

# MS<sup>®</sup>

## Research

Spring/Summer 2017

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breakthroughs in  
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@Dr\_KarenLee

If there's one thing I've learned during my years as a scientist, and now as vice-president of research for the MS Society of Canada, it's that collaboration is the key to success in research. Collaboration spurs innovation, forms bonds between health professionals and researchers from all disciplines and regions, encourages mentorship and training, and – most importantly – accelerates the pace of research. Progress in the MS field is a direct result of collaborative efforts among the world's scientific leaders.

There are many ways in which Canadian researchers and clinicians are partaking in collaborative efforts to solve the most complex challenges in MS. You'll learn about Dr. Doug Arnold, a world-renowned expert in MRI from McGill University, who was awarded a \$6 million Collaborative Network Award from the International Progressive MS Alliance to develop imaging measures that will assess treatment response in progressive MS clinical trials. Dr. Arnold has assembled a team of international specialists, who together will collect and study imaging data from over 2,000 people with progressive MS – an immense effort that can only be done by a team of this size and capacity.

You'll also hear about the MS Society's endMS Conference that took place last December. The conference brought together over 200 MS researchers and clinicians, the majority of which are funded by the MS Society, who discussed their latest work in the field and provided a platform for building connections and exchanging data and resources.

Finally, we cover three recently funded grants that are focused on wellness in MS. These projects, led by clinicians across the country, will look at a range of wellness-based interventions for people with MS. The key to these projects is that the researchers are actively collaborating with people in the community who are leaders in these areas, and this unique combination of experiences will help to effectively translate findings into useful approaches that will improve wellness among people affected by MS.

The MS Society is also celebrating the collaborative spirit of research by connecting with other organizations to pool resources and partner on important initiatives that will accelerate the pace of MS research and lead to the creation of effective treatments for people living with MS. For more on these efforts visit our website at <https://mssociety.ca/research-news>, and check out my blog at [drkarenlee.ca](http://drkarenlee.ca), and Twitter @Dr\_KarenLee.

Sincerely,

**Dr. Karen Lee**

**Vice-president, research**



Published by the Multiple Sclerosis Society of Canada  
Suite 500, 250 Dundas Street West, Toronto, Ontario M5T 2Z5  
T 416-922-6065 F 416-922-7538  
Toll free 1-866-922-6065  
[mssociety.ca](http://mssociety.ca)

Charitable Registration no. 10774 6174 RR001  
Contact: Alison Schofield, development officer,  
planned giving & donor communications  
[alison.schofield@mssociety.ca](mailto:alison.schofield@mssociety.ca)





# International Progressive MS Alliance

*Accelerating breakthroughs in progressive MS research*



*The International Progressive MS Alliance is a worldwide collaborative of MS organizations that funds developments in progressive MS research. The MS Society of Canada was one of the Alliance's six founding members.*

A little over a year ago, the International Progressive MS Alliance (IPMSA) announced funding for the recipients of the IPMSA planning awards. This marked the first step in an unprecedented global effort to forge collaborations between people of all research backgrounds and scientific expertise around the world. Each of the 11 planning award recipients used the funding to establish a coordinated framework to pursue research in progressive MS, as well as had an opportunity to develop proposals for large-scale projects aimed at addressing the most complex scientific and healthcare challenges in progressive MS.

Following a round of reviews by some of the field's top researchers and people affected by MS, three outstanding proposals were

awarded Collaborative Network Award grants. Each of the multi-national research networks will receive €4.2 million (or \$6 million CAD) over three years to combine the greatest minds and most sophisticated tools to tackle critical gaps facing progressive MS research. These gaps include, but are not limited to, the development of effective drugs for countering disease progression, the discovery of new biomarkers that can measure progression, and the design of smaller clinical trials that will cut down on the time needed to bring new therapies to people living with MS.

Among the three recipients is Canadian Dr. Douglas Arnold from the Montreal Neurological Institute at McGill University. Dr. Arnold, who is regarded as one of the world's experts in

# Collaborative Network Awards at-a-glance



## **Dr. Douglas Arnold, Montreal Neurological Institute, Canada**

Dr. Arnold's team is pioneering the development of cutting-edge MRI biomarkers that signal disease progression so they can be used in early phase clinical trials of progressive MS treatments.



## **Dr. Gianvito Martino, San Raffaele Hospital Milan, Italy**

Using powerful computer-based tools, Dr. Martino's team will pinpoint new molecules that could be effective in protecting nerve cells from damage or promoting myelin repair and develop them into promising new drugs for progressive MS.



## **Dr. Francisco Quintana, Brigham and Women's Hospital, USA**

Dr. Quintana's team plans to identify drug candidates that target the immune system – which has been linked to driving the progressive disease process – that will be ready for early stage clinical trials in people living with progressive MS within four years.

advanced imaging for MS, has brought together a team of interdisciplinary specialists with the goal of developing next generation magnetic resonance imaging (MRI) markers of disease progression, which can be used in early stage clinical trials.

Why are imaging biomarkers such a promising tool for measuring MS progression? "Changes in disability in people living with progressive MS that are measured in the clinic can often take time to manifest or are difficult to detect," explains Dr. Arnold, "and these subtle changes aren't necessarily reflective of the injury to the brain that's taking place behind the scenes." One of the issues slowing the development of therapies for progressive MS is that researchers still don't have a good sense of what to look for when measuring how people with MS respond to a drug in clinical trials. Establishing a good indicator, or biomarker, for treatment success is especially important in phase II trials where researchers are trying to determine if the drug produces any sort of effect.

Using cutting-edge computer science tools, 'deep learning' (the same technology used for facial recognition) and a rich archive of existing MRI scans – including data from 2,000 patients and 40,000 MRI scans – Dr. Arnold will take a deep look into the brains of people living with progressive MS to detect identifiable patterns that:

- **Change over short periods of time and thus can be measured easily and quickly.**
- **Are associated with changes in disability and thus can predict progression.**
- **Can tell us about the effects of a treatment on neurodegeneration and resulting disability that the person experiences.**

Dr. Arnold's research has enormous potential to have an impact on how clinicians diagnose progressive MS, monitor changes in disease, and assess treatment benefits. For example, development of a powerful and sensitive imaging biomarker can lead to a quantitative measurement, or a score, that can be used to assess a person's level of disability and determine whether it is worsening or improving over time. It can also assess whether disability was different before, during, and after a treatment. This is particularly important for informing treatment for people who may not yet be experiencing obvious signs and symptoms of progressive MS.

The work of the Alliance in forging collaborations and funding ground-breaking research brings hope for advances in the treatment of progressive MS which, until the last few years, has seen little movement. Given how much progress we've seen in just the past year alone, the outlook in three years (as the Collaborative Network Awards wrap up) looks very promising.

“ *These conversations allowed researchers to gain a better understanding of MS at a personal level, and at the same time people affected by MS had a chance to learn about the various studies that are being led by promising young investigators.* ”

# endMS Conference

*The largest scientific conference devoted to MS in Canada*

In organizing the last endMS Conference in Toronto, we set out to bring researchers across disciplines, and at various stages of their careers, together in one room to forge new collaborations and enrich each other and the field of MS research. The conference highlighted four major themes that touched on nearly every aspect of MS including cognition and behaviour, neuroimmunology, repair and neuroprotection, and progressive MS.

The scientific program was packed with content as we heard from local and international speakers – who are some of the world leaders in their respective fields – provide an overview of advances in MS research, along with updates from their work. The conference was also an opportunity for research trainees to present their work in front of an audience of their peers and mentors. These researchers-in-training, whose submitted abstracts were top-ranked by a committee of scientific reviewers, represent some of the best and brightest young minds that will be carrying the torch of MS research for decades to come.

While oral presentations serve as an ideal platform for presenting research to a broad audience, poster presentations provide researchers a chance to interact one-on-one

with their scientific peers and explain their study in detail, answer questions, and gather valuable feedback for improving their study. This year, the conference included over 120 poster presentations by trainees and senior researchers, and attendees had the opportunity to speak with other researchers and get an in-depth look at their findings.

A new and well received addition to the conference was HEAR MS Day. HEAR MS stands for **H**ope and **E**ngagement through **A**ccelerating **R**esearch in **M**ultiple **S**clerosis, and it was a day dedicated to building and strengthening connections between research trainees and people affected by MS. Throughout HEAR MS Day, both groups worked side-by-side on activities designed to challenge trainees to think about their research in a broader context by hearing, first-hand, the perspectives of people affected by MS. These conversations allowed researchers to gain a better understanding of the disease at a personal level, and at the same time people affected by MS had a chance to learn about the various studies that are being led by promising young investigators.

We look forward to holding similar events that bring together leading researchers in the field, and provide them with the means to build connections and discuss their latest research.





# Wellness research and MS

## *Hermès Canada | MS Society Wellness Research Innovation Grant*

One of our ongoing goals is to increase engagement among members of the MS community, and draw from their lived experience in driving our research investments. To help achieve this goal, we conducted a survey to gain a deeper understanding of what wellness means to people living with MS. The MS Wellness Survey results showed that there is a strong desire for more research and information around wellness, including nutrition, physical activity, and emotional wellbeing.

To help address this need, we launched the Hermès Canada | MS Society Wellness Research Innovation Grant (WRIG), with a goal of translating research findings into innovative wellness solutions to improve health and quality of life for people living with MS. Additionally, these projects are designed to engage people affected by MS, and community leaders, throughout the research process; this way researchers are better equipped to identify specific questions that are relevant to the MS community. Ultimately, the goal of these studies is to deliver an immediate impact that can be translated directly to people living with MS in the clinic, at home, or in the community. Three research projects were each awarded \$40,000 in funding following a review by wellness and MS specialists, and by people affected by MS.



### **Dr. Charity Evans**

from the University of Saskatchewan will work closely with a local health and wellness studio to study the effect of Pilates in MS. Dr. Evans will be conducting a randomized, controlled study to evaluate whether a Pilates program tailored to people living with MS can bring about improvements in walking ability, muscle strength, balance, and quality of life.



### **Dr. Katherine Knox**

from the University of Saskatchewan is testing an innovative, web-based physiotherapy tool aimed at helping people with moderate-to-severe MS disability manage their condition despite geographic, economic, and/or mobility barriers to accessing individualized physiotherapy programs.



### **Dr. Ann Yeh**

from the University of Toronto will collaborate with a local health and wellness-based software developer to explore the effectiveness of a mobile app designed to provide accessible, individually-tailored physical activity programming for young people living with MS.

 [To learn more about these wellness research projects, visit our research blog at \*\*drkarenlee.ca/category/wellness/\*\*](https://drkarenlee.ca/category/wellness/)

# Trending in MS Research

## *Noteworthy advancements*

Canada has the highest rate of multiple sclerosis in the world. It's because of our donors, event participants, and volunteers that we are able to fund some of the best MS research in the world, right here in Canada. To read more about the studies mentioned below and the latest in MS research, visit [mssociety.ca/research-news](https://mssociety.ca/research-news), and follow [@Dr\\_KarenLee](https://twitter.com/Dr_KarenLee) & [@MSSocietyCanada](https://twitter.com/MSSocietyCanada) on Twitter.




**MS Society of Canada** @MSSocietyCanada · March 28

The **Canadian MS Progression Cohort** will allow researchers & clinicians to observe a large group of ppl living with MS, and help ID specific features of progression in MS. [#endMS](#)



**MS Society of Canada** @MSSocietyCanada · Dec 6

Attendees at the **endMS Conference in T.O** learned about advancements in MS research & collaborated on their work to [#endMS2016](#) at the largest scientific meeting in !



**MS Society of Canada** @MSSocietyCanada · Nov 9

MS Society funds **three new wellness studies** that seek to provide more options for accessing physical activity for people living with MS. [#wellness](#)

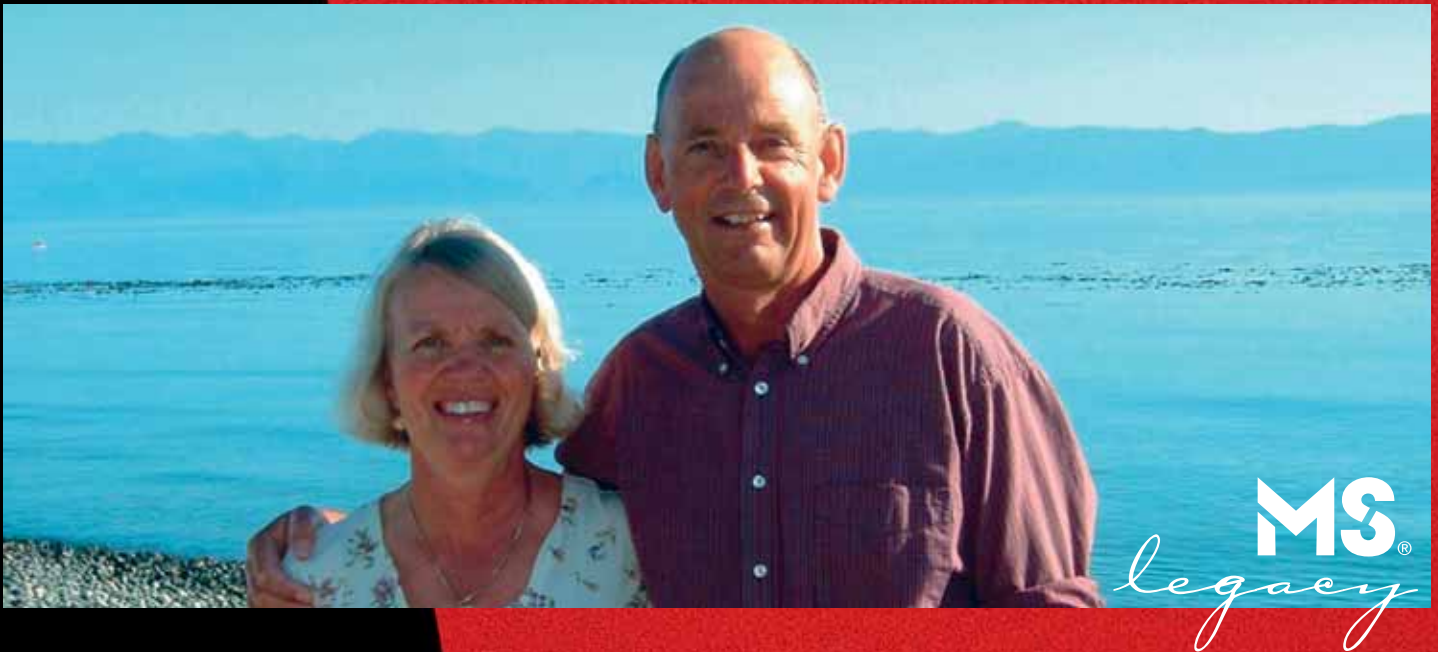


**MS Society of Canada** @MSSocietyCanada · Oct 31

Ottawa study shows that **running can delay progression of nerve degeneration** and promote myelin repair in mice. [#endMS](#)

**“I’M BENEFITING FROM  
MS RESEARCH NOW,  
AND HOPE OUR ESTATE  
CAN HELP CANADIANS  
DOWN THE ROAD.”**

**— Marion and Martin, British Columbia**



**Add a gift in your will to support  
Canadians living with multiple sclerosis,  
and help create a future free of MS.**

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development officer, planned giving & donor  
communications at 1-866-922-6065 ext. 3214,  
or [Alison.schofield@mssociety.ca](mailto:Alison.schofield@mssociety.ca)