MHRC Annual Report- 2022/2023
Member Contributions:

Olasunkanmi Adegoke:

Adegoke, Huang, Y., Fu, X., & Mora, S. (2022). Editorial: Nutrition in the Regulation of Muscle Development and Repair. *Frontiers in Physiology*, *13*, 853007–853007. https://doi.org/10.3389/fphys.2022.853007

Peter Backx:

Progress Report April 2022- March 2023

Awards

April 2022 Grant Pierce Award for Excellence in Cardiovascular Sciences, International Academy of Cardiovascular Science

Editorial Boards/Journal Activities/Review

Editorial Board, Circulation Research
Editorial Board, Current Topics in Cardiovascular Medicine
Editorial Board, Journal of Molecular and Cellular Cardiology
Editorial Board, (KBM) Journal of Cardiovascular Research
Associate Editor PLOS One
Editorial Board, Heart Rhythm Society
Associate Editor, Frontiers in Physiology
Reviewer CSB, Canadian Institutes for Health Research

Committees/Editorial Boards

1994-pres	Editorial Board, Circulation Research
2006-pres	Editorial Board, Current Topics in Cardiovascular Medicine
2009-pres	Editorial Board, Journal of Molecular and Cellular Cardiology
2010-pres	Editorial Board, (KBM) Journal of Cardiovascular Research
2014-pres	Associate Editor PLOS One
2012-pres	Editorial Board, Heart Rhythm Society
2021-pres	Associate Editor, Frontiers in Physiology

2018-pres	Animal Care Committee, York U	Review Panel
2021-pres	Council of Canadian Academies	Scientific Advisory Panel

Grant Awards

CIHR Project Grant (5 years, 749k) "Understanding the role of atrial stretch in promoting atrial fibrillation.

Papers

Kim, KH, Oh Y, Liu J, Dababneh S, Xia Y, Kim RY, Kim DK, Ban H, Husain M, Hui, CC, Backx PH. Irx5 and transient outward K+ current (Ito) contribute to transmural contractile

heterogeneities in the mouse ventricle. *Am J Physiol Heart Circ Physiol*. 322(5):H725-H741, 2022.

Teng AGT, Gu GL, Di Paola M, Lakin R, Williams ZJ, Au A, Chen W, Callaghan NI, Zadeh FH, Zhou YQ, Fatah M, Chatterjee D, Jourdan LJ, Liu J, Simmons CA, Kislinger T, Yip CM, Backx PH, Gourdie RG, Hamilton RM, Gramolini AO. Tmem65 is critical for the structure and function of the intercalated discs in mouse hearts. *Nature Communications* 13(1):6166, 2022

Li X, Tan W, Zheng S, Pyle WG, Zhu C, Chen H, Kang L, Wu J, Zou Y, **Backx PH**, Yang FH. Differential mRNA Expression and Circular RNA-Based Competitive Endogenous RNA Networks in the Three Stages of Heart Failure in Transverse Aortic Constriction Mice. *Front Physiol*. 13:777284, 2022.

Li X, Tan W, Zheng S, Zhang J, Zhu C, Cai C, Chen H, Yang C, Kang L, Pan Z, Pyle WG, **Backx PH**, Zou Y, Yang FH. Cardioprotective Effects of n-3 Polyunsaturated Fatty Acids: Orchestration of mRNA Expression, Protein Phosphorylation, and Lipid Metabolism in Pressure Overload Hearts. *Front Cardiovasc Med*. 8:788270, 2022

Callaghan NI, Durland LJ, Chen W, Kuzmanov U, Miranda MZ, Mirzaei Z, Ireland RG, Wang E, Wagner K, Kim MM, Audet J, Santerre JP, Gramolini AO, Radisic M, Mital S, Ellis J, **Backx PH**, Simmons CA. Algorithmically-designed defined maturation media advances physiologically-relevant functional metrics in pluripotent stem cell-derived cardiomyocytes. *Nature Biotechnology* Under revision.

Lakin, R, Polidovitch N, Yang S, Liu X, Debi R, Gao X, Chen W, Guzman C, Yakobov S, Izaddoustdar F, Wauchop M, Lei Q, Xu W, Nedospasov SA, Christoffels VM, Backx PH. Cardiomyocyte and endothelial cells play distinct roles in the tumor necrosis factor (TNF)-dependent atrial responses and increased atrial fibrillation vulnerability induced by endurance exercise training in mice. *Cardiovascular Res,* Resubmitted.

Wauchop M, Rafatian N, Gagliard M, Massé S, Protze S, Laksman Z, Keller G, Radisic M, Nanthakumar N, Backx PH. Biowires of induced pluripotent stem cell-derived cardiomyocytes provide insight into R222Q-SCN5A associated dilated cardiomyopathy. *Biomaterial*. Resubmitted.

Underlined authors are trainees in my laboratory

Talks

"Relationship between atrial stretch and atrial fibrillation, The Smidt Heart Institute at Cedars-Sinai Medical Center, Los Angeles, USA, Jan 2022.

193. "Examining the role of stretch in atrial remodeling using a mouse model of volume-overload", International Society of Heart Research (ISHR), Winnipeg, Manitoba, Sept 2022

Angelo Belcastro:

Moghaddaszadeh, Taqvi, U., Lee, C., Lee, E., & Belcastro, A. (2022). Stable physical activity tracking during children's guided active play. *Frontiers in Sports and Active Living*, *4*, 881664–881664. https://doi.org/10.3389/fspor.2022.881664

Olivier Birot:

Lemieux, Roudier, E., & Birot, O. (2022). Angiostatic freeze or angiogenic move? Acute cold stress prevents angiokine secretion from murine myotubes but primes primary endothelial cells for greater migratory capacity. *Frontiers in Physiology*, *13*, 975652–975652. https://doi.org/10.3389/fphys.2022.975652

Arthur Cheng:

1. **Cheng, A.J.,** von Walden, F., Lanner, J.T. (2023). Orai1 as a potential "fits-all approach" therapeutic target for the treatment of DMD. Journal of General Physiology. https://doi.org/10.1085/jgp.202213224.
2. Delfinis, L.J., Bellisimo, C.A., Gandhi, S., DiBenedetto, S.N., Garibotti, M.C., Thuhan, A.K., Tsitkanou, S., Rosa-Caldwell, M.E., Rahman,, F.A., **Cheng, A.J.**, Wiggs, M.P., Schlattner, U., Quadrilatero, J., Green, N.P., Perry C.G.R. (2022). Muscle weakness precedes atrophy during cancer cachexia and is linked to muscle-specific mitochondrial stress. *JCI Insight*. https://10.1172/jci.insight.155.147.
3. Gineste, C., Youhanna, S., Vorrink, S.U., Henriksson, S., Hernandez, A., **Cheng, A.J.**, Chaillou, T., Buttgereit, A., Schneidereit, D., Friedrich, O., Hultenby, K., Bruton, J.D., Ivarsson, N., Sandblad, L. Lauschke, V.M., Westerblad, H. (2023). Collagenase-mediated cell dissociation alters gene expression patterns and causes loss of mitochondrial Ca2+ control in skeletal muscle fibers. iScience.
4. Vainshtein, A., Slavin, M.B., **Cheng, A.J.**, Memme, J.M., Oliveira, A.N., Perry, C.G., Abdul-Sater, A.A., Belcastro, A.N., Riddell, M.C., Triolo, M., Haas,, T.L., Roudier, E., Hood, D.A. Scientific Meeting report: International Biochemistry of Exercise 2022. *Journal of Applied Physiology*
5. Olsson, K., **Cheng, A.J.**, Al-Ameri, M., Tardiff, N., Melin, M., Rooyackers, O., Lanner, J.T., Westerblad, H., Gustafsson, T., Bruton, J.D., Rullman, E. (2022). Sphingomyelinase activity promotes atrophy and attenuates force in human muscle fibres and is elevated in heart failure patients. Journal of Cachexia, Sarcopenia and Muscle. https://doi.org/10.1002/jcsm.13029

Rolando Ceddia:

1. Jani, Da Eira, D., & Ceddia, R. B. (2023). Insulin-resistant female rat skeletal muscles display diacylglycerol-mediated protein kinase C activation and inflammation without ceramide accumulation. *The Journal of Physiology*. https://doi.org/10.1113/JP284324

2. Da Eira, Jani, S., & Ceddia, R. B. (2023). An obesogenic diet impairs uncoupled substrate oxidation and promotes whitening of the brown adipose tissue in rats. *The Journal of Physiology*, *601*(1), 69–82. https://doi.org/10.1113/JP283721

3. Jani, Da Eira, D., Stefanovic, M., & Ceddia, R. B. (2022). The ketogenic diet prevents steatosis and insulin resistance by reducing lipogenesis, diacylglycerol accumulation and protein kinase C activity in male rat liver. *The Journal of Physiology*, *600*(18), 4137–4151. https://doi.org/10.1113/JP283552

4. Da Eira, Jani, S., Stefanovic, M., & Ceddia, R. B. (2023). Obesogenic versus ketogenic diets in the regulation of the renin–angiotensin system in rat white and brown adipose tissues. *Nutrition (Burbank, Los Angeles County, Calif.)*, *105*, 111862–111862. https://doi.org/10.1016/j.nut.2022.111862

5. Effting, Thirupathi, A., Müller, A. P., Pereira, B. C., Sepa-Kishi, D. M., Marqueze, L. F. B., Vasconcellos, F. T. F., Nesi, R. T., Pereira, T. C. B., Kist, L. W., Bogo, M. R., Ceddia, R. B., & Pinho, R. A. (2022). Resistance Exercise Training Improves Metabolic and Inflammatory Control in Adipose and Muscle Tissues in Mice Fed a High-Fat Diet. *Nutrients*, *14*(11), 2179–. https://doi.org/10.3390/nu14112179

6. Jani, Da Eira, D., & Ceddia, R. B. (2023). Insulin-resistant female rat skeletal muscles display diacylglycerol-mediated PKC activation and inflammation without ceramides accumulation. *The Journal of Physiology*. https://doi.org/10.1113/JP284324

Heather Edgell:

Peer-Reviewed Publications:

1. *Barranca C, *Pereira T, and **Edgell H** (2023) Oral contraceptive use and menstrual cycle influence acute cerebrovascular response to standing. Autonomic Neuroscience: Basic and Clinical 244: 103054
2. *Pereira TJ, *Wasef S, *Ivry I, *Assadpour E, *Adeyinka BO, and **Edgell H** (2022) Menstrual cycle and oral contraceptives influence cerebrovascular dynamics during hypercapnia. Physiol Rep 10(13); e15373

Funding

1. Catalyzing Interdisciplinary Research Clusters (2022; Co-applicant) - $175,000/year for 3 years – Translating Brain Signals Across Scales, Species, Sex, and Lifespan
2. Minor Research Grant (2022; Principal applicant) - $3,000 - Association of cognitive function with vascular and autonomic function in Type 2 Diabetes.
3. Heart and Stroke Foundation of Canada (2022; Co-applicant) – Precision cardiovascular disease profiling and risk prediction in cancer survivors (PROGRESS): A prospective cohort study. - $207,900

William Gage:

1. Di Bacco, & Gage, W. H. (2023). Evaluation of a smartphone accelerometer system for measuring nonlinear dynamics during treadmill walking: Concurrent validity and test-retest reliability. *Journal of Biomechanics*, *151*, 111527–. https://doi.org/10.1016/j.jbiomech.2023.111527

2. Verniba, Di Bacco, V. E., & Gage, W. H. (2023). Neuromuscular organization during balance-correcting responses induced with platform-translation and upper body cable-pull perturbation methods. *Heliyon*, *9*(4), e14856–e14856. https://doi.org/10.1016/j.heliyon.2023.e14856

3. Di Bacco, Kiriella, J. B., & Gage, W. H. (2022). The Influence of the Relative Timing between Pole and Heel Strike on Lower Limb Loading among Young and Older Naïve Pole Walkers. *Translational Sports Medicine*, *2022*, 1–10. https://doi.org/10.1155/2022/3938075

Tara Haas:

Funding Received –

CIHR 5 yr project grant as PI– July 2022; $780,000 total funding; co-applicants: Thomas Gustafsson and Anthony Scimè

NSERC Research Tools and Instruments grant: "Apparatus for the isolation of specific primary cells from tissue" (150,000) PI: Anthony Scime; co-applicants: T.L. Haas, E. Roudier

Catalyzing Interdisciplinary Research Clusters initiative (VPRI); $200,000 /2 years *PIs: Alex Czekanski and Peter Backx; Co-applicants: Tara Haas, John McDermott, Terry Sachlos, Moren Levesque, Roxanne Mykitiuk, Giuseppina D'Agostino*

Peer-reviewed Journal Articles-

Rudnicki, M.*#, A. Pislaru*, Rezvan, O., Rullman, E., Fawzy, A., Nwadozi, E., Roudier, E., Gustafsson, T. and T.L. Haas#. Transcriptomic profiling reveals sex-specific molecular signatures of adipose endothelial cells under obesogenic conditions. (*co-first author; # co-corresponding authors) *iScience* Dec 2022 26(1):105811. doi: 10.1016/j.isci.2022.105811.

Vainshtein, A., Slavin, M., Cheng, A., Memme, J., Oliveira, A., Perry, C., Abdul-Sater, A., Belcastro, A., Riddell, M.C., Triolo, M., Haas, T.L., Roudier, E. and D.A. Hood. Scientific Meeting report: International Biochemistry of Exercise 2022. *J Appl Physiol* Nov. 2022. doi: 10.1152/japplphysiol.00475.2022

Rudnicki, M. and T.L. Haas. Adipose tissue lipolysis under the control of endothelial cells. *Nat. Rev. Endocrinol.* 2022 10.1038/s41574-022-00695-2

Book chapter

Rudnicki, M., A. Pislaru and T.L. Haas. Chapter 9: **Capillary diversity: endothelial cell specializations to meet tissue metabolic needs"**; pp99-110 *In* The Vasculome, Ed. Zorina Galis, Elsevier, June 2022 ISBN: 9780128225462

Conference Abstracts

Rudnicki, M*., A. Pislaru, O. Rezvan, E. Rullman, E. Roudier, T. Gustafsson, T.L. Haas. Transcriptomic profiling reveals sex-specific molecular signatures of adipose endothelial cells under obesogenic conditions. Gordon Research Conference, Barcelona, June 2022. (*Selected to give talk)

Nader, G., A. Hatamnejad, E. Nwadozi, P. Golestan-Moghaddam, A. Scimè, T.L. Haas. Ischemia exerts phenotype alterations in pericytes during skeletal muscle ischemia. IBEC Toronto, May 2022.

Pislaru, A., M. Rudnicki, O. Rezvan, E. Rullman, E. Roudier, T. Gustafsson, T.L. Haas. Sex-related differential gene expression underlies distinct responses of adipose endothelial cells under a high fat diet. IBEC Toronto, May 2022.

Garland, E., T.L. Haas Sex differences in skeletal muscle endothelial cells. IBEC Toronto, May 2022.

Danesh, M.A., G. Nader, E. Nwadozi, A. Scimè, T.L. Haas. The contribution of pericytes to hallmark features of ischemic myopathy. IBEC Toronto, May 2022.

David Hood:

1. Vainshtein A., M.B. Slavin, A.J. Cheng, J.M. Memme, A.N. Oliveira, C.G.R. Perry, A.A. Abdul-Sater, A.N. Belcastro, M.C. Riddell, M. Triolo, T.L. Haas, E. Roudier, and D.A. Hood. Scientific meeting report: International Biochemistry of Exercise 2022. J Appl Physiol (1985). 133:1381-1393. doi: 10.1152/japplphysiol.00475.2022.

2. Slavin M.B., R. Kumari, and D.A. Hood. ATF5 is a regulator of exercise-induced mitochondrial quality control in skeletal muscle. Mol Metab. Dec;66:101623. doi: 10.1016/j.molmet.2022.101623, 2022.

3. Triolo, M. D. Bhattacharya and D. A. Hood. Denervation induces mitochondrial decline but exacerbates lysosome dysfunction in middle-aged mice. Aging. 14(22):8900-8913, 2022.

4. Triolo, M., A.N. Oliveira, R. Kumari and D.A. Hood. The influence of age, sex and exercise on autophagy, mitophagy and lysosome biogenesis in skeletal muscle. Skelet. Muscle 12(1):13. doi: 10.1186/s13395-022-00296-7, 2022.

5. Slavin, M.B., J.M. Memme, A.N. Oliveira, N. Moradi and D.A. Hood. Regulatory networks coordinating mitochondrial quality control in skeletal muscle. Am J Physiol Cell Physiol. 322: C913-C926. doi: 10.1152/ajpcell.00065.2022.

Loriann Hynes:

1. Migotto, Gill, S., Sem, M., Macpherson, A. K., & Hynes, L. M. (2022). Sex-related differences in sternocleidomastoid muscle morphology in healthy young adults: A cross-sectional magnetic resonance imaging measurement study. *Musculoskeletal Science & Practice*, *61*, 102590–102590. https://doi.org/10.1016/j.msksp.2022.102590

2. Smeha, Kalkat, R., Sergio, L. E., & Hynes, L. M. (2022). Sex-related differences in visuomotor skill recovery following concussion in working-aged adults. *BMC Sports Science, Medicine & Rehabilitation*, *14*(1), 72–72. https://doi.org/10.1186/s13102-022-00466-6

3. King, & Hynes, L. (2022). An Action Research Approach to Designing the Athletic Therapy Interactive Concussion Educational Tool. *International Journal of Technology, Knowledge and Society*, *18*(2), 19–34. https://doi.org/10.18848/1832-3669/CGP/v18i02/19-34

4. Hurtubise, Gorbet, D. J., Hynes, L., Macpherson, A. K., & Sergio, L. E. (2023). Cortical and cerebellar structural correlates of cognitive-motor integration performance in females with and without persistent concussion symptoms. *Brain Injury*, *37*(5), 397–411. https://doi.org/10.1080/02699052.2022.2158231

Andrea Josse:

1. February 2023, awarded as Principal Investigator: CFI-JELF Infrastructure Grant (ORF portion). TITLE: Novel Targets of Whole-food Dairy Products for Human Musculoskeletal and Cardiometabolic Health. Awarded: $125,000 (ORF portion of $340,639 CAD total cost) *Federal CFI portion awarded in February 2022.
2. Kurgan N, Skelly LE, Ludwa IA, Klentrou P, Josse AR. Twelve weeks of a diet and exercise intervention reduces fat mass and alters the acute bone response to exercise in adolescent females with overweight/obesity. Front Physiol. 2023 Jan 4;13:1049604.
3. Fraschetti EC, Skelly LE, Ahmed M, Biancaniello E, Klentrou P, Josse AR. The influence of increased dairy product consumption, as part of a lifestyle modification intervention, on diet quality and eating patterns in female adolescents with overweight/obesity. Children (Basel). 2022 Nov 6;9(11):1703.
4. Fraschetti EC, Skelly LE, Abdul-Sater AA, Josse AR. The Acute Effects of Milk Consumption on Systemic Inflammation after Combined Resistance and Plyometric Exercise in Young Adult Females. Nutrients. 2022 Oct 28;14(21):4532.
5. March 2023, Josse AR. Webinar (online), sponsored by Osteoporosis Canada, in partnership with: ThinkBeef.ca. “Protein and Exercise for Bone Health”. Target audience: dietitians, health professionals, lay people. March 16, 2023. (Once it is put online, I can send the link).

Jennifer Kuk:

Published Peer Reviewed Manuscripts

1. Samouda H, Lee S, Arslanian S, Han M, **Kuk JL**. Anthropometric Equations to Predict Visceral Adipose Tissue in European and American Youth. (J Pediatr. 2023 Feb;253:33-39.e3. doi: 10.1016/j.jpeds.2022.09.009. Epub 2022 Sep 14. PMID: 36115621).

2. **Kuk JL**, Kamran Samani E, Wharton S: Association between Weight Loss History and Weight Loss Achieved in Clinical Obesity Management: Retrospective chart review (Obesity (Silver Spring). 2022 Oct;30(10):2071-2078. doi: 10.1002/oby.23530. PMID: 36150211)
3. Pooni R, Edgell H, Tamim H, **Kuk JL**. The association of objectively and subjectively measured physical activity and sedentary time with prediabetes and type 2 diabetes in adults: A cross-sectional study in Framingham Heart Study cohorts (Appl Physiol Nutr Metab. 2022 Oct 1;47(10):1023-1030. doi: 10.1139/apnm-2022-0232. Epub 2022 Jul 25. PMID: 35878413)

John McDermott:

1. Miyake, & McDermott, J. C. (2023). Re-organization of nucleolar architecture in myogenic differentiation. *Journal of Cell Science*, *136*(4). https://doi.org/10.1242/jcs.260496

2. Tripathi, Miyake, T., Kelebeev, J., & McDermott, J. C. (2022). TAZ exhibits phase separation properties and interacts with Smad7 and β-catenin to repress skeletal myogenesis. *Journal of Cell Science*, *135*(1). https://doi.org/10.1242/jcs.259097

3. O'Murchadha, Egan, A. M., Cahill, K., Flynn, C., O'Flynn, D., O'Neill, J., Sreenan, S., & McDermott, J. H. (2023). Utility of screening for silent myocardial ischaemia in diabetes with an annual electrocardiogram. *Diabetic Medicine*, *40*(3), e14983–n/a. https://doi.org/10.1111/dme.14983

Devin Phillips:

1. Neder, Phillips, D. B., O'Donnell, D. E., & Dempsey, J. A. (2022). Excess ventilation and exertional dyspnoea in heart failure and pulmonary hypertension. *The European Respiratory Journal*, *60*(5), 2200144–. https://doi.org/10.1183/13993003.00144-2022

2. James, Phillips, D. B., Vincent, S. G., Abdallah, S. J., Donovan, A. A., de-Torres, J. P., Neder, J. A., Smith, B. M., Jensen, D., & O'Donnell, D. E. (2022). Exertional dyspnoea in patients with mild-to-severe chronic obstructive pulmonary disease: neuromechanical mechanisms. *The Journal of Physiology*, *600*(18), 4227–4245. https://doi.org/10.1113/JP283252

3. Milne, James, M. D., Smyth, R. M., Vincent, S. G., Singh, N., D'Arsigny, C. L., de-Torres, J. P., de Wit, K., Johri, A., Neder, J. A., O'Donnell, D. E., & Phillips, D. B. (2023). Neurophysiological mechanisms of exertional dyspnea in post-pulmonary embolism syndrome. *Journal of Applied Physiology (1985)*, *134*(3), 667–677. https://doi.org/10.1152/japplphysiol.00677.2022

4. Phillips, James, M. D., O'Donnell, C. D., Vincent, S. G., Webb, K. A., de-Torres, J. P., Neder, J. A., & O'Donnell, D. E. (2022). Physiological predictors of morbidity and mortality in COPD: the relative importance of reduced inspiratory capacity and inspiratory muscle strength. *Journal of Applied Physiology (1985)*, *133*(3), 679–688. https://doi.org/10.1152/japplphysiol.00352.2022

5. Smyth, Neder, J. A., James, M. D., Vincent, S. G., Milne, K. M., Marillier, M., de-Torres, J. P., Moran-Mendoza, O., O'Donnell, D. E., & Phillips, D. B. (2023). Physiological underpinnings of exertional dyspnoea in mild fibrosing interstitial lung disease. *Respiratory Physiology & Neurobiology*, *312*, 104041–104041. https://doi.org/10.1016/j.resp.2023.104041

6. McCartney, Phillips, D., James, M., Chan, O., Neder, J. A., de-Torres, J. P., Domnik, N. J., & Crinion, S. J. (2022). Ventilatory neural drive in chronically hypercapnic patients with COPD: effects of sleep and nocturnal noninvasive ventilation. *European Respiratory Review*, *31*(165), 220069–. https://doi.org/10.1183/16000617.0069-2022

7. Elbehairy, Vincent, S. G., Phillips, D. B., James, M. D., Veugen, J., Parraga, G., O'Donnell, D. E., & Neder, J. A. (2023). Pulmonary Vascular Volume by Quantitative CT in Dyspneic Smokers with Minor Emphysema. *Chronic Obstructive Pulmonary Disease*, *20*(1), 135–143. https://doi.org/10.1080/15412555.2023.2169121

8. Brotto, Phillips, D. B., Meah, V. L., Ross, B. A., Fuhr, D. P., Beaudry, R. I., van Diepen, S., & Stickland, M. K. (2022). Inhaled nitric oxide does not improve maximal oxygen consumption in endurance trained and untrained healthy individuals. *European Journal of Applied Physiology*, *122*(3), 703–715. https://doi.org/10.1007/s00421-021-04866-3

9. Domnik, Phillips, D. B., James, M. D., Ayoo, G. A., Taylor, S. M., Scheeren, R. E., Di Luch, A. T., Milne, K. M., Vincent, S. G., Elbehairy, A. F., Crinion, S. J., Driver, H. S., Neder, J. A., & O'Donnell, D. E. (2022). Compensatory responses to increased mechanical abnormalities in COPD during sleep. *European Journal of Applied Physiology*, *122*(3), 663–676. https://doi.org/10.1007/s00421-021-04869-0

10. Phillips, Elbehairy, A. F., James, M. D., Vincent, S. G., Milne, K. M., de-Torres, J. P., Neder, J. A., Kirby, M., Jensen, D., Stickland, M. K., Guenette, J. A., Smith, B. M., Aaron, S. D., Tan, W. C., Bourbeau, J., & O'Donnell, D. E. (2022). Impaired Ventilatory Efficiency, Dyspnea, and Exercise Intolerance in Chronic Obstructive Pulmonary Disease: Results from the CanCOLD Study. *American Journal of Respiratory and Critical Care Medicine*, *205*(12), 1391–1402. https://doi.org/10.1164/rccm.202109-2171OC

Christopher Perry:

1. Funding: Received $148,250 from MITACS entitled 'Mitochondrial-targeted therapies to improve Duchenne muscular dystrophy outcomes (Principal Applicant)

2. Funding: Received $875-925 from CIHR project grant entitled 'Targeting vascular and skeletal muscle health to improve the quality of life in males and females with Type 1 Diabetes (Co-Investigator; Principal Applicant, Thomas Hawke, McMaster University)

3. Peer-Reviewed Publication: **Bellissimo CA, Delfinis LJ, Hughes MC, Turnbull PC, Gandhi S, DiBenedetto SN**, Rahman FA, **Tadi P, Amaral C, Dehghani A**, Cobley JN, Quadrilatero J,

Schlattner U, Perry CGR. Mitochondrial creatine sensitivity is lost in the D2.mdx model of Duchenne muscular dystrophy and rescued by the mitochondrial-enhancing compound Olesoxime. *Am J Physiol Cell Physiol*, 2023 Jan 23, In Press. PMID: 36689672

4. Peer-Reviewed Publication: **Delfinis LJ, Bellissimo CA, Gandhi S, DiBenedetto SN, Garibotti MC, Thuhan AK**, Tsitkanou S, Rosa-Caldwell ME, Rahman FA, Cheng AJ, Wiggs MP, Schlattner U, Quadrilatero J, Greene NP, Perry CGR. Muscle weakness precedes atrophy during cancer cachexia and is linked to muscle-specific mitochondrial stress. *JCI Insight*, 2022 Dec 22; 7(24):e155147. PMID: 36346680
    - Editor's Pick: https://insight.jci.org/this-month/2023/1
5. Invited presentation: Unexpected adaptative responses in mitochondria and muscle force during cancer cachexia'
    - School of Kinesiology, The University of British Columbia, Vancouver, BC, **CANADA** (scheduled March 30th, 2023)

Michael Riddell:

Funding Received

- Canadian Glycomics Network (GlycoNet) Strategic Initiatives Grant: DD-85, ""Elucidating the role of somatostatin in dysglycemia in a rodent model of type 2 diabetes",. $148,954.00/ for one year. January 2022 - January 2023.
- Juvenile Diabetes Research Foundation Canada (JDRF), CREATE Training Grant (funding to support PhD candidate Emily Hoffman) $35,000.
- Mitacs Accelerate Grant (funding to support PhD candidate Ninoschka D'Souza for her project "Somatostatin signaling and diabetes
- NSERC Operating Grant: Role of somatostatin signaling on pancreatic islet function and energy homeostasis. $40,000/year for 5 years. May 1, 2018-April 2023.

Top 5 Contributions (of 19 since May 2023):

- Riddell MC, Li Z, Gal RL, Calhoun P, Jacobs PG, Clements MA, Martin CK, Doyle Iii FJ, Patton SR, Castle JR, Gillingham MB, Beck RW, Rickels MR; T1DEXI Study Group. Examining the Acute Glycemic Effects of Different Types of Structured Exercise Sessions in Type 1 Diabetes in a Real-World Setting: The Type 1 Diabetes and Exercise Initiative (T1DEXI). Diabetes Care. 2023 Apr 1;46(4):704-713. doi: 10.2337/dc22-1721. PMID: 36795053.
- Hoffman EG, D'Souza NC, Aiken J, Atherley S, Liggins R, Riddell MC. Effects of somatostatin receptor type 2 antagonism during insulin-induced hypoglycaemia in male rats with prediabetes. Diabetes Obes Metab. 2023 Feb 3. doi: 10.1111/dom.15002. Epub ahead of print. PMID: 36734462.
- Aronson R, Riddell MC, Conoscenti V, Junaidi MK. Effect of Mini-Dose Ready-to-Use Liquid Glucagon on Preventing Exercise-Associated Hypoglycemia in Adults With Type 1 Diabetes. Diabetes Care. 2023 Apr 1;46(4):765-772. doi: 10.2337/dc22-1145. PMID: 36689626.

- Adolfsson P, Taplin CE, Zaharieva DP, Pemberton J, Davis EA, Riddell MC, McGavock J, Moser O, Szadkowska A, Lopez P, Santiprabhob J, Frattolin E, Griffiths G, DiMeglio LA. ISPAD Clinical Practice Consensus Guidelines 2022: Exercise in children and adolescents with diabetes. Pediatr Diabetes. 2022 Dec;23(8):1341-1372. Doi: 10.1111/pedi.13452. PMID: 36537529.
- Riddell MC, Peters AL. Exercise in adults with type 1 diabetes mellitus. Nat Rev Endocrinol. 2023 Feb;19(2):98-111. doi: 10.1038/s41574-022-00756-6. Epub 2022 Oct 31. PMID: 36316391.

Gary Sweeney:

1. Sung HK, Lam NH, Murugathasan M, Anwar S, Botelho R, Sater AA & Sweeney G.

Autophagy deficiency exacerbates iron overload induced reactive oxygen species production and apoptotic cell death in skeletal muscle cells

Cell Death & Disease 2023 Apr 7;14(4):252

2. Reboucas P, Fillebeen C, Botta A, Cleverdon R, Steele AP, Richard V, Zahedi RP, Borchers CH, Burelle Y, Hawke TJ, Pantopoulos K, & Sweeney G.

Discovery-Based Proteomics Identify Skeletal Muscle Mitochondrial Alterations as an Early Metabolic Defect in a Mouse Model of β-Thalassemia

International Journal of Molecular Sciences (2023) 24(5):4402

3. Sung HK, Mitchell P, Gross S, Marette A & Sweeney G.

ALY688 elicits adiponectin-mimetic signaling and improves insulin action in skeletal muscle cells

American Journal of Physiology (Cell) (2022) 322(2):C151-C163

4. Jahng JWS, Alsaadi RM, Rengasamy P, Song E, Hipolito VEB, Sung HK, Botelho RJ, Russell, RC & Sweeney G.

Iron overload inhibits late stage autophagy flux leading to insulin resistance

EMBO Reports (2019) 20(10):e47911

5. Song E, Ramos SV, Huang X, Liu Y, Botta A, Sung HK, Turnbull PC, Wheeler MB, Berger T, Wilson DJ, Perry CGR, Mak TW, Sweeney G.

Holo-lipocalin-2-derived siderophores increase mitochondrial ROS and impair oxidative phosphorylation in rat cardiomyocytes

Proc Natl Acad Sci U S A. 2018 115(7):1576-1581