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## **Dr. Rami Al Batran**

Correspondence language: English

Sex: Male

Date of Birth: 1/07

Canadian Residency Status: Canadian Citizen

Country of Citizenship: Canada

## **Contact Information**

The primary information is denoted by (\*)

### **Address**

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609-10550 place de l'Acadie  
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#### Primary Affiliation (\*)

Pavillon Jean-Coutu  
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## **Dr. Rami Al Batran**

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### **Degrees**

2015/9 - 2019/12	Post-doctorate, Post-Doctoral Fellow, University of Alberta Degree Status: Completed
2015/1 - 2015/8	Post-doctorate, Post-Doctoral Fellow, University of Malaya Degree Status: Completed
2010/10 - 2014/10	Doctorate, Doctor of Philosophy (PhD), University Technology Mara (UiTM) Degree Status: Completed
2005/2 - 2009/10	Bachelor's, B.Sc. of Pharmacy, Arab International University (AIU) Degree Status: Completed

### **Recognitions**

2022/7 - 2026/6	Research Scholars - Junior 1 Fonds de recherche du Québec - Santé (FRQS)
2022/7 - 2025/6	KRESCENT New Investigator Award A Joint Program Between KFC and CIHR
2019/9 - 2019/9	EASD Travel Award European Association for the Study of Diabetes
2019/6 - 2019/6	ALPCO Diabetes Travel Grant ALPCO
2019/3 - 2019/3	Keystone Symposia Scholarship Keystone Symposia

### **Employment**

2020/1	Assistant Professor Faculty of Pharmacy, Faculty of Pharmacy, Université de Montréal
2015/11 - 2019/12	Post-Doctoral Fellow Department of Pharmaceutical Sciences, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta
2015/1 - 2015/10	Post-Doctoral Fellow Department of Pharmacology, Faculty of Medicine, University of Malaya
2010/10 - 2014/12	PhD Candidate Department of Dentistry, Faculty of Medicine and Dentistry, University Technology MARA

2008/5 - 2008/8 Summer Student  
Department of Pharmacology, Faculty of Pharmacy, Universitat des Saarlandes

## Affiliations

The primary affiliation is denoted by (\*)

(\*) 2020/1 Assistant Professor, Faculty of Pharmacy, Université de Montréal

## Research Funding History

### Awarded [n=11]

2020/7 - 2026/7 Principal Investigator	Pharmacotherapy of Ketone Body Metabolism in Obesity <b>Funding Sources:</b> Canada Foundation for Innovation (CFI) John R. Evans Leaders Fund Total Funding - 402,479 Funding Competitive?: Yes
2023/7 - 2026/6 Principal Investigator	Investigating the Short- and Long-term Effects of Ketogenic Diet on Atherosclerosis <b>Funding Sources:</b> Heart and Stroke Foundation of Canada (HSFC) Grant-in-aid Total Funding - 300,000 Funding Competitive?: Yes
2020/4 - 2026/3 Principal Investigator	Medium Chain Triglycerides and Ketogenesis <b>Funding Sources:</b> Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant – Individual Total Funding - 120,000 Funding Competitive?: Yes
2022/7 - 2025/6 Principal Investigator	Investigating the Role of Ketone Body Metabolism in Diabetic Kidney Disease <b>Funding Sources:</b> KFC and CIHR KRESCENT New Investigator Award Total Funding - 193,000 Funding Competitive?: Yes
2022/4 - 2025/4 Principal Investigator	Targeting Ketone Body Metabolism in Obesity and Metabolic Syndrome <b>Funding Sources:</b> Fonds de recherche du Québec - Santé (FRQS) Research Scholars - Junior 1 Total Funding - 267,401 Funding Competitive?: Yes
2021/10 - 2024/9 Principal Investigator	Could a Ketogenic Diet Slow the Progression of Diabetic Kidney Disease? <b>Funding Sources:</b> Kidney Foundation of Canada (KFC) Kidney Health Research Grant Total Funding - 150,000 Funding Competitive?: Yes
2022/5 - 2023/4	Branched-Chain Amino Acids and Insulin Resistance

Principal Investigator	<b>Funding Sources:</b> Diabète Québec Research Grant 2022 Total Funding - 20,000 Funding Competitive?: Yes
2020/1 - 2022/12 Principal Investigator	Start-up Fund <b>Funding Sources:</b> Université de Montréal Start-up Package Total Funding - 150,000 Funding Competitive?: No
2022/1 - 2022/12 Principal Investigator	Quantitative Fluxomics of Ketone Bodies in Diabetic Kidney Disease <b>Funding Sources:</b> Cardiometabolic Health, Diabetes or Obesity (CMDO) Intercenter Collaboration Program Total Funding - 10,000 Funding Competitive?: Yes
2021/6 - 2022/5 Principal Investigator	Unraveling the Mechanisms of Empagliflozin in NAFLD & NASH <b>Funding Sources:</b> Faculté de pharmacie - Université de Montréal Fonds de la Relève Total Funding - 25,000 Funding Competitive?: Yes
2020/4 - 2021/3 Principal Investigator	Medium Chain Triglycerides and Ketogenesis <b>Funding Sources:</b> Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Launch Supplement – Individual Total Funding - 12,500 Funding Competitive?: Yes
<b>Completed [n=2]</b>	
2017/7 - 2019/12 Principal Applicant	Post-Doctoral Fellowship <b>Funding Sources:</b> Canadian Institutes of Health Research (CIHR) Post-Doctoral Fellowship Total Funding - 135,000 Funding Competitive?: Yes
2016/7 - 2019/7 Principal Applicant	Post-Doctoral Fellowship <b>Funding Sources:</b> Canadian Diabetes Association Post-Doctoral Fellowship - Personnel Awards Total Funding - 120,000 Funding Competitive?: Yes

## Publications

### Journal Articles

1. Saed CT , Tabatabaei Dakhili SA , Greenwell AA , Chan JSF , Yang K , Gopal K , Eaton F , Al Batran R , Ussher JR. (2023). The antianginal ranolazine fails to improve glycaemia in obese liver-specific pyruvate dehydrogenase deficient male mice. *Basic & clinical pharmacology & toxicology*. 133(2): 194-201.  
Published  
Refereed?: Yes
2. Stephanie Mourad, Abdulrahman Mohammed Abdulkader, Shailee Jani, Rolando B. Ceddia, Rami Al Batran. (2023). A High-fat Diet Supplemented with Medium-chain Triglycerides Ameliorates Hepatic Steatosis by Reducing Ceramide and Diacylglycerol Accumulation in Mice. *The Journal of Physiology*. 0: 0.  
Submitted  
Refereed?: Yes
3. Keshav Gopal, Abdulrahman Mohammed Abdulkader, Xiaobei Li, Amanda A. Greenwell, Qutuba G. Karwi, Christina Saed, Golam M. Uddin, Ahmed M. Darwesh, K Lockhart Jamieson, Tariq R. Altamimi, Ryekjang Kim, Farah Eaton, John M. Seubert, Gary D. Lopaschuk, John R. Ussher, Rami Al Batran. (2023). Loss of Skeletal Muscle Pyruvate Dehydrogenase Induces Lactic Acidosis and Adaptive Anaplerotic Compensation via Pyruvate-Alanine Cycling and Glutaminolysis. *Journal of Biological Chemistry (JBC)*. 0: 0.  
Revision Requested  
Refereed?: Yes
4. Yau K , Wang C , Al Batran R , Macphee A , Beaucage M , Farragher JF. (2023). Knowledge Translation in Glomerulonephritis: Successes in Translational Research From the Bench to Bedside. *Canadian journal of kidney health and disease*. 10: 20543581231191839.  
Published  
Refereed?: Yes
5. Mechchate H , Abdulkader AM , Bernacchi JB , Gopal K , Tabatabaei Dakhili SA , Yang K , Greenwell AA , Kong X , Crawford PA , Al Batran R. (2023). Defective muscle ketone body oxidation disrupts BCAA catabolism by altering mitochondrial branched-chain aminotransferase. *American journal of physiology. Endocrinology and metabolism*. 324(5): E425-E436.  
Published  
Refereed?: Yes
6. Abdulkader AM , Lopaschuk GD , Al Batran R. (2022). The Double Face of IRF4 in Metabolic Reprogramming. *Diabetes*. 71(11): 2251-2252.  
Published  
Refereed?: Yes
7. Tabatabaei Dakhili SA , Greenwell AA , Yang K , Abou Farraj R , Saed CT , Gopal K , Chan JSF , Chahade JJ , Eaton F , Lee C , Velázquez-Martínez CA , Crawford PA , Glover JNM , Al Batran R , Ussher JR. (2022). The Antipsychotic Dopamine 2 Receptor Antagonist Diphenylbutylpiperidines Improve Glycemia in Experimental Obesity by Inhibiting Succinyl-CoA:3-Ketoacid CoA Transferase. *Diabetes*. 72(1): 126-134.  
Published  
Refereed?: Yes
8. Greenwell AA , Saed CT , Tabatabaei Dakhili SA , Ho KL , Gopal K , Chan JSF , Kaczmar OO , Dyer SA , Eaton F , Lopaschuk GD , Al Batran R , Ussher JR. (2022). An isoproteic cocoa butter-based ketogenic diet fails to improve glucose homeostasis and promote weight loss in obese mice. *American journal of physiology. Endocrinology and metabolism*. 323(1): E8-E20.  
Published  
Refereed?: Yes

9. Greenwell AA , Gopal K , Altamimi TR , Saed CT , Wang F , Tabatabaei Dakhili SA , Ho KL , Zhang L , Eaton F , Kruger J , Al Batran R , Lopaschuk GD , Oudit GY , Ussher JR. (2021). Barth syndrome-related cardiomyopathy is associated with a reduction in myocardial glucose oxidation. *American journal of physiology. Heart and circulatory physiology.* 320(6): H2255-H2269.  
Published  
Refereed?: Yes, Open Access?: No
10. Gopal K, Al Batran R, Altamimi T, Greenwell AA, Saed CT, Tabatabaei-Dakhili SA, Dimaano M, Zhang Y, Eaton F, Sutendra G and Ussher JR. (2021). FoxO1 inhibition alleviates type 2 diabetes-related diastolic dysfunction by increasing myocardial pyruvate dehydrogenase activity. *Cell Reports.* 35: 108935.  
Published  
Refereed?: Yes, Open Access?: Yes
11. Byrne NJ , Soni S , Takahara S , Ferdaoussi M , Al Batran R , Darwesh AM , Lefebvre JL , Beker D , Vos DY , Schmidt MA , Alam AS , Maayah ZH , Schertzer JD , Seubert JM , Ussher JR , Dyck JRB. (2020). Chronically Elevating Circulating Ketones Can Reduce Cardiac Inflammation and Blunt the Development of Heart Failure. *Circulation.* Heart failure. 13(6): e006573.  
Published  
Refereed?: Yes
12. Eshreif A , Al Batran R , Jamieson KL , Darwesh AM , Gopal K , Greenwell AA , Zlobine I , Aburasayn H , Eaton F , Mulvihill EE , Campbell JE , Seubert JM , Ussher JR. (2020). L-Citrulline supplementation improves glucose and exercise tolerance in obese male mice. *Experimental physiology.* 105(2): 270-281.  
Published  
Refereed?: Yes
13. Al Nebaihi HM , Al Batran R , Ussher JR , Maayah ZH , El-Kadi AOS , Brocks DR. (2020). Dietary-Induced Obesity, Hepatic Cytochrome P450, and Lidocaine Metabolism: Comparative Effects of High-Fat Diets in Mice and Rats and Reversibility of Effects With Normalization of Diet. *Journal of pharmaceutical sciences.* 109(2): 1199-1210.  
Published  
Refereed?: Yes
14. Al Batran R , Gopal K , Capozzi ME , Chahade JJ , Saleme B , Tabatabaei-Dakhili SA , Greenwell AA , Niu J , Almutairi M , Byrne NJ , Masson G , Kim R , Eaton F , Mulvihill EE , Garneau L , Masters AR , Desta Z , Velázquez-Martínez CA , Aguer C , Crawford PA , Sutendra G , Campbell JE , Dyck JRB , Ussher JR. (2020). Pimozide Alleviates Hyperglycemia in Diet-Induced Obesity by Inhibiting Skeletal Muscle Ketone Oxidation. *Cell metabolism.* 31(5): 909-919.e8.  
Published  
Refereed?: Yes
15. Almutairi M , Gopal K , Greenwell AA , Young A , Gill R , Aburasayn H , Al Batran R , Chahade JJ , Gandhi M , Eaton F , Mailloux RJ , Ussher JR. (2020). The GLP-1 Receptor Agonist Liraglutide Increases Myocardial Glucose Oxidation Rates via Indirect Mechanisms and Mitigates Experimental Diabetic Cardiomyopathy. *The Canadian journal of cardiology.* 2020.02.098: 10.1016.  
Published  
Refereed?: Yes
16. Al Batran R , Gopal K , Aburasayn H , Eshreif A , Almutairi M , Greenwell AA , Campbell SA , Saleme B , Court EA , Eaton F , Light PE , Sutendra G , Ussher JR. (2019). The antianginal ranolazine mitigates obesity-induced nonalcoholic fatty liver disease and increases hepatic pyruvate dehydrogenase activity. *JCI insight.* 4(1): 2379-3708.  
Published  
Refereed?: Yes

17. Maayah ZH , McGinn E , Al Batran R , Gopal K , Ussher JR , El-Kadi AOS. (2019). Role of Cytochrome p450 and Soluble Epoxide Hydrolase Enzymes and Their Associated Metabolites in the Pathogenesis of Diabetic Cardiomyopathy. *Journal of cardiovascular pharmacology*. 74(3): 235-245.  
Published  
Refereed?: Yes
18. Ho KL , Zhang L , Wagg C , Al Batran R , Gopal K , Levasseur J , Leone T , Dyck JRB , Ussher JR , Muoio DM , Kelly DP , Lopaschuk GD. (2019). Increased ketone body oxidation provides additional energy for the failing heart without improving cardiac efficiency. *Cardiovascular research*. 115(11): 1606-1616.  
Published  
Refereed?: Yes
19. Uddin GM , Zhang L , Shah S , Fukushima A , Wagg CS , Gopal K , Al Batran R , Pherwani S , Ho KL , Boisvenue J , Karwi QG , Altamimi T , Wishart DS , Dyck JRB , Ussher JR , Oudit GY , Lopaschuk GD. (2019). Impaired branched chain amino acid oxidation contributes to cardiac insulin resistance in heart failure. *Cardiovascular diabetology*. 18(1): 86.  
Published  
Refereed?: Yes
20. Almutairi M , Al Batran R , Ussher JR. (2019). Glucagon-like peptide-1 receptor action in the vasculature. *Peptides*. 111: 26-32.  
Published  
Refereed?: Yes
21. Al Batran R , Almutairi M , Ussher JR. (2018). Glucagon-like peptide-1 receptor mediated control of cardiac energy metabolism. *Peptides*. 100: 94-100.  
Published  
Refereed?: Yes
22. Aburasayn H , Al Batran R , Gopal K , Almutairi M , Eshreif A , Eaton F , Ussher JR. (2018). Female offspring born to obese and insulin-resistant dams are not at increased risk for obesity and metabolic dysfunction during early development. *Canadian journal of physiology and pharmacology*. 96(1): 97-102.  
Published  
Refereed?: Yes
23. Altamimi TR , Thomas PD , Darwesh AM , Fillmore N , Mahmoud MU , Zhang L , Gupta A , Al Batran R , Seubert JM , Lopaschuk GD. (2018). Cytosolic carnitine acetyltransferase as a source of cytosolic acetyl-CoA: a possible mechanism for regulation of cardiac energy metabolism. *The Biochemical journal*. 475(5): 959-976.  
Published  
Refereed?: Yes
24. Al Batran R , Gopal K , Martin MD , Ho KL , Almutairi M , Aburasayn H , Eaton F , Campbell JE , Ussher JR. (2018). Skeletal muscle-specific Cre recombinase expression, controlled by the human  $\alpha$ -skeletal actin promoter, improves glucose tolerance in mice fed a high-fat diet. *Diabetologia*. 61(8): 1849-1855.  
Published  
Refereed?: Yes
25. Gopal K , Almutairi M , Al Batran R , Eaton F , Gandhi M , Ussher JR. (2018). Cardiac-Specific Deletion of Pyruvate Dehydrogenase Impairs Glucose Oxidation Rates and Induces Diastolic Dysfunction. *Frontiers in cardiovascular medicine*. 5: 17.  
Published  
Refereed?: Yes

26. Gopal K , Saleme B , Al Batran R , Aburasayn H , Eshreif A , Ho KL , Ma WK , Almutairi M , Eaton F , Gandhi M , Park EA , Sutendra G , Ussher JR. (2017). FoxO1 regulates myocardial glucose oxidation rates via transcriptional control of pyruvate dehydrogenase kinase 4 expression. *American journal of physiology. Heart and circulatory physiology*. 313(3): H479-H490.  
Published  
Refereed?: Yes
27. Al Batran R , Ussher JR. (2017). Revisiting protein acetylation and myocardial fatty acid oxidation. *American journal of physiology. Heart and circulatory physiology*. 313(3): H617-H619.  
Published  
Refereed?: Yes

## Conference Publications

1. Rami Al Batran, Keshav Gopal, S. Amirhossein Tabatabaei-Dakhili, Jadin Chahade, Amanda A. Greenwell, Malak Almutairi, Nikole J. Byrne, Grant Masson, Farah Eaton, Carlos A. Velázquez-Martínez, Peter A. Crawford, Jason R.B. Dyck, and John R. Ussher. Skeletal muscle ketone body oxidation as a novel target for improving obesity-induced dysglycemia in mice. European Association for the Study of Diabetes, Barcelona, Spain  
Conference Date: 2019/9  
Abstract  
Refereed?: Yes, Invited?: No
2. Rami Al Batran, Keshav Gopal, Jadin Chahade, and John R. Ussher. Maladaptive Increases in Skeletal Muscle Ketone Body Oxidation Contribute to Dysglycemia in Mice Subjected to Experimental Obesity. American Diabetes Association, San Francisco, United States of America  
Conference Date: 2019/6  
Abstract  
Refereed?: Yes, Invited?: Yes
3. Rami Al Batran, Keshav Gopal, S. Amirhossein Tabatabaei-Dakhili, Jadin Chahade, Amanda A. Greenwell, Malak Almutairi, Nikole J. Byrne, Grant Masson, Farah Eaton, Carlos A. Velázquez-Martínez, Peter A. Crawford, Jason R.B. Dyck, and John R. Ussher. Skeletal muscle ketone body oxidation as a novel target for improving obesity-induced dysglycemia in mice . Keystone Symposia - Diabetes: Innovations, Outcomes and Personalized Therapies (X3), Whistler, Canada  
Conference Date: 2019/3  
Abstract  
Refereed?: Yes, Invited?: No

## Intellectual Property

### Patents

1. Pimozide alleviates obesity-induced dysglycemia. United States of America. 2018054 (US Prov) WO 4124. 2019/01/28.  
Patent Status: Granted/Issued  
Year Issued: 2019  
Year of End Term: 2021

## Presentations

1. (2022). Muscle Ketone Metabolism as a Novel Target for Glucose Lowering in Type 2 Diabetes. Department of Pharmacology and Physiology Seminar Series, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No

2. (2021). Ketone body metabolism and metabolic diseases. Montreal Heart Institute Seminar Series, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
3. (2019). Skeletal muscle ketone body oxidation as a novel target for improving obesity-induced dysglycemia in mice. 55th European Association for the Study of Diabetes (EASD) Annual Meeting, Spain  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
4. (2019). Pimozide alleviates obesity-induced dysglycemia via inhibiting skeletal muscle ketone body oxidation. Keystone Symposia - Diabetes: Innovations, Outcomes and Personalized Therapies (X3), Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
5. (2017). Ranolazine treatment improves glycemia and decreases body weight in obese and insulin-resistant mice. Keystone Symposia - Obesity and Adipose Tissue Biology (J4), United States of America  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No

## Student/Postdoctoral Supervision

### Bachelor's [n=3]

2021/5 - 2021/8 Principal Supervisor	Gayel El Hage, Université de Montréal Thesis/Project Title: Unraveling the Mechanisms of Empagliflozin in NAFLD & NASH Present Position: PharmD student
2021/5 - 2021/8 Principal Supervisor	Yi Chen Hu, Université de Montréal Thesis/Project Title: Could a Ketogenic Diet Slow the Progression of Diabetic Kidney Disease? Present Position: PharmD student
2020/5 - 2020/8 Principal Supervisor	Samia Farah, Université de Montréal Thesis/Project Title: Medium Chain Triglycerides and Ketogenesis Present Position: Baccalaureate student

### Master's Thesis [n=2]

2021/6 - 2023/5 Principal Supervisor	Hamza Mechchate, Université de Montréal Thesis/Project Title: Could a Ketogenic Diet Slow the Progression of Diabetic Kidney Disease? Present Position: In Progress
2021/3 - 2023/4 Principal Supervisor	Stephanie Mourad, Université de Montréal Thesis/Project Title: Exploring the Beneficial Effects of Medium Chain Triglycerides on Hepatic Steatosis Present Position: Pharmacist Assistant

### Doctorate [n=1]

2023/9 - 2028/9 Principal Supervisor	Xiaobei Li, Université de Montréal Thesis/Project Title: Elucidating the Molecular Mechanism(s) of SGLT2 inhibitors in NAFLD and NASH Present Position: In Progress
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**Post-doctorate [n=1]**

2021/5 - 2023/5      Abdualrahman M. Abdualkader, Université de Montréal  
Principal Supervisor      Thesis/Project Title: Pharmacotherapy of Ketone Body Metabolism in Obesity  
Present Position: In Progress