

**Annual Divisional Report
Division of Hematology
April 1, 2007 - March 31, 2008**

I HIGHLIGHTS

A) Segal Cancer Center

After more than one year of operation in the new Segal Cancer Center, the activity of the hematology-oncology clinical service has expanded with increasing clinical and research activities as part of the integrated cancer team on the 7th floor of Cancer Center. The availability of new office space, examining rooms, conference areas and access to the volunteer services from Hope & Cope has contributed to an increasing positive environment for both patients and staff.

The number of out-patient visits to the hematology-oncology clinics including the CML clinic exceeded 8,000 and the number of new hematology-oncology patients seen in the Segal Cancer Center exceeded 250. The division has expanded its out-reach program by establishing Corridors de Service with the Lakeshore General and St. Mary's Hospitals and with local CLSCs and family medicine group practices. Accrual of patients into clinical trials through the McGill Clinical Research Program and the Jewish General Hospital's Clinical Research Unit expanded significantly over the last year. Several of our Jewish General Hospital physicians played crucial roles in the design of trials in both lymphoma and multiple myeloma and establishing leadership positions as principle investigators of several trials. Under the leadership of Dr. Sarit Assouline, Director of Clinical Research in Hematology-Oncology and Associate Director of the Clinical Research Unit, enthusiasm for development of new trials has created opportunities for patients to access new therapeutic agents and strategies. The increasing role of our Infirmière-Pivot in hematology-oncology has also significantly contributed to the improvement in supportive therapy, psychological support and communication with families. In her role as Infirmière Pivot, Chantal Cloutier has also played a pivotal role in establishing links with other institutions and with local CLSCs to ensure bilateral effective communications. The project to develop an electronic medical record in the oncology out-patient area in conjunction with Visualmed was initiated and is anticipated to be activated sometime in 2008.

B) Stem Cell Transplant Program

The Jewish General Hospital's hematology stem cell transplant program remains a strong component of the McGill bone marrow transplant program. The Jewish General Hospital continues to perform 30-40 autologous stem cell transplants with the main focus of activity in multiple myeloma, Hodgkin's, non-Hodgkin's lymphoma and acute leukemia. Dr. Martin Gyger continues to provide leadership for efforts in this area and maintains close collaboration with our MUHC partners and with colleagues at Hôpital Maisonneuve-Rosemont. The Jewish General

Hospital continues to perform its activity with official designation from the Ministry of Health as a center for performing autologous stem cell transplants.

C) Clinician-scientists

Drs. Blostein and Galipeau continue their active basic science laboratories in the Lady Davis Institute. Both have been awarded career awards from the FRSQ and hold operating grants from prestigious peer reviewed granting agencies. Dr. Galipeau plays a major leadership role as therapeutics theme leader for the Canadian Stem Cell Network and as a major contributor to the literature in regenerative medicine. Dr. Blostein has contributed significantly to the area of protein biochemistry of factor IX coagulation protein and also has been an integral part of the clinical trials effort of the Thrombosis Group at the Jewish General Hospital.

Dr. Sarit Assouline has also established herself as a productive clinician researcher with major contributions to NCIC Canada and in the development of innovative clinical trials through the Clinical Research Unit at the Jewish General Hospital.

D) Molecular Diagnostics Laboratory

The Jewish General Hospital remains as the referral hospital for molecular diagnostics for the entire McGill hematology university network. New molecular studies have been initiated for chronic lymphocytic leukemia, myeloproliferative disorders and lymphoma. Our molecular laboratory serves as the sole laboratory engaged in teaching of molecular diagnostics to hematology fellows and continues to perform chimerism studies for patients undergoing non-myeloablative conditioning regimens.

E) CML Clinic

Dr. Carlo Gambacorti who established the CML clinic more than 5 years ago, decided to leave his position as Director of the clinic and resigned from his position at the Jewish General Hospital in March 2008. Dr. Sarit Assouline, who had worked as his associate for several years, has taken over responsibility for this clinic and in conjunction with Dr. Jaroslav Prchal has continued to provide highly specialized care to patients with chronic myelogenous leukemia, offering innovative clinical trials to this specific patient population. The clinic is now following more than 60 patients with this disorder, the largest single clinic for this uncommon disease in Quebec.

F) Myeloproliferative disorder - MPD clinic

Dr. J Prchal is a member of a large international consortium which has successfully applied to the National Cancer Institute in the United States for funding for research and clinical trials in myeloproliferative disorders. Dr. Prchal is in the process of organizing a specialized clinic for this disorder which will provide highly specialized care to patients with polycythemia vera, essential thrombocythemia and myelofibrosis.

II PAST YEAR'S ACTIVITY

1. Teaching Activities

The Jewish General Hospital's Division of Hematology has been an important component of the McGill Hematology Fellowship Program, providing a rich learning environment for both laboratory and clinical activities in hematology. All members of the division have been involved in this educational program and it has been consistently ranked as superior by hematology fellows rotating through the clinical and laboratory rotations at this hospital.

Guest Lecturers:

Dr. Kanti Rai, Albert Einstein College of Medicine, Long Island Jewish Medical Center, New York, Recent advances in the treatment of CLL (Chronic lymphocytic leukemia), May 10, 2007

Dr. William George Wierda, The University of Texas M.D. Anderson Cancer Center, Improving outcomes in all stages of CLL - interpreting recent research, September 27, 2007

Dr. Theodore Warkentin, Hamilton General Hospital, HHSC (Hamilton Health Science), Heparin-induced thrombocytopenia: A Canadian perspective, December 17, 2007

Blostein, Mark

Department	Course
Medicine	Hematology for First year Medical Students
Medicine	Laboratory teaching to hematology fellows
Medicine	ICM-B
Medicine	Back-to-Basics
Medicine	Senior Physician Rounds
Medicine	Ward Attending - 7NW - 4 weeks/year
Physiology	Course Coordinator for PGY 515A

Caplan, Stephen N.

Consult service
Laboratory teaching to hematology fellows
Teaching: Small group tutor - McGill University
Clinical Teaching Unit Attending 7NW

Galipeau, Jacques

McGill Graduate Courses - Lecturer:

Gene transfer to hematopoietic stem cells. Physiology of Blood graduate course: 516 B - Dept of Physiology, McGill University - Course Coordinator Premysl Ponka, Ph.D.
Cancer Gene Therapy. Graduate course - Experimental & Clinical Oncology Course 516-635D, Course Coordinator Wilson Miller.

McGill Undergraduate Courses - Lecturer:

Gene Therapy. Undergraduate Medical School course (McGill University), Unit 8: Pathobiology, Prevention and Treatment of Disease - INDS 208A. Department of Medical Genetics

A Conceptual Approach to Hematological Malignancies. Undergraduate Medical School course (McGill University), Unit 5: Hematological and musculoskeletal systems - INDS 102. Department of Medicine

Ward Attending, Clinical Teaching Unit: 2 weeks March 2007, 2 weeks November 2007.

Gyger, Martin

Consult service

Laboratory teaching to hematology fellows

Teaching: Small group tutor - McGill University

Organization of Hematopathology Rounds

Stem Cell Transplantation Rounds

Miller, Wilson

McGill University Physiology of Blood II: Course 522-516B, Lecture and seminar on "acute promyelocytic leukemia," 3 hours, April 2007.

Co-Course Director, Experimental and Clinical Oncology #516-635D, Fall and Spring Terms, 2007-2008.

Co-Course Director, Molecular and Cellular Biology Topics, 42 hours, Fall Term, 2007.

Patenaude, Francois

Consult service

Laboratory teaching to hematology fellows

Rosenberg, Arthur

Consult service

Laboratory teaching to hematology fellows

Shamy, April A.

Consult service
Laboratory teaching to hematology fellows
Teaching - Small group tutor - McGill University
Clinical Teaching Unit Attending 7NW: 4 weeks
Ward sign in rounds 7NW
Organization: Hematology Journal Club, Hematology lecture series, Core Hematology Rounds
CTU Director - Hematology-Oncology-7NW

2. Research

Blostein, Mark

Fonds de la recherche en sante du Québec, Gene Therapy of Hemophilia B, \$152,717, 3 years, September 2004, Co-investigator/25% (PI Dr. J. Galipeau)

Canadian Institutes for Health Research (CIHR), Randomized Trial of Oral Vitamin K for Warfarin-Induced Coagulaopathy, \$600,000, 3 years, March 2005, Co-investigator of a clinical trial/ 10%

Canadian Institutes for Health Research (CIHR), Thrombophilia in Pregnancy Prophylaxis Study, \$600,000, 3 years, March 2006, Co-investigator of a clinical trial/5%

Canadian Institutes for Health Research (CIHR), A double blind randomized control trial of post-Operative low molecular weight heparin bridging, therapy versus placebo bridging therapy for patients, \$540,000, 4 years, March 2006, Co-investigator of a clinical trial/ 10%

Canadian Institutes for Health Research (CIHR), CIHR Team Grant in Venous Thromboembolism, 4,400,000, 5 years, March 2006, Co-Investigator (PI Dr. J. Weitz)/3%

Department of National, Defense (Canada Development and Optimization of Hemostatic Peptides for Hemorrhage Control, \$380,000, 3 years, September 2005, Principal Investigator 100%

Heart and Stroke Foundation of Canada, The role of protein domains containing gamma-carboxy-glutamic acid in vascular biology, \$45,000, 3 years, July 2006, Principal Investigator 100%

Galipeau, Jacques

New grants obtained 2007-2008:

2008-2009 Canadian Gene Cure Foundation. Use of bone Marrow Stromal Cells for treatment of neuropathic Gaucher disease. \$65,000. Principal Investigator: **J. Galipeau**.

2007-2010 TFF New Frontiers Program Project Grant. Activated B cells and mesenchymal stromal cells as breast cancer vaccine platforms. \$315,576 over 3 years. Co principal investigators: Dr. J. Galipeau and Dr. D. Spaner.

2007-2010 Roche Foundation for Anemia Research - RoFAR Cell and Gene Therapy with Erythropoietin-Secreting Marrow Stem Cells for Kidney Repair. \$750,000 over 3 years. Principal Investigator: Dr. N. Eliopoulos and J. Galipeau (co-applicant).

2007-2010 Programme Hémovigilance FRSQ Regroupement stratégique québécois pour la recherche et le développement de la thérapie cellulaire et génique pour les maladies hémovasculaires. \$900,000 over 3 years. Principal Investigator: **J. Galipeau**

2007-2008 CIHR Proof-of-Principle Program. The Ex Vivo Generation of Suppressive Cells for The Treatment of Multiple Sclerosis. \$150,000. Principal Investigator: **J. Galipeau**

3. Clinical Activities (also included in 1-Teaching Activities)

Since the relocation of the hematology-oncology component of the division to the 7th floor at the Segal Cancer Centre, the division has undergone a major transformation by now separating its activities in benign and malignant hematology. All of the division's activities in cancer are now concentrated in the Segal Cancer Centre and all activity related to benign disease including thrombosis continue to be offered in the existing location on the first floor of Pavilion E. As a result of the movement of several physicians from the first floor, space has been freed to provide reasonable office space to Dr. Mark Blostein, the thrombosis secretariat and the thrombosis research nurses. The division of activities into benign and malignant, however, has created new challenges with regard to staffing and physical distances between members of the division. Nonetheless, the positive aspects of the relocation to the Segal Cancer Centre in terms of providing additional examining room and office space, has outweighed the challenges and difficulties resulting from the division of activities within hematology.

4. Academic Staff

Dr. Sarit Assouline joined the division as a full-time member on July 1st, 2007. Dr. Assouline had been a part-time member as of July 2005 with her primary appointment at the Lakeshore General Hospital. Since her full-time relocation, she has played an increasing role in the development of new clinical trials in hematologic malignancies.

For the first time, clinical trials are now available in virtually all phases of disease for leukemia, multiple myeloma, lymphoma and Hodgkin's disease. Her relocation to the Jewish General Hospital has allowed her to fully pursue her academic goals and develop a strong clinical trials program in hematology-oncology here and in the McGill University Department of Oncology.

5. Consulting Activities: None reported

6 Honours, Awards and Prizes

Dr. J. Galipeau has secured 5 new grants during this academic year:

7. Other

Publications:

--Copland, I., Sharma, K., Lejeune, L., Eliopoulos, N., Stewart, D., Liu, P., Lachapelle, K., **Galipeau, J.** CD34 Expression on Murine Marrow-derived Mesenchymal Stromal Cells: Impact on Neovascularization. *Experimental Hematology*. 2008 Jan;36(1):93-103. Epub 2007 Nov 26.

--Spaner, DE., Foley, R., **Galipeau, J.**, Bramson, J. Obstacles to effective Toll-like receptor agonist therapy for hematological malignancies. *Oncogene*. 2008 Jan 7;27(2):208-17

--Fortier, S., Touaibia, M., Lord-Dufour, S., **Galipeau, J.**, Roy, R., Annabi, B. Tetra and hexavalent mannosides inhibit the pro-apoptotic, anti-proliferative and cell surface clustering effects of concanavalin-A: Impact on MT1-MMP functions in marrow-derived mesenchymal stromal cells. *Glycobiology*. 2008 Feb;18(2):195-204. Epub 2007 Dec 8.

--Penafuerte, C., and **Galipeau, J.** TGF β secreted by B16 melanoma antagonizes cancer gene immunotherapy bystander effect. *Cancer Immunology Immunotherapy*. 2008 Jan 24; [Epub ahead of print]

III OBJECTIVES AND PRIORITIES

Recruitment for future years includes Dr. Natalie Johnson who is currently receiving specialized training in molecular hematology in Vancouver under the supervision of Dr. Randy Gascoyne and is now enrolled in the PhD program at the University of British Columbia.

Dr. Peter Martin is currently at Cornell University in New York doing specialized training in biologic therapies including new monoclonal antibodies for hematology-oncology and is also enrolled in the Master's Program in Clinical Investigation at Cornell.

Dr. Peter Martin is scheduled to join the division in May 2009 and Dr. Johnson in July 2010. Recruitment in Quebec remains a difficult and cumbersome process primarily related to arbitrary quotas imposed on specialists, particularly hematology-oncology in large urban areas. The lack of a combined hematology-oncology division makes the process of recruitment even more difficult since the Ministry recognizes hematology-oncology as a single specialty. This leads to conflicts in recruitment between oncology and hematology which must be settled by negotiation and goodwill. It is hoped that the rigid structure at the governmental level will be changed in the near future and that modifications can be made to alter the current structure at the Jewish General Hospital so that hematology and oncology could function as a single unit.

The principle goals for the future will be to recruit young physicians with academic ambition and appropriate training to accomplish their goals. This requires identification early on of residents during their training, assisting them in finding the best academic programs to further their goals, and providing an attractive environment to which they could be recruited and flourish as clinical or laboratory researchers. The success of clinician-scientists hinges on planning to ensure mentoring by senior physicians or scientists, protected time for research and a strong financial base to support their research activities.

Respectfully submitted,

Steven Caplan, M.D.
Chief, Division of Hematology