

**QUEEN'S UNIVERSITY
DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE**



**FACULTY OF HEALTH SCIENCES
ANNUAL REPORT
2003**

IAIN D. YOUNG, MD – CHAIRMAN

**DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE
2003
ANNUAL REPORT**

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**FACULTY, ADMINISTRATION
AND
LABORATORY MANAGERS AND SUPERVISORS**

**DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE
FACULTY
2003**

PROFESSOR AND HEAD

Dr. Iain Young

PROFESSORS

Dr. A.F. Clark* (retired June 30, 2003)
Dr. S. Cole (on sabbatical July 1, 2003-December 31, 2003)
Dr. R. Deeley
Dr. B. Elliott
Dr. R. Kisilevsky (retired June 30, 2003)
Dr. D. Lillicrap
Dr. S. Ludwin
Dr. P. Manley
Dr. P.G. Young*

ASSOCIATE PROFESSORS

Dr. S. Boag
Dr. C. Collier
Dr. D. Dexter
Dr. P. Greer
Dr. M. Khalifa
Dr. D. LeBrun
Dr. D. Maurice*
Dr. C. Mueller*
Dr. L. Mulligan
Dr. M. Petkovich*
Dr. L. Raptis*
Dr. J. Rossiter
Dr. S. SenGupta
Dr. L. Shepherd
Dr. S. Taylor
Dr. L. Tomalty*
Dr. D. Zoutman

ASSISTANT PROFESSORS

Dr. T. Childs
Dr. G. Evans*
Dr. C. Forster-Gibson*
Dr. K. Harrison
Dr. T. Hiruki (effective September 1, 2003)
Dr. D. Hurlbut
Dr. P. Isotalo
Dr. T. Karnauchow (resigned July 31, 2003)
Dr. D. Lee*
Dr. J. MacKenzie*
Dr. D. Rapson
Dr. M. Raymond
Dr. C. Rowlands

TERM ADJUNCT FACULTY Dr. H. Feilotter

**ADJUNCT ACADEMIC
GROUP I**

Dr. J. Ancsin
Dr. D. Connor
Dr. S. Davey
Dr. D. Haust
Mr. L. Kennedy
Dr. R. Kisilevsky, Emeritus (effective July 1, 2003)
Mr. D. Piper
Dr. D.M. Robertson, Emeritus
Dr. J. Samis
Ms. I. Sumargo
Mr. J. Stoneman (effective May 15, 2003)
Dr. V. Walley

ADMINISTRATION

Laboratory Manager	- Mr. John Stoneman (effective February 1, 2003)
Administrative Assistant	- Mrs. Marg McIlroy (retired June 30, 2003)
Administrative Assistant	- Mrs. Barb Latimer
Financial Administrative Assistant	- Mrs. Maria Dickson (effective August 5, 2003)

**LABORATORY MANAGERS
AND SUPERVISORS**

Anatomic Pathology & CLEO	- Mr. Dave More
Chemistry	- Ms. Mary Waugh
Cytogenetics	- Ms. Anne Hanley
Microbiology	- Ms. Linda Fidler (retired June 30, 2003)
Quality Assurance	- Ms. Susan Pugh

***Cross-Appointed Staff**

**LABORATORY MEDICINE
AND
PATHOLOGY AND MOLECULAR MEDICINE**

INTRODUCTION & EXECUTIVE SUMMARY

The Department of Pathology and Molecular Medicine holds a unique position in the Faculty of Health Sciences as it serves to bridge the interface between basic medical science and clinical medicine. As a basic science department it plays an important role in the research enterprise of the faculty, its graduate training programs and the undergraduate life science program. As a clinical department, it fulfills the responsibility of providing a broad array of complex diagnostic laboratory services to the Academic Health Sciences Centre as well as to the region of Southeastern Ontario.

The Department's educational programs are vibrant and successful. Departmental members supervise approximately 30 graduate students who are distributed evenly between Master's and PhD programs. In concert with the strategic direction of the university, the department has established an objective of expanding its graduate program in the short to intermediate term and shifting enrolment significantly towards the PhD program. The Department's participation in the Undergraduate Life Science Program continues to expand, principally through the development of its genetics curriculum. Departmental faculty participate actively in the undergraduate medical curriculum and we have established what has proven to be an extremely successful initiative in Phase I, the Medical Science Rounds. The department's greatest success, however, has been the resurrection of its postgraduate program. Current enrolment is six residents, up from two a year ago, and we anticipate continued growth in 2004 to as many as 12 trainees.

The research programs of the department continue to grow and flourish. External research funding of faculty with primary appointments in the Department of Pathology and Molecular Medicine approximate six million dollars. The principle research foci in the department are centered on cancer biology and genetics, and molecular hemostasis. The department is actively engaged in developing its infrastructure and capability in translational oncologic research and will be optimizing its interactions with the Queen's Cancer Research Institute and the National Cancer Institute – Clinical Trials Group.

The Department provides a complex array of diagnostic laboratory services in anatomic pathology, hematopathology, clinical chemistry and laboratory genetics. Severe constraints on the global budgets of hospitals have had profound effect on laboratory technologist person power and capital budget flexibility. This has severely limited research and development in the clinical diagnostic enterprise and is creating a quality gap in our diagnostic services which the department is currently addressing. Despite these challenges, the department has been extremely successful in the delivery of high quality and timely diagnostic services within not only our Academic Health Science Center but also to our regional partners through our Laboratory Directorship Outreach Program. We have extended our Infection Control Program into several local institutions and we are developing the concept of a Regional Infection Control Network.

The Department is currently in the process of establishing a strategic management system based on a comprehensive strategic plan entitled "Excellence in Service and Discovery". The Plan will be built on integrated mission and vision statements which will link the clinical, research and education roles of the department and will articulate the strategic priorities which will determine the department's direction for the short to intermediate term.

The mission of the Regional Laboratory Outreach Program is to provide the most useful, accurate and timely answers to clinical inquiries in the interest of excellence in health care, in a manner which meets the highest standard of professional and courteous service, while promoting the effective and efficient utilization of existing medical laboratory resources with our health care colleagues.

Located in the Douglas wing of Kingston General Hospital, the Laboratory Outreach Program is operated by the Division of Clinical Laboratory Services of Kingston General Hospital in conjunction with the Department of Pathology and Molecular Medicine of Queen's University. The program, which was originally created to organize the delivery of specimens and the pickup of completed reports, has grown into a comprehensive service providing full technical, management and professional expertise in laboratory medicine.

High quality and personalized service is supported by a single entry point for specimen drop off and report pickup and a toll-free telephone number for all inquiries from clinicians, institutions and researchers. Outreach staff supports on-site electronic reporting and inquiry for numerous sites. Continuous quality improvement performance is measured using client satisfaction surveys and regular frequent interactions with clients to identify and address their needs and concerns. An informative newsletter, published semi-annually, provides a medium for education and input from clients.

In addition to reference laboratory services, medical and scientific direction of laboratories (i.e. St. Mary's of the Lake, Ongwanada, Moose Factory, Perth & Smiths Falls, Napanee) is provided on a contractual basis through the SEAMO faculty of the Queen's Department of Pathology and Molecular Medicine. Technical and laboratory management expertise are available to client institutions upon request through KGH. Additional discipline-specific consultation is also provided in Clinical Chemistry, Clinical Microbiology, Cytogenetics, and Infection Control.

Our client base has grown with reference laboratory services provided to community hospitals located in Southeastern Ontario, Central East Ontario, and northern Ontario. Laboratory services are also provided to Correctional Services Canada, MDS Laboratories, Canadian Medical Laboratories, Gamma-Dynacare Laboratories, Hospitals-In-Common Laboratories, Canadian Forces Base Kingston, Royal Military College, and a number of family physicians and dermatologists in the Kingston and surrounding communities.

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AWARDS AND SIGNIFICANT EVENTS

PERSONNEL AWARDS AND SIGNIFICANT EVENTS

AWARDS

CIHR – CANADA RESEARCH CHAIRS

Dr. Susan Cole (Cancer Biology) and **Dr. David Lillicrap (Molecular Hemostasis)** were awarded Tier 1 Canada Research Chairs, 2001 – 2008.

BRITISH MEDICAL ASSOCIATION MEDICAL BOOK COMPETITION

Dr. Susan Cole was commended in the Basic and clinical sciences category for *ABC Proteins: from bacteria to man* (co-editor).

ONTARIO HEART & STROKE FOUNDATION OF ONTARIO

Dr. David Lillicrap has been an Ontario Heart and Stroke Foundation Career Investigator since 1995.

SAUL KOREY LECTURESHIP AWARD

The American Association of Neuropathologists has commended **Dr. Sam Ludwin** for his distinguished service contributions.

KGH STAFF RECOGNITION AWARD

Dr. Dick Zoutman and the Infection Control Service Team received this award.

CHICA-CANADA

Dr. Dick Zoutman received the CHICA-Canada and Eastern Ontario Professionals in Infection Control Recognition Award.

SIGNIFICANT EVENTS

Dr. Robert More, Past Head of the Department and Emeritus Professor, passed away on Tuesday, August 5, 2003.

Mrs. Linda Fidler, Microbiology Manager, retired effective June 30, 2003.

Dr. Timothy Karnachow, Clinical Microbiologist, resigned effective July 31, 2003.

Dr. Robert Kisilevsky, Past Head and Professor, retired effective June 30, 2003.

Mrs. Marg McIlroy, Administrative Assistant, since 1969 retired June 30, 2003.

Dr. Harriet Feilotter was hired as a Term Adjunct Appointment effective January 1, 2003.

Dr. Tadaaki Hiruki was hired as an Assistant Professor effective October 1, 2003, replacing Dr. Sally Ford.

Mr. John Stoneman was hired as Administrative Director, effective February 1, 2003.

Mrs. Maria Dickson was hired as Financial Administrative Assistant, effective August 5, 2003.

CANCER RESEARCH INSTITUTE

The CRI opened and Roger Deeley was named its Director.

ENRICHMENT MINI-COURSE 2003

“Hands-On” Forensic Pathology takes High School Students by Storm

Throughout the first week of May, Queen’s university was host to over two thousand visiting students who participated in the High School Enrichment Mini-Course (EMC) program. The E=MC² program provides gifted Ontario high-school students with the opportunity to study a discipline of their choice at an advanced level for one week. The program provides participants with a challenging alternative learning experience and introduces them to the university environment. Hands-On Pathology, the highest requested course offered this year, was coordinated and instructed by Fiona Rawle, with Julie Shaw, Julie Yome, and Lee O’Brien also giving instruction. Throughout the week of May 5th 2003, 60 talented Ontario grade 11 and 12 students were exposed to elements of forensic pathology, gross anatomy, human genetics, cancer, viruses, gene therapy, infectious diseases, epidemiology, immunology, and ethics. The students had significant hands-on exposure to relevant plastinated pathology specimens and learned the steps involved in the processing of surgical samples, taking patient histories, and performing autopsies. The students were especially enthralled with the opportunity to solve their very own “forensic case”. Each student received a forensic case, complete with witness, police, and autopsy reports, wherein they needed to determine the cause of the victim’s death by week’s end. The students would request additional information (such as genetic analysis and toxicology analysis) at the end of each day to try to get closer to their determination of the cause of death. At the end of the week, students presented their cases, and were able to challenge each other on the diagnosis – a truly eye opening experience for many of the students. Students deduced such causes of death as hit by lightning, myocardial infarction, botulism poisoning, hypothermia, meningitis, and carbon monoxide poisoning. One student went so far as to identify the breed of wildcat that killed her victim, by analyzing the genetic make-up of the bacteria found in the wound (this bacteria lives only in the mouth of one specific species of cat).

The students were introduced to numerous aspects of forensic investigation, including autopsy pathology, field investigation, trace evidence, DNA analysis, firearms examination and toxicology. By week’s end, the words trace, VNTRs, *livor mortis* and serology had become routine vocabulary. In addition to the forensic cases, a segment on CSI-fact or fiction was introduced this year. The students participated in competitions, wherein they would identify the aspects of the popular CSI (Crime Scene Investigation) television series that are and are not scientifically possible. Daily guest speakers, including John Rossiter, Sandy Boag, Sherry Taylor, Lloyd Kennedy, Karen Harrison, and David Hurlbut, also enthralled students with their intriguing and current lecture material.

The goal of this class was to develop skills of observation and interpretation needed to analyze human disease, and by the end of the session students had gained research awareness such that they could, with the help of the library, determine a potential diagnosis and explain possible mechanisms of the disease when provided with the clinical history, anatomical lesions, and laboratory data of a patient. Post-session student evaluations notably confirmed that the course fostered both enthusiasm for science and an understanding of the multidisciplinary nature of pathology. The organizers of the course would like to formally thank the Department of Pathology for its continued support of the Pathology Enrichment Mini-Course and also the series of guest speakers, without whom the course would not have been as valuable and constructive.

Due to the overwhelming success and positive feedback of the course, the Pathology department has been asked to put on an additional course in the summer session, running from August 18th to 22nd. If you are interested in contributing to the course by giving a guest lecture, please contact Fiona Rawle at 9femg@qmlink.queensu.ca

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**UNDERGRADUATE, GRADUATE AND POSTGRADUATE
EDUCATIONAL PROGRAMS**

UNDERGRADUATE PROGRAMME

Phase I Pathology is given in the academic year from mid-November to mid-February to first year medical students. Enrolment was 100 for 2003-2004.

Phase II Pathology is given after Phase I to 2nd year medical students but not in a Pathological Unit as such, but rather as a course combined with many other disciplines. Enrolment was 100.

Rehabilitation Medicine 225 (Winter 2003) The Department of Pathology continues its involvement in the Pathology Unit of this course. The Unit, which runs for five hours, contains sections on Inflammation & Tissue Healing (Dr. P. Isotalo), Neoplasia (Dr. T. Childs), Disturbances of Growth and Development (Dr. D. Dexter) and Neuromuscular Tumours of the CNS (Dr. J. Rossiter). The Pathology section of the course is coordinated by Dr. Iain Young. 80 students were enrolled.

Pathology 410 (Fall 2003) is a half credit course that runs concurrently with **Pathology 824**, in the Fall term and is coordinated by Dr. John Rossiter. It is offered to 4th year Life Sciences (non-medical) and graduate students. Fifty-nine undergraduate students enrolled in this course in 2003. Evaluation for undergraduate students includes a mid-term and final exam whereas graduate students, in addition to the exams, are expected to submit a term paper.

Pathology 425 (Winter 2003)“Current Topics in Human Genetics” is a half credit course offered primarily to Life Science students and coordinated by Dr. Lois Mulligan. This course is taught by multiple instructors and includes lectures, student seminars and group discussions. Enrolment in 2003 was 10.

Pathology 430 (Winter 2003) is a half-credit course that is offered concurrently with **Pathology 826** in alternate Winter terms. Drs. Robert Kisilevsky and David Lillicrap are Coordinators. Four diseases are covered in depth, examining the molecular events leading to the development of these disorders. Enrolment is limited to 12 with preference given to graduate students. Evaluation includes seminar presentations and written reports. Two undergraduate students enrolled in the Winter 2003 session.

Pathology 499 (Fall/Winter 2003/2004) is a one and a half credit thesis project course coordinated by Dr. David Lillicrap and Dr. Robert Kisilevsky. Department faculty members supervise students on a year-long thesis project. Evaluations include a draft thesis introduction, seminar presentation, project defense, laboratory work evaluation and a written thesis. Uniform guidelines were then distributed to all participating departments. Enrolment is limited to approximately 12 students; 11 were enrolled in 2002-03; 14 were enrolled in 2003-04.

Life Sciences 422 is a half-credit, inter-disciplinary course offered through the Life Sciences Department in cellular / molecular neuroscience. The course is based on lectures and student seminars of selected readings. Sections are taught by faculty in Pathology (J. Rossiter), Physiology and Anatomy & Cell Biology. Enrolment was 16.

GRADUATE PROGRAMME

The Graduate Programme in the Department of Pathology and Molecular Medicine is administered by the Graduate Programme Committee. The Committee consists of four members of the Department, one of whom is designated Co-ordinator, plus the Head of the Department (Dr. Iain Young) and two graduate student representatives *ex officio*. Dr. Peter Greer continued as Co-ordinator of the Program and Chair of the Department of Pathology Graduate Committee during 2003. Faculty members from January to June 2003 were Drs. David LeBrun, Karen Harrison and Dr. Leda Raptis. Drs. Harrison and LeBrun resigned from the Committee as of June 30 and were replaced by Drs. Harriet Feilotter and John Rossiter. The student representatives until July 1, 2003 were Ted Wright and Fiona Rawle. Ted Wright continued his position for the 2003-2004 academic year but Fiona stepped down and Lee O'Brien took her place. The Committee met on a monthly basis to make decisions on admissions; review student progress; discuss Comprehensive topics; review membership of Comprehensive, Master's and Doctoral examining committees; set stipend rates; and recommend students for scholarships and awards.

Thirty-three students were registered during the 2003 calendar year, 14 in the PhD Program and 19 in the Master's Program. Brian Brown, Lee Fraser and Bob St. Onge, all doctoral students, defended their theses in 2003. Students receiving their Master's degrees were Martin Kang, Sarah Kinkley, Catherine Lin, Julie Shaw, Donna Situ and Joanna Wojcik. PhD students who defended their comprehensive proposals were Deb Greer, Glen MacLean, Lee O'Brien, and Adina Vultur. .

Department of Pathology and Molecular Medicine graduate students completed and were successful in the following funding competitions for the 2003/04 academic year. Ontario Graduate Scholarships were awarded to Peter Truesdell and Adina Vultur. Glen MacLean continued in his second year of an NSERC. The National Cancer Institute of Canada continued to fund Bob St. Onge until his graduation. An Ontario Graduate Scholarships in Science & Technology was awarded to Deborah Greer. Ted Wright was funded by a US Army initiative. Brandy Hyndman and Angela Hui were awarded R. J. Wilson Fellowships (two year awards if eligible). A tuition bursary was awarded to Xuefei Tian to cover the difference between foreign and domestic tuition fees.

Approximately 50 hard copies of application packages were mailed to applicants in the first half of 2003. Twenty-three applications were received and processed resulting in 13 students being conditionally accepted; and of those, seven new students were accepted into research programs by supervisors in 2003. In mid-summer the Graduate School began the testing process for a new on-line application system and requested that no further application packages be distributed if possible. Upon activation of the new system in early December, the Department immediately received a large volume of pre-applications for the 2004/05 academic year for approval.

RECRUITMENT INITIATIVES:

The Department of Pathology was represented at the Life Sciences careers evening in January. Many 3rd and 4th year students indicate their interest in 4th year projects or graduate studies at this event. In addition, the Department has a limited budget to invite excellent students to visit the Department from other centres. The Department of Pathology Graduate Studentship Award continues to be available to compete for recruitment of exceptional candidates. Together, these initiatives have improved the profile of the Department of Pathology in the Life Sciences programme and recruitment for graduate studies.

OUTREACH:

During the past year, several outreach initiatives involving graduate students and Faculty members in the Department have continued. Some students as well as some members of the Department have been involved in a Cancer Conference presented to some of the local public schools. This programme is organized by faculty and students in the Departments of Oncology, Biochemistry and Pathology. In addition, interested graduate students have been involved as judges for the Frontenac Lennox & Addington Science Fair. The Department of Enrichment Studies offers a Pathology course for gifted high school students across Canada. These two one-week sessions run in April/May and offer high school students a good overview of Pathology. The course will be run again in 2003.

GRADUATE STUDENT PRESENTATIONS:

Graduate students were honoured by invitations to present their research at national/international conferences. These are outlined below:

Lee O'Brien, PhD Student (David Lillicrap)

ISTH, July 12-18, 2003, Birmingham, UK

“An ancient von Willebrand disease (vWd) mutation that associates with a common haplotype in ~14% of type I vWd patients:”

American Society of Hematology, December 2003, Sand Diego, CA

“A novel von Willebrand factor splice site mutation (IVS26+2g>a) resulting in exon skipping of two nonadjacent exons in type 2A von Willebrand disease”

Angela Hui, MSc Student (Bruce Elliott)

CBCRI Reasons for Hope Meeting, October 25-27, 2003, Ottawa, Ontario

“c-Src tyrosine kinase regulates cell-matrix adhesion-dependent activation of Met and cell migration in breast carcinoma cells.”

Brandy Hyndman, PhD Student (David LeBrun)

American Society of Hematology 45th Annual Meeting, December 6-9, 2003

“Two Activation Domains on E2A Transcription Factors Cooperate To Recruit Co-Activator Proteins and Induce Target Gene Transcription. Session”

Fiona Rawle, PhD Student (David Lillicrap)

American Society of Hematology 45th Annual Meeting, December 6-9, 2003

“Oral administration of factor VIII contributes to the prevention of anti-factor VIII antibody development after protein infusion and prolongs factor VIII transgene expression post-adenoviral gene transfer”

Patrick Smith, PhD Student (Peter Greer)

American College of Rheumatology Conference, October 13-18, 2003, Orlando FL.

“Examination of the Metabolic and Genetic Effects of N-Acylated Glucosamines on Articular Chondrocytes”

Canadian Arthritis Network Nov 13-16, Montreal, PQ. “Examination of the Metabolic and Genetic Effects of N-Acylated Glucosamines on Articular Chondrocytes”

Peter Truesdell, PhD Student (Peter Greer)

43rd American Society for Cell Biology Annual Meeting. San Francisco, CA, December 10-14, 2003

“Characterization of Fps/Fes protein tyrosine kinase function in the mouse mammary gland during lactation.”

Douglas Richardson, MSc Student (Lois Mulligan)

American Society of Human Genetics, November 4-9, 2003, Los Angeles, CA

"Inducible Gene Expression Models for MEN2A and MEN 2B forms of RET" J L V Shaw, S D Andrew, D S Richardson, S M Myers, J L Yome, L M Mulligan

Joanna Wojcik, MSc Student (Bruce Elliott)

Canadian Breast Cancer Conference (CBCRA), Ottawa, October 25th, 2003.

" A novel activating function of Stat3 on the HGF promoter in breast cancer".

Adina Vultur (PhD Student – Dr. L. Raptis)

94th Annual Meeting of the American Association for Cancer Research.

Washington, D.C., July 11-14, 2003

1-"Stat3 activation in confluent cells."

2-"In situ electroporation of peptides for the study of the Ras and Stat pathways."

Queen's Sixth Annual Meeting for Basic and Clinical Research Trainees, May 28, 2003

"Cell to cell adhesion modulates Stat3 activity."

Deborah Greer (PhD Student – Dr. S. Davey)

94th Annual Meeting of the American Association for Cancer Research (AACR) -

Washington, DC

“Localization of the G2 checkpoint protein hRad9 to sites of DNA damage and synthesis and associated proteins”

Lilia Antonova (MSc Student – Dr. C. Mueller)

CBCRA Reasons for Hope 2003 Breast Cancer Conference, October 25-27, Ottawa, Canada.

"Stress and Breast Cancer: Regulation of BRCA1 Expression by Hydrocortisone"

RESEARCH SEMINAR SERIES

Invited Speakers

- Dr. Andras Kapus**, University of Toronto and Toronto General Hospital
“Osmotic Stress-induced Signaling: the Role of Rho Family GTPases and Tyrosine Kinases”
- Dr. William Gibson**, Cambridge Institute for Medical Research (Addenbrooke’s Hospital Site), United Kingdom
“Monogenic Non-Syndromic Obesity in Humans”
- Dr. Anne Bassett**, University of Toronto (Partington - Simpson Lectureship)
“The Adult Phenotype of 22q11 Deletion Syndrome”
- Dr. Mark Ropeleski**, Division of Gastroenterology, GI Disease Research Unit, Queen’s University
“Epithelial Cytoprotection: Future Therapeutic Targets in Idiopathic Recurrent Intestinal Inflammation”
- Dr. Jeff Weitz**, Henderson Research Centre and McMaster University, Hamilton, Ontario
“Low-Molecular-Weight Heparan, the Next Generation: from Molecules to Therapeutics”
- Dr. Guy Sauvageau**, Clinical Research Institute of Montreal, Quebec
“Hox and Polycomb Group Genes Control Stem Cell Self Renewal”
- Dr. Tony Pawson**, Samuel Lunenfeld Research Institute, Mount Sinai Hospital, Toronto, ON
“Protein Interaction Domains and Cellular Engineering”
- Dr. Juliet M. Daniel**, Department of Biology, McMaster University
“Transcriptional Repression by the Bimodal POZ Transcription factor Kaiso”
- Dr. Jack Lilien**, Department of Biological Sciences, University of Iowa
“An Epigenetic Kinase/Phosphatase Regulatory Loop Controls Tyrosine Phosphorylation of Beta Catenin and Cadherin Function”
- Dr. Xiaolong Yang**, Department of Genetics, Howard Hughes Medical Institute, Yale University School of Medicine
“The Tumor Suppressor LATS1 is a Novel Regulator of Cell Cycle, Apoptosis and Actin Dynamics”
- Dr. David Picketts**, Department of Biochemistry, Microbiology and Immunology, The University of Ottawa
“Regulation of Chromatin Structure: A Common Cause of Mental Retardation?”
- Dr. Nicole Ward**, Division of Molecular and Cellular Biology, Sunnybrook & Women’s College HSC
“Determining a Role of Angiopoietin-1 During Development: Sprouting Angiogenesis, Coronary Vessel Development and Neurite Outgrowth?”

Graduate Student Presentations

- Deborah Greer**, PhD student, Dr. Davey’s Lab
“DNA Damage Response of G2 Checkpoint Protein hRad9”
- Adina Vultur**, PhD student, Dr. Raptis’ Lab
“Cell to Cell Adhesion Modulates Stat3 Activity”
- Naomi Dore**, MSc student, Dr. Petkovich’s Lab
“Differential Regulation of Inducible and Constitutive CYP26A1”
- Catherine Lin**, MSc student, Dr. Petkovich’s Lab
“Development of Transgenic Mice Over-expressing hCyp26A1”
- Julie Shaw**, MSc student, Dr. Mulligan’s Lab
“Inducible RET Systems, What Comes Next?”
- Julie Yome**, MSc student, Dr. Mulligan’s Lab
“Multiple Endocrine Neoplasia Type 2B: Unraveling the Molecular Mystery”

Donna Situ, MSc student, Dr. Cole's Lab

“Characterization of Charged Amino Acids in the Third Membrane Spanning Domains of MRP1: Role in Substrate Specificity and Transport”

Fraser Clark, MSc student in Dr. Cole's Lab

“Elucidation of the Extracellular Topology of Multidrug Resistance Protein 1 using Scanning Cysteine Mutagenesis”

Patrick Smith, MSc student, Dr. Anastassiades & Dr. Greer's Lab

“The Effects of N-acetylated Glucosamines on Articular Chondrocytes”

Jimson Wong, MSc student, Dr. Davey's Lab

“Genetic Characterization of uve1 in Oxidative Damage Repair”

Joanna Wojcik, MSc student, Dr. Elliott's Lab

“An Activating Function of Stat3 on the HGF Promoter in Breast Carcinoma Cells”

Angela Hui, MSc student, Dr. Elliott's Lab

“A Novel Interaction between the Receptor Tyrosine Kinase, Met, and Cell Adhesion Signaling in Breast Cancer”

Lilia Antonova, MSc student, Dr. Mueller's Lab

“Stress and Breast Cancer: Hydrocortisone Regulation of BRCA1 Expression”

Fiona Rawle, PhD student, Dr. Lillicrap's Lab

“A new Hemophilia A Mouse Model Reveals Strain-specific Differences in the Immune Response to Hemophilia A Treatment via F.VIII Gene Therapy or Protein Replacement”

Lee O'Brien, PhD student, Dr. Lillicrap's Lab

“A Founder von Willebrand Factor Haplotype Associated with Type I von Willebrand Disease”

Ted Wright, PhD student, Dr. Elliott's Lab

“HGF/Met Interaction in Breast Carcinomas; Can we disrupt the autocrine loop?”

Kevin Weigl, PhD student, Dr. Cole's Lab

“Structural and Functional Characterization of an Unglycosylated Multidrug Resistance Protein 1 (MRP1) and its use in Topological Studies”

Naomi Dore, MSc student, Dr. Petkovich's Lab

“Development of Model Systems to Study the CYP26A1 Promoter”

Lilia Antonova, MSc Student, Dr. Mueller's Lab

“BRCA1 – The Possible Link between Breast Cancer and Stress”

COUNCIL OF ONTARIO UNIVERSITIES PERIODIC APPRAISAL

Periodic appraisals of the graduate programs are undertaken at seven year intervals by the Ontario Council on Graduate Studies. In preparation for its next accreditation, a detailed brief outlining all aspects of the Graduate Programme in the Department, was prepared and submitted to the School of Graduate Studies and Research in June 2003, for final submission to the Council of Ontario Universities. OCGS consultants will visit the Department and review the Graduate Program in the Spring of 2004. The previous accreditation in February 1997 resulted in an "A" rating for the Program.

GRADUATE COURSES

The following graduate courses are offered in the Department of Pathology:

Cancer Biology – Pathology 822

Dr. Bruce Elliott coordinates this new course on experimental cancer diagnostics and therapeutics. It was offered in the Fall of the 2003/04 academic year. Twelve students/trainees attended the course.

Cancer Biology - Pathology 823

This course is co-ordinated by Dr. Bruce Elliott. Essential questions in clinical and basic oncology are introduced and discussed. The course is offered in alternate years; Enrolment is limited to 20 students or less. It was not offered in the 2003/2004 academic year.

Graduate Pathology for Non-Medical Students - Pathology 824

The course co-ordinator is Dr. John Rossiter. This course provides a general introduction to the pathological processes involved in common human disease. This course is offered in conjunction with **Pathology 410** annually in the Fall. Two graduate student were enrolled in the Fall of 2003.

Human Genetics - Pathology 825

This course is offered in alternate years in the Winter term. Molecular mechanisms responsible for human disease are discussed with examples of diagnostic studies. It was not run in the Winter of 2003 due to insufficient enrolment. Dr. Lois Mulligan has stepped down as course co-ordinator and a new co-ordinator will be appointed when the course runs again in 2005/2006.

The Molecular Basis of Disease - Pathology 826

This graduate course is offered concurrently with **Pathology 430** in alternate years; enrolment is limited to 15 students or less. The course reviews in detail the pathogenic details of four specific areas of tumour disease. The course co-ordinators were Drs. Robert Kisilevsky and David Lillicrap. New co-ordinators will be appointed for the 2004/2005 academic year. The course was offered in the Winter of 2003. Five graduate students were enrolled.

Research Project in Pathology – Pathology 827

This course is taken by all MSc students and those entering the PhD program without previously completing a MSc degree or the mini-Master's process. The course will normally be completed within the first term but in exceptional circumstances, where English proficiency or academic background is an issue, it may be completed within the first two terms. It was first offered in the Spring of 2003. Seven students enrolled in the Spring and Fall terms of 2003.

Student Name E-mail	Program	Start Date	Supervisor Lab Tele. Address	Supervisory Committee
Antonova, Lilia 483 8734	MSc	09/02	Drs. Mueller /Aaronson	
Almquist, Kurt 286 9464	PhD	09/95	Drs. Cole/Deeley	
Arulanandam, R. 486 3100	MSc	05/03	Dr. Raptis	
Brown, Brian 413 2518	PhD	09/00	Dr. Lillicrap	completed PhD July 29, 2003
Clark, Fraser 477 0558	MSc	09/02	Dr. Cole	
Dore, Naomi 398 9592	MSc	09/02	Dr. Petkovich	
Foley, Jonathan* 428 3693	MSc	09/03	Dr. Cole	withdrew from Path Dec. 31, 2003
Fraser, Lee 290 2264	PhD	05/98	Dr. Davey	completed PhD Dec. 31, 2003
Greer, Deborah 350 2169	PhD	09/00	Dr. Davey	
Gujral, Taranjit* 429 7554	MSc	09/03	Dr. Mulligan	
Hui, Angela 388 5490	MSc	09/01	Dr. Elliott	
Hyndman, Brandy 432 8795	PhD	05/01	Dr. LeBrun	
Kang, Martin 434 2041	MSc	09/99	Dr. Davey	completed MSc April 14, 2003
Kinkley, Sarah 433 4747	MSc	09/00	Dr. Kisilevsky	completed MSc July 31, 2003

Lin, Catherine	366 8934	MSc	09/01	Dr. Petkovich	completed MSc Dec. 23, 2003
MacLean, Glenn	426 5917	PhD	05/01	Dr. Petkovich	
O'Brien, Lee	437 6344	PhD	09/00	Dr. Lillicrap	
Rawle, Fiona	449 1856	PhD	05/02	Dr. Lillicrap	
Richardson, D. *	424 8783	MSc	09/03	Dr. Mulligan	
St. Onge, Bob	403 9030	PhD	09/99	Dr. Davey	completed PhD Sept. 26, 2003
Sharifpoor, Sara*	503 3452	MSc	09/03	Dr. Elliott	
Shaw, Julie	394 1113	MSc	09/01	Dr. Mulligan	completed MSc Aug. 20, 2003
Situ, Donna	394 3477	MSc	09/01	Dr. Cole	completed MSc Oct. 22, 2003
Smith, Patrick	399 1554	PhD	09/03	Drs. Greer/Anastass.	
Theis, Ashley*	431 0217	MSc	09/03	Dr. Deeley	
Tian, Xuefei *	495 6620	MSc	09/03	Dr. Mulligan	
Truesdell, Peter	389 6434	PhD	01/99	Dr. Greer	
Vultur, Adina	366 6180	PhD	09/00	Dr. Raptis	
Weigl, Kevin	402 2721	PhD	09/99	Dr. Cole	
Wojcik, Joanna	458 2262	MSc	09/01	Dr. Elliott	completed MSc Aug 8, 2003
Wong, Jimson	399 8724	MSc	0901	Dr. Davey	
Wright, Ted	404 5468	PhD	09/01	Dr. Elliott	
Yome, Julie	459 8727	MSc	09/01	Dr. Mulligan	

* New students for 2003/2004

POSTDOCTORAL FELLOWS

We had 12 postdoctoral fellows in the department in 2003. They were:

Scott Andrew
Ergul Berger
Gwenaëlie Conseil
Yan Gao
Anass Haimeur
Koji Koike
Christophe Moreau
Makato Osanai
Lea Payen
Waheen Sangrar
Masaru Shibata
Dawei Zhang

POSTGRADUATE MEDICAL EDUCATION

Dr. Caroline Rowlands is the Director of the Postgraduate Education Programme in the Department of Pathology and also the Programme Director of Anatomical and General Pathology. Dr. John Rossiter is the Programme Director of Neuropathology. The Programme Director of Hematopathology is Dr. Lois Shepherd.

Resident Appointments

July 1, 2002-June 30, 2003

Dr. Patricia Farmer	PGY- 4
Dr. Victoria Muniz-Saavedra	APIMG*
Dr. Kristine Roland	PGY -2

*Assessment Program for International Medical Graduates

July 1, 2003-June 30, 2004

Dr. Patricia Farmer	PGY- 4 (July-Dec); PGY – 5 (Jan-June)
Dr. Brian Gannon	PGY - 2
Dr. Marosh Manduch	PGY – 1
Dr. Navid Liaghati-Nasseri	PGY – 1
Dr. Kristine Roland	PGY – 3
Dr. Hessah Al-Sulami	PGY - 2

LECTURES/PRESENTATIONS

Hessah Al-Sulami

- 1) “The Value of Immunohistochemistry in the Assessment of Bone Marrow Disorders”, Pathology Grand Rounds, December 11, 2003.

Brian Gannon

- 1) “Melanocytic Lesions”, Pathology Grand Rounds, November 13, 2003.

Kristine Roland

- 1) “The Power of Flow Cytometry”, Pathology Grand Rounds, October 9, 2003.

ACCREDITATION - ROYAL COLLEGE OF PHYSICIANS AND SURGEONS

The Royal College of Physicians and Surgeons Accreditation of the Anatomical Pathology, General Pathology, Hematopathology and Neuropathology Postgraduate Programs took place in October 1999. RCPS accreditation status for the Queen's Pathology programs is as follows: AP - full approval; GP - inactive; HP - inactive; NP - inactive. The inactive designation reflects that at the time of the survey no residents were registered in these programs. An internal review of the Hematopathology and Neuropathology programs was held in April 2002 and of the Anatomic Pathology Program in December 2002.

CANADIAN RESIDENT MATCHING SYSTEM (CaRMS)

We matched one candidate in the 2003 CaRMS and one candidate in the Ontario International Medical Graduate Program. We also received a resident transfer into the PGY-2 level from Family Medicine.

Thus July 2003 we had four AP residents and two hematopathology residents.

We continue to make an annual presentation to first year medical students to promote pathology as well as being involved in Phase I teaching.

	AGENCY	AMOUNT/YR	DURATION	TITLE OF RESEARCH PROJECT
	Dept. of Pathology (University Startup Funding)	\$30,000.00	2003 - 2005	HPV Testing of Cervical Intraepithelial Neoplasia on Atypical Squamous Cells of Undetermined Significance
G. Cote and 7 others	CIHR (Training Grant in Proteomics)	\$300,000	2002-2008	Proteomics and Protein Function Discovery
	CIHR	\$200,000	2001-2008	Canada Research Chair in Cancer Biology
W. Bennett, and C. Ward	CIHR (Operating Grant #MOP-117690)	\$121,583	2003-2008	Novel aspects of nitroglycerin action: nitrate-induced apoptosis and nitrosative stress
R. Deeley	CIHR (Operating Grant #MOP-10519)	\$182,525	2001-2006	Investigations of MRP-mediated drug resistance and transport
Flynn and 7 others	CIHR (multi-user Equipment/Maintenance Grant)	\$210,347	2002-2005	Multi-user Equipment/maintenance grant
Cole, M. Petkovich	NCIC (311001 – Program Project Core)	\$80,000	2000-2003	Molecular mechanisms of drug resistance
J. S. Cole	NCIC (Terry Fox Program, #11001 – Individual Component)	\$204,610	2000-2003	Multidrug resistance conferred by MRP
G. Flynn and 9 others	CFI/OIT/Industry in Kind	\$1,792,513	2000-2005	Protein Function Discovery
J. S. Tam	HSF (NA 5168)	\$86,182	2003-2006	Functional Studies of the ATP Binding Cassette (ABCA 1)
J. S. Cole	CIHR (Operating Grant #MOP-62824)	\$190,960	2003-2008	MRP mediated multidrug resistance
Cole, R. Deeley, and 10 others	CIHR (Multi-user Equipment/Maintenance Grant #MT-7827)	\$47,640	2001-2004	Maintenance of fluorescence activated cell sorting microscope: a multi-user facility
	Canadian Breast Cancer Research Alliance	\$94,121	2003-2006	Novel interaction between Met and cell adhesion molecules in invasive cancer. A possible therapeutic target
W. Bennett	Queen's University	\$30,000	2003-2005	Startup funds
W. Bennett, Scott Davey and 3 others	Gift from M. Penny through KRCC	\$60,000	2003-2004	Identification of markers to distinguish metastatic tumours that will respond to docetaxel versus anthracycline
K. Harrison, D. LeBrun	Ontario Cancer Research Network	\$300,146	2003-2006	Multi-dimensional profiling of follicular lymphoma
D. LeBrun	Pathology Clinical Trust	\$10,000	2003-2004	A study to assess the use of archival tissue for microarray experimentation.
Scott Davey	Advisory Research Committee	\$6,000	2003-2004	Development of a novel screen for BRCA1 in peripheral blood lymphocytes.
D. LeBrun, T. Baetz, K. Harrison	Ontario Cancer Research Network	\$90,533	2003-2006	Multi-dimensional profiling of follicular lymphoma
	NCIC	\$150,000	2001-2006	A molecular and genetic analysis of the <i>fps</i> gene
	CIHR	\$127,873	2001-2004	A molecular and genetic analysis of the <i>mu</i> gene
	CIHR	\$130,677	2003-2006	Genetic and cell biological analysis of calpain
W. Bennett et al	OAML	\$34,907	2002-2003	Molecular Cytogenetic Evaluation of Subtle Chromosomal Abnormalities by High Resolution Fiber FISH
W. Bennett, J. Belliveau, N. Merritt	PSI Foundation	\$19,999.50	2003-2003	Sentinel lymph node mapping in colon cancer
W. Bennett and 8 others	MAYO Clinic, Pathology & Lab Medicine	\$11,000	2002-2003	Extraskelatal Mesenchymal chondrosarcoma: a clinicopathologic immunohistochemical, Molecular and molecular analysis of 20 cases.
	University Initiation Grant	\$30,000	2003-2005	Folate metabolism and carcinogenesis.
W. Bennett and B. Elliott	Clare Nelson Foundation	\$10,000	2003-2004	Gene expression profiles associated with MicroRNA signaling networks in invasive human breast cancer

	AGENCY	AMOUNT/YR	DURATION	TITLE OF RESEARCH PROJECT
I B. Elliott	Path. Clinical Trust Fund	\$10,000	2003-2004	Ezrin and Met expression profile in invasive cancer.
	NCIC	\$156,915	2003-2006	The role of acetylation in regulating the leu E2A-PBX1.
	CIHR	\$11,580	2003-2004	Elucidation of biochemical, biophysical and of the interaction between E2A transcription CBP/p300.
	CIHR	\$92,640	2000-2003	Elucidation of protein-protein interaction in terminus of E2A.
	CRS	\$57,000	2001-2003	Transcriptional repression of AML1-RUNX leukemogenic transcription factor E2A-PBX1
	HSF	\$88,944	2000-2005	Influence of genotype and environment on expression of von Willebrand factor.
	CIHR	\$80,908	2000-2003	The molecular genetic basis of Type I von Willebrand factor.
	Can. Hemophilia Society.	\$43,696	2002-2004	Aminoglycoside antibiotic treatment to suppress mutations in severe hemophilia.
	CIHR	\$170,467	2002-2007	Gene therapy for hemophilia A: studies of host immune response.
	Bayer	\$72,500	2002-2004	Evaluation of a DNA microarray-based strategy for gene determination in hemophilia.
	National Centers of Excellence	\$76,000	2001-2003	Stem cell therapies for hemophilia A.
	CIHR	\$155,621	2003-2008	Pathophysiologic mechanisms of von Willebrand factor biosynthesis.
	National Centers of Excellence	\$64,250	2003-2005	Genetically modified, autologous stem cell therapy for hemophilia A.
	HSF	\$112,600	2000-2005	
	SWEP, Queen's	\$7,380	2003	Pathology Research Assistant – Cancer Biology
J. Rossiter, P. A. Greer	CIHR	\$136,802	2001-2004	Investigating Functional Differences Between Isoforms in Cell Growth and Development.
J. Rossiter, P. A. Greer	NCIC	\$45,445	2001-2004	Investigating Functional Differences Between Isoforms in Cell Growth and Development.
S. Cole, R. Deeley, P.A. Greer and 6 others	CIHR (Training Grant in Cancer)	\$300,000	2002-2008	Transdisciplinary training Program in Cancer Biology
<u>J. Rowlands, S. Steele</u>	Diagnocure Inc.	\$5,000	2000 - present	Evaluation of Urine Based Markers for Transitional Cell Carcinoma.
pt, K. Aronson, W. Hanna	Canadian Breast Cancer Research Initiative	\$56,476	2000-2003	Steroid Receptor Content of Benign Breast Tissue and Breast Cancer Risk.
<u>K. Aronson, Jennifer Fergenbaum</u>	KGH Clare Nelson Bequest	\$15,516.75	2001-2003	Breast Cancer Risk in Relation to Her 2/neu Expression and Exposure to Oral Contraceptives
<u>K. Pritchard, P. Watson, M. Pollak</u>	NCIC	\$47,399	1997-2003	A tumour, tissue and clinical data bank for breast cancer patients participating in NCIC CTG clinical trials
<u>J. Pater and 6 others</u>	NCI US Intergroup	\$1,136,984	1998-2003	NCI US intergroup award.
<u>T. Whelan</u>	NCIC	\$300,000	1999-2003	A randomized trial of regional radiotherapy for breast cancer.
<u>K. Pritchard, et al</u>	CBCRI	\$122,939	1999-2004	The role of Neu-Erb B-2 as a predictive factor for response to adjuvant chemotherapy and tamoxifen
<u>J. Pater, et al</u>	NCIC Clinical Trials Group	\$3,761,902	1999-2004	NCIC clinical trial.
and NCIC CTG	Bristol Myers Squibb Canada Inc.	\$166,666	2000-2006	A phase II adjuvant trial of sequenced EC + Taxol vs. sequenced AC followed by Taxol for premenopausal women and post menopausal women

	AGENCY	AMOUNT/YR	DURATION	TITLE OF RESEARCH PROJECT
and NCIC CTG	Pharmacia & Upjohn	\$497,233	2000-2005	A phase II adjuvant trial of sequenced EC + Taxol vs. sequenced AC followed by Taxol for premenopausal women and post menopause
and NCIC CTG	Berlex Canada Inc.	\$195,832	2002-2006	A Phase II study of oral Fluorouracil Phosphate with previously untreated chronic lymphocytic leukemia
I.R. Carter and 7 others	Ontario Women's Health Council	\$475,000	2003-2005	Research on a new genetic mutation screening method for hereditary breast and ovarian cancer.
M. Loeb, A. McGeer, A. Simor	US Health, Ctr for Disease Control and Prevention	\$76,667	2000-2003	Assessment of diagnostic/treatment algorithm for bacterial meningitis.
<u>D. Hunter</u> , K. MacDonald	National Defense	\$146,119	2001-2003	Health outcomes study after anthrax vaccination
and Canadian Nosocomial Infection Control Program Members	Health Canada	\$10,000	2000-2003	Resources for infection control in hospitals.
and Canadian Public Health	Canadian International Development Agency (Agreement)	\$408,684	2001-2004	Strengthening infection control in the Balkans
and Canadian Nosocomial Infection Control Program Members	Health Canada (Agreement)	\$25,000	2002-2004	Canadian surgical wound surveillance.
and Canadian Nosocomial Infection Control Program Members	Health Canada (Agreement)	\$25,000	2002-2003	Point prevalence of nosocomial infections.
<u>A. McGeer</u> , <u>E. Rae</u>	Ministry of Health	\$727,058	2003-2004	SARS outbreak studies.
<u>J. Drover</u> , M. Jain, D. Heyland, S. ...	Wyeth Laboratories (Agreement)	\$8,076/case	2002-2004	Multi-center study of tigecycline in intra-abdominal infections.

*Underlining denotes principal investigator.

**DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE
ANNUAL REPORT 2003
VISITING LECTURERS**

VISITING LECTURERS

2003

INVITED SPEAKERS

NAME	TITLE	DATE
Dr. John Veinot Associate Professor, Department of Pathology and Laboratory Medicine, University of Ottawa, Ottawa Hospital	Coronary Artery Disease: Native and Interventional Pathology”	January 9, 2003
Dr. Andrew MacRae Director, The Research Institute at Lakeridge Health	The Evidence Base for Improvements Prenatal Screening for Fetal Trisomies	January 23, 2003
Dr. Andras Kapus Toronto General Hospital	Osmotic Stress-Induced Signaling: the Role of Rho Family GTPases and Tyrosine Kinases	January 28, 2003
Dr. Rosamund Woodhouse Director, Office of Health Sciences Education, Queen’s University	Overview of the Teaching Dossier	February 13, 2003
Dr. William Gibson Cambridge Institute for Medical Research (Addenbrooke’s Hospital Site) United Kingdom	Monogenic Non-Syndromic Obesity in Humans	February 14, 2003
Ms. Anne Smithers Library System, Queen’s University	Innovations and Controversies in Scholarly Communication	March 6, 2003
Ms. Suzanne Maranda Library System, Queen’s University	Bracken Library at your Fingertips	March 6, 2003
Professor Ulf Lindahl Department of Medical Biochemistry and Microbiology, Uppsala University, Uppsala, Sweden	Heparan Sulfate – A Versatile Polysaccharide: Structure, Biosynthesis and Function (The 3 rd Nathan Kaufman Visiting Lecturer)	March 10, 2003
Dr. Luc Oligny Department of Pathology and Cellular Biology, Universite de Montreal and Hopital Sainte-Justine, Montreal, QC	Cancer and Epigenesis – A Developmental Perspective (The 2 nd M. Daria Haust Visiting Lecturer)	May 28, 2003
Dr. David Viswanatha University of New Mexico HSC, Albuquerque, NM	Fluorescent Ligation Detection and Flow Cytometry for Identification of Amplified specific Nucleic Acid Sequences	June 12, 2003
Ms. Tara Lohmann Summer Student, Department of Pathology, Queen’s Medical Student	West Nile Virus	July 24, 2003
Mr. Wai-Ben Wong Summer Student, Department of Pathology, Queen’s Medical Student	Suicide and Assisted Suicide: A Look at History, Culture and Medicine	July 31, 2003
Dr. Nicole Ward Postdoctoral Fellow, Division of Molecular and Cellular Biology, Sunnybrook & Women’s College HSC	Determining a Role for Angiopoietin-1 During Development: Sprouting Angiogenesis, Coronary Vessel Development and Neurite Outgrowth?	September 16, 2003
Dr. David Picketts Scientist Ottawa Health Research Institute	Regulation of Chromatin Structure: A Common Cause of Mental Retardation?	September 18, 2003

Dr. Xiaolong Yang Howard Hughes Medical Institute, Department of Genetics, Yale University School of Medicine, New Haven, CT	The Tumour Suppressor LATS1 is a Novel Regulator of Cell Cycle, Apoptosis and Actin Dynamics	September 23, 2003
Dr. Jack Lilien Professor and Chair, Department of Biological Sciences, University of Iowa	An epigenetic Kinase/Phosphatase Regulatory Loop Controls Tyrosine Phosphorylation of Beta Catenin and Cadherin Function	September 29, 2003
Dr. Parvin Mousavi School of Computing, Queen's University	Biological Computing: From Chromosomes to Genes (Cancer Research Institute Seminar)	October 2, 2003
Dr. Juliet Daniel Department of Biology, McMaster University	Transcriptional Repression by the Bimodal POZ Transcription Factor Kaiso	October 14, 2003
Dr. Christopher Slapak Senior Director, Cancer Research and Clinical Investigation, Eli Lilly & Co.	Resistance to Gemcitabine: Clinical Insights and Molecular Correlates (CRI Seminar)	October 16, 2003
Dr. Cynthia Forster-Gibson Department of Family Medicine, Queen's University (Department of Pathology and Molecular Medicine cross-appointee)	Genetics and Dual Diagnosis	October 29, 2003
Drs. Charles Graham Department of Anatomy and Cell Biology, Queen's University	Nitric Oxide and the Regulation of Tumour Cell Responses to Hypoxia	October 30, 2003
Dr. Tony Pawson Samuel Lunenfeld Research Institute, Mount Sinai Hospital, Toronto	Protein Interaction Domains and Cellular Engineering	November 4, 2003
Dr. Patti Groome Division of Cancer Care and Epidemiology, QCRI	Optimizing Outcomes in Laryngeal Cancer (CRI Seminar)	November 6, 2003
Dr. Guy Sauvageau Institut de Recherches Cliniques de Montreal, Director, Laboratory of Molecular Genetics and stem Cells, Montreal	Hox and Polycomb Group Genes Control Stem Cell Self Renewal	November 11, 2003
Dr. Jeff Weitz Professor of Medicine and Biochemistry, McMaster University, Director of the Henderson Research Centre, Hamilton, ON	Low-Molecular-Weight Heparin, the Next Generation: From Molecules to Therapeutics	November 25, 2003
Dr. Jennifer MacKenzie Department of Pediatrics (cross-appointee in Pathology and Molecular Medicine)	Rett Syndrome – an Evolving Phenotype	November 26, 2003
Dr. Mark Ropelski Division of Gastroenterology, GI Disease Research Unit, Queen's University	Epithelial Cytoprotection: Future Therapeutic Targets in Idiopathic Recurrent Intestinal Inflammation	December 2, 2003
Dr. John MacKey Associate Professor, Experimental & Medical Oncology, University of Alberta	Pharmacogenetics of Three Solid Tumour Drugs: Progress Toward Predictive Assays for Gemcitabine, Capecitabine and Epirubicin (CRI Seminar)	December 11, 2003
Dr. Anne Bassett Professor of Psychiatry, University of Toronto and Director of the Clinical Genetics Research Program, Centre for	The Adult Phenotype of 22q11 Deletion Syndrome (2003 Partington-Simpson Lecturer)	December 16, 2003

**SENIOR STAFF
2003
INVITED LECTURES**

Sandy Boag

Local:

- 1) “The Pulmonary Pathology of SARS: Initial Autopsy Findings and an Update on Diffuse Alveolar Damage”, Department of Pathology Grand Rounds, Queen’s University, May 1, 2003.

Tim Childs

Local:

- 1) “Endometrial Intraepithelial Neoplasia: Is it Time for a Change?”, Department of Pathology and Molecular Medicine Grand Rounds, Queen’s University, June 26, 2003.

Susan Cole

External to Kingston:

- 1) Kanazawa University, Kanazawa, Japan, January 28, 2003.
- 2) Grand Rounds, H. Lee Moffitt Cancer Center & Research Institute, Tampa, Florida, April 25, 2003.
- 3) Rotary Club, Cobourg, Ontario, May 30, 2003.
- 4) North Eastern Ontario Regional Cancer Centre (NEORCC), Sudbury, Ontario.
- 5) Nuffield Department of Clinical Laboratory Sciences, John Radcliffe Hospital, Oxford University, Oxford, England, August 21, 2003.
- 6) Auckland Cancer Society Research Center, University of Auckland, Auckland, New Zealand, October 31, 2003.

Invited Conference Papers:

- 1) Joint Meeting – Symposium on “ABC Proteins” and the 5th Conference on “ABC Proteins and Ion Channels – From Gene to Disease”, January 24-26, 2003, Kyoto, Japan.
- 2) “ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease”, 4th FEBS Advanced Lecture Course, March 1-8, 2003, Gosau, Austria.
- 3) “Multi-Drug Efflux Systems”, Gordon Research Conference, March 10-14, 2003, Ventura, CA.

Christine Collier

Local:

- 1) “Troponin Time Profiling AMI”, Cardiology Rounds, Kingston General Hospital.
- 2) “The Dawning of Acute Myocardial Ischemia” (with David Colantonio, Dept. of Physiology), Department of Pathology and Molecular Medicine Grand Rounds, Queen’s University, October 2, 2003.

David Dexter

Local:

- 1) “Whipples Disease: One Hundred Years of Knowledge”, Department of Pathology and Molecular Medicine Grand Rounds, Queen’s University, September 11, 2003.

External to Kingston:

- 1) "Death in Custody (vignettes from the Kingston Experience). Investigations and Pathological Findings in a Prison Population". Coroners and Pathologists of Ontario Education Meeting, September 16, 2003, Vienna, Austria.
- 2) "Puerperal Death Number 1. Annual Education Course for Coroners and Pathologists. November 6, 2003, Mississauga, ON.

Harriet Feilotter

Local:

- 1) "Genomic Medicine: Molecular Diagnostics of the (Near) Future?", Genetics Grand Rounds, Queen's University, 29 January 2003.
- 2) "New Initiatives in the Queen's Microarray Facility", Department of Pathology Grand Rounds, Queen's University, May 8, 2003.

External to Kingston:

- 1) "Microarrays in Veterinary Diagnostics". International Veterinary Vaccines and Diagnostic Conference, July 13, 2003, Guelph, ON.

Peter Greer

External to Kingston:

- 1) "Closing in on the biological functions of Fps/Fes and Fer", Institut de Recherches Cliniques de Montreal, Montreal, Quebec.

Karen Harrison

External to Kingston:

- 1) "Clinical Application of FISH", Michener Institute, April 15, 2003, Toronto, ON.

Tadaaki Hiruki

Local:

- 1) "Tacit Requests to Explicit Contracts: Opportunities for Knowledge Management in Surgical Pathology", Department of Pathology Grand Rounds, Queen's University, February 27, 2003.

David Hurlbut

Local:

- 1) "Total Mesorectal Excision (Time) and Sentinel Lymph Node Biopsy (SLNB) in Colorectal Cancer: Surgical Pathology and Clinical Impact", Department of Pathology and Molecular Medicine Grand Rounds, Queen's University, October 30, 2003.

Phillip Isotalo

Local:

- 1) "Histoplasmosis and Blastomycosis", Department of Pathology and Molecular Medicine Grand Rounds, Queen's University, 23 October 2003.

Tim Karnauchow

Local:

- 1) "Emerging Infections: Is Everything Old New Again?", Department of Pathology Grand Rounds, Queen's University, June 5, 2003.

Mohamed Khalifa**Local:**

- 1) "Genetics of Early Childhood Hearing Loss", Genetics Grand Rounds, Queen's University, February 26, 2003.

External to Kingston:

- 1) "Integrated Prenatal Screening", Grand Rounds, Case Western Reserve University, April 2003, Cleveland, Ohio.

David LeBrun**Local:**

- 1) "Little Strokes Fell Great Oaks: Milestones on the Road from Philadelphia to Gleevec, Pathology Grand Rounds, Queen's University, September 25, 2003,.

David Lillicrap**Local:**

- 1) "Somatic Cell Gene Therapy: Achieving a Balance between Realistic Hope and Destructive Hype", Department of Pathology Grand Rounds, Queen's University, March 27, 2003.

External to Kingston:

- 1) "Hemophilia Gene Therapy – Myth or Reality", Hemostasis 2003: Molecular Challenges and Viral Diseases Conference, 14 January 2003, London, UK.
- 2) "Suppression of Nonsense Mutations in Severe Hemophilia A and B", National Hemophilia Foundation, 6th Gene therapy Workshop, 25 April 2003, LaJolla, CA.
- 3) "The Pathophysiology of von Willebrand Disease", US Hemophilia Clinic Symposium, 20 September 2003, New York, NY.
- 4) "Thrombophilia: Progress Towards the Genetic Characterization of Prothrombotic Traits", Canadian Cardiovascular Annual Congress, 28 October, 2003, Toronto, ON.
- 5) "Hemophilia Gene Therapy: Update", US National Hemophilia Foundation Annual Meeting, 8 November 2003, Salt Lake City, Utah, USA.

Local:

- 1) "Human Gene Therapy; Balancing Hype and Hope", Great Lakes Interurban Club, Kingston, ON.
- 2) "Somatic Cell Gene Therapy: Current Status and Future Challenges", Department of Anatomy and Cell Biology, Queen's University, October 23, 2003.

Samuel Ludwin**Local:**

- 1) "How does Axonal Injury Occurs in and Contribute to Clinicopathological Spectrum of Multiple Sclerosis", Department of Pathology and Molecular Medicine, Queen's University, November 27, 2003.

External to Kingston:

- 1) "Demyelination, Axonal Loss and Inflammation: Is there a relationship?", MS Links: Multidisciplinary Advances in Patient Care, February 9, 2003, The Bahamas.
- 2) "The Pathology of Multiple Sclerosis", The Canadian Network of MS Clinics Multiple Sclerosis Preceptorship, University of Toronto and St. Michael's Hospital, March 21-22, 2003, Toronto, Ontario.
- 3) "Review of MS Pathology", MS Overview-Symposium for Visiting German and Austrian Neurologists, March 24-27, 2003, Ottawa, ON.

- 4) “Pathology and Pathogenesis in Multiple Sclerosis”, Saul R. Korey Lecturer, 2003, American Association of Neuropathologists, June 19, 2003, Orlando, Florida.
- 5) “The Relationship between Demyelination, Axonal Loss and Inflammation in MS”, Atlantic Neurology Conference, August 22-24, 2003, Charlottetown, PEI.
- 6) “Current Issues on MS”, the President’s Symposium on MS at the XVth International Congress of Neuropathology, September 14-20, 2003, Turin, Italy.
- 7) “Axonal Damage: Basic Mechanisms, and the Relationship with Inflammation and Demyelination”, MR Technology to Assess MS Pathology *In Vivo*, An ISMRM workshop, October 9-11, 2003, Venice, Italy.
- 8) “Review of MS Pathology”, Multiple Sclerosis Overview-Symposium for Visiting Italian Neurologists, November 18, 2003, Ottawa, Ontario.

Lois Mulligan

External to Kingston:

- 1) “Controversies in Endocrine Neoplasia Genetics”, UICC Familial Cancer Conference, June 8, 2003, Oklahoma City, Oklahoma, USA.

Dilys Rapson

Local:

- 1) “Activated Protein C: A Novel Treatment Modality for Sepsis”, Department of Pathology and Molecular Medicine Grand Rounds, Queen’s University, December 4, 2003.

John Rossiter

Local:

- 1) “Neurodegenerative Vignettes – a series of short case presentations highlighting aspects of the pathogenesis of neurodegenerative disorders”, Department of Pathology Grand Rounds, Queen’s University, May 22, 2003.

Sandip SenGupta

Local:

- 1) “From Quality Assurance to Total Quality Management: Understanding the Paradigm Shift for our Clinical Laboratories, Department of Pathology Grand Rounds, Queen’s University, May 29, 2003.

Lois Shepherd

Local:

- 1) “The Who, What, When and Why of Myelodysplastic Syndromes”, Department of Pathology Grand Rounds, Queen’s University, January 30, 2003.

Sherry Taylor

Local:

- 1) “Enhancing Genetics Education in Medical School”, Learning Technology Unit, Queen’s University, March 19, 2003.
- 2) “Enhancing Genetics Education in Medical School”, OMEN Rounds, Queen’s University, April 24, 2003.
- 3) “Enhancing Genetics Education in Medical School”, Enhancing Genetics Education in Medical an Approach Using a Web-based Course Program, Eastern Ontario Symposium on Educational Technology, Kingston, December 2, 2003.

Dick Zoutman**Local:**

- 1) “How to Run and Outbreak of an Unknown Virus Ripping Through Major Hospitals and Causing Public Panic”, Department of Pathology and Molecular Medicine Grand Rounds, Queen’s University, November 6, 2003.

Invited Conference Papers:

- 1) “Infection Control Risk Management”, Hospital Risk Management and Medical Error Conference, March 25-26, 2003, Toronto, ON.
- 2) “Developing Partnerships”, NAPIC Conference, September 11-12, 2003, Edmonton, Alberta.
- 3) “Federal Infection Control Planning”, NAPIC Conference, September 11-12, 2003, Edmonton, Alberta.
- 4) “Administrative Management of the SARS Outbreak”, OHA Conference on SARS, November 3, 2003, Toronto, ON.
- 5) “Scientific Management of the SARS Epidemic”, SARS National Conference, November 23-24, 2003, Ottawa, ON.

**DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE
ANNUAL REPORT 2003**

SENIOR STAFF COMMITTEES

Alexander Boag			
Internal		External	
Position	Committee	Position	Committee
Director	Chief of Service, Division of Anatomic Pathology	Local Representative	Cancer Care Ontario, Lab Medicine Program Committee
Chair	Departmental PRTCA Committee		
Member	Departmental Quality and Utilization Improvement Committee	Member	Health Canada, Consensus Group for Development of Standardized Prostate Cancer Reporting Protocols.
Member	Queen's Senate Committee on Information Technology		
Member	KRCC Lung Tumour Board and Site Group		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>Journal Referee: Ad Hoc reviewer for Clinical Cancer Research, Tumour Biology, Cancer and Invasion and Metastases.</p>			

Susan Cole			
Internal		External	
Position	Committee	Position	Committee
Member, Board of Directors	PARTEQ Innovations, Queen's	Member, Nominating Committee	American Association For Cancer Research
Member	Nominating Committee, PARTEQ Innovations, Queen's	Scientific Advisory Board Member	Cancer Care Ontario
Member	University Senate Agenda Committee	Scientific Advisory Board Member	Active Pass Pharmaceuticals
Representative	University Senate Committee	Member, SCOR Grant Advisory Committee	University of Washington, Dept. for Pharmaceutics
Representative	University Joint Board/Senate Committee to Select the Next Principal	Member, Research Advisory Committee	Cancer Care Ontario,
Member	Faculty Scientific Management Committee, PFD	Member, Scientific Advisory Board	Federation of European Biological Societies
Member	Faculty Research/Operation Subcommittee, PFD		
Member	Faculty Board		
Member	Departmental Haust Trust Fund Committee		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>Journal Editorship: Editorial Board, <i>Journal of Biological Chemistry</i>, 2002-2007; Deputy and Senior Editor, <i>Molecular Cancer Therapeutics</i></p> <p>Granting Body Referee: Canadian Institutes of Health Research, Biochemical Pharmacology</p> <p>Journal Referee: Biochemical Pharmacology, British Journal of Pharmacology, Cancer Research – Journal of Bioenergetics and Biomembranes, Journal of Biological Chemistry, Journal of Clinical Investigation, Molecular Cancer Therapeutics, Molecular Pharmacology.</p>			

Christine Collier	
Internal	External

Position	Committee	Position	Committee
Member	University Cross Faculty Teaching Forum Committee	Chair	Professional Development Program, Canadian Society of Clinical Chemists
Member	University Council on Employment Equity	Director	St. Lawrence College, Med Lab Tech Program
Coordinator	Faculty Block Coordinator Phase IIA	President Elect	Ontario Society of Clinical Chemists
Examiner	Faculty Interviewer for Admissions Process	Member	QMPS-LS, General Chemistry Committee
Coordinator	Faculty TIPS coordinator for Faculty and Residents	Advisor	AACC Annual Meeting and Clinical Laboratory Exposition, Abstracts Review/Grading
Member	Faculty PBL Committee		
Member	Faculty Human Rights Office Advisory		
Member	Faculty Evaluation Committee		
Member	School of Medicine Curriculum Committee		
Member	Faculty Student Awards Committee		
Member	Departmental Post Graduate Education Committee		
Member	Departmental Search Committee for Clinical Microbiologist		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Journal Referee: Reviewer for Clinical Biochemistry			

Roger Deeley			
Internal		External	
Position	Committee	Position	Committee
Director	Queen's Cancer Research Institute	Director	Cancer Care Ontario, Division of Research.
Director	Division of Cancer Biology & Genetics, Queen's Cancer Research Institute	Member	Ontario Cancer Research Network, Scientific Advisory Board.
Member	Queen's School of Medicine Council	Advisor	Cancer Initiative Working Group
Member	FHS Basic Science Council	Coordinator	Federation of European Biochemical Societies, Co-organizer of 2003 Conference.
Chair	Queen's CRI Management Committee	Chair	Canadian Institutes of Health Research, Celera Genome Database Strategic Initiative review panel
Member	Departmental PRTCA Committee	Member	Kingston Regional Cancer Centre, KRCC Executive Committee
		Member	Kingston Regional Cancer Centre, KRCC Promotions Committee
		Advisor	Cytochroma Inc., Scientific Advisory committee

Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):

Journal Editorship: Editor for Molecular Cancer Therapeutics

Granting Body Referee: Review funding applications for Heart & Stroke Foundation, Review funding applications for CHIR

Journal Referee: Manuscript Reviews for: Cancer Research, Breast Cancer Research, Biochemical Pharmacology

David Dexter			
Internal		External	
Position	Committee	Position	Committee
Member	University Student Progress and Promotion Committee	Director	MDS Laboratories
Member	Faculty Nominating Committee	Chairman	St. Lawrence College Medical Lab Technology Advisory Committee
President	Hospital Medical Staff		
Vice-President	Hospital Medical Staff		
Member	Hospital Information Management Committee		
Director	HDH/KGH Point-of-Care Testing Committee		
Member	HDH Ambulatory Clinics Committee		
Founder/Member	HDH Special Resources Committee		
Member	HDH Quality Improvement Committee of the Board		
Member	Departmental E2 Regional Coordinating Committee		
Member	Departmental ORLSP E2 Lab Physicians and Scientists Working Group		
Member	Departmental MoCert for the RCPSC		
Member	Department Finance Cte		
Member	Departmental Postgraduate Training Committees		
Member	Departmental Consolidated Division of Hematopathology Cte		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>None</p>			

Bruce Elliott			
Internal		External	
Position	Committee	Position	Committee
Coordinator	Faculty Flow cytometry and confocal microscopy facility	Chair	USAMRMC Breast Cancer Research Initiative Grant Panel (pathobiology I)
Coordinator	Departmental Chair of Cancer Research Seminar Series		
Coordinator	Human breast tumor bank.		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Grant Panel: Chair, USAMRMC Breast Cancer Research Initiative			

Harriet Feilotter			
Internal		External	
Position	Committee	Position	Committee
Director	Hospital Microarray Facility	Member	Molecular Examinations Committee for the CCMG
Member	Hospital CCMG Standing Committee	Member	Evaluation Subcommittee of the Ontario Advisory Committee on Genetics, MOH
Member	Hospital Lab Administration Committee for Molecular Diagnostics	Member	Lab Directors Subcommittee of Cancer Genetics Implementation Committee, MOH
Member	Molecular Diagnostic Advisor for Familial Oncology Case Confs.		
Assoc Director	Molecular Lab DDL Cte		
Member	Departmental Translational Cancer Research Working Group		
Member	Departmental Genetics Cte		
Member	Departmental Graduate Cte		
Member	Departmental Clinical Chemist Search Committee		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Grant Referee: OCRN Tumour Banking Initiative, OCRN Translational Panel			

Peter Greer			
Internal		External	
Position	Committee	Position	Committee
Member	University Animal Care Committee	Chair	NCIC, Grants Review Committee
Member	University Transdisciplinary Training Program, Cancer Research Management Cte	Member	Ontario Research and Development Challenge Fund, Grants Review Committee Member
Member	University Cancer Research Institute, Management Committee		
Member	Faculty Microarray Service Management Committee		
Member	Faculty Animal Advisory Group		
Coordinator	Departmental Graduate Program Cte		
Member	Departmental PRTCA Committee		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>Granting Body Referee: National Cancer Institute of Canada, Ontario Cancer Research Network, Ontario Research and Development Challenge Fund</p>			

Karen Harrison			
Internal		External	
Position	Committee	Position	Committee
Member	Medical School Admissions	Chair	Canadian College of Medical Geneticist (CCMG), Examination Committee member, Peace Committee member
Director	Hospital Cytogenetics Laboratory	Chair	Canadian College of Medical Geneticist (CCMG), Standing Fellowship committee
Coordinator	Division of Lab Genetics	Member	Ontario Graduate Scholarships Program
Member	Departmental AP Search Committee	Member	QMPLS Genetics
Chair	Departmental Laboratory Genetics Administration Cte		
Chair	Departmental Medical Genetics Grand Rounds		
Member	Departmental Clinical Trust Fund Committee		
Member	Departmental Finance Committee		
Member	Departmental Quality Assurance Committee		
Chair	Departmental Quality Assurance Committee		
Member	Nesheim Award Committee		
Committee Member	Departmental Graduate Studies Committee		
Representative	Hospital OLA Meetings		
Member	Hospital Prenatal		

Procedures Meeting
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):
None

Tadaaki Hiruki			
Internal		External	
Position	Committee	Position	Committee
Member	Pathology Rounds	Member	Canadian Association of Pathologists
		Member	American Medical Informatics Association Genomics Working Group
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Website: Description of a pathologist’s work for non-medical people. Description of a morgue for non-medical people.			

David Hurlbut			
Internal		External	
Position	Committee	Position	Committee
Member	KRCC GI Site Group	Member	OAP
Member	Departmental AP and GP Residency Training Committee		
Member	Faculty GI Residency Training Committee		
Director	Departmental Library Resources Committee		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
None			

Phillip Isotalo			
Internal		External	
Position	Committee	Position	Committee
Member	Department Microarray Laboratory Management Cte		
Member	Departmental Translational Cancer Working Group		
Co-Investigator	OCRN Tumour Bank Management Committee		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Journal Referee: Journal of Clinical Pathology			

Mohamed Khalifa			
Internal		External	
Position	Committee	Position	Committee

Chair	Hospital Prenatal Procedures Committee	Member	Royal College of Physicians & Surgeons
Attendee	Departmental Division of Genetics Committee	Member	Ontario Ministry of Health
Member	PRTCA	Representative	Assoc. of Professors of Human/Medical Genetics
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
None			

David LeBrun			
	Internal		External
Member	Cancer Biology and Genetics, Queen's CRI	Website Editor	CAP
Member	University Protein Function Discovery Group	Council Member	Canadian Society of Clinical Investigation
Member	University PSI and CSCI/CIHR Annual Resident Awards Cte	Member	American Society of Hematology
Member	University Nanotechnology Steering Committee	Member	RCPSC
Member	Faculty CTAQ	Member	American Association for the Advancement of Science
Member	Faculty Board	Member	OMA
Member	Faculty Microarray Management Committee	Member	OAP
Member	Departmental Hematopathology Division Committee	Member	CPSO
Member	Departmental Graduate Cte	Chair, Awards Committee	Canadian Society of Clinical Investigation
Member	Departmental AP Search Committee		
Member	Departmental (Lillicrap) CRC Search Committee		
Member	Departmental Strategic Planning Steering Committee		
Member	Departmental Residency Training Committee		
Member	Departmental PRTCA Committee		
Member	Queen's/KGH/HDH Staff Meeting		
Member	CaRMS Interview Process		
Member	Departmental Clinical Trust Fund Committee		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Grant Referee: Review applications from Queen's residents for CSCI/CIHR Resident Research Awards; KGH; Leukemia Research Fund; and Pathology Clinical Trust Fund			

Internal		External	
Position	Committee	Position	Committee
Member	Queen's, KGH Staff Meetings	Member	Provincial Hemophilia Program Steering Committee
Member	Faculty Council	Member	Canadian Hemophilia Society
Member	University Animal Care Services Users Committee	Member	American Society of Hematology
Member	University Microarray Laboratory Management Committee	Member	American Society for Gene Therapy
Chair	AA Travill Debate Committee	Member	Canadian Hematology Society
Member	Hospital Blood Utilization Committee	Member	Canadian Blood Services Advisory Committee
Chair	Departmental Research Advisory Committee	Member	World Federation of Hemophilia
Chair	Departmental Clinical Geneticist Search Cte	Member	Association of Hemophilia Clinical Directors of Canada, Factor IX Scientific Subcommittee
Chair	Departmental CRC Research Scientist Search Committee	Chair	Association of Hemophilia Clinic Directors of Canada, vonWillebrand Disease Scientific Subcommittee
		Member	International Society of Thrombosis and Hemostasis, Scientific and Standardization Committee
		Member	Wyeth Genetics Institute Laboratory Advisory Committee
		Member	International Society for Thrombosis and Hemostasis, Standardization Committee on VW Disease
		Member	National Hemophilia Foundation, MASAC
		Member	International Society for Thrombosis and Hemostasis, Scientific Standardization Committee Council
		Member	National Hemophilia Foundation, Gene Therapy Working Group
		Member	Association of Hemophilia Clinic Directors of Canada

Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):

Granting Body Referee: H&S Ontario, Grants Allocation Subcommittee; Canadian Institutes of Health Research, Experimental Medicine Peer Review Committee (Scientific Officer); Canadian Stem Cell Network Scientific Review Committee; Bayer International Hemophilia Awards Review Committee; US National Hemophilia Foundation, Clinical Fellowship Review Committee (Chairperson).

Journal Referee: Nature Genetics; Genomics, Human Genetics; Blood; thrombosis and Hemostasis; American Journal of Human Genetics; Journal of Clinical Pathology; British Journal of Hematology; Hemophilia; Clinical and Laboratory Hematology; Human Gene Therapy; Gene Therapy; Transfusion.

Samuel Ludwin			
Internal		External	
Position	Committee	Position	Committee
Member	Queen's, KGH Staff Meetings	Chair	Canadian Multiple Sclerosis Society
Member	Queen's University Faculty Council	Member	Myelin Project
Member	Animal Advisory Group	President	International Society of

Member	School of Medicine Council	Member	Neuropathology Medical Advisory Board, Int. Fed. Multiple Sclerosis Societies
Member	VPR Research Advisory Group		
Member	Advisory Research Committee (University)		
Chair	Research Advisory Committee (Faculty)		
Member	Dean's/Assoc. Deans Research Group		
Non-Voting Member	SEAMO Governors		
Member	KGH Executive		
Member	HDH Seniors Committee		
Member	MAC/MAC Resources		
Member	PCC Research Advisory Committee		
Member	Research Development Committee		
Chair	Claire Nelson Cancer Fund		
Chair	Faculty of Health Sciences - Research Committee, Botterell, Kelly, Powell Research Funds		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Editorial Board – Journal Editorship, Neuropathology and Applied Neurobiology; Acta Neuropathologica; J. Neuropathology and Experimental Neurology; International Journal Surgical Pathology.			

Paul Manley			
Internal		External	
Position	Committee	Position	Committee
Chair	Faculty Committee, Funding Chair, SEAMO Endowment Grants Committee		
Member	Queen's Departmental Staff Meeting		
Member	Anatomic Pathology Meeting		
Member	KGH Departmental Staff Meeting		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
None			

Lois Mulligan			
Internal		External	
Position	Committee	Position	Committee
Member	University Cancer Research Institute Management Committee	Member	Ontario College of Graduate Studies, Appraisals Committee
Chair	University CIHR Training Program Committee Graduate Program Committee	Panel Member	CIHR, Peer review and evaluation of research operating grants
Member	Departmental Search Cte (Special Research Position, Genetics)		
Member	Faculty Search Cte (CRC Tier I Chair Molecular Epidemiology)		
Member	Departmental Clinical Geneticist Search Cte		
Member	University Microarray Facility Management Cte		
Member	University Transdisciplinary Research Committee		
Member	Faculty Strategic Planning Committee		
Member	Pediatrics Promotions Committee		
Member	Departmental PRTCA Cte		
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Journal Referee: Journal of Medical Genetics, International Journal Cancer, Journal of Endocrinology and Metabolism, Endocrinology, Proc Natl Acad Sci, USA, Oncogene, Human Genetics, Clinical Genetics, Thyroid, Human Gene Therapy, Gene Function and Disease, Cancer Research, Human Molecular Genetics.			
Granting Body Ad Hoc Reviewer: CHIR, US Veterans Administration, Canadian Blood Services			
Granting Body Panel Member: CHIR Cancer "A" Panel			

Dilys Rapson

Internal		External	
Position	Committee	Position	Committee
Member	Queen's/KGH/HDH Staff Meetings	Member	Southeastern Regional Bone Marrow Transplant Planning Group
Member	Faculty Undergraduate Mentoring Program	Member	RCPSC, Examination Board for Hematology
Member	Faculty Hematopathology Residency Training Program		
Member	Faculty Pediatric Hematology/Oncology Cte		
Member	Hospital Hemophilia Comprehensive Care Group		
Member	Departmental Finance Cte		
Member	Departmental E2 Working Group		
Chair	Departmental Outreach Program Transfusion Cte		
Chair	Departmental Outreach Program, Laboratory Quality Assurance Committee		
Member	Hematology/Oncology Residency Training Committee		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>None</p>			

Michael Raymond			
Internal		External	
Position	Committee	Position	Committee
Member	Queen's Department of Pathology and Molecular Medicine Staff Meetings	Vice Chair	Canadian Medical Association , Committee for Conjoint Accreditation
Member	KGH Department Staff Meeting	Consultant	Ontario University Institute of Technology, Medical Lab Services Advisory Committee
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>Journal Referee: Clinical Biochemistry</p> <p>Consultant: Course design for Bachelor of Medical Laboratory Science degree program for Ontario University Institute of Technology</p>			

John Rossiter			
Internal		External	
Position	Committee	Position	Committee
Member	Faculty Neurology Residency Training	Coordinator	Canadian Association of Neuropathologists
Member	Faculty Laboratory Medicine Pathology Residency Training	Examiner	Royal College of Physicians & Surgeons of Canada, Neuropath Fellowship Examination Board
Member	Faculty Life Sciences Curriculum Committee		
Member	Faculty Postgraduate Medical Education Cte		
Chairperson	Faculty Bracken Library		
Member	Faculty Botterell Foundation Grant Reviews		
Chair	Faculty Postgraduate Hematology Residency Training Program		
Member	Departmental Clinical Trust Fund Cte		
Member	Departmental Optimizing Autopsy Turn-Around Time		
Director	Departmental Neuropathology Residency Program		
Member	Departmental Graduate Studies		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>Grant Referee: Harry Botterell Foundation for Neurological Sciences</p>			

Caroline Rowlands			
Internal		External	
Position	Committee	Position	Committee
Member	Faculty Admissions Committee	Member	Royal College of Physicians and Surgeons of Canada, Specialty Committee for AP and GP
Member	Faculty Postgraduate Education Committee	Member	Assessment Program for International Medical Graduates
Director	Departmental Postgraduate Education Committee	Advisor	MDS International
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc): None</p>			

Sandip SenGupta			
Internal		External	
Position	Committee	Position	Committee
Advisor	Faculty Curriculum Revision for Phase II A Musculoskeletal Course	Member	Royal College of Physicians and Surgeons of Canada – Regional Advisory Committee for Ontario
Advisor	Hospital Member of MAC at Ongwanada	Member	RCPSC - National Specialty Societies Committee
Advisor	Hospital Member of HDH Breast Assessment Program Patient Care Team	Advisor	RCPSC – Accreditation Saskatchewan General Pathology Residency Program
Member	KGH-HDH Medical Credentials Committee	Member	Cancer Care Ontario – Breast Cancer Disease Site Group
Member	KRCC Sarcoma Disease Site Group	President	Canadian Association of Pathologists
Member	KRCC Breast Cancer Site Group	Member	Ontario Medical Association – QMP-LS, Ontario Laboratory Accreditation Advisory Panel
Member	Departmental Finance Committee	Member	Ontario Medical Association – QMP-LS Anatomic Pathology Cte
Chair	Departmental Quality Assurance Committee	Member	Ontario Medical Association – QMP-LS Test Review Committee
Member	Departmental PRTCA Committee	Chair	Canadian Association of Pathologists – Nominations Cte
Member	Departmental East II Regional Laboratory Services Coordinating Cte	Chair	Canadian Association of Pathologists – Awards Committee
Member	Search Committee for Laboratory Quality Manager		
Member	Search Committee for Microbiology Lab. Manager		
Member	East II Laboratory Alliance		
Member	Participation in laboratory reform initiatives of the East II Hospital Sub-Committee		
Chair	Search Committee for Clinical Microbiologist		
Chair	Search Committee for Clinical Chemist		
Member	Strategic Planning Steering Committee		
Member	Search Committee for Anatomic Pathologist		
Member	KGH Laboratory Managers' Group Meeting		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p> <p>Book Reviewer, Asked by Elsevier Book Publisher to review the textbook “Enzinger and Weiss” – Soft Tissue Tumours, 4th Edition.</p> <p>Journal Editorship, Reviewed a manuscript for QHST entitled: “A Patient with Recurrent Synovial Chondromatosis of the Knee Joint: A Case Report and Brief Review”.</p>			

Lois Shepherd			
Internal		External	
Position	Committee	Position	Committee

Chair	Hospital Advisory Committee on Transfusion Medicine	Member	RCPSC, Hematopathology Specialty Committee
Member	Hospital Committee on Joint Practice for Transplantation and Organ Procurement	Past Chair	CAP, Section of Hematopathology
Member	Hospital Planning Committee for Regional Stem Cell Transplantation	Member	Laboratory Proficiency Testing Program, Immunology Committee
Member	Departmental Hematopathology Ad Hoc Search Committee	Central Director	Canadian Society of Transfusion Medicine
Member Director	Departmental Tissue and Tumour Block Retrieval Cte Hematopathology	Physician Coordinator	NCIC-CTG, International Multicentered Phase II CT
Member	Postgraduate Program NCIC-CTG Search Committee	Member	International Development Project, Breast International Group
Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):			
Monograph: NCIC-CTG Tumour/Data Bank. CAP Newsletter.			

Sherry Taylor			
Internal		External	
Position	Committee	Position	Committee
Chair	University Biohazard Safety Committee	Chair	Ontario Ministry of Health, Fellowship Review Committee
Director	Faculty Phase 1 Committee	Member	Michener Institute Molecular Genetics, Post Diploma Advisory Committee
Member	Faculty Undergraduate Medical Education Committee	Member	Ontario Ministry of Health, Ontario Advisory Committee on Genetics
Member	Departmental PRTCA Committee	Member	QMPLS Laboratory Proficiency Testing Program, Molecular Genetics Committee
Member	Departmental Strategic Planning Steering Committee	Member	Ontario Ministry of health Predictive Cancer Genetic Service, Cancer Genetic Service Implementation Steering Committee
Member	KGH Foundation Grants Committee	Chair	Ontario Ministry of Health Predictive Cancer Genetic Service, Cancer Genetic Service Implementation Steering Laboratory Subcommittee
Member	Hospital Clare Nelson Bequeath Committee	Member	Ontario Ministry of Health, Ontario Advisory Committee in Genetics, Education Subcommittee
Member	Hospital Radiation Safety Committee	Consultant	Canadian Coordinating Office for Health Technology Assessment
Member	Departmental CCMG Standing Fellowship Cte tee		

Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):

None

Iain Young			
Internal		External	
Position	Committee	Position	Committee
Chair	Queen's/KGH/HDH Staff Meetings	Member	Ontario Regional Laboratory Services Planning, Laboratory Regional Coordinating Committee, East II Region
Member	Hospital Resources Cte	Member	Association of Pathology Chairs (US)
Member	Hospital Joint MAC Cte	Member	Ont. Association of Academic Heads
Member	University SEAMO Governing Committee	Member	Canadian Chairs of Pathology
Member	Council of Basic Science Heads	Member	USCAP
Member	Council of Clinical Heads	Member	OAP
Member	Departmental Clinical Geneticist Search committee		
Chair	Departmental Bracken Chair Search Committee		
Chair	Departmental Finance Committee		
Member	Departmental Graduate Studies Committee		
Chair	Departmental Anatomic Pathologist Search Cte		
Member	Departmental Admin. Director Search Committee		
Member	Departmental Postgraduate Education Committee		
Member	Departmental Clinical Geneticist Search Cte		
Member	Departmental Clinical Microbiologist Search Cte		
Member	Departmental Clinical Chemist Search Committee		
Member	East 2, Ont. Regional Lab Services Planning/Coordinating Cte		
Member	Nephrology Search Cte		
<p>Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):</p>			
<p>None</p>			

Dick Zoutman			
Internal		External	
Position	Committee	Position	Committee
Chair	Phase @ Infectious Diseases Cte	Member	Corrections Canada, Infectious Diseases Inmate Advisory Cte
Member	Faculty Phase 2A Curriculum Committee	Chair	Laboratory Centre for Disease Control

Member	Joint KGH/HDH Infection Control Committee	Member	Community and Hospital Infection Control Association of Canada (CHICA), Government and Public Affairs Committee
Member	Joint KGH/HDH Antibiotic Utilization Committee	Director	CHICA, Board of Directors
Chair	KGH Standing Committee on Environmental Management	Member	Health Canada National Steering Committee on IC
Member	Hospital SMOL Professional Advisory Cte	Member	QMP-LS Bacteriology Committee
Member	Hospital Accreditation Steering Committee	Chair	Health Canada National Bioterrorism Contingency Planning Task Force
Member	KGH/HDH MAC Cte	Chair	MOH and Long Term Care, Ont. SARS Scientific Advisory Cte
Member	KGH Board of Directors	Member	MOH-LTC, Expert Panel on SARS and Infection Control
Member	HDH Board of Directors	Director	Canadian International Development Agency and Canadian Public Health Association, Infections Prevention Program in the Balkans
Member	Departmental Microbiology Laboratory Management Committee		
Chair	Departmental Infection Control Services Committee		
Member	St. Vincent de Paul Infection Control Cte		

Other Scholarly Activities – Editorial Boards and Grant Review Committees (Editorship of a Journal, Referee for a journal or granting body, posters, productions, etc):

Journal Editorship: Editorial Board Canadian Journal of Infection Control.

Journal Referee: Canadian Medical Association Journal; American Journal of Infection Control.

**DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE
ANNUAL REPORT 2003**

PAPERS PUBLISHED AND IN PRESS

1. B.Y. Wang, **A. Boag**, M. Idrees, **I. Young**, P. Unger. Urachal Malignant Fibrous Histiocytoma: Case Report with Literature Review. Archives of Pathology in Laboratory Medicine. College of American Pathologists, Maywood, Illinois. In Press Nov. 18, 2003.
2. L.C. Hookey, **A. Boag**, W. Depew, S. Vanner. Six-Mercaptopurine and Inflammatory Bowel Disease: Hidden Ground for the Cytomegalovirus. Canadian Journal of Gastroenterology. Vol. 17, pages 319-322. Medicare Publishing, Mississauga, Ontario. Accepted February 13, 2003, published May 2003
3. K. Neumann, K.M. Al-Batayneh, M.J. Kuiper, J. Parsons-Sheldrake, M.G. Tyshenko, W.F. Flintoff, **S.P.C. Cole** and V.K. Walker. A single point mutation in *Drosophila* dihydrofolate reductase confers methotrexate resistance to a transgenic CHO cell line. *Genome* 46: 707-715 (2003). (RM5681)
4. I. Kogan, M. Ramjeesingh, C. Li, J.F. Kidd, Y. Wang, E.M. Leslie, **S.P.C. Cole** and C.E. Bear. CFTR directly mediates nucleotide-regulated glutathione flux. *EMBO J.* 22: 1981-1989 (2003). (RM5578)
5. S.E.L. Mirski, J.C. Bielawski and **S.P.C. Cole**. Identification of functional nuclear export sequences in human topoisomerase II α and β . *Biochem. Biophys. Res. Comm.* 306: 905-911 (2003). (RM5606)
6. E.M. Leslie, **R.G. Deeley** and **S.P.C. Cole**. Bioflavonoid stimulation of glutathione transport by the 190-kDa multidrug resistance protein 1 (MRP1). *Drug Metab. Dispos.* 31: 11-15 (2003). (RM5576)
7. C.J. Oleschuk, **R.G. Deeley** and **S.P.C. Cole**. Substitution of Trp¹²⁴² of TM17 alters substrate specificity of human multidrug resistance protein, MRP3. *Am. J. Physiol. Gastrointest. Liver Physiol.* 284: G280-289 (2003). (RM5387)
8. E.M. Leslie, R.J. Bowers, **R.G. Deeley** and **S.P.C. Cole**. Structural requirements for functional interaction of glutathione tripeptide analogs with the human multidrug resistance protein 1 (MRP1). *J. Pharmacol. Exp. Ther.* 304: 643-653 (2003). (RM5450)
9. E.M. Leslie, I.J. Létourneau, **R.G. Deeley** and **S.P.C. Cole**. Functional and structural consequences of cysteine substitutions in the NH₂-proximal region of the human multidrug resistance protein 1 (MRP1/ABCC1). *Biochemistry* 42: 5214-5224 (2003). (RM5577)
10. K. Nunoya, C.E. Grant, D. Zhang, **S.P.C. Cole** and **R.G. Deeley**. Molecular cloning and pharmacological characterization of rat multidrug resistance protein 1 (MRP1). *Drug Metab. Dispos.* 31: 1016-1026 (2003). (RM5647)
11. D-W. Zhang, H-M. Gu, M. Vasa, M. Muredda, **S.P.C. Cole** and **R.G. Deeley**. Characterization of the role of polar amino acid residues within predicted transmembrane helix 17 in determining the substrate specificity of multidrug resistance protein 3 (ABCC3). *Biochemistry* 42: 9989-10000 (2003). (RM5648)
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Abstracts/Poster Presentations

1. **S.P.C. Cole**. Structure-function studies of MRP1 and GSH-stimulated organic anion transports. Joint meeting Symposium on "ABC Proteins" and the "5th Conference on ABC Proteins and Ion Channels - From Gene to Disease". Kyoto, Japan, January 24-26, 2003.
2. **S.P.C. Cole** and **R.G. Deeley**. Structure-function studies of the human multidrug resistance protein, MRP1/ABCC1. 4th FEBS Advanced Lecture Course "ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease". Gosau, Austria, March 4, 2003.
3. L. Payen, M. Gao, **S.P.C. Cole** and **R.G. Deeley**. Structural basis of functional differences between the nucleotide binding domains of multidrug resistance protein (MRP1). 4th FEBS Advanced Lecture Course "ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease". Gosau, Austria, March 1-8, 2003.
4. C.J. Westlake, **S.P.C. Cole** and **R.G. Deeley**. Structure and function analysis of the multidrug resistance protein (MRP)1 COOH-terminal regions. 4th FEBS Advanced Lecture Course "ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease". Gosau, Austria, March 1-8, 2003.
5. G. Conseil, **R.G. Deeley** and **S.P.C. Cole**. Importance of two adjacent cytosolic tyrosine residues for MRP1 (aBCC1) transport activity. 4th FEBS Advanced Lecture Course "ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease". Gosau, Austria, March 1-8, 2003.
6. A. Haimeur, **R.G. Deeley** and **S.P.C. Cole**. Charged amino acids in the second membrane spanning domain of multidrug resistance protein MRP 1 are important for transport activity and substrate specificity. 4th FEBS Advanced Lecture Course "ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease". Gosau, Austria, March 1-8, 2003.
7. K. Loike, E.M. Leslie, C.J. Oleschuk, **R.G. Deeley** and **S.P.C. Cole**. Contribution of proline residues in or near the transmembrane helices to the transport activity of MRP1 (ABCC1). 4th FEBS Advanced Lecture Course "ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease". Gosau, Austria, March 1-8, 2003.
8. L.F. Payen, M. Gao, **S.P.C. Cole** and **R.G. Deeley**. Structural basis of functional differences between the nucleotide binding domains of multidrug resistance protein 1 (MRP1). 94th Annual Meeting of the American Association for Cancer Research, Toronto, Canada, April 5-9, 2003. *Proc. Amer. Assoc. Cancer Res.* 44: 3684 (2003).
9. C.J. Westlake, **S.P.C. Cole** and **R.G. Deeley**. Identification of C-terminal regions important for multidrug resistance protein (MRP)1 function and trafficking. 94th Annual Meeting of the American Association for Cancer Research, Toronto, Canada, April 5-9, 2003. *Proc. Amer. Assoc. Cancer Res.* 44: 3687 (2003).
10. D-W. Zhang, H. Gu, **S.P.C. Cole** and **R.G. Deeley**. Characterization of wild-type and mutant human multidrug resistance protein (MRP) 3: role of polar amino acid residues within predicted transmembrane helix 17 in determining the substrate specificity of MRP3. 94th Annual Meeting of the American Association for Cancer Research, Toronto, Canada, April 5-9, 2003. *Proc. Amer. Assoc. Cancer Res.* 44: 3692 (2003).
11. S.E.L. Mirski, J.C. Bielawski and **S.P.C. Cole**. Identification of functional nuclear export sequences in human topoisomerase II α and β . 94th Annual Meeting of the American Association for Cancer Research, Toronto, Canada, April 5-9, 2003. *Proc. Amer. Assoc. Cancer Res.* 44: 4718 (2003).

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13. A. Haimeur, **R.G. Deeley** and **S.P.C. Cole**. Charged amino acids in the second membrane spanning domain of multidrug resistance protein MRP1 are important for transport activity and substrate specificity. 94th Annual Meeting of the American Association for Cancer Research, Toronto, Ontario, April 5-9, 2003.
14. K. Koike, E.M. Leslie, C.J. Oleschuk, **R.G. Deeley** and **S.P.C. Cole**. Contribution of proline residues in or near the transmembrane helices to the transport activity of MRP1 (ABCC1). 94th Annual Meeting of the American Association for Cancer Research, Toronto, Ontario, April 5-9, 2003.
15. I.J. Letourneau, E.M. Leslie, J.C. Hall, **R.G. Deeley** and **S.P.C. Cole**. Modulation of multidrug resistance protein 1 (MRP1), MRP2 and MRP3 transport by herbicide glutathione conjugates. 94th Annual Meeting of the American Association for Cancer Research, Toronto, Ontario, April 5-9, 2003.
16. S.E.L. Mirski, J.C. Bielawski and **S.P.C. Cole**. Identification of functional nuclear export sequences in human topoisomerase II alpha and beta. 6th Annual Meeting for Basic and Clinical Research Trainees, Faculty of Health Sciences, Queen's University, May 28, 2003.
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18. I.J. Letourneau, E.M. Leslie, C.J. Hall, **R.G. Deeley** and **S.P.C. Cole**. Modulation of multidrug resistance protein 1 (MRP1), MRP2 and MRP3 transport by herbicide glutathione conjugates. 6th Annual Meeting for Basic and Clinical Research Trainees, Faculty of Health Sciences, Queen's University, May 28, 2003.
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23. I.J. Letourneau, E.M. Leslie, C.J. Hall, **R.G. Deeley** and **S.P.C. Cole**. Modulation of multidrug resistance protein 1 (MRP1), MRP2 and MRP3 transport by herbicide glutathione conjugates. 6th Annual Meeting for Basic and Clinical Research Trainees, Faculty of Health Sciences, Queen's University, May 28, 2003. (*Award for Excellence in Research, Poster presentation competition*).

24. K.E. Weigl, D.R. Hipfner, **R.G. Deeley** and **S.P.C. Cole**. Glycosylation of human MRP1 (ABCC1) affects both the conformation of membrane spanning domain 3 as well as the efficiency of E₂17□G transport. 94th Annual Meeting of the American Association for Cancer Research, Toronto, Canada, April 5-9, 2003. *Proc. Amer. Assoc. Cancer Res.* 44: 3689 (2003).
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