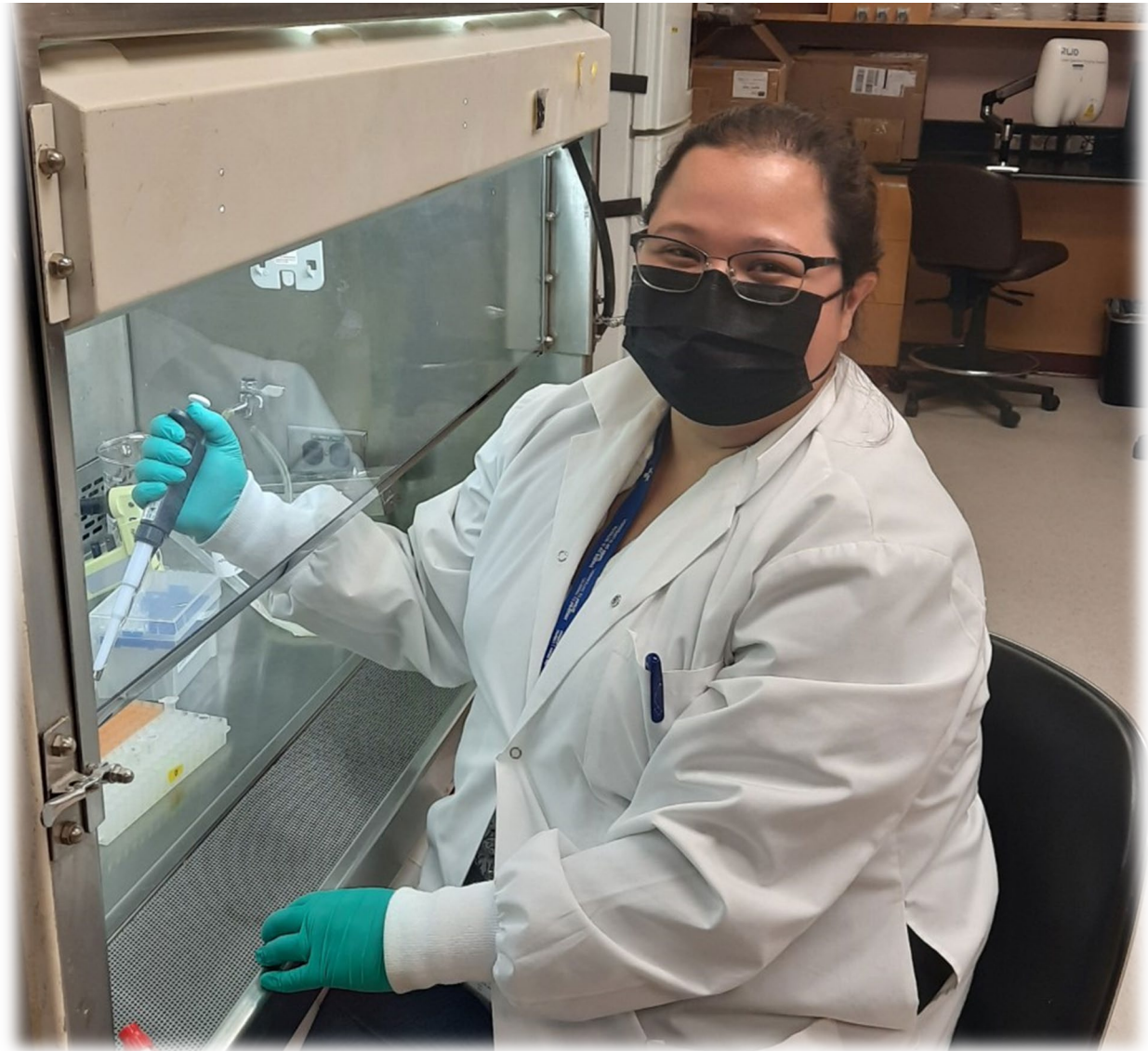


Kidney Research Centre



Annual Report 2019-2020

About the KRC

The Kidney Research Centre (KRC) was established in 2000 at The Ottawa Hospital Research Institute, University of Ottawa, and is the first centre of its kind in Canada devoted exclusively to the prevention, diagnosis and treatment of kidney disease.



Cover image

Postdoctoral Fellow Mayra Trentin-Sonoda, a member of the Laboratory of Dr. Kevin Burns.

The Kidney Research Centre—Ottawa Hospital Research Institute

Centre de recherche sur les maladies du rein—Institut de recherche de l'Hôpital d'Ottawa

University of Ottawa / Université d'Ottawa

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Message from the Director



“These are unprecedented times”. “A crisis like no other we have faced for more than 100 years”. “Practice physical distancing, wash your hands, and wear a mask”. How many of us were anticipating such quotes at the beginning of 2020? When the COVID-19 pandemic arrived in March, research came to an abrupt halt at the KRC, as it did at most research institutes across Canada and around the world. Not only did this affect

laboratory research, but clinical projects involving patients were also put on hold, with priority focused on public health strategies to prevent spread of the coronavirus. But KRC scientists and clinical investigators quickly mobilized to respond to the crisis, and demonstrated creativity and resilience in their commitment to continue research. At the KRC, one of the first actions was the collection of personal protective equipment (PPE) and laboratory supplies, which were donated to help protect staff at The Ottawa Hospital (more than 17,000 pairs of gloves alone were donated – many thanks to KRC Lab Manager Gaby Cherton-Horvat for organizing this successful effort). Drs. Chris Kennedy and Dylan Burger were instrumental in rapidly setting up a seamless transition to hold our weekly KRC journal clubs and interactive lab meetings, using Zoom technology. And because COVID-19 can affect a key protein involved in blood pressure regulation (“ACE2”), Dr. Swapnil Hiremath and colleagues around the world led an effort to determine if commonly used BP medications (ACE inhibitors and angiotensin receptor blockers) can be safely continued in patients with COVID-19, and quickly published the available science in a blog, which is still being updated with new data, and a paper on the subject that received international recognition. Finally, at the KRC labs, research was launched to study the effects of COVID-19 on substances regulating blood pressure (the “renin-angiotensin system”) in blood samples from people with COVID-19, in collaboration with critical care investigators across Canada. We are especially proud of KRC senior technician, Mr. Joseph Zimpelmann, who wore full PPE to conduct these complex experiments, with outstretched arms within a negative airflow biosafety cabinet. No simple feat.

Despite the pandemic, KRC investigators published more than 90 research papers in the past year, covering a wide variety of topics relevant to the origins, prevention, and treatment of kidney disease. Real progress is being made at the basic laboratory level, and in the clinical arena, directly impacting patient care. We acknowledge our outstanding community support: Sam Karkache and his team organized a highly successful KRC golf tournament in Sept. 2019, and La Serata Italian (Italian Night) in March 2020 was one of the best ever, and honored 2 young kidney researchers as recipients of Agostino Monteduro

Kidney Foundation of Canada Scholarships, Ms. Amélie Blais and Dr. Sriram Sriperumbuduri. Finally, the KRC is especially grateful to the Jones Family Foundation for their major ongoing commitment via The Ottawa Hospital Foundation to support laboratory and clinical studies at KRC.

Sincerely,

A handwritten signature in black ink that reads "Kevin Burns". The signature is written in a cursive style and is positioned above the typed name.

Kevin D. Burns, MD CM, FRCPC
Professor of Medicine,
Division of Nephrology
The Ottawa Hospital
Director, Kidney Research Centre
Ottawa Hospital Research Institute – University of Ottawa

Message du directeur



« Ce sont des temps sans précédent. » « Une crise comme aucune autre à laquelle nous sommes confrontés depuis plus de 100 ans. » « Pratiquez la distanciation physique, lavez-vous les mains et portez un masque. » Combien d'entre nous prévoyaient de telles citations au début de l'année 2020? Lorsque la pandémie du COVID-19 est arrivée en mars, la recherche s'est brusquement arrêtée au CRMR, comme c'était le cas dans la plupart des

instituts de recherche au Canada et dans le monde. Non seulement cela a affecté la recherche en laboratoire, mais les projets cliniques impliquant des patients ont également été suspendus, la priorité allant aux stratégies de santé publique pour prévenir la propagation du coronavirus. Au CRMR, l'une des premières actions a été la collecte d'équipements de protection individuelle (EPI) et de fournitures de laboratoire, qui ont été donnés pour aider à protéger le personnel de L'Hôpital d'Ottawa (plus de 17 000 paires de gants ont été données – grâce à Gaby Cherton-Horvat la Gestionnaire du laboratoire pour l'organisation de cet effort réussi). Les docteurs Chris Kennedy et Dylan Burger ont joué un rôle déterminant dans la mise en place rapide et d'une transition transparente pour organiser notre Club de lecture hebdomadaire et nos réunions de laboratoire interactives, en utilisant la technologie Zoom. Et parce que le COVID-19 peut affecter une protéine clé impliquée dans la régulation de la pression artérielle (« ACE2 »), le Dr Swapnil Hiremath et ses collègues du monde entier ont mené un effort pour déterminer si les médicaments de pression artérielle couramment utilisés comme (inhibiteurs de l'ECA ou inhibiteurs des récepteurs de l'angiotensine) peuvent être utilisés en toute sécurité chez les patients atteints de la COVID-19. La science a rapidement été publiée dans un blogue, qui est toujours en cours de mise à jour avec de nouvelles données. L'article, publié rapidement aussi, a reçu une reconnaissance internationale. Enfin, dans les laboratoires scientifiques du CRMR, des recherches ont été lancées pour étudier les effets du COVID-19 sur les substances régulant la pression artérielle (le « système rénine-angiotensine ») dans des échantillons sanguins de personnes atteintes de COVID-19, en collaboration avec des chercheurs en soins intensifs partout au Canada. Nous sommes particulièrement fiers du technicien sénior au CRMR, M. Joseph Zimpelmann, qui tout en utilisant l'EPI de niveau maximal a pu mener à bien ces expériences complexes, les bras tendus dans un espace de sécurité biologique à flux d'air négatif continu ce qui représente en soi tout un exploit.

Malgré la pandémie, les chercheurs du CRMR ont publié plus de 90 articles de recherche au cours de la présente année, couvrant une grande variété de sujets liés aux origines, à la prévention et au traitement

de l'insuffisance rénale. De réels progrès sont réalisés au niveau de recherche fondamentale des laboratoires scientifiques et dans le domaine clinique, ce qui a un impact direct sur les soins aux patients. Nous reconnaissons le soutien exceptionnel de la communauté: Sam Karkache et son équipe ont organisé un tournoi de golf KRC très réussi en septembre 2019, et La Serata Italiana (soirée italienne) en mars 2020 était l'une des meilleures de tous les temps. Deux jeunes chercheurs en néphrologie ont été honorés avec des bourses d'études de la Fondation canadienne du rein Agostino Monteduro, Mme Amélie Blais et le Dr Sriram Sriperumbuduri. Enfin, le CRMR est particulièrement reconnaissant à the Jones Family Foundation pour leur engagement majeur par l'intermédiaire de la Fondation de l'hôpital d'Ottawa pour soutenir les études des laboratoires scientifiques et cliniques au CRMR.

Cordialement,



Kevin D. Burns, MD CM, FRCPC
Professeur de médecine, Division de néphrologie
Université d'Ottawa et l'Hôpital d'Ottawa
Directeur, Centre de recherche sur les maladies
du rein
Institut de recherche de L'Hôpital d'Ottawa, Université d'Ottawa

Community Outreach

KRC Golf Tournament

The Meadows Golf & Country Club hosted the 2019 KRC Golf Tournament on Monday September 9. The 2019 tournament raised \$28,000, which went to the study of the potential therapeutic effects of microvesicles in kidney disease and hypertension. Following the day of golf and dinner, Dr. Kevin Burns, KRC Director highlighted the important role the tournament has played over the past 16 years to



Mr. Mauro Burri

support the KRC. Mr. Mauro Burri (Photo right), a three-time kidney transplant recipient shared his incredible story of courage and determination in living with kidney disease. Thank you to our Honorary Co-Chairs Hockey Hall of Fame coach Brian Kilrea and CTV's Michael O'Byrne and the generous main sponsors: the CLV Group, Urbandale, and TSN 1200 Ottawa. A very special thank you to the organizing committee members: Eric Fawcett, Sam Karkache, Doli Kirkish, Noha Kirkish, Kim Shelp and Derek Suprunchuk and the team from The Ottawa Hospital Foundation.

KRC Donates Supplies to Ottawa Hospital

Protecting front line workers and patients is crucial. At the beginning of the pandemic, The Ottawa Hospital asked for supplies and the KRC responded. The OHRI Research Safety Committee collected much needed supplies from the laboratories. The KRC was able to donate 17,100 Nitrile Gloves (79 boxes of 200 gloves and 13 boxes of 100 gloves), 36 Boxes of Kleenex, 28 Pairs of Safety Glasses, 26 N95 Respirators, 120 Surgical Masks, and 8 L of Ethanol. Thank you to our Laboratory Manager Gabriele Cherton-Horvat for preparing the donation. (Photo right: Supplies donated to The Ottawa Hospital by the OHRI Laboratories)



The public can visit The Ottawa Hospital's PPE donation website: 613PPEDonations.ca and find information to donate supplies to assist in the fight against COVID-19.

OHRI supplies donated to the Ottawa Hospital, photo courtesy of OHRI

La Serata Italiana (Italian Night)

The KRC is very grateful to the organizers, attendees and sponsors of the 2020 La Serata Italiana Gala. The theme of this year's gala held Saturday March 7th 2020 was 007. This year's event raised approximately \$45,000. The organizing committee donated \$35,000 to the KRC, \$10,000 to local kidney patients in need of support during the COVID-19 pandemic, and \$500 will be contributed to the Mario Frangione Bursary Fund (given to a kidney patient or family member of a kidney patient through a selection process).



Photo: The 2020 organizing committee of La Serata Italiana.

The 2020 Planning Committee of La Serata Italiana awarded two scholarships at the Gala. The KRC Italian night Scholarship competition is open to current KRC Undergraduate or Graduate Student, Resident Trainee, Post-Doctoral Fellow or Clinical Research. The awardees receive a \$1,000 stipend for salary support, and funds to support travel costs related to abstract presentation at a national or international scientific meeting in 2020 or 2021. The 2020 recipients were Amélie Blais and Dr. Sriram Sriperumbuduri. Amélie Blais was an undergraduate student who has been working in the laboratory of Dr. Chris Kennedy at the KRC beginning in May 2018. She was completing an Honours project and began M.Sc. studies with Dr. Kennedy in the spring of 2020. Dr. Sriram Sriperumbuduri ("Sri"), a Nephrology Fellow in our program since 2017, successfully completed an AST Accredited Renal Transplantation Fellowship in 2019, and is now pursuing an ASH Accredited Hypertension Fellowship.



Photo: Dr. Deb Zimmerman, Ms. Anna Monteduro, Dr. Kevin Burns, Amélie Blais, Dr. Sriram Sriperumbuduri.

Alive to Strive



The 2020 Alive to Strive organizing committee announced the cancellation of the 2020 races, due to the COVID-19 pandemic. The races were to be held Sunday, April 26, 2020.

Please visit the Alive to Strive website for alternative ways to support their programs, <http://alivetostrive.ca/race/2020-alive-strive-race/>.

KRC Staff / Trainees

Research Personnel

Members of the Division of Nephrology / Kidney Research Centre

<u>Name</u>	<u>Title</u>	<u>Scientific Rank</u>
Dr. Ayub Akbari	Associate Professor Division of Nephrology	Senior Clinician Investigator, OHRI
Dr. Syed Obaid Amin	Clinical Nephrology Associate	
Dr. Robert Bell	Associate Professor Division of Nephrology	
Dr. Mohan Biyani	Assistant Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Pierre Antoine Brown	Assistant Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Ann Bugeja	Assistant Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Dylan Burger	Associate Professor Dept of Cellular and Molecular Medicine Dept of Medicine (Nephrology)	Scientist, OHRI, KRC
Dr. Kevin D. Burns	Professor of Medicine Division of Nephrology Director of Kidney Research Centre	Senior Scientist, OHRI
Dr. Edward Clark	Assistant Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Janet Davis	Assistant Professor Division of Nephrology	
Dr. Cedric Edwards	Assistant Professor Division of Nephrology	
Dr. Todd Fairhead	Assistant Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Richard L. Hébert	Full Professor Dept of Cellular & Molecular Medicine	
Dr. Caitlin Hesketh	Clinical Associate Division of Nephrology	
Dr. Swapnil Hiremath	Associate Professor Division of Nephrology	Associate Scientist, OHRI
Dr. Stephanie Hoar	Assistant Professor Division of Nephrology	
Dr. Greg Hundemer	Assistant Professor Division of Nephrology	Clinician Investigator, OHRI

Dr. Jolanta Karpinski	Associate Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Chris Kennedy	Full Professor Dept of Cellular & Molecular Medicine	Senior Scientist, OHRI
Dr. Greg Knoll	Professor of Medicine Division of Nephrology Head, Division of Nephrology	Senior Scientist, OHRI
Dr. Peter Magner	Associate Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Brendan McCormick	Associate Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Soraya Moghadam	Clinical Associate Division of Nephrology	
Dr. Steven Nadler	Associate Professor Division of Nephrology	
Dr. Sushil Ratnaparkhe	Clinical Nephrology Associate	
Dr. Marcel Ruzicka	Associate Professor Division of Nephrology	Clinician Investigator, OHRI
Dr. Manish Sood	Jindal Research Chair for Prevention of Kidney Disease Associate Professor Division of Nephrology	Scientist, OHRI
Dr. Deborah Zimmerman	Associate Professor Division of Nephrology, Director of Clinical Research, KRC	Clinician Investigator, OHRI

Clinical Scholars, Trainees and Fellows

<u>Name</u>	<u>Title</u>
Dr. Adrianna Douvris	Clinical Fellow (RCPSC)
Dr. Ana Cecilia Farfan Ruiz	Clinical Fellow (RCPSC)
Dr. Ankur Gupta	Clinical Fellow
Dr. Zafar Iqbal	Clinical Fellow
Dr. Januvi Jegatheswaran	Clinical Fellow (RCPSC)
Dr. Mohit Madken	Clinical Fellow
Dr. David Massicotte-Azarniouch	Clinical Fellow (RCPSC)
Dr. Yasin Parpia	Clinical Fellow
Dr. Arun Kumar Ponna	Clinical Fellow
Dr. Daniel Samaha	Clinical Fellow (RCPSC)
Dr. Sriram Sriperumbuduri	Clinical Fellow
Dr. Varun Verma	Clinical Fellow

Clinical Fellow (Basic Research)

<u>Name</u>	<u>Supervisor</u>
Dr. Robert Myette	Clinical Fellow, CHEO (Burger Lab)

Research Associates (Basic Research)

<u>Name</u>	<u>Supervisor</u>
Dr. Alexey Gutsol	Dr. K. Burns
Dr. Chet Holterman	Dr. C. Kennedy
Dr. Jean-François Thibodeau	Dr. C. Kennedy/Dr. R.L. Hébert (Research Scientist II, Biology – Liminal BioSciences)
Dr. Jose Vinãs	Dr. K. Burns
Dr. Fengxia Xiao	Dr. D. Burger / Dr. K. Burns

Post Graduate Trainees

<u>Name</u>	<u>Supervisor</u>
Dr. Jason Bau	Dr. D. Burger
Gabrielle Bourque	Dr. S. Hiremath
Dr. Ryan Chan	Dr. D. Zimmerman
Dr. Adrianna Douvris	Dr. K. Burns
Dr. Richard Hae	Dr. E. Clark
Dr. Kevin Hill	Dr. M. Sood
Dr. Nicole Hryciw	Dr. E. Clark
Dr. Arianna Noel	Dr. M. Sood
Dr. Carol Wang	Dr. E. Clark
Dr. Jessica Xu	Dr. K. Burns

Medical Students

<u>Name</u>	<u>Supervisor</u>
Adrian Bailey	Dr. K. Burns (with Dr. David Allan)
Brandon Budhram	Dr. M. Sood
Daniel Chan Chun Kong	Dr. S. Hoar
Daniel Czikk	Dr. D. Zimmerman
Rana Hassan	Dr. A. Akbari

Medical Students (continued...)

<u>Name</u>	<u>Supervisor</u>
Trisha Kandiah	Dr. D. Zimmerman
Jonathan Lau	Dr. A. Akbari
Salmi Noor	Dr. M. Sood
Julius Vladmir	Dr. S. Hiremath
Sarah Zankar	Dr. K. Burns

Post Doctoral Fellow (Basic Research)

<u>Name</u>	<u>Project Title</u>	<u>Supervisor</u>
Dr. Mayra Trentin-Sonoda	Effect of human vascular progenitor cell-derived exosomes or micro-RNA on renal function in mice with cisplatin induced acute kidney injury.	Dr. K. Burns

Graduate Students (Basic Research)

<u>Name</u>	<u>Project Title</u>	<u>Supervisor</u>
Akram Abolbaghaei	Microparticles in diabetes and pregnancy.	Dr. D. Burger
Véronique Cheff	Investigating the role of sodium-glucose transporter 2 modulation in metabolic syndrome induced-chronic kidney disease.	Dr. R.L. Hébert
Hannah Battaion	Nox5-containing urinary microparticles in renal injury associated with diabetes and hypertension.	Dr. C. Kennedy
Chloé Landry	The role of peptidylarginine deiminase 4 and neutrophil extracellular traps in vascular and renal function in hypertensive diabetic mice.	Dr. D. Burger
Thalia Medeiros	Analysis of podocyte and tubule-derived microparticles in experimental models of chronic kidney disease.	Dr. D. Burger

Graduate Students (Clinical Research)

<u>Name</u>	<u>Project Title</u>	<u>Supervisor</u>
Dr. David Massicotte-Azarniouch	The risks associated with blood transfusions in kidney transplant recipients: A retrospective cohort study using health administrative data.	Dr. M. Sood / Dr. G. Knoll
Silvia Leon Mantilla	Impact of ACEi/ARB discontinuation after an episode of hyperkalemia in patients with CKD. A population-based cohort study.	Dr. M. Sood

Honours Students (Basic Research)

<u>Name</u>	<u>Project Title</u>	<u>Supervisor</u>
Houssein Abdi Osman	Effects of cryostorage on extracellular vesicles.	Dr. D. Burger
Vidulash Rajaratnam	Generation of nanoparticles for delivery of microRNA to kidney	Dr. D. Burns
Ozgun Varol	Endothelial-derived exosomes protect against angiotensin II-induced oxidative stress in endothelial cells.	Dr. D. Burger
Kadija Houssein Youssouf	The effect of canagliflozin on bone-marrow derived macrophage polarization and pro-inflammatory gene expression.	Dr. R.L. Hébert

Undergraduate Students (Basic Research)

<u>Name</u>	<u>Project Title</u>	<u>Supervisor</u>
Samy Asraoui	TMM 3 rd Year Student	Dr. D. Burger

Summer Students (Basic Research)

<u>Name</u>	<u>Supervisor</u>
Emma Ruzicka	Dr. D. Burger
Véronique Cheff	Dr. C. Kennedy
Karishma Tailor	Dr. K. Burns

Co-op Student (Basic Research)

<u>Name</u>	<u>Supervisor</u>
Amélie Blais	Dr. C. Kennedy
Ozgun Varol	Dr. D. Burger

Part-time Student (Basic Research)

<u>Name</u>	<u>Supervisor</u>
Amélie Blais	Dr. C. Kennedy

Technical Staff

<u>Name</u>	<u>Title</u>	<u>Supervisor</u>
Gabriele Cherton-Horvat	Laboratory Manager	Dr. K. Burns
Lihua Zhu	Laboratory Technician	Dr. C. Kennedy
Joseph Zimpelmann	Senior Laboratory Technician	Dr. K. Burns / Dr. R. L. Hébert

Clinical Research Staff

<u>Name</u>	<u>Title</u>	<u>Supervisor</u>
Jennifer Biggs	Clinical Research Nurse Coordinator	Dr. D. Zimmerman
Valerie Cronin	Clinical Research Nurse Coordinator	Dr. D. Zimmerman
Justine Davis	Clinical Research Administrative Coordinator	Dr. D. Zimmerman
Julie Leidecker	Clinical Research Coordinator	Dr. D. Zimmerman
Jessica Wagner	Clinical Research Coordinator	Dr. D. Zimmerman
Jennifer Wong	Research Assistant (KRC Trial)	Dr. D. Zimmerman

Research Administrative Staff

<u>Name</u>	<u>Title</u>	<u>Supervisor</u>
Jennifer Brownrigg	Research Administrative Assistant	Dr. K. Burns

Publications

1. **Bugeja A**, Harris S, **McCormick BB**, **Brown PA**, Liberty C, Krepelka T, St-Cyr G, **Akbari A**. Safety and efficacy of Tinzaparin anticoagulation during nocturnal hemodialysis. *American Journal of Nephrology* Vol 50(4):255-261, 2019.
2. Brimble KS, Boll P, Grill AK, Molnar A, Nash DM, Garg A, **Akbari A**, Blake PG, Perkins D. Impact of the KidneyWise Toolkit on chronic kidney disease referral practices in Ontario primary care: A prospective evaluation. *BMJ Open* Vol 10(2):E032838, 2020.
3. Molnar AO, **Akbari A**, Brimble S. Perceived and objective kidney disease knowledge in patients with advanced CKD followed in a multidisciplinary CKD clinic. *Canadian Journal Kidney Health and Disease* Vol 7:205435810903156, 2020.
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5. **Akbari A**, Tangri N, **Brown PA**, **Biyani M**, Rhodes E, **Kumar T**, Shabana W, **Sood MM**. Prediction of progression in polycystic kidney disease using the kidney failure risk equation and ultrasound parameters. *Canadian Journal of Kidney Health and Disease* Vol 7:1-8, 2020.
6. Auray-Blais C, Lavoie P, Abaoui M, Côté AM, Boutin M, **Akbari A**, Levin A, Mac-Way F, Clarke JTR. High-risk screening for Fabry disease in a Canadian cohort of chronic kidney disease patients. *Clinica Chimica Acta* Vol 501:234-240, 2020.
7. Bouzakri K, Veyrat-Durebex C, **Holterman CE**, Arous C, Barbieux C, Bosco D, Altirriba J, Alibashe M, Tournier B, Gunton JE, Mouche S, Biteiger W, Forterre A, Berney T, Pinget M, Christofori G, **Kennedy CRJ**, Sxanto I. Beta-cell-specific expression of NOX5 aggravates high fat diet-induced impairment of islet insulin secretion in mice. *Antioxidants & Redox Signaling* Vol 32(9):618-635, 2020.
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9. **Massicotte-Azarniouch D**, McLean L, **Brown PA**. Uremic leontiasis ossea due to secondary hyperparathyroidism complicated by vitamin C deficiency in a non-adherent chronic hemodialysis patient: A case report. *Clinical Nephrology Case Studies* Vol 7:54-59, 2019.
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11. **Medeiros T**, **Myette R**, Almeida JR, Silva AA, **Burger D**. Extracellular vesicles: Cell-derived biomarkers of glomerular and tubular injury. *Cellular Physiology and Biochemistry* Vol 54(1):88-109, 2020.
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13. Kruger R, Brunström M, **Burger D**, Charchar F, Climie R, Mirabito Colafella KM, Kempny P, Korostovtseva L, Marques FZ, Picone D, Romero C, Steckelings UM, Velkoska E, Wainford R, Wynne

- BM, Zanuzzi MG. Highlights from the International Society of Hypertension's New Investigators Network during 2019. *Journal of Hypertension* Vol 38(5):968-973, 2020.
14. **Landry C, Burger D.** Hypertension and vascular alterations in Lupus autoimmunity. *Journal of Hypertension* 38(7):1257-1258, 2020.
 15. Milston Renner T, Tang VA, **Burger D**, Langlois MA. Intact viral particle counts measured by flow virometry provides insight into the infectivity and genome packaging efficiency of moloney murine leukemia virus. *Journal of Virology* Vol 94(2):E01600-19, 2020.
 16. Asare-Werehene M, Nikka K, Reunov A, Chiu CT, Lee WT, Abedini M, Wang PW, Shieh DB, Dilworth FJ, **Burger D**, Tsang B. The exosome-mediated autocrine and paracrine actions of plasma gelsolin in ovarian cancer chemoresistance. *Oncogene* Vol 39:1600-1616, 2019.
 17. Allan D, Tieu A, Lalu M, **Burger D.** Mesenchymal stromal cell-derived extracellular vesicles for regenerative therapy and immune modulation: Progress and challenges toward clinical application. *Stem Cells Translational Medicine* Vol 9(1):39-46, 2020.
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 25. **Hae R, Samaha D, Brown PA**, McQuillan R, **Hiremath S, Clark EG.** A survey of training for temporary hemodialysis catheter insertion during nephrology fellowship in Canada: An update. *Canadian Journal of Kidney Health and Disease* Vol (6):2054358119875989, 2019.
 26. **Douvrin A**, Zeid K, **Hiremath S**, Bagshaw SM, Wald R, Beaubien-Souligny W, Kong J, Ronco C, **Clark EG.** Mechanisms for hemodynamic instability related to renal replacement therapy: A narrative review. *Intensive Care Medicine* Vol 45(10):1333-1346, 2019.
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KRC Grant Funding

Clinical Research

Dr. Ayub Akbari

The association of anemia with clinical outcomes in dialysis patients in Canada.

Astra Zeneca

2020-2022

\$130,000

Risk factors for sub-optimal dialysis initiation.

Kidney Foundation of Canada

2018-2019

\$100,000

Dr. Edward Clark

Filling knowledge gaps for the success of Ontario renal plan 3.

CIHR Institute of Nutrition, Metabolism and Diabetes

2020-2021

\$100,000

Albumin to prevent hypotension and enhance recovery from severe acute kidney injury treated with renal replacement therapy: A proof-of-concept study.

The Ottawa Hospital Academic Medical Organization (TOHAMO)

2020-2021

\$98,400

Exploring the relationship between mitochondrial health and hemodynamic instability related to renal replacement therapy in critically ill patients.

Department of Medicine, University of Ottawa

2020-2020

\$48,000

Dr. Greg Hundemer

Characterizing renal outcomes in overt and subclinical aldosterone excess.

KRESCENT–New Investigator Award Kidney Foundation of Canada/CIHR/Canadian Society of Nephrology

2019-2022

\$210,000

Characterizing renal outcomes in overt and subclinical aldosterone excess.

KRESCENT–Infrastructure Award Kidney Foundation of Canada/CIHR/Canadian Society of Nephrology

2019

\$50,000

Dr. Greg Knoll

A research program to improve patient outcomes in kidney transplantation.

Canadian Institutes of Health Research

2015-2022

\$3,109,137

Dr. Manish Sood

Health evaluation and liveliness for physicians through meaningful data (HELP MD).

TOHAMO Innovation fund

2020

\$98,939

Development, validation and dissemination of a survey-based prediction equation targeting the general public: PREDICT-CKD Lifestyle.

Kidney Foundation of Canada

2020-2022

\$111,972

Examining bleeding with concurrent clarithromycin and DOAC use: The STOP Bleed Study.

Heart and Stroke Foundation of Canada

2020-2022

\$93,206

The risk: Benefit trade-off of newer anticoagulants for heart disease in patients with CKD.

The Ottawa Hospital Academic Medical Organization (TOHAMO)

2018-2019

\$98,939

Dr. Marcel Ruzicka and Dr. Swapnil Hiremath

Diet or additional supplement to increase potassium intake: An adaptive clinical trial.

Loe & John Hecht Memorial Foundation

2021

\$286,540

Dr. Deb Zimmerman

A simple exercise program for patients with end stage kidney disease to improve strength and quality of life: A feasibility study.

Canadian Institutes of Health Research

2018-2020

\$252,450

Basic Research

Dr. Dylan Burger

Assessment of circulating microparticles for prediction of venous thromboembolism in cancer.

Joan Sealy Trust for Cancer Research

2020-2021

\$35,043

Mesenchymal stromal cell derived exosomes as a preconditioning therapy for cardiac ischemia-reperfusion injury.

University of Ottawa Faculty of Medicine Translational Research Grant

2019-2020

\$50,000

(Co-principal investigator with Dr. Manoj Lalu)

The molecules and mechanisms mediating kidney health and disease (M3K) Meeting and Investigator Summit.

Canadian Institutes of Health Research

2019-2020

\$15,000

Microparticles in Diabetes.

Government of Ontario- Early Researcher Award

2018-2023

\$140,000

Microparticles in diabetes.

Canadian Institutes of Health Research

2017-2022

\$685,440

Extracellular vesicles in vascular and renal disease.

Canada Foundation for Innovation

2015-2020

\$173,953

Dr. Dylan Burger and Dr. Marcel Ruzicka

Sex differences in platelet microparticles in patients with chronic kidney disease.

Kidney Foundation of Canada

2020-2022

\$120,000

Sex differences in platelet microparticles on dialysis.

The Ottawa Hospital Department of Medicine Translational Research Grant

2019-2020

\$48,000

Dr. Kevin Burns

Endothelial Progenitor Cell Exosomes and MicroRNA Transfer as Therapy for Acute Kidney Injury.

Canadian Institutes of Health Research

2018-2023
\$742,050

Exosomal transfer microRNA-486-5p in acute kidney injury repair.

Kidney Foundation of Canada

2017-2019
\$100,000

Listening, Learning, Leading: Canadians seeking solutions and innovations to overcome chronic kidney disease (Can-SOLVE CKD).

Canadian Institutes of Health Research

2016 to 2021

\$12,500,000 (Precision Medicine in Diabetic Kidney Disease: \$2,000,000)

Dr. Richard Hébert

The role of prostaglandin E2 and their receptor subtypes on kidney disease.

Kidney Foundation of Canada

2019-2021
\$100,000

Drs. Richard Hébert and Chris Kennedy

Insight into mechanisms and receptors involved in PBI-4050's beneficial effect on kidney fibrosis and inflammation.

Liminal Bio Sciences Inc.

2015-2020
\$500,000

Drs. Richard Hébert, Chris Kennedy and Jean-François Thibodeau

GPR40 and GPR84 receptors as novel targets in acute and chronic kidney disease.

Liminal Bio Sciences Inc.

2016-2021
\$500,000

Dr. Chris Kennedy

The role of Nox5 in hypertension-associated renal injury.

Canadian Institutes of Health Research

2018-2023
\$822,375

Nox5-containing urinary microparticles in renal injury associated with diabetes and hypertension.

Kidney Foundation of Canada

2018-2020
\$100,000

Investigators—Invited Presentations

Clinical Research

Dr. Pierre Antoine Brown

Autosomal Dominant Polycystic Kidney Disease – Improving quality of care through evidence based management.

Medicine Grand Rounds, Western University

February 2020

London, ON

Dr. Ann Bugeja

Hypertensive emergency vs urgency: When to send your patient to ER.

Canadian Hypertension Congress

September 2019

Edmonton, AB

State of living kidney donation.

University of Malta

July 2019

Valletta, Malta

Dr. Edward Clark, Dr. Swapnil Hiremath

SN COVID-19 Rapid Response Team - Ambulatory care of patients with advanced kidney disease/GN.

Canadian Nephrology Trials Network Meeting

Canadian Society of Nephrology

April 2020

Webinar

Dr. Swapnil Hiremath

Social media and education

Nephrology Grand Rounds, University of Alberta

Edmonton, Alberta

September 25, 2019

Dr. Greg Hundemer

The changing landscape of primary aldosteronism.

Greenblatt Lecture: Queen's University Department of Medicine Grand Rounds

February 2020

Kingston, ON Canada

New advances in primary aldosteronism.

Université Laval Division of Nephrology Grand Rounds

November 2019

Quebec City, QC Canada

Evaluating the efficacy of primary aldosteronism therapy.

2019 Canadian Hypertension Congress

September 2019

Edmonton, AB Canada

RAAS blockade in CKD – what’s hot, what’s not? Role of aldosterone antagonists diagnostic approach in resistant hypertension.

28th Annual Conference of the Hypertension Society of India

1st International Kidney and Hypertension Conference

September 2019

Mumbai, India

Dr. Marcel Ruzicka

Can drugs work in patients who do not take them? The problem of non-adherence in resistant hypertension.

American Society of Nephrology Kidney Week

October 2019

Washington, DC, USA

Dr. Manish Sood

Anticoagulation in the cardiorenal syndrome.

Southwest Nephrology and Cardiorenal Metabolic Conference

March 2020

Phoenix, USA

Dr. Deb Zimmerman

COVID-19 Rapid Response Team - home dialysis recommendations.

Canadian Nephrology Trials Network Meeting

Canadian Society of Nephrology

April 2020

Webinar

Basic Research

Dr. Dylan Burger

Extracellular vesicles in Cardiovascular and Renal Disease.
Seminar Series, Department of Physiology and Pharmacology
Western University
February 2020
London, ON

Navigating the academic recruitment process.
Graduate Student Luncheon, Department of Physiology and Pharmacology
Western University
February 2020
London, ON

Endothelial function and extracellular vesicles.
Canadian Vascular Network Summer School
August 2019
Montreal, QC

Dr. Chris Kennedy

Peer review overview
CIHR Institute of Nutrition Metabolism and Diabetes New Investigator meeting.
November 2019
Canmore, AB

Safety concerns and appropriate comparators for newer potassium binders.
Cardiovascular Clinical Trials (CVCT) Meeting
Dec 2019
Washington, DC, USA

Does a DOAC a day keep the Cardiologist away? The use of DOACs to prevent cardiovascular disease in CKD.
Visiting Professorship, Nephrology Grand Rounds
University of British Columbia
Oct 2019
Vancouver, British Columbia

Does a DOAC a day keep the Cardiologist away? The use of DOACs to prevent cardiovascular disease in CKD.
Visiting Professorship, Nephrology Grand Rounds
University of Winnipeg
July 2019
Winnipeg, Manitoba

DOACs in patients with kidney disease: Considerations and complications.
Visiting Professorship, Nephrology Rounds – Seven Oaks Hospital
July 2019
Winnipeg, Manitoba

Awards and Distinctions

Recipient	Year	Award
Ms. Amélie Blais	2020	2020 Agostino Monteduro Italian Night Scholarship.
Dr. Dylan Burger	2020	Promoted to Associate Professor in the Departments of Cellular and Molecular Medicine, and Department of Medicine at the University of Ottawa.
Dr. Dylan Burger	2020	Named co-Chair of Hypertension Canada's Young Investigator Forum for 2020.
Dr. Dylan Burger	2020	Named Chair of the local organizing committee for the 2020 Scientific Meeting of the Canadian Society for Pharmacology and Therapeutics.
Dr. Dylan Burger	2020	Named to the publications committee for the International Society of Hypertension 2019 May Measurement Month Global Blood Pressure Screening Campaign.
Dr. Dylan Burger	2020	Chaired the first ever Ottawa Extracellular Vesicle e-Symposium.
Dr. Swapnil Hiremath	2019	Appointed to the Editorial Board of the American Journal of Kidney Disease.
Dr. Swapnil Hiremath	2019	Appointed to the Board of Directors of Hypertension Canada.
Dr. Marcel Ruzicka	2020	Elected Fellow of the American Heart Association (FAHA) conferred by the Council on Hypertension (HTN).
Dr. Manish Sood	2019	Appointed Scientist at the OHRI.
Dr. Manish Sood	2019	Appointed to the Editorial Board of the American Journal of Kidney Disease.
Dr. Manish Sood	2019	Appointed to the Editorial Board of the Canadian Journal of Cardiology.
Dr. Sriram Sriperumbuduri	2020	2020 Agostino Monteduro Italian Night Scholarship.

Visiting Speakers

Date	Scholar	Title of Presentation	Seminar
9/12/2019	Dr. Louise Moist London Health Sciences Centre London, Ontario	<i>The kidney brain axis.</i>	Nephrology Grand Rounds
9/19/2019	Dr. Daniel Schwartz Fraser Health Renal Program New Westminster, B.C.	<i>Future of digital health and technology enabled medical education.</i>	Nephrology Grand Rounds
10/15/2019	Augusto Montezano, PhD, FAHA Walton Fellow in Cardiovascular Medicine Institute of Cardiovascular and Medical Sciences University of Glasgow Scotland, United Kingdom	<i>Osteogenic factors and the vasculature: Beyond vascular calcification.</i>	KRC Journal Club
11/14/2019	Dr. Juliya Hemmett Clinical Assistant Professor Cumming School of Medicine Division of Nephrology, UBC Department of Medicine, Evaluation Specialist, BC Renal Calgary, AB	<i>Understanding the effect of illness and treatment beliefs, symptoms and psychologic factors on QOL in patients with ESRD.</i>	Nephrology Grand Rounds
11/21/2019	John S.D. Chan, PhD Professor of Medicine Faculty of Medicine Université de Montréal Chief, Laboratory of Molecular Nephrology and Endocrinology Montreal, Qc	<i>Oxidative stress and regulation of Sglt2 expression in diabetic kidney disease.</i>	KRC Journal Club
11/21/2019	Dr. Rinu Pazhekattu Department of Nephrology LHSC Victoria Hospital London, ON	<i>Point of care ultrasound (POCUS) for the nephrologist.</i>	Nephrology Grand Rounds
12/18/2019	Jason J. Winnick, Ph.D. Assistant Professor University of Cincinnati College of Medicine Department of Internal Medicine Division of Endocrinology, Diabetes & Metabolism Cincinnati, Ohio, USA	<i>Latrogenic hypoglycemia in type 1 diabetes: Potential avenues of therapy.</i>	KRC Journal Club

Date	Scholar	Title of Presentation	Seminar
1/16/2020	Dr. Mark Canney Division of Nephrology UBC Department of Medicine Vancouver, BC	<i>Addressing methodologic challenges in observational studies of glomerular disease and CKD.</i>	Nephrology Grand Rounds
2/6/2020	Dr. Caitriona McEvoy, PhD MRCP(I) Post-doctoral research fellow Division of Medicine Department of Nephrology University Health Network Toronto, ON	<i>Novel molecular mechanisms associated with the beneficial effects of Normothermic Ex-vivo Kidney Perfusion (NEVKP).</i>	Nephrology Grand Rounds
2/6/2020	Dr. Caitriona McEvoy, PhD MRCP(I) Post-doctoral research fellow Division of Medicine Department of Nephrology University Health Network Toronto, ON	<i>scRNA-sequencing in the Kidney: Promises and pitfalls.</i>	KRC Journal Club
2/13/2020	Dr. David Collister St. Joseph's Healthcare Hamilton, ON	<i>Symptom management in dialysis.</i>	Nephrology Grand Rounds
5/21/2020	Ketul R. Chaudhary, PhD, BPharm Assistant Professor Faculty of Medicine Dept. of Physiology & Biophysics Dalhousie University Halifax, NS	<i>New insight into pathophysiology of pulmonary arterial hypertension and right heart failure.</i>	KRC Journal Club