



Impacts & Outcomes
of kidney research
in Canada



kidney
FOUNDATION™

THANK YOU TO OUR DEDICATED VOLUNTEERS



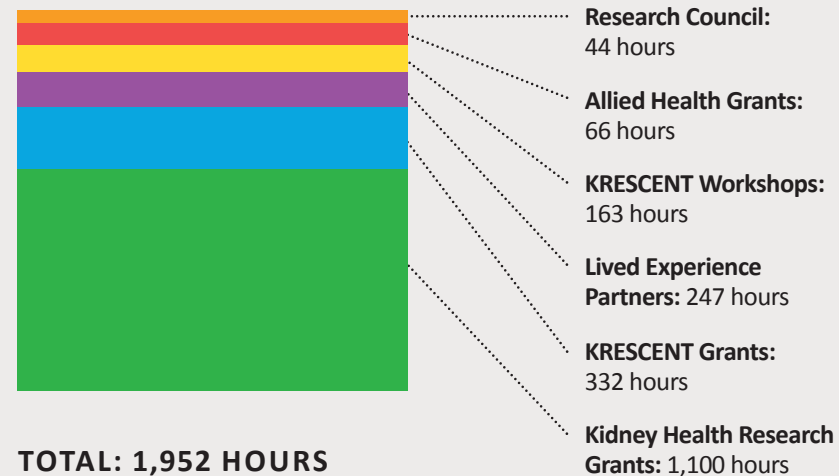
The Kidney Foundation of Canada appreciates the dedication and support of the research community. In all, 73 researchers and 10 lived experience partners collectively volunteered more than 1,900 hours of their time last year. COVID-related constraints for the second year in 2021 found the research and clinical communities burdened with extra clinical rotations, research delays, and continued stress. This did not stop the community from stepping up to help the Foundation reach its research goals.

The work and expertise of the community contributed to reviewing and selecting the best research projects for funding through the Foundation's three research competitions: The Kidney Health Research Grant,

The Allied Health Kidney Research grant and the KRESCENT program. Researchers participated in webinars, contributed to the KRESCENT training program curriculum, and continued to provide insight on the research program's priorities and developments.

In 2021, those with lived experience continued to play an important role in the research program by acting as reviewers for the KRESCENT program applications, actively participating and sharing their expertise in KRESCENT workshops and providing pertinent viewpoints through the development of the KRESCENT patient council.

Thank you to all our scientific and lived experience experts for your time and hard work!



\$2M FOR DIABETIC KIDNEY DISEASE RESEARCH

Diabetes is the leading cause of kidney failure in Canada¹. In November 2021, The Kidney Foundation of Canada was excited to announce details of a \$1-million investment it is making to research that will address the prevention of kidney failure for people with Type 1 diabetes. Funds are matched by the Canadian Institutes of Health Research (CIHR) through a ground-breaking initiative: Team Grants in Diabetes Mechanisms and Translational Solutions.

SUGARNSALT, one of eight diabetes-related research projects to receive funding, is a major research investment for the prevention of kidney failure and other serious complications of type 1 diabetes. The Kidney Foundation is pleased to continue its collaboration with CIHR in this new opportunity to jointly-fund a significant research investment.

The **Sodium Glucose Co-Transport-2 Inhibition Diabetes and Kidney Function Loss in Type 1 Diabetes (SUGARNSALT)** research project will study the renal effects of sodium glucose co-transport-2 (SGLT2) inhibition in people with type 1 diabetes.



Leadership for this project engages researchers from 10 institutions across four provinces with a wide spectrum of expertise which combines every aspect of investigation - from clinical effectiveness to mathematical modeling and patient perspective - to look for life-changing treatment possibilities.

“Through this investment, we are supporting talented researchers and allied health care professionals who will address the complex kidney disease-diabetes relationship,” said Elizabeth Myles, National Executive Director, The Kidney Foundation of Canada. “Through improved intervention strategies and treatment options, diabetes does not have to be the leading cause of kidney failure.”

Project details new therapies called SGLT2 inhibitors have been discovered that reduce the risk of kidney failure and cardiovascular diseases in people with type 2 diabetes. These drugs may delay the need for dialysis by as much as 15 years or prevent it entirely. Unfortunately, it is not known if these medicines are also beneficial for people with type 1 diabetes.

So far, there is very little data related to the use of SGLT2 inhibitors for patients with type 1 diabetes and reduced kidney function explains SUGARNSALT principal investigator Dr. David Cherney, University Health Network.

Images on this page and research section cover courtesy of UHN's STRiDe team.

The research project will include a pilot study to understand the risks and benefits associated with SGLT2 inhibitors for people with type 1 diabetes in clinical trials. A patient preference study will serve to understand how patients themselves view the risks and benefits. Another key component of the project will be the use of mathematical modeling analysis using real-world data to predict how this could reduce the risk of kidney failure, the need for dialysis or transplant, as well as the risk of heart failure in the future, thus establishing the potential benefits for Canadians at a societal level.

1. CORR Incident End-Stage Renal Disease (ESRD) Patients: 2011 to 2020

MEET THE SUGARNSALT RESEARCH PROJECT INVESTIGATORS



ALLEY ADAMS is a patient partner in the SUGARNSALT project by sharing her lived experience as someone impacted by kidney failure after a lifetime of living with type-one diabetes. Alley recently had a kidney transplant.

“The importance of research to develop new treatments to prevent kidney disease is the only chance we have to ensure that nobody is forced to ask themselves, am I going to die? It is a feeling I would not wish upon anyone and one that fuels my passion to support the work and development needed for a clinical trial program.

Over 40% of people with diabetes will develop kidney disease from diabetes and also have a high chance of getting heart disease. But behind every statistic you read, is a story. Stories of people like me. With goals and dreams like you. Above all else, they are stories of hope and second chances.

It is my belief, that with a deeper understanding of the impact of diabetic kidney disease, that research and new treatments will not only be the reasonable thing to do, it will be clear that it's the right thing to do.”

Read more about Alley's lived experience [online](#).

PRINCIPAL INVESTIGATOR



DR. DAVID CHERNEY
SUGARNSALT Principal Investigator
University Health Network

“There is a huge unmet need for people with type 1 diabetes. These patients have roughly a decade shorter lifespan and their risk of developing kidney disease during their lifetime is something in the order of 30 to 40%. Yet, the treatment regimen we provide today is the same as it has been for well over 20 years: insulin and control blood pressure. None of the innovations available to those with type 2 diabetes have been approved for patients with type 1 diabetes.”

CO-INVESTIGATORS

DR. SEAN BARBOUR
University of British Columbia

DR. TONY LAM
University Health Network (Toronto)

DR. ADEERA LEVIN
University of British Columbia

CO-PRINCIPAL INVESTIGATORS



DR. DAVID CAMPBELL
University of Calgary,
Cumming School of Medicine

“This program of work is important because we are not only studying the clinical effectiveness of SGLT2 inhibitors in this population, but we are also seeking direct input from patients regarding their perspectives of the risks and benefits of the therapy, which will be crucial knowledge to understand how these medications should be used, and in which groups of patients.”

DR. ERIK LOVBLOM
Sinai Health System

DR. ISTVAN MUCSI
University of Toronto

DR. RÉMI RABASA-LHORET
CIRANO Group, Université de Montréal



DR. ANITA LAYTON
University of Waterloo

“My lab will use ‘mathematics as the new microscope’ to provide new insight into how SGLT2 inhibitors reduce cardiorenal risk in type 1 diabetes, with an ultimate goal of developing clinical decision tools to assess long-term kidney outcomes and guide personalized diabetes care.”

DR. VALERIA RAC
Toronto General Research Institute

DR. MEHRSHAD SADRIA
University of Waterloo

DR. PETER ALEXANDER SENIOR
University of Alberta



DR. BRUCE PERKINS
Lunenfeld-Tanenbaum
Research Institute

“People with type 1 diabetes so desperately need more tools to help manage blood sugars and prevent the risk of complications like kidney disease. This multi-pronged research project is going to make major contributions to our knowledge about how safe and effective SGLT2 inhibitors could be for type 1. On top of all of this, I am excited that the research itself is unfolding with the guidance of patient-partners living with diabetes. I am extremely proud to be part of this team.”

DR. RONALD SIGAL
Foothills Medical Centre

DR. VIKAS SRINIVASAN SRIDHAR
University Health Network

DR. ALEKSANDRA VUKOBRADOVIC
Toronto General Research Institute

KRESCENT DRIVES PROGRESS IN KIDNEY RESEARCH, LEADING TO IMPORTANT ADVANCES FOR PATIENTS

DR. SUNNY HARTWIG



A key finding of those meetings was that, in order to encourage new medical advances, junior kidney scientists needed more robust training and mentoring support than what was available. The transition from trainee to a career

scientist is extremely challenging. Young scientists need grant money and a strong scientific publication record to succeed. At a time when kidney disease was on the rise, Canada's research capacity was in jeopardy.

KRESCENT was created to help fill this gap in training and support, which would in turn encourage more research into kidney disease. The program provides research grants to post-doctoral fellows, new investigators and allied health scholars. KRESCENT also has a distinct multidisciplinary approach and a focus on collaboration. Attendees are encouraged to share their knowledge and work together to advance kidney research.

Dr. Hartwig believes her career was only made possible with the help of mentors, such as Dr. Norman Rosenblum, a pediatric nephrologist, and Scientific Director with the Canadian Institutes of Health Research. When her path forward in research was uncertain, Dr. Rosenblum invited her to join his lab as a PhD student. His encouragement and support helped launch her into the next stage of her academic career as a post-doctoral fellow at Boston Children's Hospital, Harvard Medical School.

Dr. Sunny Hartwig believes in people, and the difference even a small group of committed individuals can make to advance change. She remembers how important mentors were for her, as she was developing as a young scientist. Today, she is working to give back, in her role as the Curriculum Co-Chair of the Kidney Research Scientist Core Education and National Training Program (KRESCENT).

KRESCENT was established in 2005, a partnership between The Kidney Foundation of Canada, The Canadian Society of Nephrology, and the Canadian Institutes of Health Research. The program was launched after years of consultations that assembled a wide range of stakeholders in Canada's kidney community. Their common goal: to improve the quality of life and find better treatments for people living with kidney disease.

"It was a joint effort," Dr. Hartwig notes, on the national planning sessions that culminated in the formation of KRESCENT. "Multiple stakeholders representing patients and their families, front-line caregivers, researchers, policy and industry partners came together. Their vision was to identify long-term sustainable strategies that would collectively improve the lives of patients with kidney disease."

From there, this time encouraged by KRESCENT trainee Jacqueline Ho who was also at Harvard, she applied to the KRESCENT Program. To her surprise, she was accepted. She credits the KRESCENT program directors Dr. Kevin Burns and Dr. Adeera Levin with providing vital training and support, as well as "profoundly transformative" mentorship.

"You speak with any of the trainees who graduated, all of us will say we wouldn't be where we are without KRESCENT. To see the monumental success of the trainees and what they are doing to change the kidney treatment landscape is just amazing."

The accomplishments of KRESCENT graduates are leading to new and important advances for patients. Dr. Hartwig points to the recent discoveries of KRESCENT graduate Dr. Morteza Ahmadi. His company Qidni Labs is close to human trials for a new portable hemodialysis machine after encouraging results from animal trials.

Two other KRESCENT trainees, Dr. Meghan Elliott and Dr. David Collister, are engaged in research that won't just impact patients, but is actually guided by them. They have partnered with renal patients in the true sense of the word. They conduct research from a patient's perspective; asking questions that are most relevant to those living with the life-altering symptoms of chronic kidney disease. This significant move towards a more patient-centered approach promises to yield tangible improvements for patients.

Dr. Hartwig believes we will be seeing significant progress in renal therapies in the years ahead, providing new hope for people living with reduced kidney function, and end-stage kidney disease.

"In our lifetime we are going to see changes that will profoundly impact the quality of life for kidney patients," she predicts. "We are

seeing advances in home hemodialysis, and other developments that will make it easier for people to live their lives far less impeded by kidney disease."

■ Article by Heidi Westfield

ABOUT KRESCENT

The Kidney Research Scientist Core Education and National Training (KRESCENT) Program is a national partnership which started by The Kidney Foundation of Canada, the Canadian Society of Nephrology (CSN) and the Canadian Institutes of Health Research Institute for Nutrition, Metabolism and Diabetes (CIHR-INMD). In 2021, the program continued to be administered through The Kidney Foundation of Canada with contributions from the CSN, and many partners.

The program was developed to pursue two main goals:

1. To enhance kidney research capacity in Canada
2. To foster collaborative research and knowledge translation.

In 2020, the program celebrated its 15-year anniversary and results from its evaluation show that The KRESCENT program continues to impress.

- Program supported 76 individuals and supplied 99 awards
- 86% of program graduates have remained in kidney research
- 70% of program graduates have successfully obtained national level research funding outside of KRESCENT
- 57% of post doctoral fellows have obtained an academic position

QUANTIFYING THE EFFECTS OF EXERCISE ON PATIENT SYMPTOMS LINKED TO HEMODIALYSIS



DR. CLARA BOHM

Three decades of studies suggest that exercise is safe, improves physical function and may improve quality of life for people who live with kidney disease, but there are gaps in the data. For example, while some research has found that cycling during dialysis improves some symptoms such as depression and anxiety, rigorous studies looking at the effects of exercise on overall symptom burden and specific symptoms such as cramping and fatigue are lacking.

To help fill in these gaps, Dr. Clara Bohm, Associate Professor at the University of Manitoba

and Medical Lead of the Manitoba Renal Program's Exercise and Wellness Program, and her team of researchers, exercise physiologists, and kinesiologists are quantifying the impact of an exercise rehabilitation program on symptoms. They are looking at the effect of this activity on the number and severity of symptoms associated with not only kidney disease, but also hemodialysis. While dialysis saves lives by removing poisons from blood, it often does not improve symptoms associated with kidney disease such as fatigue, pain, and insomnia. Sometimes it even leads to more symptoms such as headaches, cramping and nausea. When such symptoms appear, they can diminish quality of life and are also associated with increased risks of hospitalization and death.

In the study, half of the 150 participants are randomly assigned to a 26-week exercise program which includes cycling three times a week for up to an hour while receiving hemodialysis and strength training at home two to three times

per week. The remaining participants form the control group and receive usual dialysis care, which, in Manitoba, where the study is taking place, includes one session of exercise counseling. Participants are of all ages; some have limited mobility, requiring walkers or even wheelchairs; all are regularly monitored by kinesiologists. The participants complete surveys to measure how the activity has affected their symptom number and severity.

The Kidney Foundation of Canada has supported the project with funding and outreach. Dr. Bohm says this support included valuable assistance to help recruit participants and became critical in helping to bridge study delays related to the COVID-19 pandemic.

The goal of the study, which will be completed in 2022, is to provide information on the effects and benefits of exercise that can be adapted across different sized rehabilitation programs and is suitable for people of different ages and circumstances. Obtaining this type of evidence is crucial to making the case for the

benefits of regular exercise in people receiving hemodialysis. While studies on the general population have shown therapeutic effects, such as improved mood and functional status, some dialysis patients and their care providers remain skeptical. Some worry the activity might harm the chronically ill. Others doubt its effectiveness as a serious treatment option that could be used in place of or in conjunction with medication. Yet, "if the exercise plan is individualized, the way we prescribe it in the study, then almost anyone can exercise and hopefully the benefits that result will extend to everybody," Dr. Bohm says.

Starting dialysis is a significant life change, and many people feel like they've lost control, she adds. Exercise helps them take charge of their health again. "Patients have told me that before they started the exercise program, they couldn't even carry a bag of groceries, and now they can walk a block and carry the groceries — things that really make a difference in their daily life."

■ Article by Mary Baxter

EVALUATING A GROUND-BREAKING INITIATIVE TO STANDARDIZE PATIENT-CENTRED CARE IN THE TREATMENT AND MANAGEMENT OF KIDNEY DISEASE



DR. MEGHAN ELLIOTT

Medical experts increasingly recognize patient-centred care improves individual health outcomes. The approach makes the patient's main priorities a focus in treatment and enables patients and their clinical caregivers to develop a mutually agreed-upon care plan.

Providing patient-centred care to people living with kidney disease hinges on gathering and acting upon information about the issues and challenges they experience. So, in 2016, researchers in Alberta and Ontario began the EMPATHY project (Evaluation of routinely

Measured **PATient** reported outcomes in Hemodialysis care). The project is studying use of patient questionnaires previously used for research called patient-reported outcome measures (PROMs) to optimize symptom management.

These questionnaires explore quality-of-life issues and experiences, and, in the EMPATHY project, are shared with clinicians to help them better assess and understand patients' needs and offer treatment aids. These aids can include information handouts, developed for the project, on how to manage symptoms such as fatigue and itching.

"By integrating PROMs into care, the idea is that it will help patients articulate what their concerns are, and it will help standardize how we assess symptoms," says Dr. Meghan Elliott, a nephrologist and Assistant Professor at the University of Calgary. "Because right now, it's very individual. It depends on what nurse you happen to have that day and how forthcoming the patient is."

Last year, Dr. Elliott and her team began to examine how patients and health care providers

integrated PROMs into routine hemodialysis care during EMPATHY. The team, which includes a research coordinator, summer student and a patient partner with lived experience, consulted 20 health care providers and 25 patients in both rural and urban hemodialysis clinics in Southern Alberta. The project also involved members of the team observing interactions between patients and clinicians. Their assessment is now complete, and the team is working on reports to share their findings.

Along with determining patient experiences with PROMs, researchers wanted to know how clinicians integrated the assessments with their other responsibilities, how often they used the other resources, and how useful they found the process to be. "One of the biggest issues is just changing behaviour — so trying to integrate this new tool and helping both staff and patients see how it can help improve care," says Dr. Elliott.

Behaviour changes can be difficult to implement. "It requires a lot of effort, all hands on deck, getting all that buy-in from all the main players involved," she says. However, strategies and opportunities are available to help change

practice for the better and to help to integrate novel tools and techniques into routine care.

Moreover, the advantage of the EMPATHY approach is that it allows patients to outline their concerns, symptoms, and quality of life from their own perspective. "That's what this study is all about, to try and figure out how to best integrate these into routine care for people to help improve their symptoms and quality of life of living with dialysis," she says.

From start to finish, support from The Kidney Foundation of Canada has been essential, Dr. Elliott says. Her expertise was made possible through Foundation-funded KRESCENT post-doctoral and new investigator awards. Funding from a Kidney Foundation health research grant for this project, specifically, helped hire a research coordinator and engage a patient partner. Acquiring the insights of someone with lived experience has been transformative: "It helps me to see the research questions and the research problems that we're trying to address in a new light."

■ Article by Mary Baxter

CONTROLLING KIDNEY DISEASE FROM THE OUTSIDE OF THE CELL



DR. CASIMIRO GERARDUZZI

A cure for kidney disease remains elusive, but Dr. Casimiro Gerarduzzi would like to change that. Since 2017, the junior researcher with the Nephrology Axis at the Hospital Maisonneuve-Rosemont Research Center in Montreal and his team have been looking outside of the kidney cell to explore the functions of the extracellular matrix and how these affect kidney disease.

He describes the matrix as a biological “scaffolding” that supports cells while they perform their functions. Historically, the matrix was viewed as a solid static structure; research has subsequently revealed that it continuously

rearranges itself to provide information vital to the survival of cells. The structure comprises proteins drawn from kidney cells.

One of these is a family of proteins called matricellular proteins (MCPs). The proteins help to repair the matrix “scaffolding” after injury, similar to how the fibrous proteins, like collagen, come together to seal a wound and repair skin when an injury occurs.

Normally, MCPs are produced only when repair is needed and remains absent at all other times. In various kidney diseases, such as diabetic nephropathy, however, such proteins become continuously present because the disease significantly damages the texture and composition of the matrix “scaffolding.” The damage triggers non-stop repair, which in turn leads to a buildup of the matrix to the point where it replaces the cells that provide proper kidney function. This overabundance of the matrix is called renal fibrosis. Dr. Gerarduzzi likens the condition to the inflexible scar tissue that forms when

collagen repairs a deep skin burn. “That’s not really functional,” he says, noting the condition can lead to serious and life-threatening complications and may increase mortality risk.

Dr. Gerarduzzi and his team of nephrologists and renal biomedical researchers are looking closely at the extracellular matrix to identify the molecular signal mechanisms of the genes and proteins that spark the maladaptive repair process. They are also looking at the matrix’s behaviour in renal cell carcinoma, where it has been implicated in both the perpetuation of cancer cells and metastasis — the spread of cancer cells to other parts of the body.

Determining how the extracellular matrix behaves during kidney disease, and in particular the role of MCPs, could produce a biomarker to quickly diagnose renal fibrosis. In the longer run, it might also lead to therapeutic treatment by controlling the matrix’s response and rate of growth. “The idea is that we want repair, but we want it in a controlled manner,” Dr. Gerarduzzi says. Treating the matrix is particularly attractive, he adds, because

“we know that if we target those proteins that it would only be in that area where there is tissue remodelling processes and not affect anywhere else in the body.”

Dr. Gerarduzzi, a recipient of a Kidney Foundation of Canada KRESCENT new investigator award, says the Foundation’s support through mentorship and training, such as how to design key experiments and communicate findings, has been invaluable to the building of his career, the project — and to his ongoing research. “It was such a tremendous amount of support that put me in a very strong position to strengthen me as an independent investigator dedicated specifically to kidney research,” he says.

■ Article by Mary Baxter

NEW RESEARCH COULD LEAD TO MORE TRANSPLANT ACCESS FOR “SENSITIZED” KIDNEY PATIENTS



DR. JAMES LAN

A kidney transplant is considered to be the best way to treat kidney failure for many Canadians. Transplants help patients live longer and achieve a better quality of life. Unfortunately, there are hundreds of Canadians waiting for a transplant who will only match with a very small percentage of donor organs. Dr. James Lan is working to understand whether some of these patients actually have more compatibility for a transplant than their lab tests suggest.

About one-fifth of kidney patients on the transplant waiting list are classified as being highly sensitized. This means that they have a high level of antibodies in their blood which would react with donor kidney cells and lead to the rejection of the transplanted organ. They have a probability of finding a kidney match with less than five per cent of the population.

Being highly sensitized means your body was exposed to foreign molecules or tissue in the past. This usually happens in the case of a blood transfusion, a previous transplant, or a pregnancy. The higher the level of antibodies, the higher the risk that a donor kidney could be rejected.

“Those who are considered highly sensitized have a very hard time,” Dr. Lan explains. “They take longer to find a matching donor kidney and many simply never find a kidney.”

The main laboratory test to detect antibodies in patients’ blood is called the single-antigen bead (SAB) test. Although this test is very good at detecting low-level antibodies, more than half of kidney patients who say they have never been exposed to sensitizing events come up as being “sensitized” on the SAB test.

With the support of funding from The Kidney Foundation, Dr. Lan is working to decode this puzzling phenomenon that has been documented by scientists but is not well-understood. What does it mean? Are all these patients simply unaware of aspects of their medical history (for example, had a blood transfusion they are not aware of) or could there be a problem with the antibody test or how it is interpreted?

Dr. Lan’s research is focused on uncovering the cause of unexplained antibodies in 1000 kidney patients enrolled in five leading transplant centres across Canada and the US. He will

assess the significance of these antibodies by evaluating their chemical and functional properties. If the unexplained antibodies are determined to be harmless, that could mean some patients believed to be “sensitized” are not as likely to reject a transplanted organ as previously thought.

This research is important for patients, because it could potentially allow more Canadians with end-stage kidney disease access to kidney transplants while safeguarding against high rates of rejection.

■ Article by Heidi Westfield

KIDNEY HEALTH
RESEARCH GRANTS



DR. RAMI AL BATRAN
Université de Montréal, QC
2021-2024: \$150,000
Project Title: Could a ketogenic diet slow the progression of diabetic kidney disease?
Category: Screening & prevention of renal disease



DR. DARREN BRIDGEWATER
Co-Applicant: Matthew Lanktree
McMaster University, ON
2021-2023: \$100,000
Project Title: Nephron development: A role for Shroom3 in nephron progenitor morphogenesis
Category: Kidney development



DR. JOHN CHAN
Co-Applicant: Chao-Sheng Lo
Université de Montréal, QC
2021-2023: \$100,000
Project Title: Oxidative stress and regulation of SGLT2 Expression in diabetic kidney
Category: Diabetes



DR. KRISTIN KYOMI CLEMENS
Co-Applicants: Amber Molnar, Amit X Garg, Jenny Thain, Kyla Naylor, Matthew Weir, Samuel Silver
London Health Sciences Centre Research Inc. (Lawson Health Research Institute), ON
2021-2023: \$99,999
Project Title: Prevent fractures for renal disease-1 (PREFERRED-1)
Category: Dialysis



DR. REMI GOUPIL
Co-Applicants: Annie-Claire Nadeau-Fredette, Mohsen Agharazii
CIUSSS du Nord-de-l'Île-Montreal, QC
2021-2023: \$100,000
Project Title: CENTRAL-CKD
Category: Hypertension



DR. TONY KIANG
Co-Applicants: Penny Colbourne, Sita Gourishankar
University of Alberta, AB
2021-2023: \$98,778
Project Title: p-Cresol and mycophenolate interaction in adult kidney transplant patients
Category: Transplantation



DR. KHALED BARAKAT
Co-Applicant: Stephane Bourque
University of Alberta, AB
2021-2023: \$100,000
Project Title: Development of SHP2 inhibitors as a treatment for acute kidney injury
Category: Quality of life



DR. JEAN-FRANÇOIS CAILHIER
Centre Hospitalier de l'Université de Montréal, QC
2021-2023: \$100,000
Project Title: Deciphering the inflammatory proprieties of crystalloids: Why saline is bad?
Category: Renal failure



DR. EDWARD CLARK
Co-Applicants: Bernard McDonald, Dean A Fergusson, Irene Watpool, Jeannie Callum, Rakesh Patel, Ron Wald, Samuel Silver, Swapnil Hiremath, Tim Ramsay, William Beaubien-Souigny
Ottawa Hospital Research Institute, ON
2021-2023: \$100,000
Project Title: Albumin to enhance recovery from severe acute kidney injury
Category: Dialysis



DR. CASIMIRO GERARDUZY
Hôpital Maisonneuve-Rosemont, QC
2021-2024: \$150,000
Project Title: Investigating the provisional-immune matrix in kidney injury via SMOC2
Category: Kidney biology



DR. GREGORY HUDEMERMER
Co-Applicants: François Madore, Jean-Philippe Lambert, Julie Shaw, Mohsen Agharazii, Remi Goupil, Sumaiya Ahmed, Tim Ramsay
Ottawa Hospital Research Institute, ON
2021-2024: \$122,340
Project Title: The impact of subclinical primary aldosteronism on kidney disease
Category: Screening & prevention of renal disease



DR. NGAN LAM
Co-Applicants: Matthew James, Neesh Pannu, Pietro Ravani, Rachel Jeong, Rob Quinn, Sean Bagshaw, Thomas Steffox
University of Calgary, AB
2021-2023: \$97,138
Project Title: Follow-up and outcomes of critically ill patients with acute kidney injury
Category: Screening & prevention of renal disease



DR. DYLAN MACKAY

Co-Applicants:

Leah Cahill, Navdeep Tangri, Rebecca Mollard
University of Manitoba, MB
2021-2024: \$148,437

Project Title: Dietary potassium liberalization in pre-dialysis patients

Category: Quality of life



DR. ISTVAN MUCSI

Co-Applicants:

Andrea Norgate, Anne Rydall, Camilla Zimmermann, Carmine Malfitano, Ella Garcia Huszti, Gary Rodin, Hance Clarke, Jeffrey Schiff, Kirsten Wentlandt, Rinat Nissim
University Health Network, ON
2021-2023: \$99,450

Project Title: Emotion/symptom-focused engagement for kidney/kidney-pancreas recipients
Category: Transplantation



DR. SHAI FALI SANDAL

Co-Applicants:

Anna Horton, Istvan Mucsi, Marcelo Cantarovich, Marie-Chantal Fortin, Peter Nugus
The Research Institute of the McGill University Health Centre, QC
2021-2023: \$100,000

Project Title: Health system-level barriers to living donor kidney transplantation
Category: Transplantation



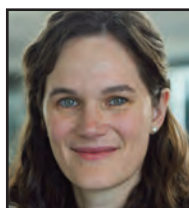
DR. AMBER MOLNAR

Co-Applicants:

Amit Garg, Dr. Ann Young, Arsh Kumar Jain, Bin Luo, Danielle Nash, Dr. Scott Brimble
McMaster University, ON
2021-2024: \$143,302

Project Title: Impact of a change in eligibility criteria for multi-care kidney clinics

Category: Screening & prevention of renal disease



DR. ANNIE-CLAIRE NADEAU-FREDETTE

Co-Applicants: David Collister, Fabrice Mac-Way, Isabelle Éthier, Karthik Tennankore, Remi Goupil, Rita Suri
Hôpital Maisonneuve-Rosemont, QC
2021-2024: \$148,690.96

Project Title: QUALIFY CKD-to-HOME
Category: Quality of life

**ALLIED HEALTH
KIDNEY
SCHOLARSHIP**



VICTORIA RIEHL-TONN

Supervisor:

Sofia Ahmed
University of Calgary, AB
2021-2022: \$5,000

Project Title: Sex, gender, and quality of life in patients initiating hemodialysis

Category: Nursing

**ALLIED HEALTH
KIDNEY DOCTORAL
FELLOWSHIP**



ROHIT SINGLA

Supervisors:

Christopher Nguan, Torsten Nielsen
University of British Columbia, BC
2021-2023: \$50,000

Project Title: Quantifying kidney fibrosis non-invasively with smart ultrasound

Category: Chronic kidney disease

**ALLIED HEALTH
KIDNEY RESEARCH
GRANTS**



DR. MARISA BATTISTELLA

Supervisors:

Amit Garg, Anna Gagliardi, Cali Orsulak, Clara Bohm, Jo-Anne Wilson, Judith Marin, Dr. Marcello Tonelli, Monica Beaulieu, Dr. Murray Krahn, Sara Jane Taylor Guilcher, Stephanie N Dixon
University Health Network, ON
2021-2023: \$98,353

Project Title: Deprescribing in patients on hemodialysis
Category: Dialysis



DR. KARA SCHICK-MAKAROFF

Supervisors:

Jennifer Macrae, Jenny Wichart, Meghan J. Elliott, Peter Yoeun, Rick Sawatzky, Scott Klarenbach, Stephanie Thompson
University of Alberta, AB
2021-2023: \$100,000

Project Title: Tailoring a pathway for mental health care for Albertans on dialysis
Category: Dialysis

KRESCENT IS A NATURAL
PARTNERSHIP OF
THE KIDNEY FOUNDATION
AND THE CANADIAN
SOCIETY OF NEPHROLOGY

KRESCENT NEW INVESTIGATOR RESEARCH AWARDS



DR. DAVID COLLISTER
University of Manitoba, MB
2021-2023: \$210,000
Infrastructure: \$25,000
Project Title: REsponSiveness
of urEmic sympToms to
DIALYSIS (RESET-DIALYSIS)
Category: Dialysis



**DR. WILLIAM BEAUBIEN-
SOULIGNY**
Centre de Recherche
du Centre Hospitalier de
l'Université de Montréal, QC
2021-2023: \$210,000
Infrastructure: \$25,000
Project Title: Fluid removal
strategies on renal
replacement therapy
Category: Acute kidney injury

KRESCENT POST-DOCTORAL FELLOWSHIPS



**DR. SANTOSH
KUMAR GORU**
Supervisor:
Darren Yuen
St. Michael's Hospital, ON
2021-2023: \$110,000
Project Title: Prolyl
hydroxylase (PHD) inhibition
to treat kidney fibrosis
Category: Chronic kidney
disease



DR. SIMON LECLERC
Supervisors:
Tomoko Takano, Ciriaco
Piccirillo
Research Institute of the McGill
University Health Centre, QC
2021-2024: \$195,000
Project Title: Potential roles
of antibodies in the
pathogenesis of nephrotic
syndrome
Category: Glomerulonephritis

KRESCENT ALLIED HEALTH DOCTORAL AWARD



DANIELLE FOX
Supervisors:
Robert Quinn,
David Campbell
University of Calgary, AB
2021-2024: \$105,000
Project Title: Facilitating
successful transitions to
home dialysis therapies
Category: Dialysis

THE CANADIAN DONATION AND TRANSPLANTATION RESEARCH PROGRAM (CDTRP) PARTNERSHIP INNOVATION GRANTS



DR. TOM BLYDT-HANSEN
Supervisors:
Tatsuma Hind, Erin Moon,
Katherine Broad, Julie
Robillard, Evelyn Stewart,
Mandeash Grewal, Kathryn
Armstrong, Richard Schreiber
University of British
Columbia, BC
2021-2023: \$30,000
Project Title: Predictors
and patient experiences
that enable access to care
of post-traumatic stress
in pediatric solid organ
transplant recipients
Category: Transplantation



DR. AMANDA VINSON
Supervisors:
Bethany Foster, Karthik
Tennankore
Nova Scotia Health Authority, NS
2021-2023: \$30,000
Project Title: Identifying sex-
based disparities in referral
for transplant, activation
on the waitlist and kidney
transplantation
Category: Transplantation

RECIPIENT OF
THE MEDAL
FOR RESEARCH
EXCELLENCE FOR

2020

Dr. York Pei



The Kidney Foundation of Canada was proud to name Dr. York Pei the recipient of the 2020 Medal for Research Excellence. The announcement of this prestigious award was postponed until 2021, one of the programs delayed due to impacts of the COVID-19 pandemic.

Dr. York Pei, MD, FRCP(C), FACP, FASN, is a professor in the Department of Medicine, Division of Nephrology at the University of Toronto; the Director of the Centre for Innovative Management of Polycystic Kidney Disease, University Health Network; and a Senior Scientist at the Toronto General Research Institute, University Health Network.

Dr. Pei founded the Centre for Innovative Management for Polycystic Kidney Disease in 2015 with the goal of developing a world-class PKD translational research program in Canada. The centre provides advanced diagnostic and novel therapeutics to patients with ADPKD; more than 500 patients are followed or co-managed at the centre with roughly 95% of them involved in at least one research project. Researchers at the Centre for Innovative Management for Polycystic Kidney Disease also have access to the latest research studies in prognostic biomarkers and therapeutic interventions.

According to Dr. Peter Nickerson, Research Council co-chair for The Kidney Foundation of Canada, "York's contributions to the field of PKD (polycystic kidney disease) are far-reaching and significant. For example, the criteria used throughout the world to

confirm or exclude the diagnosis of autosomal dominant polycystic kidney disease is largely the result of his work."

Dr. Pei's research career has primarily centred on identifying the genetic factors involved in the initiation or progression of genetic kidney diseases as a target for developing novel diagnostic tests and therapies. His research program focuses on genetic, genomic, and translational research of hereditary kidney diseases with a major focus on autosomal dominant polycystic kidney disease (ADPKD).

"I am very honoured to receive this award," Dr. Pei said in a recent interview with *Kidney PLUGGED IN*, an educational video series produced by The Kidney Foundation. "It's really a recognition of cumulative work over at least 20 years. It's not just my own personal reward - it's really the team effort. It's with their effort that we're able to make progress in this field."

Dr. Pei also highlighted how the support provided by the Kidney Foundation of Canada has been indispensable in his career. "There have been times when I thought that I might have to phone my lab and stop researching, but somehow every time it seemed at the last minute there'd be good news and a grant would come through. This award speaks very loudly about the need for the research funding and support provided by agencies such as The Kidney Foundation of Canada. Without them, I would not be able to do that work that I do."

Dr. Pei was also the co-recipient of the Lillian Jean Kaplan International Prize for polycystic kidney disease in 2019. Alongside his research career, he has published over 150 peer-reviewed articles, collaborated widely with researchers nationally and internationally, and has trained numerous clinical and research fellows in hereditary kidney disease.

RECIPIENT OF
THE MEDAL
FOR RESEARCH
EXCELLENCE FOR

2021

Dr. Amit Garg



The Kidney Foundation was pleased to announce Dr. Amit Garg as the recipient of the 2021 Medal for Research Excellence.

Dr. Garg is Professor of Medicine - Division of Nephrology and of Epidemiology and Biostatistics at Western University in London, Ontario. He also currently operates as Medical Director of the living kidney donor program at the London Health Sciences Centre, and prior to that, he served as president of the Canadian Society of Nephrology.

Known among his peers as a world-class clinical and health services investigator in kidney, dialysis, and transplantation medicine, Dr. Garg's research has previously appeared in top medical journals and media outlets including CTV, Global News, and the New York Times.

The research community has widely credited Dr. Garg's work in helping understand how different treatments alter the risk of acute kidney injury from elective surgery, improving the practice and safety of living kidney donation, and reducing adverse events from prescription medications. Additionally, his research has made it easier for fellow researchers and clinicians to access relevant kidney-related content in large bibliographic databases due to the development of specialized filters.

Upon being awarded the 2021 Medal for Research Excellence, Dr. Garg expressed gratitude in being supported and surrounded by so many brilliant people, both in the

workplace and at home. "The Kidney Foundation has been an instrumental source of support in training and grant funding throughout my 20-year career," he acknowledged. "I am deeply honoured and very grateful to be recognized with the Medal for Research Excellence. It has been my privilege to be involved in a community of people who are deeply committed to achieving the same goal."

His relationship with the Foundation includes two decades of support from The Kidney Foundation of Canada which started with a post-graduate fellowship in 2001. A lifelong collaborator and researcher, he has 600 published articles with more than 1,000 different authors from over 50 international centres.

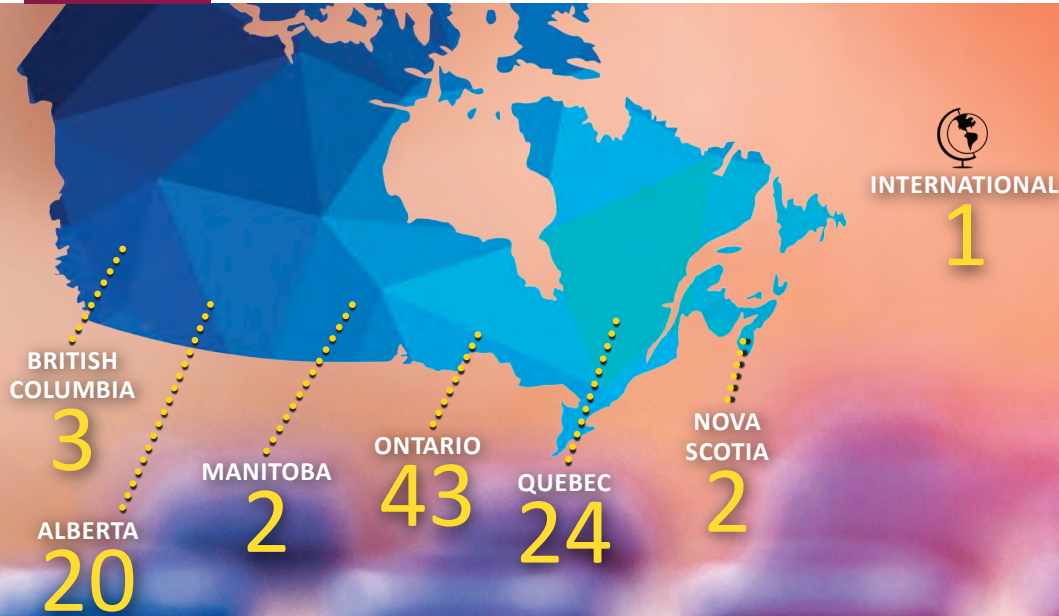
Alongside his roles as Professor and Medical Director, Dr. Garg also serves as the ICES Provincial Kidney, Dialysis and Transplantation Program Lead and the Provincial Medical Lead, Access to Kidney Transplantation for the Ontario Renal Network; Scientist at the Lawson Health Research Institute and at ICES; and an Associate Scientist at the Population Health Research Institute.

At Western University, Dr. Garg continues to mentor and train future kidney researchers; he has been the primary research supervisor to over 70 trainees at Western University. He is also grateful to work with a team of highly qualified research administrators, coordinators, data managers, epidemiologists and statisticians in London, Ontario.

In Dr. Nicolas Fernandez's words, as patient lead and co-chair of The Kidney Foundation's Research Council, "Dr. Garg is an outstanding example of research leadership in Canada. His work with KDIGO (Kidney Disease Improving Global Outcomes) helped establish the definitive international clinical practice guidelines in living kidney donation and stands as just one of his many notable achievements."

**PROJECTS
BY
PROVINCE:**

**GRANT
THEMES
INCLUDE:**



- Acute kidney injury
- Cancer
- Chronic kidney disease
- Diabetes
- Dialysis
- Genetics
- Glomerulonephritis
- Hypertension
- 100 Years of Insulin
- Kidney biology
- Kidney development
- Nutrition
- Nursing
- Organ donation
- Predictive biomarkers
- Quality of life
- Renal failure
- Screening & prevention of renal disease
- Transplantation
- Urology
- Water, salt and calcium handling by the kidney

IN 2021, THE KIDNEY FOUNDATION PROVIDED RESEARCH SUPPORT THROUGH:

95
Total number of grants

30
Research Institutes

24
Supervisors

214
Co-Applicants

25
KRESCENT Awards

12
Early career researcher-led projects

97
Principal Applicants

437
Researchers supported

6
Partnerships in large networks

102
Collaborators

55
Kidney Health Research Grants

9
Allied Health Kidney Awards