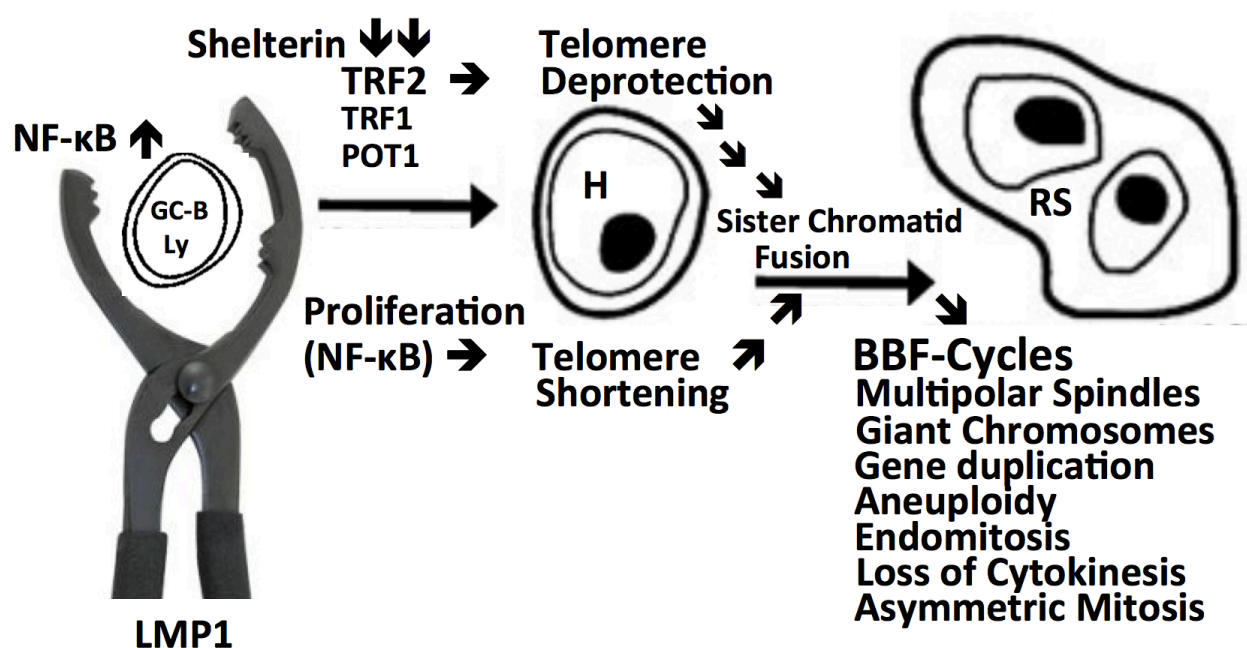


**Annual Report**  
**Division of Hematology**  
**Department of Medicine - Jewish General Hospital**  
**January 1 - December 31, 2020**

**Pincer attack of Germinal Center B-cell by LMP1**



## General Considerations

Meeting with Dr. Ernesto Schiffrin the second week of February, he informed me (HK) about the apocalyptic medical Situation in Northern Italy, just after a phone conversation he had with an ER Colleague from the Milan region. “We have to be ready and it will hit us soon”. How right he was, COVID-19 was ante portas. February 13, the Hematology Division had its Preparedness Plan at disposition to the DIM, based on the model composed to face the H1N1 pandemic of 2009-2011. March 4 a reduced Consultation service and precautions started. March 13 & 14, meeting of all involved in Hematology (Hematology-Team) on E-7 in the Conference room with 2 meters distance between the participants. From March 14 onwards all meetings were done by ZOOM (2x weekly Tumor board, organized by Dr. François Mercier). Drastic reduction of Consultations implementing security measures was recognized as a MUST.

Dr. April Shamy was designated by the DMI and JGH as the leader of the COVID-task force. She arranged the first COVID-19 ward opening on K-10, March 16, with Drs. Jason Agulnik and Chantal Cassis as attendings. March 23 the second COVID-19 ward opened on K-9 and a Screening unit on C7 North-West was initiated. March 30 Dr. Marc-Nicolas Bienz, Hematology Fellow, volunteered as night doctor for the week on the K-10 COVID ward. Further on during the first and second wave of the pandemic, Drs. François Mercier and Ryan Kaedbey, as well as the Fellow Drs. Alexandre Bazinet and Vladimir Sapon-Cuisineau, contributed to the COVID task force. Overall, the Hematology Division is proud to have contributed and to contribute to the successful management of the pandemic without neglecting its vocation, which is excellence in patient care, in teaching and clinical/translational, as well as basic research. A special thank to Dr. April Shamy for her professional lead of the COVID-19 task force and the complete cover of her heavy duties as a Hematologist.

The critical situation in the *Corelab*, essential for a seamless functioning of the Department of Medicine, now part of *Optilab*, controlled by the MSSS and the Unions, persists. Laboratory technicians are still 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 during 2020 has occurred and patient safety may get endangered. Fortunately there are still experienced laboratory technicians proud to work at the JGH. But there is undoubtedly an urgent need of new laboratory technician positions, especially in flow-cytometry and morphology. This is an unpleasant situation and has to be corrected. Despite the implementation of the new Sysmex CBC analyzer equipped with CellaVision (automated smear reading), detailed cytological analysis of difficult blood smears remains crucial for adequate, rapid diagnostics.

Our two diagnostic and teaching Leitz microscopes in the morphology room are in a desolate condition and need to be replaced rapidly. These old instruments will be replaced by one ZEISS AxioScope.5 Co-Observation system 4 heads and one AxioScope.5 Co-Observation system. Both instruments will be purchased issued with a 10 years' warranty service contract. The costs of CAD 130K are covered by the JGH foundation through donations for equipment for the Hematology Division. The agreement of Optilab has occurred and the purchase order is waiting to be signed by the MSSS (project 01033889).

A major success for the Division of Hematology/Oncology was the attribution of 3 new PEMs (Ministerial decision of November 16) for the period 2021-2025, communicated to the DSP November 30. We are delighted that the new MSSS Directorship recognized the urgent need (documented by patient visits/Hematologist-Oncologist/per year). This will allow to convert early

in 2021 the derogation PEMs of Drs. Ryan Kaedbey (Hematology) and Jennifer Friedman (Oncology) in regular PEMs and opens the way for an urgently needed new Blood Bank Director (replacement of Dr. Stephen Caplan) for 10/2023 or 4/2024. Our PGY5 Hematology Fellow Dr. Mark Bienz was accepted for a Blood Bank fellowship at the Hospital for Sick Children in Toronto with start October 2021.

Hematology and Thrombosis fellows ranked as first authors in six manuscripts, underscoring the importance of a strong research spirit within the McGill Hematology Curriculum. Dr. Chantal Cassis's perception of a fellowship program with early immersion of Hematology fellows into research projects with Hematology staff physicians paid off: the scientific work by Fellows is in constant increase over the past years. Direct proof of principle was the outstanding presentation entitled "A retrospective end of life study of patients with hematologic malignancies and the importance of end of life discussion in serious illness", held by Dr. Victoria Korsos, second year Hematology Fellow, together with Dr. Cassis at the virtual JGH Medical Grand Rounds of June 15, 2020.

End of February Dr. Ernesto Schiffrin announced to Drs. Stephen Caplan and Hans Knecht that the 57<sup>th</sup> André Aisenstadt Annual Memorial Clinical Day would be celebrated October 29 to honor their work for the Hematology Division. This memorable event chaired by Drs. Ernesto Schiffrin and April Shamy, organized by Stéphanie Rosa from the JGH Foundation, was held by videoconference (COVID) and due to a Cyber-Attack to the JGH occurring October 27, reported to January 21, 2021. The meeting was fantastic from a philanthropic and scientific view.

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**

The JGH is an approved center for the performance of ASCT by an official letter from the Ministry of Health (March 23, 2007). Dr. Ryan Kaedbey, in his first year as director of the autologous stem cell program and apheresis center, successfully integrated the program into the Canadian Myeloma Research Group (CMRG) and was amongst the leading Canadian myeloma specialists in establishing perspectives in managing multiple myeloma during the COVID-19 pandemic. Despite the two COVID waves in spring and late in the year a total of 31 auto-SCTs has been achieved (16 from July to September). 24 auto-HSCTs occurred for MM, 11 as inpatients (living far away, living alone, comorbidities) and 13 as outpatients (4 of them needing hospitalization for febrile neutropenia post auto-HSCT), whereas 7 patients got transplanted for lymphoma. Thus, once the COVID restrictions overcome, the continuation and progression of the pioneer work of Dr. Martin Gyger, who built and expanded our ASCT Program to a mean of 35 auto-SCTs per year over the last decade, appears to be guaranteed. However, need for a full time Transplant Nurse, unfortunately reduced to a 2 days' position under the preceeding MSSS direction, is a prerequisite. For refractory patients with MM, the program offers a phase I study with a humanized immunoglobulin G-based T-cell-engaging bispecific antibody (bsAb), targeting

the most membrane-proximal domain of FcRH5 on myeloma cells and CD3 on T cells. This dual binding facilitates efficient immunologic elimination of myeloma cells by T-cells.

### **Hematology Ward K7**

During the first wave of the COVID pandemic the ward had to reduce its capacity to 4 beds and was even forced to close for four weeks from mid June to mid July. The ward director Dr. April Shamy was fully absorbed by leading the JGH COVID-team, one specialized nurse practitioner, Ms. Shoshanna Breiner, was in Maternity leave since mid March, and one specialized nurse practitioner, Ms. Sheena Heslip, as well as three Hematology Attendings (Drs. Cassis, Mercier and Kaedbey) reinforced the COVID-team. Hematology patients hospitalized for urgent chemotherapies were directed to the Internal Medicine CTU ward. After the ward reopening, Ms. Sheena Heslip, SNP, guaranteed stability and fluidity of the ward functioning through her excellent professional performance. The relentless activity and high quality of patient care of both SNPs was recognized and resulted (end of October) in approval of the JGH as site of NP student formation and monitoring. In the near future SNP Sheena Heslip will be teaching the basic Hematology session at McGill for the primary line nurse practitioners and she will in collaboration with our pharmacy (the 2021 pharmacy residents) address two Hematology ward research projects dealing with, first, looking at the use of antifungals and rates of aspergillus in our leukemic population and, second, the de-escalation of antibiotics in our culture negative neutropenic population.

### **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 7 years. In 2020 we totalized 9727 patient follow-up visits (2019: 9689 patient visits, i.e. an increase of 0.4%) and had 442 new patients (2019:428, i.e. an increase of 3%), but instead of getting urgently needed additional specialized nurses we suffered from further shortening due to the COVID pandemic. In the Clinical Research Unit (CRU), directed by Dr. Sarit Assouline, currently 17 Clinical Hematology Research Trials (mainly phase I and phase II) offer patients with relapsing/refractory or primarily aggressive hematologic diseases cutting-edge therapies. In 2020 a total of 54 patients (34 new, 20 continuous) have been treated. Despite the COVID pandemic these numbers are nearly identical to the ones of 2019 (56, 36 new, 20 continuous). Updated detailed information concerning the trials is available at the Rossy Cancer Network website, <https://www.mcgill.ca/rcr-rcn/clinical-trials>. Patient satisfaction of our CRU patients ranges top as a result of the individual, excellent and compassionate care they get by the specialized nurses and study coordinators. As in previous years, the scientific activity of the 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 16<sup>th</sup> 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 followed either by Dr. Sarit Assouline, head of the clinic, or Dr. Jaroslav Prchal. The Clinic participates in several international studies with the aim to optimize the treatment. One of these studies, entitled *“Increased tumor burden in patients with chronic myeloid leukemia after 36 months of imatinib discontinuation”*, was published Blood. (2020, 136:2237-2240).

### **Myeloproliferative Neoplasia (MPN) Clinic**

The MPN clinic was started in 2010 (thanks to a donation from Mr. Edward Pascal) and currently follows about 200 patients referred from all over the province for access to new therapies available through our clinical trials program. The clinic is co-directed by Drs. Shireen Sirhan and Jaroslav Prchal and organized by Sabrina Fowlkes, a dedicated, specialized nurse. In 2021 the clinic participates at a large scale international study entitled “*A Phase 3, Randomized, Double-blind, Active-Control Study of CPI 0610 and Ruxolitinib vs. Placebo and Ruxolitinib in JAKi Treatment Naive MF Patients (MANIFEST 2)* “. Nationally, the leading position of the clinic is further sustained by the election of Dr. Shireen Sirhan as President of the Canadian MPN Group from 2021 onwards.

### **Myelodysplastic Syndrome Clinic (MDS) Clinic**

The MDS clinic is a nationally recognized teaching program, headed by Dr. April Shamy. and increasingly popular amongst medical students, medicine residents and hematology-oncology fellows. With increasing life expectancy, MDS, -mainly a disease of the elderly-. is now considered as a frequent malignant hematologic condition. A major issue of MDS patients is often their red blood cell transfusion dependence since several patients do not respond well to Erythropoietin, a stimulator of early erythroid progenitors. A new medication, called *Luspatercept*, stimulates mainly late erythroid precursors and has been successful in reducing the RBC transfusion need of thalassemia patients. Early in 2021 the clinic will open a phase 3, open-label, randomized study, to compare the efficacy and safety of *Luspatercept* versus *Epoetin alfa* for the treatment of anemia in patients with very low, low or intermediate risk MDS requiring RBC transfusions.

### **Gaucher Clinic**

In his third year as head of the Gaucher clinic, Dr. François Mercier continued clinical teaching of this rare hereditary thesaurismosis to a fellow in medical biochemistry. 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. Currently, Dr. Mercier and Dr. Philippe Campeau (Sainte-Justine) are on the way to establish a biobank of patients' samples. This highly specialized treatment program includes currently 48 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). Very helpful are a research nurse, pharmacist-assistance with the dispensation of medication and explanation of its side effects, as well as a Gaucher's disease website, in order to ensure optimal patient care. This year the longstanding imiglucerase treatment (recombinant DNA analogue of the human enzyme  $\beta$ -glucocerebrosidase) was replaced by taliglucerase, the first plant cell-expressed acid  $\beta$ -glucocerebrosidase. Dr. Mercier was co-author of a manuscript entitled “Identification of a reliable biomarker profile for the diagnosis of Gaucher disease type 1 patients using a mass spectrometry-based metabolomic approach“. *Int J Mol Sci.* 2020, 21:7869.

### **Anticoagulation Clinic**

The COVID-19 pandemic had a major impact on the organisation of the AC Clinic, the DOAC (Direct Oral Anticoagulants Clinic), and the Perioperative Anticoagulation Clinic. Dr. Mark Blostein, the Director of these Clinics, converted the AC Clinic successfully to a virtual clinic to avoid patient-patient contact. The Perioperative Anticoagulation Service was transiently disrupted as the AC nurse retired in March 2020 at the beginning of the pandemic. Currently Dr. Ilham Benzidia, specialized Staff Physician from Hôpital St-Louis, Paris, France, enjoys increasing her knowledge in an optimal teaching environment.

### **Benign Outpatient Clinic**

The Clinic is much appreciated based on regular and spontaneous interaction with Family Physicians, the GI Division at the JGH and the specialized thalassemia/sickle cell Clinic at RVH, respectively. Most hematologists, all hematology fellows and observer students participate in the busy Benign Hematology clinic with over 150 weekly visits/consultations. Drs. M. Blostein and S. Caplan master the lion's share of the workload, followed by Drs C.Cassis, R. Kaedbey, H.Knecht, F. Mercier, F. Patenaude and A.Shamy. Since 2014 consultations were and are mainly requested for severe iron deficiency anemia, followed by leukopenia/leukocytosis, polyglobulia, thrombocytopenia/thrombocytosis as well as by monoclonal gammopathy of unknown significance (MGUS). Hyperferritinemia due to hereditary hemochromatosis is also regularly identified. Again, in 2020, several malignant hematologic diseases were picked up at an early stage when patients presented for low blood counts or localized lymphadenopathies.

### **Molecular Diagnostics Laboratory**

The Molecular Diagnostics Laboratory (MDL) was founded more than 20 years ago through a personal initiative of the late Dr. Arthur Rosenberg and Dr. Stephen Caplan. This laboratory is integrative part of our Hematology Division, essential for Leukemia and Lymphoma diagnostics, and the backbone for targeted therapeutic decisions and treatment monitoring. The laboratory is directed by Yuri Monczak, Ph.D., supported by Photini Haliotis, MD, Ph.D., associate members of our Division. Major achievements of this year include: i) the myeloid NGS panel developed in the laboratory including 35 genes, has been validated against three commercial kits and one external laboratory-developed assay. The major genes (FLT3, NPM1, CEBPA, JAK2, CALR, MYD88, CXCR4, TP53, and KIT) have been fully validated and further genes with clinical significance, such as IDH1, IDH2, ASXL1, RUNX1, EZH2, are currently validated, ii) full implementation of CLL MRD testing by NGS-technology starting in March 2021 (collaborative project with Dr. Nathalie Johnson), iii) the JGH MDL is designated by the MSSS to perform NPM1 mutation analysis. This MRD qPCR kit from a commercial source is currently validated in collaboration with UPMC (Pittsburgh), iv) transfer of all NGS data from the LDI to the JGH servers. Financing of hardware and IT services was supported by the Division of Hematology, and v) repatriation of "out-of-province" molecular testing in the setting of a MSSS directive.

## **2. Research and publications**

Dr. Sarit Assouline, director of Clinical Research in Hematology-Oncology and associate director of the LDI Clinical Research Unit, and her dedicated team of study coordinators maintained the innovative activity of the Clinical Research Program in leukemia and lymphoma despite temporary slowing down or interruption of recruiting due to the COVID-pandemic. Currently she acts as a Principal Investigator in nine cutting-edge Hematology treatment trials (mainly phase I/II) with a further-one opening soon. These trials represent new hope for patients with refractory disease. Information concerning the trials is publicly available on the net under McGill Rossy Cancer Network <https://www.mcgill.ca/rcr-rcn/clinical-trials>. In 2020, Dr. Assouline was first author of two clinical studies, senior author of three manuscripts, two of them invited reviews, both with Hematology fellows as first authors (Drs. Moneeza Walji & Vladimir Sapon-Cuisineau) and co-author of 11 multi-center studies, documenting the successful participation of the Hematology CRU at a national and international level.

Dr. Mark Blostein was site-investigator in 4 clinical Hemostasis or Thrombocytopenia research trials, which were suspended in March 2020 due to the COVID-19 pandemic. The state of these trials as per 31.12.2020 was as follows: LIMIT, a CIHR funded trial, comparing different INR



pathogenesis of Hodgkin's lymphoma. The group also presented at ASH a French-Canadian cohort study of 3D telomere dynamics as prognostic marker in Hodgkin's lymphoma.

Dr. François Mercier, who joined the Haematology Division in July 2017, further expanded his basic leukaemia research laboratory at the LDI, focused on AML, the most devastating disease in Haematology. In collaboration with Harvard he did substantial work defining the real-time dynamics of AML and the mTORC1 pathway in association with AML growth and response to chemotherapy (The manuscript is accepted for publication in *Nature Communications* in 2021). This kind of work will open the way to targeted AML treatment with pathway-specific inhibitors. Currently Dr. Mercier supervises two PhD candidates and three M.Sc. students. Maja Jankovic, PhD candidate in Experimental Medicine since 1/2019, was awarded the “*Cole Foundation Master's Training Award 2020-2022*” for her project entitled “The role of galactosylation in acute myeloid leukemia and its environment in vivo”. Alexandre Bazinet, MD, FRSQ M.Sc. Fellow within the Clinician-Investigator Program, was accepted for a Leukemia Fellowship at MD Anderson, Texas, starting July 2021. Despite the considerable impact of the COVID pandemic on research activities, the Mercier laboratory adapted rapidly to the situation and did overall very well. Starting in March, the laboratory was closed for approximately 2 months except for essential issues (maintenance of cell lines and mouse colonies). During that time, the laboratory transitioned to Zoom meetings and an online platform (Slack). Laboratory meetings and journal clubs continued and research gradually ramped up for the second half of the year. Dr. Mercier was co-author of four scientific manuscripts, once as co-first author. Noteworthy, Drs. François Mercier and Alexandre Bazinet participated at the voluntary COVID ward service.

Dr. Yury Monczak's molecular analyses were instrumental in proving the relationship between lenalidomide withdrawal and subsequent remission in a case of secondary AML. This molecular case study was published in *Leukemia & Lymphoma*.

Dr. François Patenaude, a leading Canadian expert in the management of advanced kidney cancer and malignant melanoma, is currently involved in 12 clinical Oncology trials, in 2 of them as PI of the McGill site. He is again co-author of 2 manuscripts dealing metastatic renal cell carcinoma. Remarkably, in one publication the first two authors are Oncology Fellows.

### **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, COVID ward service, Clinical Research Unit on E-6, E-7 wards, Academic half-day lectures, McGill Department of Medicine Research Day, and Hematology Laboratory. Particularities in teaching are listed as follows:

Dr. Sarit Assouline, Osler Fellow in Hematology in her fifth year, offered 3<sup>rd</sup> year Medical Students and Residents learning experience in her outpatients' clinic and coached two Hematology Fellows (Drs. Moneeza Walji, Vladimir Sapon-Cuisineau), in academic writing, resulting in two peer-reviewed publications. She did Fellow and Resident teaching regularly in the setting of the Hematology Consultation Service (5 weeks). She presented MRD in AML to the Hematology Residents and hold at the McGill Department of Experimental Medicine the annual (zoom) lecture of phase 1 clinical trials to a group of 15 students.

Dr. Mark Blostein performed zoom teaching in Anticoagulation to Hematology fellows and supervised two Thrombosis fellows (Drs. Adelina Teona Avram and Dominique Toupin) and one



Resident (James Zhang) in two peer reviewed publications. He did Fellow and Resident teaching regularly in the setting of the Hematology and the Thrombosis Consultation Service (4 and 5 weeks, respectively) and supervised 7 trainees in the Benign Hematology Clinic and 20 trainees in the Thrombosis Clinic.

Dr. Stephen Caplan is a most appreciated teacher of both, our trainees and our staff Hematologists. His over 40 years' Hematology experience in both, benign and malignant diseases, predestinates him to help with wise advice in very difficult therapeutic decisions. His teaching activities include blood and bone marrow cytology at the microscope and outpatient clinics for Hematology-, Radiation /Oncology-, and Medical Oncology fellows with over 100 hours per year.

Dr. Chantal Cassis is the dynamic and innovating Director of our competitive, highly valued McGill Hematology Residency Program. Definitely RCPC accredited in 4/2017, the program is still constantly ameliorating. With the imminent transition of the Hematology program to competency-based education on July 1<sup>st</sup> 2022, Dr. Cassis has been involved in the Royal College meeting to this effort and is in the process of organizing the program for this transition (competence committee, slide scanning project). Currently, the 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. The slide scanning project will allow for formative and summative feedback of morphology teaching and ultimately collaboration across provinces on teaching morphology. 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 third year as Director for the Clinical Investigator Program at McGill maintained her program activity despite of the COVID-pandemic. She has been involved in teaching students at the undergraduate (Introduction to Internal Medicine: senior physician rounds) and post-graduate levels at McGill (EXMD607B, the Experimental and Clinical Oncology Course held in Class with 20 participants Feb. 18, just prior the COVID-pandemic, with the following zoom courses EXMD635, and PHGY516 total of 7 hours), as well as in teaching of Hematology fellows during her 5 weeks of Consultation service. She held four zoom lectures (1 hour each) to Hematology /Oncology fellows on the topics featuring the management of Lymphoma biology, Immunology for Hematologists, Introduction to flow-cytometry and Diagnosis of acute leukemias, and Hodgkin's lymphoma. The flow-cytometry laboratory is with about 50 analyses/per week (total of 2545 in 2020) constantly at over-capacity. The two specialized technicians are excellent and devoted to the work but need for a third technician to be trained is obvious. Dr. Johnson's research trainee supervision is reported under: 2. Research and publications.

Dr. Ryan Kaedbey in his first year at the JGH (full activity starting April 1<sup>st</sup>) was already very active in Fellow and Resident teaching in both, the Consultation (benign and malignant), and the K-7 CTU Internal Medicine and COVID ward service.

Dr. Hans Knecht was involved in teaching McGill Medical students (Expert Physician Rounds, 3 hours) and Hematology fellows at the microscope (10 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 PhD candidate, 1 postdoctoral Hematology fellow and 2 third year Medical Students; one of them he coached for his application to BIDMC (Harvard). The PhD candidate in molecular biology at UoM, Winnipeg, successfully submitted his thesis Feb 17 at the University of Calgary.

Dr. François Mercier was very active in the reorganized zoom teaching and learning process at McGill. He was teaching students at the undergraduate (PHGY 313, 516, and 2<sup>nd</sup> year Medical School, total of 9 hours) and at the postgraduate level EXMED516-616 (3 hours). He did Fellow and Resident teaching regularly in the setting of the Hematology Consultation Service and Resident teaching during his COVID ward activity. In his leukemia research laboratory Dr. Mercier supervises 2 Ph.D. candidates and 3 M.Sc. students. Since March 2020 he organizes in collaboration with Dr. Mher Aghajanyan, Clinical Research Associate, and our secretary, Donna Mae Agutaya, twice weekly our zoom Tumor Board in a polite, professional manner.

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 1<sup>st</sup> year medicine students (18 hours) and the Medicine course MMD1231 (Hematology), for 1<sup>st</sup> 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 3 x one and a half weeks 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 (zoom) 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. This activity had to be interrupted for a total of 4 months during the COVID-pandemic. He did 3 weeks of regular Hematology fellow teaching in the setting of our Hematology Consultation Service. He still supervises directly 3 medical Oncology Fellows during the entire year associated with critical review of the cutting-edge literature. Close to 30 2<sup>nd</sup> and 3<sup>rd</sup> 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. Unfortunately, the German 6<sup>th</sup> year medical students couldn't cross the Atlantic due to the pandemic.

Dr. April Shamy is director of both, the Clinical Teaching Unit (CTU) at K7 and the Hematology unit at K7. Her reputation as passionate clinical teacher is most appreciated including the Montreal hospitals 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. Despite her tremendous efforts as COVID task-force leader she was still fully present at the Hematology Division.

#### 4. Involvement in the community:

Dr. Assouline held a zoom presentation entitled “Acalabrutinib in CLL” to over 500 Indian Hematologists, November 20, and prepared a CML update for a Canadian audience (around 400 participants) to be presented in January 2021. At ASH 2020 she presented an oral abstract entitled “GO29781 – mosunetuzumab for the treatment of follicular lymphoma”. (Mosunetuzumab is a bispecific antibody directed against CD20 on follicular lymphoma cells and CD3 on cytotoxic T-cells). Dr. Assouline reviewed manuscripts for *Blood Advances*, *Lancet Oncology*, *Lancet Hematology*, *New England Journal of Medicine*.

Dr. Mark Blostein is a member of the Resident Training Committee for the Royal College McGill AFC Thrombosis program. He participated in 2 virtual Advisory boards, one in ITP, one in intravenous iron therapy, and acted as grant reviewer for CIHR for the Spring COVID grants’ competition. He was involved in four Thesis committees as follows: external examiner for CL (UdS) and RB (UdM), co-supervisor for RR and MM (both McGill), and reviewed articles for *Blood*, *Blood Advances*, *Research and Practice in Thrombosis and Hemostasis*, *Canadian Journal of Cardiology*, *Clinical and Applied Thrombosis & Hemostasis*, and *Thrombosis Research*. In the setting of Optilab Dr. Blostein was involved in the supervision of the daily functioning of Coagulation and Hematology laboratories and the reading of the Hemoglobin electrophoreses.

Dr. Stephen Caplan continued his activity as a major contributor to the Canadian Paroxysmal Nocturnal Hemoglobinuria (PNH) Network. His advice in treating severely ill Hematology patients is most appreciated by Doctors outside the McGill network.

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 a 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 acts as Director of the Lymphoma tissue banking activities of the “Banque de Cellules Leucémiques du Québec” (BCLQ), axe lymphoma (since 2011), and as Director of the flow cytometry laboratory at the Jewish General Hospital (since 2012). In 2021 she worked as a Councilor 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 x 4 hours) to promote education, advocacy and research for patients with lymphoma. In October she participated at an educational zoom event for patients with CLL. Dr. Johnson had a very busy zoom reviewing activity of grants and abstracts for CIHR, the Canadian Research Society, the Canadian Society for Clinical Investigation, and the Canadian Society of Hematology. At McGill she was Member of the University Promotions Committee for Fabio Cury and Joanne Alfieri in August and September, respectively. In her function as Director of the CIP at McGill she has regular weekly activities (1.5 hours). Dr. Johnson was an invited panel member at the at the DLBCL symposium of the 25<sup>th</sup> Congress of the European Hematology Association in June. Title of the symposium: “Moving towards a new standard: Perspectives on DLBCL disease management”. On August 17 she was an invited speaker “Surviving the challenges faced by the clinician-scientist” at a research symposium at University of Western Ontario. Dr. Johnson was

invited speaker at the JGH Department of Medicine Grand Rounds November 16, 2020, where she held the therapeutic part “*Hodgkin as a model of success in Oncology*” of the combined lecture entitled “*Hodgkin Lymphoma: Therapeutic and Molecular advances*”, the molecular part “*Deciphering the Reed-Sternberg cells*” was held by Dr. Knecht. Dr. Johnson is a new member of the Editorial Board of *Cancers* and reviewed manuscripts for *Blood* and *Blood Adv.*

Dr. Ryan Kaedbey is a member of the Canadian Myeloma Research Group and second author of the manuscript “Canadian perspective on managing multiple myeloma during the COVID-19 pandemic” published in *Curr Oncol.*

Dr. Hans Knecht was an invited speaker at the JGH Department of Medicine Grand Rounds November 16, 2020, where he held the molecular part “*Deciphering the Reed-Sternberg cells*” of the combined lecture entitled “*Hodgkin Lymphoma: Therapeutic and Molecular advances*”, the therapeutic part “*Hodgkin as a model of success in Oncology*” held by Dr. Nathalie Johnson. Dr. Knecht acts as Academic Guest Co-Editor (Sabine Mai, PhD, and Yuval Garini PhD the other Guest editors), for a *Cancers* issue entitled “*Nuclear architecture in Cancer*”. He reviewed manuscripts for *IJMS*, *Cancers*, *Lab Invest*, *Molecular and Clinical Oncology*. Since 2019 he is a scientific reviewer at the Ethics Committee for Medical and Biomedical research of the JGH. In 2020 he participated in two Promotion Committee Meetings of the Faculty of Medicine and Emergency Medicine, respectively. In the setting of Optilab Dr. Knecht acts as JGH site Director and is involved in reporting Flow-cytometry results and reading Hemoglobin electrophoreses.

Dr. François Mercier was elected as Vice-Chair at the International Society for Experimental Hematology (ISEH) New Investigator Committee, and acted as Session chair, New Investigator Technology Session, at the ISEH Annual Meeting (Virtual Meeting). Also at ISEH, he was Moderator of a Webinar entitled “*Engineered hematopoietic microenvironments*”. He held two seminars, at the Department of Physiology, McGill University, February 28<sup>th</sup>, and at the Department of Pharmacology, University of Montreal, September 24<sup>th</sup>, respectively. Dr. Mercier was a grant reviewer for the “*Programme FRQS/MSSS de formation pour les médecins résidents en médecine spécialisée visant une carrière en recherche - Phase 1*”, the Juravinski Hospital and Cancer Centre Foundation Research Development Grant, and the Cancer Research Society Operating Grants. He was a reviewer for *Physics in Medicine & Biology*, and *Journal of Experimental & Clinical Cancer Research*.

Dr. Yury Monczak is a permanent (volunteer activity) visiting professor, Ukrainian Catholic University in Lviv, Ukraine, School of Bioethics; this summer he held despite the COVID-pandemic during 2 weeks a total of 16 lectures in molecular biology. He is Member of the Association for Molecular Pathology and actively participated at the virtual annual meeting (Nov.16-20). He successfully took part at the virtual meeting of ERIC (European Research Initiative of CLL) from Oct. 1-4, where he got the International Certification for IG mutations in CLL for the JGH Molecular Diagnostics Laboratory. Dr. Monczak is also an Advisory Board Member of the Dawson College Biomedical Technology Program (4 hours/year). He is regular reviewer for *Genet Test Mol Biomarkers*.

Dr. François Patenaude reads and reports the the CSF and body fluid cytology (ascites pleural and synovial fluids) for the entire JGH. Last year he signed 1201 of a total of 1347 reports, the remaining 146 were read and signed by Dr. Knecht (during Dr. Patenaud’s absence). During the first and second flare-up wave of the COVID-pandemic Dr. Patenaude was a courageous advocate for the rights of cancer patients to be seen and examined by their specialist MD despite tough restrictions. He directly interacted as patient’s advocate with the president of the AMHOQ,

FMSQ, FMOQ and representatives of the MSSS. Dr. Patenaude participates actively in the Canadian Kidney Cancer Initiative (CKCI) and he is a 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 together with Dr. Ernesto Schiffrin, and Stephanie Roza from the JGH Foundation, organized a fantastic 57<sup>th</sup> André Aisenstadt Annual Memorial Clinical Day in honour of Drs. Steven Caplan and Hans Knecht. The zoom-event, initially planned for October 29, had to be postponed to January 21, 2021, due to a Cyber-attack on the JGH informatics' system. Seven internationally leading experts, introduced by Hematology staff physicians, presented cutting-edge insight into rapidly evolving Hematology topics followed by animated zoom discussions. The topics and presenters were as follows: Our traditional Christmas party was unfortunately a programmed victim of the COVID-19 pandemic. The entire Hematology Division and affiliates were saddened but unanimously agreed that the most social and popular Divisional event would be suicidal. But there is hope for 2021 provided the vaccination efforts are successfully terminated.

Dr. Shireen Sirhan demonstrated over the past years a relentless activity to promote and to improve the international standings of the Canadian MPN Group. This dedication was recognized through her election as the President of the Canadian MPN Group from 2021 onwards. Dr. Sirhan was also a reviewer for the *Blood Cancer Journal (Nature group)*.

## **5. Partnerships:**

In the context of the CIUSSS organization the Division of Hematology (Dr. Knecht) provided the bone marrow (44 patients) and peripheral smear reading (240 patients) for Rouyn-Noranda /Lac Temiscamingue (42 patients). Drs. Johnson and Knecht reported flow cytometry analyses for Lakeshore, Hull and Gatineau (620 reports). Dr. Patenaude is still a frequently called oncology consultant for Rouyn-Noranda.

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

57<sup>th</sup> André Aisenstadt Annual Memorial Clinical Day, entitled «Blood, Sweat and Years: Celebrating Cutting Edge Hematology », in Honour of Dr. Stephen Caplan and Dr. Hans Knecht. The event was chaired by Drs. Ernesto Schiffrin and April Shamy, organized by Stéphanie Rosa from the JGH Foundation. Planned October 29, 2020, held January 21, 2021, (Cyber-attack),

This was a memorable day for the entire Hematology Division; a heartfelt thank for the Co-Chairs and the Organizer. The tribute was wonderful and the scientific sessions including introductions and discussions just fantastic.

Morning program: i) Dr. Susan Kahn, Centre d'excellence en thrombose et anticoagulation, Hôpital Général de Montréal: « Recent Key Developments in Thrombosis Management », introduced by Dr. Vicky Tagalakis. ii) Dr. Donald Arnold, McMaster Centre for Transfusion Research, Hamilton: « Transfusion Medicine at the Forefront of the COVID-19 Pandemic », introduced by Dr. Mark Blostein. iii) Dr. Joseph Mikhael, City of Hope Cancer Center, Stanford: « From Incurable to Chronic: « Multiple Myeloma over the Last 20 Years », introduced by Dr. Ryan Kaedbey. iv) Dr. Caron Jacobson, Dana-Farber Cancer Institute, Boston: « The Emerging Role of Car-T-Cells in

Oncology », introduced by Dr. Nathalie Johnson. Afternoon Program: v) Dr. David Steensma, Dana-Farber Cancer Institute, Boston « Clonal Hematopoiesis and Clinical Implications », introduced by Dr. April Shamy. vi) Dr. Hagop Kantarjian, MD Anderson Cancer Center, Houston « Advances in AML Therapy in 2020 », introduced by Dr. Sarit Assouline. vii) Dr. Susan O'Brien, Chao Family Comprehensive Cancer Center, UCI, Irvine « Treatment for CLL ; an Embarrassment of Riches », introduced by Dr. April Shamy.

Dr. François Mercier was elected as Vice-Chair at the International Society for Experimental Hematology (ISEH) New Investigator Committee (August 2020).

November 15, 2020, Dr. Susan Kahn was appointed Associate Chair, Research, in the McGill Department of Medicine. As an internationally recognized leader in thrombosis research she will focus on increasing basic, translational and clinical research in all fields of Internal Medicine at the Canadian and international level.

Attribution of 3 new PEMs (Ministerial decision of November 16) for the period 2021-2025, communicated to the DSP November 30.

Dr. Lissa Ajjamada was selected organisator of the Medical Grand Rounds at Santa Cabrini Hospital.

Chantale Cloutier, B.Sc.N. Nursing Consultant (NC), Infirmière-pivot en Hématologie (IPO), our highly respected Hematology IPO, will retire in June 2021 after over 30 years of devotion to excellent patient care. Hopefully she will remain at the Division's availability for special tasks.

Susan Alper, for many years secretary of the late Dr. Arthur Rosenberg, administrative agent at the Hematology E-1 level, will retire in June 2021 after nearly 20 years in our Division. Patients and Hematologists will miss her competent and wonderfully warm personality.

Monday January 4, 2021 Dr. Shireen Sirhan starts her first day as President of the Canadian MPN Group.

## **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* constraints,
- 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. Marc Rogers	Full 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.
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### 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

- 2015-2025 Currently Dr. Kahn holds 12 peer-reviewed grants, 5 of them as PI, the remainig as co-investigator. She is also PI, in 1 Pharma sponsored study.

### 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.-

## 2. Scholarly works published in the 2020 calendar year (*e-published* included, *in press* not included) \*= Fellow, \*\* = Medical Student

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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:**

None reported.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'H Knecht', is positioned below the closing text.

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

Outremont, February 28, 2020