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MS PROGRESS Report

# The MS Knowledge Network

## Helping Canadians bridge the gap after an MS diagnosis

Receiving a multiple sclerosis (MS) diagnosis can be scary. Often times, people are left with more questions than answers. They may be unsure of where to turn as they navigate life with this disease.

The MS Society of Canada understands that people affected by MS sometimes need special support and connection. That's why we developed the *MS Knowledge Network* — a hub of knowledge and navigators, providing consistent, quality MS information and support for anyone in Canada.

Our MS Navigators provide trusted information on all aspects of life with MS. Whether you're living with the disease, working with or caring for someone with MS, being able to tap into current, reliable information will enable you to make informed choices.

And because MS experiences vary so dramatically from person to person, it's crucial that the MS community have a place to go to ask their most specific questions and raise their unique concerns. Our MS Navigators can help you find the information and support that is tailored to your distinct situation.

### Contact an MS Navigator to learn more about:

- **Reliable information** about multiple sclerosis and allied conditions
- **Resources** for managing your symptoms
- **News** about programs and services in your area
- **Making sense of advances** in MS research
- **Guides and online resources** for everyday use, e.g. how to apply for CPP, how to talk to children about MS
- **Help navigating** local health and community services
- **Practical assistance** finding income and employment support, financial planning and more

*It's easy to connect with the MS Knowledge Network. MS Navigators are available to assist anyone in English or French. Call us today at **844-859-6789** or email us at **msnavigators@mssociety.ca**. You can also live web chat with us on our website: **mssociety.ca**.*

# MESSAGE FROM THE PRESIDENT

**Dr. Pamela Valentine**

As we welcome another spring, it is my great honour to thank you and reiterate how instrumental your support is — to the advancement of promising research, and to the care of our MS community.

MS is a complex and unpredictable disease … one that we're working tirelessly to better understand. We're committed to helping Canadians living with MS, as well as the communities that come together to help manage the realities of it. That's why, thanks to you, the MS Society of Canada invests in high-quality research aimed at discovering effective treatments and, one day, a cure.

**If we're to continue moving forward towards a cure, we must maintain our research momentum.** We must band together to continue funding important initiatives like the ones included in your *MS Progress Report*. As you'll read, your support advances vital research studies like the ones led by Dr. Anastassia Voronova and Dr. Manu Rangachari. Your support also helps us maintain critical resources like our *MS Knowledge Network*, which offers information and connection when people need it most.

For the over 90,000 Canadians living with MS, your generosity makes an incredible difference. And I know that with kind-hearted friends like you by our side, we will build a world free of MS. On behalf of the MS community, thank you in advance for your loyalty and compassion.

Sincerely,

Pamela Valentine

Dr. Pamela Valentine
President and Chief Executive Officer
Multiple Sclerosis Society of Canada

# RESEARCH SPOTLIGHT:

## Dr. Anastassia Voronova, PhD

> *"Collaborations are vital for innovative science and medical breakthroughs. Diverse minds generate diverse ideas."*

As an Assistant Professor in the Department of Medical Genetics at the University of Alberta, Dr. Anastassia Voronova is dedicated to research that will make an impact for the MS community. She and her team have recently identified a novel molecule called fractalkine that enhances the production of myelin-forming cells in the brain. Myelin loss is a hallmark of MS pathology — and while disease-modifying treatments do exist, they are only effective in treating the inflammatory factors related to MS.

What is Myelin, exactly? It's a fatty substance that protects nerve cells and acts to enhance their signal transmission. MS results from abnormal activity of the immune system whereby the body's own immune cells target and damage myelin and myelin-producing cells called oligodendrocytes located in the central nervous system. Damage to myelin can result in neurological impairments in vision, movement and/or cognition.

**There is an urgent need for effective MS therapeutics that regenerate the brain and spinal cord and restore myelin (or remyelinate) — and that's precisely what Dr. Voronova has dedicated her work to.**

Currently there are limited treatment options for progressive MS, particularly those that promote brain and spinal cord regeneration and restoration of damaged myelin (a process called remyelination). The present study suggests that fractalkine could act as a candidate molecule to engage neural stem cells to enhance the production of oligodendrocytes and potentially remyelination.

**Dr. Voronova's extraordinary work is made possible by the MS Society of Canada and generous supporters like you.** Through collaboration with her team, she has shed light on one of the underlying molecular mechanisms involved in brain repair — and opened the door for fractalkine to potentially form the basis of remyelination and regeneration treatments for MS.

*"I strongly believe that the future of science lies in real and meaningful collaborations, both in Canada and internationally,"* says Dr. Voronova. *"The MS Society has been at the forefront of this initiative and the whole MS community will no doubt benefit from a 'world citizen-world scientist' mentality."*

MS in the NEWS

# Investing in the next generation of MS researchers

## A look back at the 2021 endMS National Training Program

The MS Society of Canada is proud to support programs to help educate and inspire the next generation of talented MS researchers across the nation. In June of 2021, our virtual endMS Summer School was hosted for the first time in Saskatchewan and showcased the strengths and expertise of their region to participants from across Canada.

Over the course of the Summer School, trainees with diverse backgrounds experienced a balanced program with lectures, workshops, career development sessions and an opportunity to meet with people living with MS. Forty-three trainees participated in 3 intense days of sessions showcasing Saskatchewan's diverse MS research expertise, world-class infrastructure, and research opportunities in the province. In addition, participants were provided with a workshop on improving their interview skills and an opportunity to speak with people affected by MS in a "Lived Experience Panel" session.

Through a variety of presentations and break-out sessions, participants enhanced their knowledge in novel MS research and work related to mechanisms of disease, repair, recovery, and resilience. They also increased their appreciation and capacity for interdisciplinary research, and they established and expanded a peer network among MS research trainees — a crucial aspect of successful studies.

*"This program has allowed me to gain an in-depth knowledge of MS — more than I could ever acquire from self-teaching through readings and studying on my own. I'm looking forward to collaborating with other trainees, mentors and guest speakers!"*

# Understanding sex differences and MS

Dr. Manu Rangachari and his research team at Université Laval have identified a new mechanism for sex differences in multiple sclerosis (MS). While biological sex is well recognized as an important determinant of MS incidence (with women being 2-3 times more likely to develop MS than men), what remains unclear is why MS in men tends to progress more rapidly and aggressively.

By developing a mouse model with MS-like disease, Dr. Rangachari and team discovered that immune cells (T cells, specifically Th17 cells) from male mice are more pathogenic compared to females, causing a more severe and progressive disease in males. They showed that the enhanced pathogenicity of male T cells may be a result of decreased expression of a gene called *Jarid1c*, an immune regulator gene in the X chromosome capable of reducing the ability of T cells to induce MS-like symptoms in mice. The team also confirmed that T cells from people with MS have low levels of *Jarid1c*, particularly T cells collected from male patients compared to females. These results suggest that *Jarid1c* may play a role in regulating T cell activity in a sex-dependent manner in MS.

**Dr. Rangachari's study represents an important advancement in our understanding of how biological sex can act as a determinant of disease severity in MS.** Additional research is needed to understand the role of *Jarid1c* gene in modulating MS severity and how it could be used as a potential drug target for MS therapies.

*"Discovering something new that no one else in the world knows is an exhilarating feeling — especially when it has the possibility of one day helping people with diseases such as MS,"* says Dr. Rangachari. *"Thanks to the MS Society, we have continued to be leaders in the study of this disease."*

# Build connections this World MS Day on May 30, 2022

Join members of the international MS community for World MS Day 2022, as we work to combat the disease and challenge the barriers it can create — barriers that too often leave those who live with MS feeling lonely and isolated. That's why our goals are to help people build community connections, foster self-connection and make the right connections to the health care they need and deserve.

**Join the conversation when you post your own #MSConnections**

# Leave a legacy of hope for Canadians living with MS

You can invest in a world free of MS and leave a legacy of hope with a bequest to the MS Society of Canada. Your legacy gift will help generations of Canadians living with MS and support research searching for new treatments and therapies.

**For more information about legacy giving, contact us at mslegacy@mssociety.ca or 1-800-268-7582.**

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**See you online!**