in transfusion science. In partnership with Canadian Blood Services and Bayer Canada, the knowledge emerging from the CBR research innovations will be used to enhance the blood system in Canada. Other members of the Department are also involved with the CBR, including **Dana Devine, Grant Mauk, Chris Overall** and **Natalie Strynadka**.

Lawrence McIntosh, Associate Professor, received a CIHR Scientist Award in 2000, and spent 1999-2000 on sabbatical at the European Molecular Biology Laboratory in Heidelberg, working in the group of Michael Nilges. Dr. McIntosh was supported as an Alexander von Humbolt Research Fellow during this period. His laboratory uses NMR spectroscopy to study a variety of biological problems and materials, including macromolecular structure and dynamics, eukaryotic gene regulation, signal transduction, polysaccharidases and carbohydrate binding proteins.

Robert Molday, Professor, was awarded a Canada Research Chair in Vision and Macular Degeneration, and was elected a Fellow of the Royal Society of Canada. His research interests include the identification and characterization of proteins involved in signal transduction pathways, membrane-cytoskeletal interactions and specific inherited degenerative diseases in vertebrate rod and cone photoreceptor cells.

Chris Overall, Professor of Oral Biological and Medical Sciences, and Associate Member of the Department, was the recipient of a Canada Research Chair in Metalloproteinase Biology. His research explores the biological activity of matrix metalloproteinases and tissue inhibitors of metalloproteinases in cancer, inflammation and development.

Natalie Strynadka, Assistant Professor and MRC/CIHR Scholar, received a Howard Hughes International Scholar Award. Natalie was also the winner of the year 2001 Merck Frosst Prize of the Canadian Society of Biochemistry and Molecular and Cellular Biology. Her research is aimed at the

P.D Bragg Dinner (Front row, l. to r.): C.T. Beer, I. Clark-Lewis, P.D. Bragg, B.E. Tiberiis, N.C.J. Strynadka. (Back row, l. to r.): M. Roberge, L. McIntosh, R.W. Brownsey, R.T.A. MacGillivray, G.A. Mackie, C.R. Astell, E.M. Trip, E.P.M. Candido, G.M. Tener, A.G. Mauk, P.R. Cullis, R.E. Barton

structure-based design of novel, therapeutically useful antibiotics and inhibitors of antibiotic-resistance mechanisms.

On April 30, 2001, members of the Department gathered at the Royal Vancouver Yacht Club for a dinner honouring **Philip Bragg**, Professor Emeritus. Dr. Bragg, who retired officially in 1998, continued to contribute to teaching and maintained an active research group until the fall of 2000. Indeed his research, which centred on the structure and function of NADH/NADP transhydrogenase, ATPase/ATP synthase and the bacterial respiratory chain, was continuously supported by the MRC/CIHR for approximately 38 years. Dr. Bragg joined the Department in 1964, and served as Head from 1987 until 1994. The dinner was ably organized by **Gordon Tener**, Professor Emeritus of the Department, a long-time friend of Phil's and member of the yacht club.

Graduate Studies

Natalie Rundle, a Ph.D student in the laboratory of Michel Roberge, was the recipient of the year 2000 S.H. Zbarsky Scholarship, a prize given for the best graduate seminar by a Ph.D student in their second year, as chosen by the graduate student body of the Department. The year 2001 Zbarsky Scholarship was awarded to **Michael Page**, a Ph.D student in the laboratory of Ross MacGillivray. This award was established by donations from family, friends and colleagues at the time of Dr. Sidney Zbarsky's retirement from this Department in 1985. Dr. Zbarsky is one of the founding members of our Department.

University Of Calgary

Dr. Leon Browder

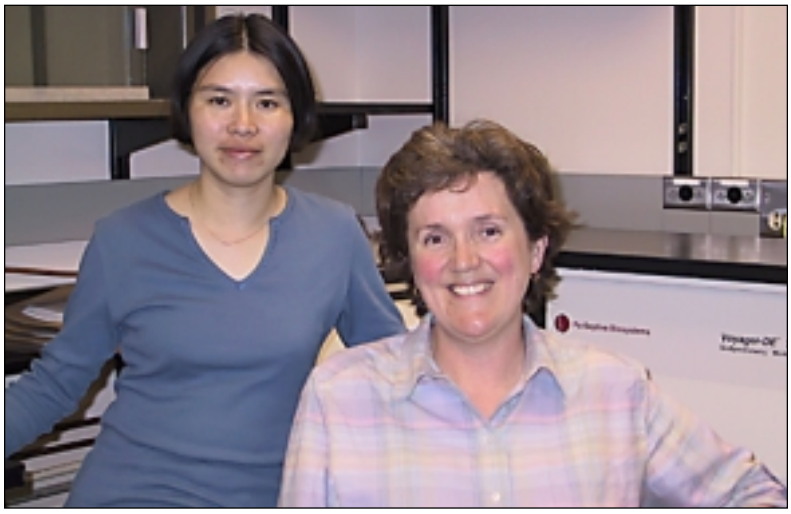
Department Of Biochemistry & Molecular Biology

Leon W. Browder, Professor and Head

The Department of Biochemistry & Molecular Biology is committed to excellence in research, teaching and service. Over the years the department has received considerable recognition for its achievements in basic research as well as in training of graduate students and postdoctoral fellows. We are a diverse department, with members belonging to eight different interdepartmental Research Groups. At the present time, 45 faculty members hold primary or secondary appointments in the department. There are three Emeritus Professors and seven adjunct appointees.

Our research activities are supported by a number of excellent core facilities, including UCDNA Services, the Peptide Synthesis Facility, the Mass Spectrometry Laboratory, the Southern Alberta Microarray Facility, the Embryonic Stem Cell/Targeted Mutagenesis Facility, the Hybridoma Facility, the Microscopy and Imaging Centre and the Bio-NMR Facility.

These are exciting times as the department embraces enthusiastically the post-genomics era. Annotation of genomes and determining the identities and functions of the proteins encoded in the genome presents unprecedented opportunities to understand the living world and will provide novel solutions to preventing and combating disease. Two programs are particularly noteworthy. These are the Proteomics & Functional Genomics Program established by the Alberta Cancer Board and the Alberta Network for Proteomics Innovation established through funding from the Alberta and Federal governments. These province-wide programs have enabled us to establish state-of-the-art facilities and to recruit outstanding scientists in proteomics, functional genomics and bioinformatics.



Dawn Chen and Susan Lees-Miller. Dr. Chen operates the MALDI Mass Spectrometer, and Dr. Lees-Miller coordinates proteomics facilities at the University of Calgary.

Faculty Transitions

Dr. Gil Schultz served during 2000 as Acting Associate Dean (Research). He now serves the Faculty of Medicine as Assistant Dean (Research).

Dr. Joe Goren returned from a very productive sabbatical in the Joslin Diabetes Center at Harvard University. He used a combination of genetics, physiology and molecular biology to study glucose homeostasis in mice. He learned a variety of new experimental techniques, which he is now using to enhance his own research program.

Dr. Kostas Iatrou completed his sabbatical in the Department of Biology at Athens University in Greece, studying the molecular biology of insect oogenesis. Kostas is currently on a leave of absence, serving as Director of the Institute of Biology in The National Centre for Scientific Research (NCSR) "Demokritos".

Dr. Marvin Fritzler is currently on sabbatical in Edward Chen's laboratory at The Scripps Research Institute in La Jolla, Ca. He is acquiring new technology and skills in gene and protein array analyses, laser dissection microscopy and bioinformatics.

Dr. Randy Johnston has been named Associate Vice-President (Research) with responsibilities in the biomedical and health research areas.

Dr. Karl Riabowol completed his term as Chair of the Cancer Biology Research Group. During his tenure as Chair, this group grew significantly in number of investigators and stature. The group also played a major role in the development of our program in proteomics, functional genomics and bioinformatics.

Dr. Chris Brown has replaced Karl as Chair of the Cancer Biology Research Group.

Dr. Kamela Patel has been named a Tier 2 Canada Research Chair.

Dr. Steve Robbins has been named a Tier 2 Canada Research Chair.

Dr. Mike Walsh has been named a Tier 1 Canada Research Chair. In addition, Mike spearheaded a successful application to establish a Canadian Institutes for Health Research Group in Vascular Contractility.

Dr. Norman Wong has assumed the role of Director of the Libin Gene Therapy Unit and Chair of the Gene Therapy Advisory Committee.

Dr. Gil Schultz

Dr. Joe Goren

Dr. Kostas Iatrou

Dr. Marvin Fritzler

Dr. Randy Johnston

Dr. Karl Riabowol

Dr. Chris Brown

Dr. Kamela Patel

Dr. Steve Robbins

Dr. Mike Walsh

Dr. Norman Wong

Richard Pon, Director of UC DNA and Protein Services


Dr. Susan Lees-Miller


Dr. Christoph Sensen


Dr. Dave Schriemer


Dr. Sarah Childs


Dr. Xi-Long Zheng


Dr. Tara Beattie


Dr. David Lau

New Members of our Department

Dr. Susan Lees-Miller has become a full member of this department; until now, she had an adjunct position in the department. Susan is coordinating proteomics facilities at the University of Calgary in both the Faculty of Medicine and in the Department of Biological Sciences.

Dr. Christoph Sensen has joined the department to spearhead our bioinformatics initiative. Before joining the University of Calgary, Christoph was Project Manager of the Canadian Bioinformatics Resource, located at the National Research Council's Institute for Marine Biosciences.

Dr. David Schriemer has become a member of the department as a key player in our proteomics program. Dave came to us from MDS-Proteomics, where he was Director of Screening Technologies.

Dr. Carol Schuurmans joins the department after a highly successful postdoctoral fellowship in the laboratory of François Guillemot in Strasbourg, France. She brings to the University of Calgary additional strength in the study of neural development and enhances our strong group of investigators who generate and study genetically modified mice.

Dr. Sarah Childs becomes the first investigator at the University of Calgary to study development of the zebrafish. Sarah completed her Ph.D. with Dr. Victor Ling. After an initial Postdoctoral Fellowship with Dr. Ling, Sarah moved to Dr. Mark Fishman's laboratory at Harvard University, where she began working on the zebrafish system. She has been studying vascular development and angiogenesis using this highly tractable system.

Dr. Xi-Long Zheng joins us to undertake innovative research on smooth muscle proliferation. Xi-Long has had two very productive postdoctoral fellowships. The first was in in Dr. Craig Malbon's laboratory in Stony Brook, where he discovered that streptozotocin-induced diabetes is ameliorated by expression of a subunit of the inhibitory G-protein of adenylyl cyclase. The second was in Norman Wong's laboratory at the University of Calgary.

Dr. Tara Beattie joins us from the Amgen Institute in Toronto. Tara studies the function of telomerase using an innovative *in vitro* system.

Dr. David Lau has a joint appointment in this department, with a primary appointment in the Department of Medicine. David also serves as the Chair of the Diabetes and Endocrine Research Group and as the Director of the Julia McFarlane Diabetes Research Group.

I am pleased to welcome all of these outstanding scientists to the Department of Biochemistry & Molecular Biology.

Training Opportunities

The Department of Biochemistry & Molecular Biology offers graduate training leading to Ph.D. and M.Sc. degrees in Biochemistry and Molecular Biology. We invite potential graduate students and postdocs to give Calgary careful consideration. Members of this department conduct exciting, leading edge research, are well funded by international, national and provincial agencies and publish extensively in the very best journals. More details about the department can be found at www.ucalgary.ca/bmb. Not only do we offer excellent training opportunities for young scientists, but the natural beauty surrounding Calgary is breathtaking, providing year-round recreational opportunities.

Extraordinary science in an extraordinary location!

Dalhousie University

Department of Biochemistry and Molecular Biology

Correspondent: Catherine Lazier

A reprise of the events here in 2000-2001 is overshadowed by the recent unexpected death of Peter Dolphin, who figured so greatly in this department. A separate remembrance of Peter is published in this issue. A special memorial lecture in his honour was given by Dr. Robert Ryan in the Tupper Building at Dalhousie on October 25th. A prize for graduate students in Peter's name is planned (for information contact F. Palmer).

Last September, we were very pleased to welcome **Doug Hogue** to the department as an assistant professor. He did his Ph.D. with **Carol Cass** in Edmonton and post-doctoral work with **Vic Ling** in Vancouver. Doug received grants from both the CIHR and CFI on his first applications.

Good news on the evolutionary biology front is that **Mike Gray** and **Ford Doolittle** have both been awarded Canada Research Chairs and are principal investigators on the two major programs funded by Genome Canada as part of the Genome Atlantic endeavor. This should mean significant expansion of these well-recognized research programs, including new faculty and post-doctoral positions.

Roger McLeod is busy organizing the Canadian Lipoprotein Conference to be held at a beautiful resort in Digby NS this fall. Roger's lab is in full swing with funding from the CIHR and the Dairy Farmers of Canada Foundation.

Our undergraduate science classes have expanded tremendously in the past few years. Numbers of honours, combined honours (usually with microbiology) and advanced major students have doubled at least. Our third year classes fill up within days of registration opening. Part of this may be due to increased interest in biotechnology but we don't think it is the only factor involved.

Rick Singer and **Gerry Johnston** (Head of Microbiology and Immunology) were jointly awarded the Max Forman Senior Research Award recently. This is the main Faculty of Medicine research award at Dalhousie. It was very good to see Rick and Gerry's long and very fruitful collaboration on yeast cell cycle and gene expression recognized in this way.

Harold Cook has been appointed Vice-Dean (Research) in the Faculty of Medicine and **Carl Breckenridge** is now the Vice-President (Research) for Dalhousie. Unfortunately, both of them are so busy we hardly ever see them anymore.

Your correspondent (now the department dowager) is happy to still be active in research and teaching. This doesn't leave much time to contemplate retirement though, which is only a couple of years away.

University of Guelph

Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry

Correspondent: Dr. Frances J. Sharom

University of Guelph, Department of Chemistry & Biochemistry

The past year has been good one for the department, with recruitment of new faculty to fill retirements proceeding apace, and substantial involvement in CFI and ORDCF initiatives. We welcomed **Dr. Marc Coppolino** as a new Assistant Professor on May 2001. Marc was born and raised in Waterloo and received his B.Sc. (Co-op, 1990) from the Department of Biology at the University of Waterloo. After graduating, he continued his laboratory training and became interested in biochemical research while working as a junior technician in the Department of Pharmacology at Merck Frosst Canada in Montreal. Marc then completed his Ph.D. (1998) under the supervision of Dr. Shoukat Dedhar in the Department of Medical Biophysics at the University of Toronto. Prior to joining the Department of Chemistry and Biochemistry at the University of Guelph, he finished a three-year MRC Fellowship in the laboratory of Dr. Sergio Grinstein at the Hospital for Sick Children, Toronto. During this period, Marc was awarded the 2000 John Charles Polanyi Award for Physiology and Medicine.

Dr. Dev Mangroo was recently awarded a Premier's Research Excellence Award (PREA). The additional funding will be used to support research directed at understanding the mechanism of nuclear tRNA export.

Graduate news:

Dr. Souzan Armstrong graduated with her Ph.D. from Rod Merrill's lab in September 2001, and has recently joined PTI (Photon Technology International) Inc. in London, Ontario, as a research scientist. Souzan will be running the Biofluorescence Laboratory under the direction of Dr. Alex Siemiarczuk.

Dr. Marty Lehto graduated with his Ph.D. from Frances Sharom's lab in August 2001, and has recently taken up a position as a post-doctoral fellow in the research group of Dr. Neil Cashman, who holds the Diener Chair of Neurodegenerative Diseases at the University of Toronto's Centre for Research in Neurodegenerative Disease.

University of Waterloo, Department of Chemistry

Dr. Lewis Brubacher, whose research involved protease enzymology and kinetics as well innovations in biochemistry teaching, has officially retired from the Chemistry department at Waterloo. He will continue with serving as editor of the highly successful publication *Chem13 News***. Dr. Michael Palmer** joined the department in September 2001. His research is focused on the study (by fluorescence) of the reversible conformational changes that occur in recombinant monomeric streptolysin O upon binding to erythrocyte membranes. Dr. Palmer was recently a research scientist in the Institute of Medical Biochemistry at Texas A&M. **Dr. Gary Dmitrienko's** research group is involved in the design, synthesis and enzymology of inhibitors of bacterial zinc-dependent beta-lactamases as well as the development of new structural classes of HIV-1 reverse transcriptase inhibitors. **Dr. Guy Guillemette's** research group investigates the structure and function of metalloenzymes including nitric oxide synthases and aldolases. **Dr. John Honek's** group is involved in the area of mechanistic enzymology of metalloenzymes as well as the structure-function of enzymes involved in methionine biochemistry. He was appointed an associate editor of *Biochemistry and Cell Biology (NRC)* this year. **Dr. Elizabeth Meiering's** group is conducting research on the folding, structure, function and dynamics of medically and biologically important proteins. **Dr. Susan Mikkelsen** is interested in biosensors and bioassays. Her group invented the world's first voltammetric sensor for DNA sequence detection, and is now actively developing a new electrochemical antibiotic susceptibility assay for microorganisms; technology available includes screen-printing for disposable sensor design and atomic force microscopy for surface characterization. **Dr. Scott Taylor's group** is continuing research in the areas of enzyme inhibitors and catalytic antibodies.

The department has completed setting up the new 600 MHZ NMR spectrometer and is also completing the installation of the Q-Tof electrospray mass spectrometer. A new ultrasensitive differential scanning calorimeter and a cell disrupter has been added to the group's equipment.

Graduate Scholarships:

NSERC graduate scholarships were awarded to **Jennifer Lapierre** and **Mark Vaughan**; OGS and OGSST scholarships were awarded to **Heather Montgomery, Jennifer Steere, Nicole Sukdeo**, and **Jason Wu**. **Susan Clugston** was awarded a NSERC postdoctoral fellowship and she is now in the laboratory of Professor Christopher Walsh, Harvard University.

University of Lethbridge

Department of Chemistry and Biochemistry

Correspondent: Marc R. Roussel, Associate Professor and Biochemistry Coordinator

The Department of Biological Sciences has recently hired **Igor** and **Olga Kovalchuk** in tenure-track positions. Olga's research focuses on DNA damage and repair processes, especially in relation to radioactive and chemical environmental contamination. She also studies the biology and toxicology of herbicides, work which dovetails nicely with local agricultural concerns. Olga holds a Ph.D. from the Ukrainian Scientific Genetics Center in Kiev. She comes to us from the Toxicology/Cell Biology Department of the Human Safety Division of Novartis in Basel, Switzerland.

Igor's focus is on the effects of both biotic and abiotic stresses on the genomes of higher eukaryotes, with a particular interest in transgenic plants. His research ranges from studying the effects of ionizing radiation on mutation rates to virus-induced genome instability. Igor is also a graduate of the Ukrainian Scientific Genetics Center. He was most recently a postdoc in the Friedrich Miescher Institute in Basel.

The Department of Chemistry and Biochemistry is in the process of building a biomolecular structure group. Our first step toward this goal was the hiring last fall of **Steven Mosimann**, a macromolecular X-ray crystallographer. Steven learned his trade as a graduate student at the University of Alberta and was a postdoc at the University of British Columbia. Shortly after arriving in Lethbridge, Steven was made an Alberta Heritage Foundation for Medical Research (AHFMR) Scholar. This award liberates Steven from some of his teaching duties for a period of five years. Steven also received a major equipment award from AHFMR with matching funds from the Canada Foundation for Innovation Young Investigator pool totaling $500,000. He has used this money to purchase a macromolecular X-ray diffractometer which will be installed in an annex of the new Life Sciences building. Steven will be using this facility to study RNA processing enzymes.

The Life Sciences annex will also house a new wide-bore 500 MHz NMR spectrometer, which has been funded by the Government of Alberta. This spectrometer, which is expected to be operational later this year, will have both solids and liquids capabilities. Funding for a microimaging accessory is currently being sought by the University's neuroscience group.

University of Manitoba

Department of Biochemistry and Medical Genetics

Correspondent: Jane A. Evans

The last year or so has been an exciting time for the Department as a merger took place that brought the previous Departments of Biochemistry and Molecular Biology, and Human Genetics together to form the Department of Biochemistry and Medical Genetics. The new Head of the merged department is Dr. **Jane Evans**, while the previous head, Dr. **Pat Choy** has moved up the administrative ladder to become Associate Dean Research for the Faculty of Medicine.

The Department has been fortunate enough to recruit several excellent new researchers: Dr. **Nasrin Maeseli** who works on molecular mechanisms of vascular development and remodeling by calreticulin; Dr. **Etienne Leygue**, who is interested in the molecular biology of precancerous breast lesions; Dr. **Spencer Gibson**, investigating signal transduction pathways leading to apoptosis and cell survival; Dr. **Geoff Hicks**, who is working on functional analysis of the genetic determinants of cancer and human disease; Dr. **Jeff Wigle**, who has interests in lymphangiogenesis using mouse models, and Dr. **David Merz**, who is using *C. elegans* to determine the regulation of cell migrations and axon guidance. This means that the Department now has active programs throughout the University and several of its related Institutes, including The St. Boniface Research Institute and the Manitoba Institute of Cell Biology, where Dr. **Jim Davie** is now Director.

We have also been very successful with respect to career awards, with Dr. Maeseli receiving

a Heart and Stroke Scholarship; Dr. Gibson, a CIHR New Investigator Award, and Dr. Leygue, a US Army Breast Cancer Scholarship. Our pleasure and pride in seeing Canada Research Chairs awarded to Dr. **Arnold Greenberg** and Dr. **Geoff Hicks**, were tempered with sorrow when Dr. Greenberg succumbed to cancer earlier this year.

A Canadian Foundation for Innovation major award to Dr. **Leigh Murphy** and the Breast Cancer Group, as well as a New Investigator Award to Drs. Leygue and Gibson have allowed our scientists access to more sophisticated equipment, including a microchip reader, laser-capture microdissection equipment, a light cycler system and an auto-immunostainer.

On a final note, our activities, like those of all Departments, have been much enhanced by our graduate students and other trainees. We are phasing in a merged graduate program in Biochemistry and Medical Genetics, while continuing to oversee students completing their degrees in the Biochemistry and Human Genetics programs. Currently, we have 3 premasters students, 24 working on their MSc degrees, and 7 PhD students, as well as postgraduate medical trainees in Medical Genetics, BSc (Medicine) students, a Canadian College of Medical Genetics fellow in molecular diagnostics and several BSc Honours projects students.

Highlights of our current and previous activities, as well as more information on faculty members and their interests, can be found on our web site at *http://www.umanitoba.ca/faculties/medicine/units/biochem/faculty.html*

McMaster University

Department of Biochemistry

Correspondent: Dr. V.S. Ananthanarayanan

With **John Capone** moving up to the position of Associate Dean of Research, Faculty of Health Sciences, in September, 2000, the department had **David Andrews** as acting chair until June, 2001. From July, 2001, **Gerry Wright** took over as the Chair. At 38, Gerry is perhaps the youngest chairperson of a biochemistry department in Canada. Gerry also is the Director of the McMaster University Antimicrobial Research Centre housed in our department. With his excellent research record and his keen interest in undergraduate and graduate education, we expect Gerry to act as an enthusiastic leader and take the department to newer heights.

Bernardo (Dino) Trigatti joined us as a new faculty member in September, 2000. Dino is an alumnus of our department and did his Ph.D. with **Gerhard Gerber** who is now on sabbatical leave after serving as the Vice-President of Research and International Affairs at McMaster for the past 5 years. Dino did his postdoctoral studies in Monty Krieger's lab at MIT, where he and others knocked out the high density lipoprotein receptor, SR-BI, in mice and demonstrated its critical role in high density lipoprotein metabolism and atherosclerosis. He has been an MRC postdoctoral fellow and is currently the William T. McEachern Fellow at McMaster University. His current research uses a combination of cell biological and targeted genetic approaches in mice to decipher the molecular and physiological roles of scavenger receptors in lipoprotein metabolism and atherosclerosis. His expanding laboratory (currently five members) is supported by the CIHR, CFI and OIT.

Ray Truant, who joined us in July 1999, is continuing his research on the pathways for protein nuclear import in mammalian cells, focussing on proeins involved in Huntington and related diseases. He has recently won a CIHR New Scientist award and a CFI award of $425,000 for buying a computerized microscope and other cell biology equipment. He also holds an operating grant from the Hereditary Disease Foundation, U.S.A.

Richard Epand, who won the prestigious Avanti Award last year from the Biophysical Society, is currently the Chairman of the Membrane Structure and Assembly Subgroup of that Society. He is also the current Vice-President of the Canadian Biophysical Society. He was an invited speaker and chair at symposia in Norway and Hungary that dealt with membrane structure and interactions. He delivered seminars at the University of Stockholm and the Institute für Biophysik in Graz.

Paul Berti who joined us in 1999 as a joint appointee in our Department and the Chemistry Department, has recently been awarded $500,000 from CFI for drug design. His research interest lies in understanding enzyme mechanism using kinetic isotope effects and other techniques with a focus on potential antibiotic targets. Paul also holds grants from CIHR and NSERC.

A most notable accomplishment for the Department this year has been the award of Canada Research Chairs to four of our members: **David Andrews**, **Gerry Wright**, **Eric Brown** and **Yingfu Li.** As a national level acknowledgement of the excellence in research of these scientists, these awards rank among the most grabbed by any single Canadian University this year.

We have recruited **Michelle MacDonald** as Assistant Professor as of September 2001. Michelle did her undergraduate program in our department and had done a project in Richard Epand's laboratory. She did her Ph.D in Medical Sciences under the supervision of Dr. **George Heigenhauser** at McMaster. She was an NSERC postdoctoral fellow in kinesiology at the University of Waterloo, looking at the fatty acid transport proteins in muscle and adipose tissues with special reference to their role in type 2 diabetes. While Michelle's major task now will be teaching several undergraduate courses, she will also continue her collaborative research with Dr.Heigenhauser's group at McMaster.

Finally, the department bid farewell to one of our young and very successful crystallographers, **Albert Berghuis**, who sought greener pastures and left us to join the biochemistry department at McGill. One person's loss is another person's gain! On the plus side, we will soon be having **Murray Junop**, who obtained his Ph.D. working with Dr. David Haniford at UWO in 1997 and is currently doing his postdoctoral research in x-ray crystallography in the laboratory of Dr. Wei Yang at the NIH in Bethesda. Murray's expertise lies in the structural and mechanistic aspects of proteins involved in DNA repair processes.

In sum, 2001 has been a very good year for us with new faculty and prestigious awards and a new Chair.

McGill University

Biochemistry at McGill

The Department has three new faculty members. **Dr. David Thomas**, from the National Research Council of Canada, took over as the new Chair commencing in January, 2001**. Dr. Albert Berghuis,** from McMaster University, is an X-ray crystallographer and will also direct The McGill Centre for Structural Biology. **Dr. Imed Gallouzi,** from Yale U, studies mRNA stability and transport.

The former Chair, **Dr. Philip Branton**, remains with the department and has been appointed as the first director of the Cancer Institute of the CIHR. **Dr. Michel Tremblay** has been appointed to head the McGill Cancer Research Centre. During the pasr year, several other members of the department were recognized for their contributions. **Dr. David Thomas** was awarded a Canada Research Chair. **Dr. Nahum Sonenberg** and **Dr. Philippe Gros** were appointed as Distinguished Investigators of the CIHR while **Dr. Jerry Pelletier** and **Dr. Morag Park** were appointed as Senior Investigators.

Construction has started on the building that will house The McGiIl Genomics and Proteomics Centre, which has strong ties with the department. A 600 MHz NMR awarded in the last CFI competition and scheduled for installation in late 2001, will be directed by **Dr. Kalle Gehring.**

University of Alberta

Department of Biochemistry

The Department of Biochemistry lost two faculty members this past year, but also grew in size with the addition of six new faculty members.

Departures from the Department included Dr. Robert Ryan and Dr. Robert Hodges. Dr. Ryan returned to the United States, and Dr. Hodges retired from the University of Alberta.

New members to the department are:

Dr. Andrew MacMillan – The research in Andrew's laboratory is focused on the chemistry and biochemistry of nucleic acids with an emphasis on biologically important reactions involving RNA.

Dr. Leo Spyracopoulos – Leo's research interests include the determination of the solution structures of proteins and protein complexes, elucidation of the internal dynamics and thermodynamics of proteins, and determination of the kinetics of interaction of proteins with their target molecules.

Dr. Luis Schang – Luis' lab is interested in the roles that cellular proteins play in viral replication and pathogenesis. As a model for his studies, he uses herpes simplex viruses (HSV). Three major areas of research: 1) the mechanisms whereby cellular cdks regulate transcription of viral genes; 2) expression of cell-cycle proteins in non-cycling neurons; and 3) the possibility that cdk inhibitors may be useful as antiviral drugs.

Dr. Kevin Wilson – Kevin's research is directed at understanding fundamental mechanisms of translation conserved in all organisms. The central enzyme of translation is the ribosome, a large and complex assembly of RNA and protein components.

Dr. Carlos Fernandez-Patron – Carlos is launching an exciting and interdisciplinary research program to study the molecular basis of hypertension. He is studying the molecular basis of hypertension and applying functional proteomics to identify mechanisms of vasoregulation that are unique to this condition.

Dr. Howard Young – Dr. Young will join the Department early in the new year. Howard has concentrated on the role of Ca^{2+} in biological systems, including hearing and muscle contraction. As a PDF he added cryo-electron microscopy and image reconstruction to his list of skills as a biophysicist, and membrane biochemist.

Recent initiatives in Biochemistry

- The National High Field Nuclear Magnetic Resonance Centre (NANUC). This is a National research centre with a mandate to further NMR science development; and
- The Institute of Biomolecular Design (IBD). This new research institute has a strong commitment to providing services in certain areas that are directly related to Biochemistry and other departments. IBD is a campus wide institute and is industrially linked with the Alberta Peptide Institute (API).

University of Toronto

Department of Biochemistry

Correspondent: David Williams

Faculty News

Peter Lewis will be completing his second five-year term as Chair of the Department at the end of December, 2001. During this period, Peter has been remarkably successful in recruiting new faculty members despite very trying fiscal constraints. Eight new faculty joined the campus-based Department within the Medical Sciences Building, plus nine other members were cross-appointed from various Research Institutes. Coupled with twelve retirements this has resulted in quite a dramatic transformation of the Department! Peter also spearheaded the creation of the multi-departmental Program in Proteomics and Bioinformatics, which involves the Banting and Best Department of Medical Research, Biochemistry, Laboratory Medicine and Pathobiology, Molecular & Medical Genetics, Medical Biophysics, Medicine and three affilated Research Institutes. This is a program to train undergraduates and graduates in these rapidly growing disciplines. Six new faculty have been recruited to various Departments through this initiative and four additional tenure-stream positions have yet to be filled. We look forward to the prospect of further faculty recruitment. On top of his

duties as Chair, Peter also served as Vice President and President of the CSBMCB. We are all very appreciative of Peter's exceptional contributions to the Department, and we are sorry to see his term as Chair drawing to a close. Peter will be embarking on a well-deserved sabbatical early in 2002 with Ruedi Aebersold at the Institute for Systems Biology in Seattle to work on mass spectrometry of protein complexes. We wish him every success in his research efforts.

A search for the next Chair of the Department is ongoing. **David Isenman** will assume the position of Acting Chair in the interim.

The Department is pleased to announce the arrival this summer of our newest faculty member, **Boris Steipe**, who was recruited through the Program in Proteomics and Bioinformatics. Boris comes from the Ludwig-Maximilians-Universitat, München, and joins us as an Associate Professor. His research interests include antibody engineering, green fluorescent protein engineering, phage display, nanotechnology and bioinformatics.

Many of our Faculty were honoured with awards in the 2000-2001 academic year. **Amira Klip**, **Sergio Grinstein**, and **Charles Deber** were all elected as Fellows of the Royal Society of Canada. Congratulations to all three on this exceptional achievement! **Grant Brown** and **Walid Houry** received CIHR New Investigator awards, and **Liliana Attisano** and **Lynne Howell** were the recipients of CIHR Investigator awards. **John Glover**, **Hue-Sun Chan, Walid Houry**, **Christopher Yip** and **Craig Smibert** all won Premier's Research Excellence Awards. Several of our members were successful in obtaining Canada Research Chairs with **Lewis Kay** and **Brian Robinson** being awarded Tier 1 Chairs and **Hue-Sun Chan**, **Règis Pomès**, and **Christopher Yip** receiving Tier 2 Chairs. **David Williams** was the recipient of the U. of T. Dales Award for sustained research excellence at the University of Toronto. **Harry Schachter** was honoured with the Plenary Lecturer Award of the Pan-American Biochemistry and Molecular Biology Society.

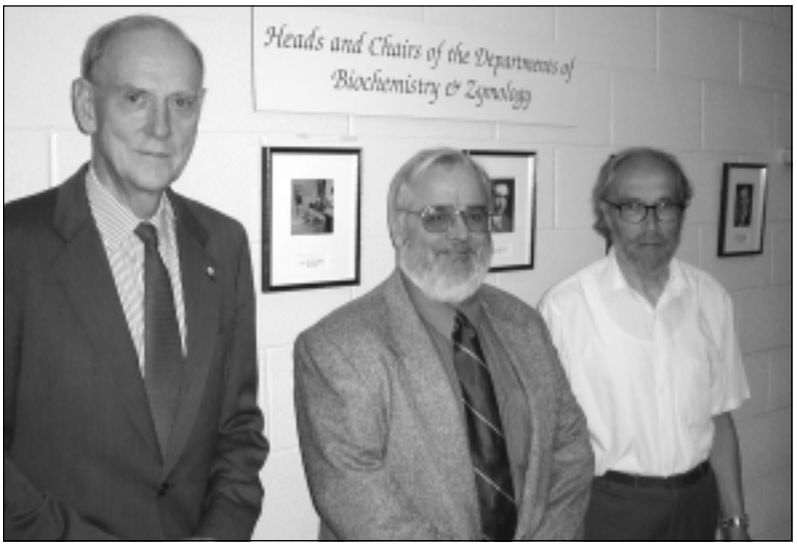
In addition to awards, several of our Faculty were very popular on the international lecture circuit, with **Hue-Sun Chan** giving talks in Sweden, Denmark, the U.K., Taiwan, Italy, Japan, and the U.S. **Harry Schachter**, rumoured to be retired but carrying on at his usual pace, was an invited speaker at meetings in Sweden, France, the Netherlands, and Singapore and also organized the Second International Symposium on Glycosyltransferases in Toronto. **David Williams** co-organized the CSBMCB Winternational meeting on "Dynamics of Intracellular Organelles and Molecular Machines" held at Mont Ste. Anne, Quebec, and **Peter Lewis** was Chair of the Scientific Program Committe for the 44th CSBMCB summer meeting, "From the Genome to Structure and Function", held at Alliston, Ontario. Both meetings were very popular and attracted diverse international audiences.

Events

Professor Emeritus, **Theo Hofmann**, conceived of and undertook the daunting task of created a pictorial history of Departmental Chairs, dating back to founding Chair A.B. Macallum in 1908. The photo gallery was unveiled at our Annual Poster Day on May 8, 2001. Several past Chairs attended the event. The gallery provides a wonderful perspective on the long history of the Department.

Appointments

We are pleased to welcome **Liliana Attisano** as a cross-appointed member of the Department. Liliana is a member of the Department of Anatomy and Cell Biology and is interested in the role of Smads in TGF beta Signalling. Liliana was also promoted to Associate Professor this year.



George Connell, Peter Lewis, and Theo Hofmann at the unveiling of the gallery of Departmental Chairs

We are also happy to announce that **Christine Bear**, a Senior Scientist in the Cell Biology Division in the Research Institute at the Hospital for Sick Children and Associate Professor in the Department of Physiology, has accepted a cross-appointment to our Department. Christine is interested in membrane associated ion transporters in general and CFTR in particular.

Congratulations also to **William Trimble** who was promoted to the rank of Full Professor.

Graduate Studies

The Department held its annual graduate student poster day on May 8, 2001. This annual event is very popular among faculty and students and provides an excellent opportunity for students to showcase their research. The judges faced a difficult task given the high quality of the graduate student posters, but after prolonged debate the following winners (who receive cash awards) emerged:

M.Sc. 1st Prize - **Victoria Stronge** (supervisor David Williams) *Relationship between the chaperone functions of calnexin and BiP using glycosylated and non-glycosylated substrates* in vitro.

M.Sc. tied for 2nd Prize - **Jianfei Qi** (supervisor Chi-Hung Siu) *Role of Cell Adhesion Molecules in the Transendothelial Migration of Melanoma Cells*

and **Jeffrey Lee** (supervisor Lynne Howell) *MTA/AdoHcy nucleosidase structure reveals homology with purine nucleoside phosphorylases*

Ph.D. 1st Prize – **Christopher Lemke** (supervisor Lynne Howell) *Insight into the catalytic mechanism of argininosuccinate synthetase.*

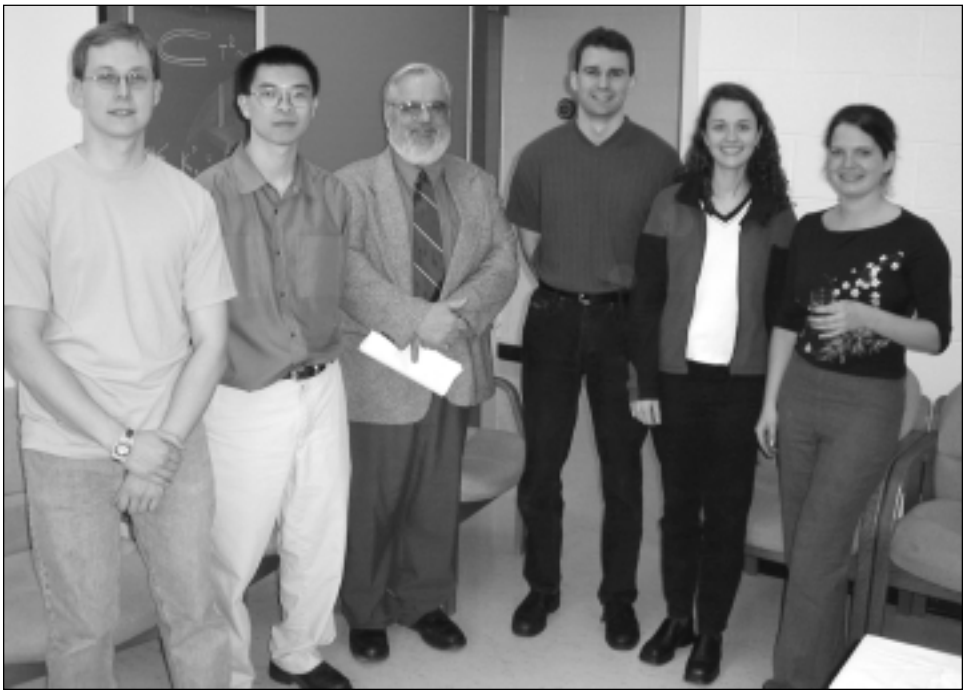
Ph.D. 2nd Prize – **Voula Kanelis** (supervisors Daniela Rotin/Julie Forman-Kay) *Solution structure of a NEDD4 WW domain - ENaC PY motif complex.*

Ph.D. 3rd Prize – **Janne Quilty** (supervisor Reinhart Reithmeier) *Trafficking of distal renal tubular acidosis mutants of the anion exchanger AE1.*

Additional graduate award:

The annual David Scott prize for outstanding all-round graduate student was awarded this year to **Zayna Khayat** (supervisor Amira Klip). Criteria for selection include performance at seminars, readiness and willingness to assist fellow graduate students and staff, and abilities as a teaching assistant.

Congratulations to all winners on their achievements.



Poster award winners (from left): Janne Quilty, Jeffrey Lee, (Peter Lewis), Voula Kanelis, and Victoria Stronge

University of Saskatchewan

Biochemistry Department

The Head of the Department, **Dr. Louis Delbaere**, was awarded a Tier 1 Canada Research Chair in Structural Biochemistry for seven years starting July 1, 2001. His research involves the study of protein structure by the method of x-ray crystallography and the correlation of structure with the function of the particular protein. The Canadian Light Source synchrotron is scheduled to be in operation at the University of Saskatchewan in January 2004 and Dr. Delbaere is expected to make extensive use of this national facility for his research.

In addition, the Department of Biochemistry welcomes **Dr. Gordon R. Gray**, who was appointed as Assistant Professor on July 1, 2000. Dr. Gray received his Honours B.Sc. (co-op) in Biology from the University of Waterloo and a M.Sc. and Ph.D. in Plant Science from The University of Western Ontario. His graduate studies involved a detailed examination of photosynthetic acclimation to low temperature and energy 'sensing' in response to environmental stress. Prior to his arrival at the University of Saskatchewan, Dr. Gray completed a post-graduate training as a NSERC postdoctoral fellow in the U.S Department of Energy Plant Research Lab at Michigan State University. During his postdoctoral tenure Dr. Gray undertook a molecular-genetic analyses of mitochondrial TCA cycle metabolism and alternative pathway respiration. Since his appointment, Dr. Gray has been successful in acquiring a 4-year NSERC research grant as well as a NSERC equipment grant. He was also awarded a CFI New Opportunity Award to fully equip a Plant Metabolism Laboratory. In addition, he is a co-principle investigator on a Genome Canada Proposal for the study of 'Abiotic Stress in Crop Plants', playing a role in the proteomic analyses component of the proposal. His laboratory is presently investigating metabolic adjustment of redox homeostasis in response to fluctuating environmental conditions in the model plant *Arabidopsis thaliana*. Dr. Gray currently has one graduate student who is screening various T-DNA insertion lines of *Arabidopsis* to identify mutants with altered mitochondrial or chloroplastic metabolic processes that affect redox balance. In addition, he is responsible for teaching BIOCHEM 220.3 'Introductory Plant Biochemistry'.