

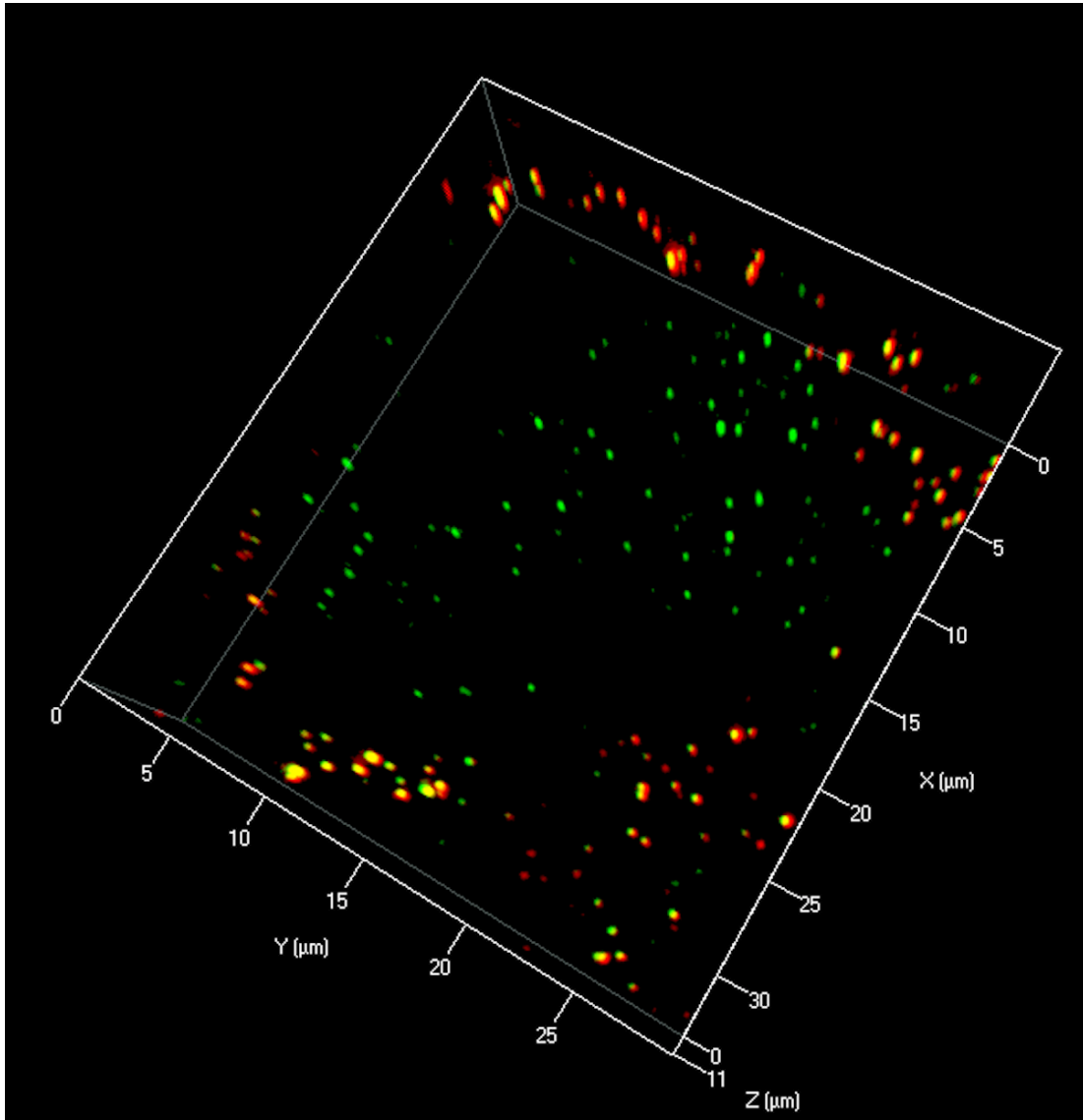


Hôpital général juif
Jewish General Hospital



McGill

Faculty of
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médecine



Annual Report
Division of Hematology
Department of Medicine - Jewish General Hospital
January 1 - December 31, 2019

SUMMARY

General Considerations

Again a heartfelt *thank you* to our volunteers and donors whose contributions are essential in running a Division whose patients are amongst the most vulnerable Medicine knows. Special thanks to the MSSS, accepting to attribute a PEM to Dr. Rayan Kaedbey, who succeeds Dr. Martin Gyger as specialist for multiple myeloma and director of the autologous stem cell transplant program (ASCT) at the JGH.

However, through the introduction of *Optilab*, a major threat has appeared. The *Corelab*, essential for a seamless functioning of the Department of Medicine, is no longer part of the latter, but is controlled by the MSSS and the Unions. Laboratory technicians are now free to change workplaces without losing their seniority allowing vital laboratory positions no longer to be attributed according to merit and competence but rather to seniority. Losing of technical know-how looms now *ante portas* and patient safety may get endangered. This is an unpleasant situation and has to be corrected.

Despite this threat, excellence in patient care, in teaching and clinical/translational, as well as basic research, remains the vocation of our Hematology Division within the Department of Medicine at the Jewish General Hospital. This spirit of unconditional commitment who animates the entire Department of Medicine, headed by Dr. Ernesto Schiffrin, still fuels our nurses, laboratory technicians, administrative agents and staff physicians with energy and determination.

The Hematology ward on K-7 had a successful first year thanks to the relentless activity of its Director, Dr. April Shamy, and to the great work of both “*Super Nurses*”, Ms. Shoshanna Breiner and Ms. Sheena Heslip. Moreover, the solidarity of our colleagues within the Division of Medicine enabled us to cope with the understaffing of ward attendings.

The Division hosts 9 Clinical Programs (Stem Cell Transplant Program, Hematology Ward, Hematology-Oncology Clinic/Segal Cancer Center, CML Clinic, MPN Clinic, MDS Clinic, Gaucher Clinic, Anti-Coagulant/DOAC/perioperative Anti-Coagulation Clinic, and Benign Outpatient Clinic), with national reputation. These clinical programs are backed-up by up to date clinical and molecular hematopathology, flow-cytometry and hemostasis laboratories, with the ultimate goal to guarantee timely optimal patient care.

1. Clinical programs

Autologous Stem Cell Transplant Program

First of October Dr. Ryan Kaedbey took over the lead of the Jewish General Hospital’s Hematology Autologous Stem Cell Transplant (ASCT) Program, an essential component of the McGill Bone Marrow Transplant Program. The JGH is an approved center for the performance of ASCT by an official letter from the Ministry of Health (March 23, 2007). Dr. Kaedbey is a dynamic young specialist for MM and ASCT (specialized fellowship at Princess Margaret Hospital) and thus the optimal personality to continue the pioneer work of Dr. Martin Gyger, who built and successfully expanded our ASCT Program to a mean of 35 auto-SCTs per year over the last decade. Again, the majority of transplants (75% occurred for multiple myeloma (MM), followed by diffuse large B-cell lymphoma (DLBCL), Hodgkin’s lymphoma (HL) and mantle cell lymphoma (MCL). Fortunately, Dr. Jean Latreille, directeur de la Direction québécoise du cancer, realized in due time the increasing accrual of patients with MM and DLBCL, for whom ASCT is

a therapeutic necessity. He also acknowledges the need for a full time Transplant Nurse, unfortunately reduced to a 2 days' position under the preceding MSSS direction.

Hematology Ward K7

The 6-8 beds Hematology ward was opened in July 2018 in order to decompress the Internal Medicine CTU on K7 at 28 beds, a number constantly overpassed, essentially due to a high number of Hematology patients. Over the past 18 months, the ward director Dr. April Shamy, assisted by our two specialized nurse practitioners, Ms. Shoshanna Breiner and Ms. Sheena Heslip, set in place a very well functioning unit, which seamlessly collaborates with the Internal Medicine CTU. Hematology patients hospitalized for targeted chemotherapies are preferentially directed to the Hematology ward. The ward attending rotation over the whole year 2019 was permanently covered thanks the participation of several colleagues from Internal Medicine. However, ever increasing poly-morbidity and complexity of the hospitalized patients, as a result of the therapeutic success in advanced stage diseases, heralds for additional Hematology staff positions and further specialized nurse practitioners.

Hematology-Oncology Clinic/Segal Cancer Center

The number of patient visits at the Hematology-Oncology division of the Segal Cancer Center has been stable over the past 6 years but the complexity of the clinical presentations has massively increased, indicating urgently needed additional recruitment of specialized nurses. In 2019 we totalized 9689 patient visits (2018: 9558 patient visits, i.e. an increase of 1.3%). In the Clinical Research Unit (CRU), dynamically directed by Dr. Sarit Assouline, currently 14 Clinical Hematology Research Trials (three phase 1, four phase I/II) offer patients with relapsing/refractory or primarily aggressive hematologic diseases new hope. In 2019 a total of 56 patients (36 new, 20 continuous) have been treated. Updated detailed information concerning the trials is available at the Rossy Cancer Network website under <https://www.mcgill.ca/rcr-rcn/clinical-trials>. These patients are treated and followed by a team including specialized study coordinators/managers, nurses, hematology fellows and post-doctoral Hematologists. The CRU is an optimal environment for young Hematologists and fellows to get personal experience in Clinical Research and translational studies, including compiling data and drawing up manuscripts. In 2019 again, the scientific activity of our CRU is well documented through presentations at international Hematology meetings and numerous publications in renowned journals.

CML Clinic

The CML Clinic at the JGH is in its 15th year and integrated in the Groupe Québécois sur la recherche en leucémie myéloïde chronique (GQR-LMC) and strictly adheres to the guidelines based on the European Leukemia Net (ELN) guidelines. The patients are seen either by Dr. Sarit Assouline, head of the Clinic, or Dr. Jaroslav Prchal. The Clinic has developed innovative approaches to optimize patient safety and treatment efficiency and was internationally the first to address systematically the concerns about the similarity of Generic Imatinib to Brand Imatinib (Gleevec). In a prospective cohort study of patients with chronic phase CML the JGH authors showed that medication persistence, defined as the duration of time from treatment initiation to cessation, is lower with Generic Imatinib, mainly driven by excessive adverse events with Generic Imatinib use. These findings are most important for patient safety and have been published in *Haematologica* in 2019 (Klil-Drori AJ, first author; Assouline S, senior author).

Myeloproliferative Neoplasia (MPN) Clinic

Our MPN clinic has grown tremendously since its inception in 2010 thanks to a generous donation from Mr. Edward Pascal. We started out with a small clinic of one ½ day every 2 weeks

then one ½ day weekly, then expanded to a full day and now sometimes to an additional morning to accommodate the new referrals. The clinic currently follows nearly 200 patients. The patients are referred from all over the province for second opinion and for access to new therapies available through our clinical trials program. These trials provide patients with access to therapies not available in any other center in Quebec and only available in one of three centers in Canada. Currently there are three ongoing clinical trials: first, a phase I/II Study of CPI-0610, a small molecule Inhibitor of BET proteins; second, a phase IIB efficacy and safety study of Fedratinib in patients with intermediate - or high-risk myelofibrosis previously treated with Ruxolitinib; and third, an open-label, phase II Study of KRT-232 (MDM inhibitor) in patients with MF who have failed prior treatment with a JAK inhibitor. The MPN clinic appears now as a distinguished leader in the field, is co-directed by Drs. Shireen Sirhan and Jaroslav Prchal and organized by Sabrina Fowlkes, a dedicated, specialized nurse. At the Annual Québec NPM meeting in November she presented a most appreciated plan when to alert physicians regarding urgent patient care issues.

Myelodysplastic Syndrome Clinic (MDS) Clinic

This nationally recognized teaching program, headed by Dr. April Shamy, is very popular amongst medical students, medicine residents and hematology-oncology fellows. However, there is a continuously increasing patient accrual and, in order to guarantee optimal patient management in the future, additional nursing support is needed. With increasing life expectancy, MDS is now considered as a frequent malignant hematologic condition, and new treatment modalities are warranted. The Clinic still offers a randomized, controlled study of Rigosertib (a microtubule-destabilizing agent) versus physician's choice of treatment in patients with MDS after failure of a hypomethylating agent.

Gaucher Clinic

In his second year as head of the Gaucher clinic, Dr. François Mercier introduced clinical teaching of this rare hereditary thesaurismosis to fellows in medical genetics. This specialized program, which has been mandated more than 20 years by the government of Québec, includes all patients transferred from the pediatric Hôpital Sainte-Justine when they reach adulthood. This highly specialized treatment program includes currently 45 patients with Gaucher's disease and offers established relationships with designated specialists (Gaucher's patients have an increased risk to develop Parkinson's disease or multiple myeloma), a research nurse, pharmacist-assistance with the dispensation of medication and its side effects, as well as a Gaucher's disease website in order to ensure optimal patient care.

Anticoagulation Clinic

The AC Clinic, the DOAC (Direct Oral Anticoagulants Clinic), and the Perioperative Anticoagulation Clinic, established this year, are successfully directed by Dr. Mark Blostein and essential for the optimal functioning of the surgical, obstetrical and medical services at the JGH. These Clinics are located in a new, state-of-the-art facility in the B-3 level of the « old » building. They represent an integral part of the nationally and internationally recognized Centre for Thrombosis and Anticoagulation Care (CETAC), headed by Dr. Susan Kahn, associate member of our Division. The JGH Division of Hematology welcomes also the new Chair of the McGill Department of Medicine, Dr. Marc Rogers, CETAC collaborator, as associate member. The AC and DOAC Clinic, the Perioperative Anticoagulation Clinic and the Thrombosis Clinic offer an excellent platform for teaching and clinical research. Thanks to the relentless efforts of Drs. Blostein, Kahn and Koolian) the Clinic attracts medicine fellows and young Hematology staff physicians from other Canadian universities and overseas for completing their specialization in managing complex interdisciplinary hemostasis and thrombosis issues. Currently two specialized

Staff Physicians (Adelina Avram from Québec and Mateo Porres from Texas) enjoy increase their knowledge in an optimal teaching environment.

Benign Outpatient Clinic

Most hematologists and all hematology fellows participate in the busy Benign Hematology clinic with over 150 weekly visits/consultations. However Drs. M. Blostein and S. Caplan master the lion's share of the workload. Over the past 5 years consultations were mainly requested for severe iron deficiency anemia, followed by leukopenia/leukocytosis, thrombocytopenia/thrombocytosis as well as by monoclonal gammopathy of unknown significance (MGUS). An asset of this Clinic is the spontaneous interaction with Family Physicians, the GI Division at the JGH and the specialized thalassemia/sickle cell Clinic at RVH, respectively. Unnecessarily, since the introduction of the "Centre des rendez-vous", the Clinic gets too much Consultation requests for mild thrombocytopenias (platelets still >100 G/L). On the other hand, this clinic functions as a screen for more serious conditions. Malignant hematologic diseases are picked up at an early stage when patients present for low blood counts or localized lymphadenopathies.

Molecular Diagnostics Laboratory

The Molecular Diagnostics Laboratory, an integrative part of our Hematology Division, is essential for Leukemia and Lymphoma diagnostics, therapeutic decisions, and treatment monitoring. The laboratory is directed by Yuri Monczak, Ph.D., supported by Tina Haliotis, MD, Ph.D., both associate members of the Division. Both personalities organize and lead this laboratory in difficult times with remarkable competence and contribute substantially to the renommée of the JGH Canada wide. Major achievements in this year include: i) Reception of the "Designation" for all 6 groups of molecular testing areas requested from the MSSS in the framework of the "Québec Cartographie" of molecular assays. All groups requested were granted by the MSSS, ii) FLT3 mutation analysis for AML increased to twice-weekly testing to improve patient care, iii) JAK2 mutation analysis was validated and transferred from single-gene PCR to NGS technology, iv) Introduction of an FDA-approved assay for BCR/ABL qPCR aligned with the international standard (IS) of reporting, and v) Maintaining the JGH site attractive and independent despite the re-organization of the molecular laboratory in the setting of Optilab (fusion with the MUHC – Glen site).

2. Research and publications

Dr. Sarit Assouline, director of Clinical Research in Hematology-Oncology and associate director of the LDI Clinical Research Unit, was elected Co-chair of the Hematology Disease Site Group at the CCTG (Canadian Cancer Trial Group) and recipient of the CCTG 2019 Frances A Shephard Award for her oral abstract presentation at ASH. She heads an innovative Clinical Research Program in leukemia and lymphoma and acts as a Principal Investigator in eight Hematology trials (mainly phase I/II) publicly available on the net under <https://www.mcgill.ca/rcr-rcn/clinical-trials>, integrated in the McGill Rossy Cancer Network. Dr. Assouline was co-author in 8 peer reviewed publications and signed as senior author of a clinically relevant manuscript dealing with the side effects of generic imatinib compared to the original product Gleevec (*Haematologica*). Dr. Raoul Santiago, post-doctoral Hematology trainee in the CRU, was in October elected staff Hematologist at Université de Laval, Québec City. He also presented two abstracts at ASH (Dr. Assouline senior author).

Dr. Mark Blostein was very active as a site-investigator in 5 clinical Hemostasis or Thrombocytopenia research trials and got funding from Bayer to develop an INR for rivaroxaban based on patient samples. He is a most appreciated adviser within the Clinical Investigator Program at

McGill University. He was a co-author of 2 major studies concerning the peri-operative managing of patients with ITP and atrial fibrillation treated with DOACs, respectively.

Dr. Stephen Caplan is the longstanding director of the Health Canada accredited Blood Bank. Again, he was very active in recruiting patients to the CRU Clinical Trials and in academic carrier planning of our Hematology fellows. Dr. Caplan is a major contributor to the Canadian Paroxysmal Nocturnal Hemoglobinuria (PNH) Network and has a longstanding experience in treating this insidious disease. In recognition of his dedication in the treatment of PNH patients, the Alissa & Barry Katsof Family Foundation donated the high-tech informatics for the new fellows' room at the JGH.

Dr. Chantal Cassis is very engaged to direct our fellows into research projects with Hematology staff physicians. Under her supervision Dr. Victoria Korsos (Hematology Fellow) presented at ASH 2019 a poster dealing with a longtime neglected aspect of medical progress, namely *"Improving End of Life Care for Hematology-Oncology Patients of the Rossy Cancer Network"*.

Dr. Nathalie Johnson directs the Hematology Flow-Cytometry Laboratory at the JGH. In the setting of innovative fellow teaching approach (Alexandre Bazinet, MD) she developed a new panel to diagnose residual leukemia in patients with chronic lymphocytic leukemia. The corresponding manuscript has been submitted to the leading journal in the field (*Cytometry*). The rapid diagnostic services delivered by this facility are essential for the JGH Hematology and outbound hospitals in situations, where timely reports are crucial and life saving. These services depend highly on specialized laboratory technicians with longstanding experience. The current Optilab rules, allowing technicians to change positions easily represent a thread for new, needed recruitments for this fascinating, labor intense task. In 2019 a total of 3459 blood, bone marrow, lymph node and body fluid samples has been analyzed. Nearly 1/5 of all samples (18%) were sent from outbound hospitals (Gatineau, Hull and Lakeshore). Dr. Johnson is in the 2nd year as PI of her 5 years' CHIR grant entitled *"Optimizing immunotherapy for high-risk lymphoma"* (\$ 1,2 Mio) and of her 3 years' CCSRI grant entitled *"Optimizing immunotherapy for high-risk adolescent and young adult lymphomas"* (\$ 525 K). On both grants H el ene Decaluwe (LDI) acts as Co-PI. Dr. Johnson is currently Primary Site Investigator in 6 ongoing Clinical Trials on cHL and NHL. Her basic science laboratory and clinical research programs focusing on the molecular pathogenesis of aggressive lymphomas and relapsing/refractory cHL, were involved in 8 congress presentations, with Dr. Johnson twice signing as senior author. Dr. Johnson was co-author of 6 translational research manuscripts, with two of them published in *NEJM* and *Nature Commun*, respectively.

Dr. Hans Knecht continued his basic and translational research in the 3D molecular pathogenesis of malignant lymphomas in collaboration Sabine Mai, PhD, Director of the Genomic Center for Cancer Research and Detection (GCCRD) at the University of Manitoba, and with Drs. N. Johnson and T. Haliotis at the JGH. He was senior author of a comparative study of bone marrow immuno-histology and flow cytometry findings extending over three years; both first authors were Hematology fellows. One of these fellows, Marc Bienz, MD, presented also a pilot study dealing with the 3D telomere nanostructure in cutaneous T-cell lymphoma, at ASH in December.

Dr. Fran ois Mercier, in his third year as a staff physician in the Haematology Division, obtained the FRSQ Chercheur-Boursier-Clinicien Phase I award and two additional grants, allowing him to further expanded his basic leukaemia research laboratory at the LDI, focused on AML, the most devastating disease in Haematology. His innovative approaches are targeting minimal disease development in human AML patients, extending the human biobank for AML patients and up-to

date molecular testing of AML patients in collaboration with molecular pathology (Dr. Y. Monczak). Currently Dr. Mercier supervises two PhD candidates, three M.Sc. students, including Alexandre Bazinet, MD, a last year's Haematology fellow, who received an FRSQ fellowship for the Clinicien-Investigator Program. One of the PhD candidates, Samantha Worme, was rated the "Best presentation" at the LDI annual retreat. This year Dr. Mercier was co-author of a paper *in Cell* dealing with the interaction of emerging malignant clones and bone marrow stromal cells. Subsets of such stromal cells expressed reduced regulatory genes needed for normal hematopoiesis and favored by that the emergent malignant clone.

Dr. Yury Monczak was successful in receiving designation for all 6 requests from the MSSS in the framework of the "Québec Cartographie" of molecular assays. This is particularly important for the hosting of future Clinical Trials.

Dr. François Patenaude, a leading Canadian expert in the management of advanced kidney cancer and malignant melanoma, is currently involved in 9 clinical Oncology trials, in 2 of them as PI of the McGill site. He is again co-author of the annual Canadian Kidney Cancer Network 2019 update (*Can Urol Assoc J*).

3. Teaching and learning:

All doctors in the Division of Hematology participate in teaching activities, whether through the consultation service (Hematology and Thrombosis), Clinics, Introduction to Internal Medicine, Senior Physician Rounds or Clinical Teaching Unit on K7, E-7, Academic half-day lectures, McGill Department of Medicine Research Day, Hematology Laboratory, or CTU and CRU. Particularities in teaching are listed as follows:

Dr. Sarit Assouline, Osler Fellow in Hematology in her fourth year, has taught in this function a total of 10 hours. She again introduced two first year medical students in research fundamentals and acted as a CRU supervisor of two postdoctoral fellows (Drs. Raoul Santiago, Adi Klil-Drori), two Hematology Fellow (Drs. Shen Li, Vladimir Sapon-Cuisineau)), and a R4 of Université de Montréal. She also did Classroom teaching (3 hours) and Fellow and Resident teaching regularly in the setting of the Hematology Consultation Service (5 weeks).

Dr. Mark Blostein taught Coagulation and Hemoglobin electrophoresis (40 and 16 hours/year, respectively) to Hematology fellows, as well as management of Coumadin/DOACs to residents rotating through the Anticoagulation clinic (4 hours/week, i.e. 160 hours/year). He held Hemostasis (bleeding) teaching to Hematology, GIM and ICU Fellows (5 hours) and to Medical Students (1 hour). Dr. Blostein did Fellow and Resident teaching regularly in the setting of the Hematology and the Thrombosis Consultation Service (6 and 10 weeks, respectively). His research trainee supervision included 2 graduate students in Physiology (PhD) and Experimental Medicine (Masters), 2 fellows (thrombosis, GIM) and a medical resident.

Dr. Stephen Caplan accumulates a tremendous knowledge and experience in both, benign and malignant hematology. This is most appreciated by our trainees and documented in their mentor evaluations. His teaching activities include the outpatient clinics for Hematology-, Radiation/Oncology-, and Medical Oncology fellows with 150 hours per year. He was as ward attending on the K7 Hematology ward for 2 weeks.

Dr. Chantal Cassis is the relentless and innovating Director of our competitive, highly valued McGill Hematology Residency Program. Definitely RCPC accredited in 4/2017, the program is

still constantly ameliorating. Currently, a slide scanning project for morphology teaching is under way and a Residents' room, equipped with large high resolution screens to teach blood and bone marrow cytology, is now arranged in the JGH at the E-1 level. Dr. Cassis' teaching activities include intense bed-side teaching during her 6 Consultation weeks (to do so she cuts her Clinic short), service as Internal Medicine ward attending on K7 for 2 weeks (140 hours), Hematology ward attending for 4 weeks, two formal lectures per year during the Hematology academic half-day, expert physician rounds, laboratory teaching to Hematology Fellows, preparation and organization of the annual McGill Hematology in-training exam which is composed of 3 parts (written, oral scenario and morphology), as well as teaching the TCP class "An approach to anemia" at all 3 sites (JGH, MGH and Glen) for medical students.

Dr. Nathalie Johnson, in her second year as Director for the Clinical Investigator Program at McGill, has successfully managed the 2019 re-accreditation of the Program for the Royal College. Currently, 3 PhD candidates of the McGill Experimental Medicine Program perform in her laboratory a thesis and are in the second, and fourth year (two candidates), respectively. The theses are entitled "*Effect of loss of CD20 on B cell receptor targeted therapy in lymphoma*", "*The role of STAT6 in DLBCL*", and "*Overcoming treatment resistance in DLBCL*". A Master's student, Department of Biotechnology, works on "*The immune profile of relapsed DLBCL by Image Mass Spectrometry*", and one of our Hematology fellows (Dr. Moneeza Walji) analyzes "*Optimizing fitness, health care, and quality of life for lymphoma survivors*". Dr. Johnson has been involved in teaching students at the undergraduate and post-graduate levels at McGill (EXMD607B, 635, and PHGY516 total of 7 hours), as well as in teaching of Hematology fellows during her 5 weeks of Consultation service. She held a 1 hours' lecture to Hematology/Oncology fellows featuring the management of aggressive lymphomas, taught 5 hours of flow-cytometry to our Hematology fellows and instructed 13 CIP residents how to prepare a research CV and dossier.

Dr. Ryan Kaedbey immediately after his arrival at the JGH (October 1st) participated in Fellow and Resident teaching in both, the Consultation and Ward service.

Dr. Hans Knecht was involved in teaching McGill Medical students (Expert Physician Rounds, 4 hours) and Hematology fellows on the microscope (12 hours), flow-cytometry and hemoglobin electrophoresis. He did Fellow and Resident teaching regularly in the setting of the Hematology and the Thrombosis Consultation Service (6 and 4 weeks, respectively). His research trainee co-supervision included 1 postdoctoral Hematology fellow and 1 PhD candidate in molecular biology at UoM, Winnipeg.

Dr. François Mercier was very active in the formal teaching and learning process at McGill. Again, he was teaching students at the undergraduate (PHGY 313, 516, and 2nd year Medical School, total of 12 hours) and EXMED516-616 (3 hours). He is actively involved in the development of these courses (40 hours). Not astonishing that the students' evaluations rate him as an excellent teacher. In his lectures he points to a clinical perspective by preparing "*blood smear quizzes*". He did Fellow and Resident teaching regularly in the setting of the Hematology Consultation Service and simultaneously inpatient supervision on K-7 (4 weeks). In his leukemia research laboratory Dr. Mercier supervises 2 Ph.D. candidates, 3 M.Sc. students, 1 R5 in medical genetics and he hosted 1 summer medical student. Several manuscripts are on the way to be submitted in 2020.

Dr. Yury Monczak acted as a lecturer at the McGill Academic half-day teaching for Hematology (3 hours) and Pathology Residents (3 hours). He was again very active in Hematology and

Pathology residents' rotation teaching (6 hours teaching and 1 week of practical activities for the former, 12 hours teaching and 4 weeks of practical activities in the lab for the latter). He participated in the University of Montreal Medicine course MMD 1229 (Pathology and Immunology), for 1st year medicine students (18 hours) and the Medicine course MMD1231 (Hematology), for 1st year medicine students (18 hours), as well as in the University of Montreal Molecular Biology course PBC6042 graduate course (6 hours). Dr. Monczak participated in the Dawson College Medical Technology program with lectures (4 hours) and one week of practical rotation in the laboratory including 3 hours of lectures.

Dr. François Patenaude shows innovative and impressive teaching activity in Hematology and Oncology; twice a year he presents through video-conference update presentations of new advances on renal cell carcinoma and case presentations for open interactive discussions to 15 participating hospital sites including CHUS, Québec and Ottawa General Hospital. Many fourth year medical students (JGH, the RVH and the CHUM), performing 4-week rotations in the outpatient clinics with case discussions and review-manuscript discussion of oncology topics, spend about 2 days per week with Dr. Patenaude. He also does 4 weeks of regular Hematology fellow teaching in the setting of our Hematology Consultation Service. Close to 50 2nd and 3rd year medical students spend at least one day with him and are exposed to all stages of breast-, colorectal-, renal cell cancer and melanoma, as well as to management of chemotherapy side effects. As a "rule" five 6th year foreign students (Germany) spend every year 8 to 12 weeks in an elective clinical rotation with supervision, where Dr. Patenaude is the leading mentor.

Dr. April Shamy is director of both, the Clinical Teaching Unit (CTU) at K7 and the new Hematology unit at K7. Her reputation as passionate clinical teacher is meanwhile well known also outside McGill. Her teaching activities include four weeks of K-7 as ward attending, weekly interactions with the K-7 ward team, teaching in outpatient clinics for Hematology-, Radiation/Oncology-, and Medical Oncology fellows during the entire year, as well as five weeks of house staff teaching when responsible for the Consultation service. In her 11th year as Osler Fellow she acted as teacher of the core curriculum for first year medical students at the McIntyre building.

4. Involvement in the community:

Dr. Assouline held presentations in several Québec hospitals dealing with cutting-edge treatments of CML (Université de Sherbrooke, Hôpital Charles-Lemoyne, St. Mary's Hospital, Hôpital Verdun) and CLL (St. Jérôme). She acted as co-chair of the Hematology Disease Site group at the Canadian Cancer Trial Group (CCTG), as session moderator at the annual meeting of the *Groupe québécois de recherche en LMC*, as expert reviewer for INESSS, and as reviewer for *Blood Journal*, *Journal of Hematology* and *Lancet Hematology*.

Dr. Mark Blostein further expanded the national and international attractivity of the AC Clinic as a major teaching site of the McGill Hematology Division through establishment of a Perioperative Anticoagulation Clinic. He also acts as a member of the Surgeon Scientist Committee and the Clinical Investigator Program (RPC) committee, McGill University. He reviewed articles for *Blood*, *Thrombosis and Hemostasis*, *the Journal of Thrombosis and Hemostasis*, *Thrombosis Research*, and *Clinical & Applied Thrombosis & Hemostasis*.

Dr. Stephen Caplan is a major contributor to the Canadian Paroxysmal Nocturnal Hemoglobinuria (PNH) Network. To honour his activity in the management of this rare and dangerous disease, one of the PNH-patients financed the high tech teaching equipment for our Hematology Residency

room.

Dr. Chantal Cassis participates as Examiner, Royal College of Physicians and Surgeons of Canada, for the Internal Medicine Examination in Ottawa (3 days) and is involved in the transition of hematology to *Competence by Design* (Ottawa, 3 days). She invests weekly about 9 hours as program director for the Hematology Fellow Program and every 3 months two hours in the Resident training committee meetings. Dr. Cassis is Member of the Rossy Cancer Network Cancer Quality Council where she leads the Hematology Disease Site. She also organizes the quarterly M & M rounds at our Division.

Dr. Nathalie Johnson held 2 presentations sponsored by Lymphoma Canada and was very active (25 hours) in the Planning Committee of the Canadian Conference on Lymphoproliferative Disorders (CCOLD) and as Councillor for the board of the Canadian Society for Clinical Investigation (20 hours). As a director for board of Lymphoma Canada she participated at several half-day meetings (8) to promote education, advocacy and research for patients with lymphoma. She also acted as external examiner of a PhD thesis defense (UdM). Dr. Johnson was also a member of the Search committee for Chair, Department of Medicine and Physician-in-Chief, McGill University Health Center. In her function as director of the CIP at McGill she met with program directors to develop competence based learning for the CIP program. Her review activity included manuscripts for *Blood, Leukemia, Brit J Haematol and Exp Hematol*.

Dr. Ryan Kaedbey was an invited speaker at the JGH Department of Medicine Grand Rounds November 18, 2019, where he hold a lecture entitled “*Multiple Myeloma: 2019 and beyond*”. Since January 2018 he acts a subcommittee member of *Transistion to Clinical Medicine*.

Dr. Hans Knecht held an invited lecture entitled “*The Reed-Sternberg cell keeps still smiling*” at the 20th Anniversary International Imaging Symposium of the GCCRD, University of Manitoba, Winnipeg, June 24 & 25 and presented, again at UoM, “*Hodgkin’s lymphoma: past, present and future*” at the workshop for Microscopy, Optics and Imaging (November 21st). He was nominated member of the Editorial Board of *Cancers (IF 6.1)* and acts as Academic Co-Guest Editor of a *Cancers* issue entitled “*Nuclear architecture in Cancer*”. Dr. Knecht reviewed manuscripts for *Case Rep Hematol, IJMS, JAMA Dermatology, Leuk Lymphoma, Lab Invest, Molecular and Clinical Oncology, Molecular Medicine Reports, Oncology Letters*. Since October he acts as a Member of the Ethics Committee for Medical and Biomedical research at the JGH.

Dr. François Mercier acted as Examiner, Royal College of Physicians and Surgeons of Canada, for the Internal Medicine Examination (2 x 3 days, May and June). He was an invited speaker at the RVH Division of Haematology (April 10th), at the Annual Research Symposium, McGill Department of Medicine (April 24st) and the JGH Division of Haematology (June 27th). Dr. Mercier also held seminars at McMaster University Stem Cell and Cancer Research Institute, Nov 15th, and at University of Montreal, Quantitative and Computational Biology, December 3rd. His key messages deal with *in vivo* tracking of leukemic clonal evolution in AML, changes in gene expression during treatment, and identification of potential therapeutic targets. He was a reviewer for the “*Programme FRQS/MSSS de formation pour les médecins résidents en médecine spécialisée visant une carrière en recherche - Phase 1*”, the Ste-Justine FIT internal research grant competition, the IRCM graduate student awards, and a MITACS Accelerate research proposal. He also was selected as judge for the Maisonneuve-Rosemont Hospital Research Center Research Day.

Dr. Yury Monczak is a Member of *Comité Consultatif de Diagnostic Moléculaire* of the MSSS (Quebec Health Ministry), and a permanent (volunteer activity) visiting professor, Ukrainian Catholic University in Lviv, Ukraine, School of Bioethics; this year he held again 22 hours of lectures on molecular biology and diagnostics from April 6 -17. He is a Board Member of the Shevchenko Scientific Organization, Montreal Chapter and an Advisory Board Member of the Dawson College Biomedical Technology Program (4 hours/year). Dr. Monczak actively participated at four international workshops dealing with molecular leukemia diagnostics. He is regular reviewer for *Genet Test Mol Biomarkers*.

Dr. François Patenaude was the invited speaker at 3 occasions in 2019 in Québec hospitals. He addressed the value of radical nephrectomy in 2019-2020 (St. Jérôme), the management of advanced kidney cancer (Verdun) and the new paradigmas in melanoma (Pierre-le-Gardeur). Dr. Patenaude participates actively in the Canadian Kidney Cancer Initiative (CKCI) and he is a renowned committee member of the CKCF for establishing Canadian guidelines for the management of renal cell cancer. He is a longstanding Consultant for CEPO for renal cell cancer, melanoma, and breast cancer and member of the steering committees of GEOQ for these three entities. He still is a sought after consultant for the Hôpital Régional de Rouyn-Noranda from where he recruits patients for clinical trials at McGill.

Dr. April Shamy again organized cutting-edge Hematology Rounds with internationally leading treatment experts in the rapidly progressing and changing field of lymphoma and myeloma treatment. Moreover, Dr. Shamy did a fantastic job in organizing and relocating the Hematology Division's most important annual social event in a short time frame. Our traditional Christmas party (29th of November) was celebrated in a new place, "*Le Crystal*", Blvd Henri Bourassa 5285, Saint-Laurent. It was an unforgettable evening. Laurent Desbiolles, D. Pharm, and Virginia Ann McLaughlin, Administrative Agent, were the 2019 recipients of the "*Ferraro Roc*", recognition of outstanding and selfless activity for our patients and the Division. Again, far over hundred volunteers, nurses, housekeeping, administrative agents, K-7 ward personal, laboratory technicians, pharmacists, affiliated and staff physicians were transformed in a dancing cohort fueled by excellent catering.

Dr. Shireen Sirhan was an invited speaker at several Québec hospitals (Pierre-Le-Gardeur, Brome-Missisquoi-Perkins, Lakeshore) dealing with the 2019 NPM updates in this rapidly evolving diagnostic and therapeutic field. She presented at the Québec Resident MPN education evening and at the « *Groupe Québécois de Recherche en LMC-NPM* » two days' meeting in November, focusing on management of pregnancy, new clinical trials and value of strict platelet count control in Polycythemia Vera. Dr. Sirhan was also invited speaker at the Latin American Hematologic Malignancies Speaker Training on MPNs earlier this year (May 2nd & 3rd).

5. Partnerships:

In the context of the CIUSSS organization the Division of Hematology (Dr. Knecht) provided the bone marrow (40 patients) and peripheral smear reading (89 patients) for Rouyn-Noranda, peripheral smear reading for Lac Temiscamingue (42 patients). Drs. Johnson and Knecht reported flow cytometry analyses for Lakeshore, Hull and Gatineau (644 reports). Dr. Patenaude is still a frequently called oncology consultant for Rouyn-Noranda.

6. Milestones: new hires, highlights, promotions, and retirements:

October 1st, Dr. Ryan Kaedbey joined our Hematology Division as Director of the Autologous Stem Cell Transplant (ASCT) Program and Apheresis Center. Dr. Kaedbey got his special fellowship formation in ASCT & multiple myeloma at the University of Toronto and is the personality needed to continue and to expand the outstanding work accomplished by Dr. Martin Gyger. November 18, Dr. Kaedbey held an excellent presentation entitled “*Multiple Myeloma: 2019 and beyond*” in the setting of the JGH Medical Grand Rounds.

July 1st, Dr. François Mercier was awarded the 2 years’ the FRSQ Chercheur-Boursier Clinicien Phase I salary stipend. He further was the recipient of the JGH Foundation/HSBC award in Oncology (\$ 80’000.-)

In October Dr. Stephen Caplan was honored through a generous donation by the Alissa & Barry Katsof Family Foundation in recognition of his dedication to the PNH patients, allowing to furnish high-tech equipment for the new Hematology Fellows’ room.

November 8th, Dr. Nathalie Johnson, Director of the Clinical Investigator Program at McGill University, got a seamless re-accreditation of this top program for the next 8 years until 2027. (RCPC accredited in 2015 under the lead of Dr. Marc Blostein).

Early in 2019 Dr. Sarit Assouline was elected co-chair of the Hematology Disease Site group at the Canadian Cancer Trial Group (CCTG) and received the CCTG 2019 Frances A Shephard Award for her oral abstract presentation at ASH later this year.

In 2019 Dr. Hans Knecht was nominated member of the Editorial Board of *Cancers* (IF 6.1) and as Academic Co-Guest Editor for a *Cancers* issue entitled “*Nuclear architecture in Cancer*”.

January 1st 2020 the JGH Division of Hematology welcomes the new Chair of the McGill Department of Medicine, Dr. Marc Rogers, CETAC collaborator, as associate member.

7. Honours, awards, and prizes: Reported above under 6.

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division:

The principle goals for the next years will be:

- to offer cutting-edge treatment to the very sick hematology patients,
- to increase patient recruitment for phase I and II trials,
- to progress in our Hematology Fellowship program,
- to strengthen and expand laboratory hematology despite *Optilab* constrains,
- to increase the collaboration with the other Hematology McGill sites,
- to increase top-level research production in basic, translational and clinical research,
- to solidify the administrative (secretarial) domain of the Division,
- and to improve our Clinical Programs despite forthcoming financial restrictions and reorganization of the current healthcare system.

Concerning the recruitment of new young staff Hematologists the vision remains exactly the same as that formulated by Dr. Stephen Caplan in the 2013 Annual Report, as follows (verbatim):

“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.”

2. A nominative list of academic staff, their academic rank

Dr. Sarit Assouline	Associate Professor	Active
Dr. Mark Blostein	Associate Professor	Active
Dr. Stephen Caplan	Associate Professor	Active
Dr. Chantal Cassis	Assistant Professor	Active
Dr. Nathalie Johnson	Associate Professor, tenured	Active
Dr. Ryan Kaedbey	Faculty Lecturer	Active
Dr. Hans Knecht	Full Professor	Active
Dr. François Mercier	Assistant Professor	Active
Dr. Francois Patenaude	Assistant Professor	Active
Dr. April Shamy	Associate Professor	Active

Associate Members

Dr. Lissa Ajjamada	Faculty Lecturer	Active
Dr. Photini Haliotis	Associate Professor	Active
Dr. Susan Kahn	Full Professor	Active
Dr. Yury Monczak	Assistant Professor	Active
Dr. Jaroslav Prechal	Associate Professor	Active
Dr. Shireen Sirhan	Assistant Professor	Active
Dr. Tanya Skamene	Faculty Lecturer	Active

SECTION II - GRANTS, PUBLICATIONS, AND SERVICE OUTSIDE OF MCGILL

1. Grants and awards received

Dr. Sarit Assouline

2018-2022	Fonds de Recherche en Santé du Québec, 4 years Senior Research Scholarship.
2017-2020	AbbVie Grant: phase II study of R-GDP and Venetoclax, for relapsed and refractory DLBCL – to be conducted by the CCTG (Canadian Cancer Trials Group) \$ 300'000.-

Dr. Mark Blostein

- 2019-2020 Site Investigator: Clinical Trial for anticoagulation of aortic mechanical valves (LIMIT).Funded by CIHR.
- 2016-2019 Site Investigator: Annexa-4. Clinical Trial examining the use of a Reversal agent for the New Oral Anticoagulant Factor Xa inhibitors (only site in Quebec and one of two in Canada).
- 2017-2019 Site Investigator: Clinical Trial for Perioperative management of ITP. Funded by Novartis.
- 2016-2019 Site Investigator: PAUSE, a CIHR funded clinical trial that uses a standardized protocol for the peri-procedural management for all three novel anticoagulants.
- 2016-2019 Received funding from Bayer to develop an INR for Rivaroxaban based on patient samples.

Dr. Nathalie Johnson

- 2016-2021 Terry Fox Research Institute (TFRI) Team grant: “Overcoming treatment failure in lymphoid cancers”. \$7'500'000.- Awarded to M. Marra (PI), C. Steidl (PI), J. Connors (PI), A. Karsan (Co-investigator), R. Morin (PI), D. Scott (PI), A. Weng (PI), S. Shah (PI), P. Farinha (Co-investigator), A. Mungall (Co-investigator), G. Morin (Co-investigator), C. Hansen (Co-investigator), G. Slack (Co-investigator), S. Aparicio (Co-investigator), L. Shepherd (Co-investigator), J. Delabie (Co-investigator), Nathalie Johnson (Co-investigator), J. Kuruvilla (Co-investigator), A. Korman (Co-investigator), P. Hoodless (Co-investigator), M. Bally (Co-investigator), J. Crawford (Co-investigator), B. Nelson (Co-investigator), L. Sehn (Co-investigator), K. Savage (Co-investigator), D. LeBrun (Co-investigator).
- 2018-2021 Canadian Cancer Society (Québec Division) PI Dr. Nathalie Johnson (Co-PI Dr. Hélène Decaluwe). Optimizing immunotherapy in high-risk adolescent and young adult (AYA) lymphomas. \$ 371'301.-
- 2018-2023 CIHR Project Grant. PI Dr. Nathalie Johnson (Co-PI Dr. Hélène Decaluwe). Optimizing immunotherapy in high-risk lymphoma. \$ 1'208'700.-

Dr. Susan Kahn

- 2019 Currently Dr. Kahn holds 10 peer-reviewed grants, two of them as PI, the remainig as co-applicant. She is also PI and Co-PI, respectively, in two Pharma sponsored studies.

Dr. François Mercier

- 2018-2020 Cancer Research Society/ICR-CIHR: PI Dr. François Mercier. Identification of in vivo regulators of leukemic growth. \$ 120'000.-
- 2017-2020 Cole Foundation Transition Award: Functional genomics of acute myeloid leukemia. \$ 150'000.-
- 2018-2020 Montreal Cancer Consortium: Co-Investigator. Development of new combination therapeutic strategies in acute myeloid leukemia. \$ 375'000.- (\$ 45'000.- Co-Investigator)
- 2019-2020 Richard & Edith Strauss Foundation: PI Dr. François Mercier. Understanding the interactions between blood stem cells and their bone marrow microenvironment for therapeutic potential. \$ 50'000.-
- 2019-2020 Recipient of the JGH Foundation/HSBC award in Oncology. \$ 80'000.-

Dr. Yury Monczak

2018-2019 PI of an educational grant from Janssen Pharmaceuticals. \$ 206'000.-

2. Scholarly works published in the 2018 calendar year (*in press not included*):

Assouline, Sarit

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Klil-Drori AJ, Yin H, Azoulay L, Harnois M, Gratton MO, Busque L, **Assouline SE**; Groupe Québécois de Recherche en Leucémie Myéloïde Chronique et Néoplasies Myéloprolifératives (GQR LMC-NMP). Persistence with generic imatinib for chronic myeloid leukemia: a matched cohort study. *Haematologica*. 2019 Jul;104(7):e293-e295.

Blostein, Mark

Arnold DM, Jamula E, Heddle NM, Cook RJ, Hsia C, Sholzberg M, Lin Y, Kassis J, **Blostein M**, Larratt L, Amini S, Schipperus M, Carruthers J, Lane SJ, Li N, Kelton JG. Peri-Operative Eltrombopag or Immune Globulin for Patients with Immune Thrombocytopaenia (The Bridging ITP Trial): Methods and Rationale. *Thromb Haemost*. 2019 Mar;119(3):500-507.

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Kahn Susan

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Trial. *Circulation* 2019 Feb 26;139(9):1162-1173.

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Mercier, François

Baryawno N, Przybylski D, Kowalczyk MS, Kfoury Y, Severe N, Gustafsson K, Kokkaliaris KD, **Mercier F**, Tabaka M, Hofree M, Dionne D, Papazian A, Lee D, Ashenberg O, Subramanian A, Vaishnav ED, Rozenblatt-Rosen O, Regev A, Scadden DT. A Cellular Taxonomy of the Bone Marrow Stroma in Homeostasis and Leukemia. *Cell* 2019, Jun 13;177(7):1915-1932.

Patenaude, François

Hotte SJ, Kapoor A, Basappa NS, Bjarnason G, Canil C, Conter HJ, Czaykowski P, Graham J, Gray S, Heng DY, Karakiewicz PI, Kollmannsberger C, Lalani AA, North SA, **Patenaude F**, Soulières D, Violette P, Winquist E, Wood LA, Dudani S, Maloni R, Reaume MN. Management of Advanced Kidney Cancer: Kidney Cancer Research Network of Canada (KCRNC) consensus update 2019. *Kidney Cancer Research Network of Canada. Can Urol Assoc J* 2019, Oct;13(10):343-354.

Shamy, April

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3. Academic and community engagement service outside of McGill by individual members of the unit:

This issue has already been dealt with under: 4. Involvement in the Community.

SECTION III - CONFIDENTIAL INFORMATION

1. Consulting activities:

One staff member and one associate member reported Consulting activities in the private sector for 1.5 days and 3 days respectively, over the year.

Respectfully submitted,



Hans Knecht, MD, FRCPC, FMH, FMAH
Director, Division of Hematology

Outremont, February 29, 2020