



SPOTLIGHT ON THE FUTURE

OCTOBER 2013

SPRINT is hitting its stride!

his past year 10 SPRINTers completed the program and we are now welcoming 10 new trainees. It is exciting to be part of this initiative and to witness the achievements of these remarkable men and women. Congratulations and thank you to the mentors who, although very busy with their own research careers and responsibilities, devote many hours to develop trainee projects and to guide our SPRINTers through their time in the program (and beyond!). I know that they have had a tremendous impact on the trainees and on the success of the program as a whole.

An important modification to SPRINT that has been implemented for 2013-2014 is the consolidation of activities and efforts into a single program simply called "SPRINT". This consolidation replaces Tier 1 and Tier 2. The components of



SPRINT now offered to all SPRINTers include acceptance to the next two endMS Summer Schools, SPRINT Career Development Sessions and mentored interdisciplinary learning opportunities. Given the numerous applications received for the new consolidated program, we believe that this enhanced format can

best meet the unique needs of SPRINT and its trainees. The 2012-13 Tier 2 trainees presented their SPRINT projects and all 10 of the 2012-2013 SPRINT trainees, including our last group of Tier 1s officially graduated at this year's endMS Summer School.

In this second issue of *SPRINT – Spotlight* on the Future, you will meet the 2012-2013 Tier 2 SPRINTers and their mentors. As a participant at the 2013 endMS Summer School held in Vancouver, I learned tremendously from the SPRINTers who delivered the results of their yearlong projects.

It is through the dedication of the mentors, and the enthusiasm and hard work of the trainees, that the goals of SPRINT are being met and that the program continues to flourish. I look forward to another exciting year and to the 6th annual endMS Summer School to be held May 12-16, 2014 in Halifax.

SPRINT ALUMNI UPDATE

Dr. Vladimir Bamm

I am a postdoctoral research associate at the University of Guelph. I work with Dr. George Harauz examining the role of myelin basic proteins (MBPs) in the maintenance of myelin and in the pathogenesis of MS.

Jenea Bin

I am a PhD student in the laboratory of Dr. Timothy Kennedy at the Montreal Neurological Institute (McGill University).

Pia Crone Christensen

I am a PhD student in the laboratory of Dr. Peter Stys at the University of Calgary.

Miauel De Avila

I am a PhD candidate in the laboratory of Dr. George Harauz at the University of Guelph.

Dr. Charity Evans

I am currently an assistant professor in the College of Pharmacy & Nutrition at the University of Saskatchewan.

Brietta Gerrard

I am completing a Master of Science degree co-supervised by Dr. Artur Luczak and Dr. Gerlinde Metz at the University of Lethbridge. I am expecting to graduate in December.

Dr. Yohannes Haile

I am currently working as a research associate at the University of Alberta in Edmonton.

Dr. Heather Hanwell

I had a baby girl, Jane Elizabeth, in February. I plan to return to my postdoctoral position at the Hospital for Sick Children in January 2014.

Michael Keough

I am an MD/PhD student at the University of Calgary.

Dr. Sébastien Lévesque

I am beginning my 4th year as a postdoctoral fellow in neurobiology at Université Laval. I continue to work with Dr. Steve Lacroix examining the dichotomic role of IL-1 signaling in EAE. On July 26th, I became a father to a beautiful little girl named Sophie (Marie Nolwenn).

Dr. CJ MacMillan

I successfully defended my PhD in April and have just started medical school at the University of Calgary.

Sarah Neil

I am completing my Master of Science in Dr. Jacqueline Quandt's lab at the University of British Columbia, and expecting to graduate in November.

Dr. Scott Ryan

I am a postdoctoral fellow at the Sanford Burnham Medical Research Institute in La Jolla, California. In January, I will be taking up a position as an assistant professor at the University of Guelph. This issue of SPRINT –
Spotlight on the Future
profiles 10 MS researchers.

Our seven tier 2 trainees

Nadine Akbar
Dr. Lindsay Berrigan
Kaarina Kowalec
Sandra Magalhaes
Dr. Craig S. Moore
Jean-François Richard
Karen Turpin

and our three mentors

Dr. Anthony Feinstein Dr. Marcia Finlayson Dr. Bradley Kerr **NADINE AKBAR**

adine Akbar attended the University of Toronto and received a Bachelor of Science in psychology and a Master of Science in medical science. Her earlier research focused on the development and validation of screening instruments for cognitive impairment in adults with multiple sclerosis (MS). Currently in the third year of her PhD in medical science, Nadine is examining the brain imaging correlates of cognitive dysfunction in pediatric multiple sclerosis using functional magnetic resonance imaging (fMRI), a technique which illustrates the parts of the brain that become active during the performance of different cognitive tasks.

"I have been working with MS patients and have been involved in MS research for seven years," says Nadine. "My interest in the disease began during my undergraduate studies when I was a psychometrist conducting cognitive assessments of different psychiatric and neurological patient groups pertaining to stroke, dementia and head injury."

Nadine was introduced to SPRINT through her involvement in the endMS Network and as a participant at the endMS Summer School.

"Having been engaged in MS research throughout my graduate training," she relates, "I saw SPRINT as a great way to bridge networks within the Canadian MS research community and further my career."

Under the mentorship of Dr. Marcia Finlayson, Nadine and co-trainee Karen Turpin created an interactive fatigue management education resource for people with multiple sclerosis.

"I believe SPRINT is important to trainees because it provides essential training and experience that will be pivotal to our development as future MS researchers," she says. "What is especially unique about the program is how it is able to bring together so many of us from different disciplines so that we are all able to understand each other, and collectively try and accomplish something meaningful with respect to ending MS."



Nadine says she not only expanded her knowledge of multiple sclerosis and acquired transferable skills such as effective communication, but also forged key alliances with other MS trainees and researchers.

"Research is built on strong collaborations, of which SPRINT has been crucial in fostering," she says. "As an interdisciplinary initiative, it has definitely made me more open-minded with respect to my own research."

r. Lindsay Berrigan completed a Bachelor of Science at the University of New Brunswick, followed by a Master of Science and a PhD in psychology at Carleton University in Ottawa. Her research focuses on understanding how neurological diseases and injuries affect cognitive functioning such as attention, learning, memory and decision-making with the aims of recognizing when people are experiencing difficulties and how to better manage these difficulties.

"I did not know much about multiple sclerosis (MS) before my Master's dissertation on MS-related cognitive slowing," she recalls, "and was surprised to learn how many Canadians were affected by the disease. I was also inspired by the dedication of these individuals who showed great interest in participating in research, and helping researchers and healthcare professionals improve patient care."

Through her studies, Dr. Berrigan evaluated clinical measures used to diagnose cognitive deficits, and explored the impact of multiple sclerosis on quality of life. She became familiar with SPRINT through her local endMS Regional Research and Training Centre, and while attending the endMS Summer School.

"Participating in SPRINT was a logical next step in my training as I had been involved in MS research for several years," she explains. "I was excited to learn about the different dimensions of multiple sclerosis addressed outside of my own field of study and to work with people from other disciplines who were approaching MS research with a unique perspective."



Crediting her experiences at the endMS Summer School and SPRINT for expanding her knowledge of the disease, Dr. Berrigan says she was especially grateful for the opportunity to meet senior clinicians and researchers, along with trainees from across the country.

"Multiple sclerosis is a complex disease," she states. "As a researcher, I am now familiar with the challenges currently faced by clinicians when treating people with MS. The multidisciplinary approach encouraged and facilitated by SPRINT will help to enhance the quality of research being conducted, and hopefully lead to better healthcare."



DR. Marcia Finlayson

r. Anthony Feinstein received his medical degree in South Africa at the University of the Witwatersrand. He completed his training in psychiatry at the Royal Free Hospital in London, England before working as a neuropsychiatrist at the Institute of Neurology, Queen Square in London. His Master of Philosophy and PhD degree were obtained through the University of London. Dr. Feinstein's neuropsychiatry research explores the cerebral correlates of behavioural disorders associated with multiple sclerosis (MS), traumatic brain injury and hysteria (conversion disorders). He is currently a Professor of Psychiatry at the University of Toronto and Chair of the Medical Advisory Committee of the MS Society of Canada.



Dr. Feinstein joined SPRINT as a mentor in 2012 after accepting an invitation from Dr. Christina Wolfson. A renowned scientist and past lecturer at events hosted by the endMS Network, he oversaw a team of three trainees (Sandra Magalhaes, Craig S. Moore and Jean-François Richard) working on a project that examined the biological and psychosocial elements related to depression among individuals living with multiple sclerosis.

"The mentees and I communicated via monthly videoconferences and presented our research at the endMS Summer School in Vancouver this past May," recounts Dr. Feinstein. "It was a very positive and enjoyable experience, and truly appreciated by the trainees as per the letters I received following our collaboration."

Dr. Feinstein says that SPRINT's unique mix of immunology and behavioural science is advantageous for young researchers in training.

"Medicine is becoming super specialized," he explains, "and there is really a paradigm shift in the MS world. Working with researchers from a variety of disciplines makes you think differently, which is very refreshing."

Dr. Feinstein adds that today's trainees possess an impressive range of skillsets and experience.

"I am grateful to have had the opportunity to have mentored these dedicated individuals," he says candidly. "SPRINT not only allows you to connect with MS researchers and share knowledge, but also broadens the scope of your work."

r. Marcia Finlayson is an occupational therapist with a Master of Science and a PhD in community health sciences from the University of Manitoba. She has been recognized as a multiple sclerosis (MS) clinical specialist since 2004. Dr. Finlayson's research focuses on developing, implementing and evaluating self-management interventions to enhance the health and wellbeing of people with multiple sclerosis and their caregivers. Her primary areas of expertise include fatigue management, falls prevention and caregiver support. A highly regarded researcher and educator, Dr. Finlayson is currently Vice-Dean (Health Sciences) and Professor and Director of the School of Rehabilitation Therapy at Queen's University in Kingston, Ontario.

"My ultimate goal is to enable individuals with MS, their family members and caregivers to lead healthy, meaningful lives," relates Dr. Finlayson, "and exert choice and control over their participation in daily activities at home and in the community."

While chairing the Mentorship committee, Dr. Finlayson was asked by Dr. Christina Wolfson if she would be interested in serving as a SPRINT mentor.

"I am very committed to junior investigators," says Dr. Finlayson. "I believe in a social learning model and cognitive apprenticeship, and SPRINT is consistent with these approaches." With her guidance, trainees Karen Turpin and Nadine Akbar developed an interactive fatigue education resource for persons living with MS.

"SPRINT is unique because it gives trainees the chance to take on more responsibility while working on interprofessional and interdisciplinary projects with other researchers across the country," explains Dr. Finlayson.



Citing SPRINT as an excellent opportunity for researchers in training, Dr. Finlayson maintains that the program is fundamental to the future of MS research. Having had the chance to meet new collaborators from a variety of disciplines, she also enjoyed working with the next generation of MS researchers.

"The endMS Network should be proud of SPRINT and the amazing investigators it is turning out," she asserts. "It is the envy of other MS communities."

r. Bradley Kerr received "A postdoctoral fellow from a his Bachelor of Science in laboratory that we collaborate psychology from McGill with was part of a project University in Montreal. His studies and spoke very highly of his experience in the program," obtained his PhD in neuroscience recalls Dr. Kerr. "When

> At present, Dr. Kerr's research project has two trainees from across the country working together: Kaarina Kowalec, a PhD candidate from the University of British Columbia and Lindsay Berrigan, a postdoctoral fellow from Dalhousie University.

Dr. Christina Wolfson asked if

2012/2013 session, I was very

I would be a mentor for the

happy to participate."

"The goal is to generate an information pamphlet on pain in MS geared towards all individuals living with the disease," he says. "In addition to focusing on the neurobiology of pain mechanisms and various treatment strategies, it will also address how pain interacts and affects other cognitive functions."

Dr. Kerr says SPRINT is an excellent opportunity for trainees to broaden their research scope, and to become involved in new aspects of the disease that are outside of their primary research focus.

"Bringing together trainees from across the country with such diverse research backgrounds is a unique feature of the program that as far as I know, is not done in many other settings," he asserts.

very positive for all of us," he continues. "Our project made us move beyond thinking and writing using the typical science jargon, and helped us develop skills in communicating scientific research to the public."

"I think the experience has been

KAARINA **KOWALEC**

aarina Kowalec earned her Bachelor of Science (Honours) in microbiology and a Master of Science in medical microbiology at the University of Manitoba. Currently pursuing her PhD at the University of British Columbia, she is investigating personalized medicine in multiple sclerosis (MS) specifically whether genetic and clinical information can be used to predict and prevent liver damage from interferon-beta treatment in people with the disease.

"My keen interest in clinical, genetic and population studies and more importantly, my mother, who lives with multiple sclerosis, led me to MS research," says Kaarina, a SPRINT trainee.

Under the mentorship of Dr. Bradley Kerr, Kaarina and co-trainee Dr. Lindsay Berrigan have been working on an interdisciplinary project that seeks to translate findings on the underlying neurological mechanisms of the different forms of pain associated with multiple sclerosis into language that is accessible to patients and their families.

"My experiences as a SPRINT trainee have been very positive," says Kaarina. "I thoroughly enjoyed the time spent collaborating on the project, and the guidance and different perspectives imparted by Dr. Kerr and Dr. Berrigan."

Prior to applying to SPRINT, Kaarina attended two endMS Summer Schools, which she found to be highly informative. "They were perfect for creating collaborations and networks," she recalls, "and offered many opportunities for future research."



Kaarina adds that SPRINT not only enabled her to expand her scientific career with exposure to different disciplines of MS research, but also led to valuable contacts.

"It provides mentorship and training specific to your area of interest," she explains, "and also promotes further advancement of knowledge in other areas that may be outside of your comfort zone."

Through discussions with trainees specializing in different diseases, Kaarina is convinced that the future of research lies in training programs like SPRINT.

"When I speak to other students, they are floored by the opportunities available to trainees who study multiple sclerosis in Canada," she says. "SPRINT is so beneficial because it seeks to enhance knowledge and skills related to MS, and encourage research prospects nationwide. As a PhD student, I believe following these aims is crucial to succeeding when training to become a fully independent researcher."



led him to England, where he

from the University of London:

focused on the role of novel

modulatory peptides, growth

factors and pro-inflammatory

His post-doctoral work took him

cytokines in persistent pain.

to the California Institute of

McGill University, where he

Technology and then back to

studied inflammatory responses

King's College. Dr. Kerr's research

Dr. Kerr joined the Department of Anesthesiology and Pain Medicine at the University of Alberta in 2007, and is also an adjunct assistant professor in the Department of Pharmacology. His research aims to address the mechanisms of chronic pain after injury or disease, with emphasis on chronic pain associated with multiple sclerosis (MS).

"Starting out as an independent investigator. I found there was very little basic research being done on pain in autoimmune diseases like multiple sclerosis," relates Dr. Kerr. "Speaking with colleagues who treat patients with MS, it became clear that pain was a common symptom associated with the disease, and that there was an unmet need to understand its causes and explore new treatment options."

Dr. Kerr first heard about SPRINT through the Alberta Regional Research and Training Centre.



DR. Craig S. Moore

SANDRA MAGALHAES

andra Magalhaes obtained her Master of Science in epidemiology at the University of Western Ontario and has been working in pediatric multiple sclerosis (MS) research since 2007. She moved to Montreal in 2009 to learn about the immunology of the disease and commence her PhD studies in the Department of Epidemiology, Biostatistics and Occupational Health at McGill University. Sandra's thesis involves the creation of an online resource that allows researchers in the field to develop evidence-based data collection tools used to assess the role of environmental risk factors in the etiology of pediatric multiple sclerosis and to enable future collaborative research



"The MS cases among children are similar to what we're seeing in adults, and studying etiology in children may provide a less confounded perspective," says Sandra, a SPRINT trainee. "We hope to enhance the quality of individual studies and the potential for data integration across studies."

Sandra's thesis will also explore the causes of adult multiple sclerosis and the role of early life sun exposure via an international casecontrol study involving five countries (Canada, Norway, Sweden, Italy and Serbia).

"We are looking at the individual, and the link between past exposures and disease onset," she explains.

Sandra credits the endMS Network with providing her with the opportunity to expand her understanding of the disease through her interaction with MS trainees and researchers from various disciplines. Having participated in the endMS Summer School, she says she enjoyed meeting people from across the country.

"My favourite part was networking," Sandra recalls. "Forging strong relationships with individuals you wouldn't normally get the chance to spend time with and having friendships develop outside of a lab setting allowed me to gain more exposure to interdisciplinary research (in multiple sclerosis)."

According to Sandra, SPRINT is an excellent learning ground that allows trainees to heighten their knowledge of multiple sclerosis under the guidance of exceptional leaders.

"I think SPRINT is a successful program because it is flexible, and we have excellent mentors who really recognize our limitations and allow us to perform well," she states. "Being able to work on something completely different is also a great advantage because we are moving towards more multi-disciplinary research in science, which will be key to advancements in multiple sclerosis."

r. Craig S. Moore completed his undergraduate studies in biology at the University of New Brunswick in 2002. He received his PhD in pharmacology from Dalhousie University in 2008 and pursued postdoctoral studies in the Department of Neuroscience at the University of Connecticut. Since 2011, he has been enrolled in additional postdoctoral studies in the Department of Neurology and Neurosurgery at the Montreal Neurological Institute and Hospital. His current research focuses on how cells of the immune system contribute to injury and repair in the inflamed central nervous system, particularly in multiple sclerosis (MS).

"I have been studying multiple sclerosis for almost a decade," says Dr. Moore. "During my graduate studies, I became very interested in learning more about the immunological and pathophysiological mechanisms underlying immune-mediated neurodegeneration. Today I am examining how microRNAs small non-coding RNA molecules - can influence these mechanisms with the hopes of identifying novel biomarkers and therapeutic strategies in multiple sclerosis."

Dr. Moore was a participant at the endMS Summer School in Winnipeg in 2012 and in Vancouver in 2013. Working under the mentorship of Dr. Anthony Feinstein, he and his fellow trainees explored the link between depression and multiple sclerosis.

"The lifetime prevalence of depression is very high among individuals with the disease and we need methods to better diagnose, measure and treat depression in MS patients," he asserts.

According to Dr. Moore, SPRINT is an excellent platform for bringing researchers together to share ideas.



"The program not only pairs individuals who share the common goal of enhancing the lives of people living with MS and their families, but also provides exposure to an area of MS research that they would likely have never explored," he says.

Grateful for the friendships and collaborations he has made, Dr. Moore says the endMS Network has left him energized and inspired to continue his work as an MS researcher.

"Science and medical research can move at an extremely fast rate," he states. "Being able to think outside the box and knowing how to relate your research to various aspects of a disease is an important and acquired skill. My involvement in SPRINT over the past two years has been a wonderful experience."

JEAN-FRANÇOIS RICHARD

ean-François Richard completed his undergraduate degree in biomedical sciences at Université du Ouébec in Trois-Rivières. While working in a neuroanatomy laboratory, he developed a strong interest in immunology and decided to pursue a Master of Science at the Université Laval in Quebec City. Today, Jean-François is a PhD student studying the role of cytokines proteins that serve as messengers for cells – in the pathogenesis of multiple sclerosis (MS).



"My current research project examines the biochemical molecules responsible for the recruitment of immune cells in the brain vasculature, a hallmark of multiple sclerosis," he explains.

Jean-François applied to SPRINT on the recommendation of a post-doctoral fellow who was a past participant at the endMS Summer School. Under the mentorship of Dr. Anthony Feinstein, Jean-François and his co-trainees worked on a project that explored the etiology of depression among individuals living with multiple sclerosis.

"The overall experience was remarkable," he recounts.
"Attending two endMS Summer Schools gave me a nice overview of the state of MS research in Canada both from a fundamental and clinical perspective. I also learned about many different aspects of the disease and developed an integrated vision of my current research interests."

Jean-François commends SPRINT for the unique learning opportunities it offers graduate students in training.

"Nowhere else could you enroll in a two-year adventure especially designed to enhance essential research skills," he asserts. "Through communication workshops, networking activities and multidisciplinary projects, the program provides young researchers with the tools they need to promote their research and to make a significant contribution to the global scientific MS community."

Jean-François says the endMS Network brings people together from all walks of life who share a common goal: to find a cure for multiple sclerosis.

"I have gained so much from my involvement in the program," he says, "and am more motivated than ever. Not only have I furthered my knowledge, but I have made new friends in the field and heightened my interest in MS research."

KAREN TURPIN

aren Turpin earned a Bachelor of Science in nursing from the University of Alberta in 1996, and a Master of Science in epidemiology in 2004. She was first introduced to multiple sclerosis (MS) when she accepted a clinic/research nurse position at the University of Alberta's MS Patient Care and Research Clinic. As her understanding of the disease grew, so did her personal and professional desire to better care for MS patients and their families through research. Karen is currently a PhD student in epidemiology in the School of Public Health at the University of Alberta. For her proposed doctoral thesis research, she plans to conduct a mixedmethods study on the epidemiology of depression in multiple sclerosis.

"Given the number of unknowns in MS in terms of cause and prognosis, as well as the myriad of symptoms and consequences of the disease, epidemiology emerged as the most suitable field of study to meet my goal," says Karen.

It was during her years at the MS Clinic that Karen became familiar with SPRINT.

"The program really appealed to me for several reasons," she recalls. "Not only could I simultaneously be mentored by an MS researcher and work on a project with another graduate student outside of my thesis area and institution, but I could also attend two summer schools to learn more about MS and meet other students studying MS across Canada."

Collaborating with Dr. Marcia Finlayson and co-trainee Nadine Akbar, Karen and the team developed a fatigue education resource for persons living with multiple sclerosis.

"I think our project has the potential to really help people with MS in their daily lives," relates Karen. "Dr. Finlayson's mentorship also opened new ways of thinking for me and provided exposure to areas like self-management and patient education, of which I had little knowledge."



As a participant in the endMS Summer School for two consecutive years, Karen was introduced to fellow Canadian MS researchers and different fields of study in multiple sclerosis.

"I highly value interdisciplinary research and the opportunity to strengthen our connections within our own country is tremendous," she states. "Sometimes a sense of loneliness and discouragement sets in when studying and doing research. Knowing there are others across Canada who can relate and who are willing to lend a helping hand or a listening ear is invaluable."

Citing SPRINT as an excellent initiative, Karen says she is tremendously grateful for the experience.

"I have not only gained confidence in my ability to see a project through to completion, present in public and work as a team," she says, "but have also developed potential research collaborations. I feel honoured to be a part of this unique network."





2012-2013 SPRINT Graduates

Tier 1:

Miguel De Avila, University of Guelph Brietta Gerrard, University of Lethbridge Sébastien Lévesque, Université Laval

Tier 2:

Nadine Akbar, Hospital for Sick Children Lindsay Berrigan, Dalhousie University Kaarina Kowalec, University of British Columbia Sandra Magalhaes, McGill University Craig S. Moore, McGill University Jean-François Richard, Université Laval

Karen Turpin, University of Alberta

2013-2014 SPRINTers are:

Marc-André Bellavance, Université Laval
Curtis Benson, University of Alberta
Eva Gunde, Dalhousie University
Camille Juzwik, McGill University
Hyunwoo Lee, McGill University
Sandra Meyers, University of British
Columbia
Julia O'Mahony, University of Toronto
Jason Plemel, University of Calgary
Neda RazazRahmati, University of
British Columbia
Jordan Warford, Dalhousie University

2013-2014 SPRINT Mentors

Shannon Dunn, Assistant Professor,
Department of Immunology,
University of Toronto
Steven Kerfoot, Assistant Professor,
Department of Microbiology &
Immunology, Western University
Lisa Koski, Assistant Professor,
Department of Neurology,
McGill University
Michelle Ploughman, Assistant Professor,
Faculty of Medicine, Memorial University

For Summer School and/or SPRINT application and program guidelines, please visit our website at www.endmsnetwork.ca. If you are interested in becoming a SPRINT mentor or would like more information on the program, please contact:

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The endMS Research and Training Network is a nationwide initiative formed to accelerate discovery in the field of multiple sclerosis in Canada. Through innovative education and funding programs, the endMS Network aims to attract, train and retain MS researchers and increase opportunities to conduct MS research in Canada.

The endMS Network is managed by the MS Society of Canada and funded through its related MS Scientific Research Foundation as the flagship investment of the \$60 million endMS capital campaign.



