CURRICULUM VITAE
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EDUCATION: B.Sc. (Honours With Distinction) Marine Biology
University of Guelph, 1992

Ph.D. Biochemistry
Carleton University, 1997
Supervisor: Dr. Kenneth B. Storey

POSITIONS: Postdoctoral Researcher
Department of Medicine
Division of Hematology
Harvard Medical School, 1997-2001
Supervisor: Dr. H. Franklin Bunn

Assistant Professor
Institute of Biochemistry
Departments of Biology and Chemistry
Carleton University, 2002-2005

Associate Professor
Institute of Biochemistry
Departments of Biology and Chemistry
Carleton University, 2005-2017

Director
Institute of Biochemistry
Carleton University, 2010-2013

Full Professor
Institute of Biochemistry
Departments of Biology and Chemistry
Carleton University, 2017-present

Director
Institute of Biochemistry
Carleton University, 2016-2019

MEMBERSHIP

1) Affiliated Faculty, Department of Neuroscience, Faculty of Science, Carleton University
2) Associate Investigator, Ottawa Institute of Systems Biology, University of Ottawa

AWARDS

1) Carleton University Research Achievement Award, 2016
2) Carleton University Faculty Graduate Mentoring Award, 2011

SCHOLARSHIPS, FELLOWSHIPS, AND GRANTS (See Appendix 1)

ACTIVITIES / CONTRIBUTIONS

PROFESSIONAL SOCIETIES

1) Canadian Institutes of Health Research (CIHR) College of Reviewers (2017)
2) Canadian Society of Molecular Biosciences (CSMB)
3) Canadian Society of Zoologists; Comparative Physiology & Biochemistry (CSZ)
4) Canadian Association of University Teachers (CAUT)
5) Canadian Oxidative Stress Consortium (COSC)
6) Society for Free Radical Biology and Medicine (SFRBM)
7) Society for Free Radical Research International (SFRRI)

PEER REVIEW

Peer reviewer for:

1) Natural Sciences and Engineering Research Council (NSERC), Grant Reviewer, Committee 1501: Genes, Cells and Molecules (Z-N-1501), Evaluation Group Reviewer, 2017-2021 (four years).
2) Canadian Institutes of Health Research (CIHR), Grant Reviewer, Project Grant Competition, 1st Live Pilot, 2016; Stage 1 and Stage 2 (Final Assessment Stage)
3) Ministry of Research and Innovation of Ontario (MRI), Panel Member, Early Researcher Award, Life Sciences Basic Medical Science and Model, Round 6, 2010, Round 7, 2011
4) Natural Sciences and Engineering Research Council (NSERC), Grant Reviewer, Committee 1501: Genes, Cells and Molecules, 2003, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
5) Canadian Institutes of Health Research (CIHR), Grant Reviewer, Biological and Clinical Aspects of Aging, 2007
5) The Wellcome Trust, Grant Reviewer, Intermediate Fellowships, 2007; Project Grant, 2008
7) Peer Reviewer for the following journals

- International Journal of Biochemistry and Cell Biology, Richard G. Pestell, North and South American Editor
- Environmental and Molecular Mutagenesis, Iain B. Lambert, Editor-In-Chief
- Process Biochemistry, Joseph Boudrant, Editor
- Cancer Letters, Manfred Schwab, Editor-In-Chief
- Molecular and Cellular Biochemistry, Naranjan S. Dhalla, Editor
- Toxicology Letters, Wolfgang Decant, Editor
- Free Radical Biology and Medicine, Kelvin J.A. Davies, Editor-In-Chief
- Comparative Biochemistry and Physiology, T.P. Mommsen and P.J. Walsh, Editors
- Journal of Experimental Biology, H. Hoppeler, Editor-In-Chief
- FEBS Journal, Rolf Apweiler, Editor
- Biochimie, Richard H. Buckingham, Editor
- Scandinavian Journal of Immunology, R. Jonsson and H.-G. Ljunggren, Editors
- Marine Ecology Progress Series, John M. Lawrence, Editor
- Marine Biotechnology, Francesco Pietra, Editor
- Mycological Research, Mark Ramsdale, Editor
- Journal of Experimental Biology, Steve Perry, Editor
- BMC Neuroscience, Penelope Webb, Biology Editor
- Process Biochemistry, Joseph Boudrant, Editor
- Public Library of Science ONE (PLoS ONE), M. Hermes-Lima, Academic Editor

CARLETON COURSES TAUGHT

1) BIOC 3006 Practical Biochemistry
2) BIOC 3101 General Biochemistry I
3) BIOC 3102 General Biochemistry II
4) BIOC 4901 Selected Topics in Biochemistry
5) BIOC 4907 Honours Essay and Research Proposal
6) BIOC 4908 Research Project
7) BIOL 4901 Directed Special Studies
8) BIOL 4907 Honours Essay and Research Proposal
9) BIOL 4908 Honours Research Thesis
10) BIOL 8361/6304 Advance Topics in Animal Physiology (Guest Lecturer)
11) BIOL 5502/CHEM 5900 Methods in Proteomics
12) CHEM 4908 Research Project and Seminar
13) CHEM 5304 (CHM 8349) Free Radicals in Chemistry and Biology
14) BIOL 5502 S/BIO 8102 i1/LABMP 553 Advanced Environmental Toxicology Principles of Chemical Hazard Identification and Risk Assessment (part of the NSERC-CREATE-REACT program with Dr. Laurie Chan, Biology, University of Ottawa, as the Principle Investigator)

ADMINISTRATIVE ACTIVITIES

1) Chair, Canadian Oxidative Stress Consortium, August 2023-present
2) Chair, Biohazards Safety Committee, Carleton University, 2021-present
3) Biology Graduate Selection Committee, September 2023-2024
4) Search Committee for one Faculty position, Chemistry (Toxicology), Carleton University, 2020
5) Search Committee for one Instructor I position, Biochemistry, Carleton University, 2019-2020
6) Search Committee for one Faculty/Chair position, Health Sciences, Carleton University, 2017
7) Biohazards Safety Committee, Carleton University, 2013-2021
8) Chair, search committee for one Faculty position, Biochemistry, Carleton University, 2015
9) Chair, search committee for one Faculty position, Biology, Health Science, Carleton University, 2013
10) Director, Institute of Biochemistry, Carleton University, 2010-2013.
11) Ontario Graduate Scholarship, Selection Committee, Chemistry, Ontario Level, 2009.
12) Tenure and Promotion Committee, Chair, Chemistry, Carleton University, 2006.
13) Coordinator for the Ottawa-Carleton Chemistry and Environmental Toxicology (OCCET) Graduate Program, 2006-2008.
14) Search committee for two Faculty positions, Biology, University of Ottawa, 2006.
15) Search committee for one Faculty position, Biology, Carleton University, 2005.
16) Search committee for new Instructor position, Biochemistry, Carleton University, 2004.
17) NSERC and OGS Scholarship Selection Committee, Biology, 2004, 2005, 2006, 2007.
18) Associate Coordinator for the Ottawa-Carleton Chemistry and Environmental Toxicology (OCCET) Graduate Program, 2004-2006.
19) Biology Curriculum Committee, 2004.
20) Biology Seminar Series Coordinator 2003-2004 (invited speakers include Natalie Goto (University of Ottawa), Cristofre Martin (University of Ottawa), Martin Holcik (University of Ottawa), Ahmed El-Sohemy (University of Toronto), Thomas Berleth (University of Toronto) and Balu Chakravarthy (NRC)).
21) Biology Graduate Selection Committee, 2003, 2004, 2005, 2006, 2007.
22) VITESSE Bridging Program in Biotechnology (NRC), Carleton Academic Advisor, 2003.
23) Search committee for new Faculty position, Biochemistry/Biology, 2003.
24) CFI Innovations Fund, Grant Assessment Committee, 2003.

COMMUNITY SERVICE AND YOUTH OUTREACH

1) Supervisor for Colonel By High School student, **Amit Scheer**, First Place Award in the Sanofi BioGENius Challenge, Google Science Fair 2013 Regional Finalist, First Place in the Ottawa Regional Science Fair, Team Canada at Intel International Science and Engineering Fair (ISEF) (Pittsburg), Daytime Ottawa, CBC News Ottawa, CTV News Ottawa, 2013-2014
2) Supervisor for Glebe Collegiate High School Co-operative student, **Amelia Ng**, 2006
3) Poster Judge. Ottawa Regional Science Fair, 2004, 2007, 2015; Canada Wide Science Fair, 2008
4) Supervisor for Colonel By High School student, **Bhavya Mohan**, First Place in Ottawa Regional Science Fair (2019), **Gold Medal Winner** and First Place in Canada-Wide Science Fair 2019 (Fredericton), Best Project Award at National Science Fair (2019), Team Canada at EU Contest for Young Scientists

(EUCYS) (2019) in Sofia, Bulgaria, selected for Team Canada at Intel International Science and Engineering Fair (ISEF) (cancelled due to COVID-19) (2020)

5) Supervisor for Brockville Collegiate Institute student, **Prutha Patel**, 2019

GRADUATE COMMITTEE MEMBERSHIP

I have served, to date, on numerous graduate student committees that span seven Departments at Carleton University (Departments of Biology, Chemistry, Neuroscience and Health Sciences) and the University of Ottawa (Departments of Biology, Chemistry and Biochemistry, Microbiology & Immunology (BMI)). These include students at Health Canada, Environment Canada and the Canadian Food Inspection Agency.

UNDERGRADUATE RESEARCH PROJECTS (See also TRAINING OF HQP, Appendix 2)

I have supervised and co-supervised numerous undergraduate student's research thesis projects in Biochemistry and Biology (BIOC/BIOL 4908) during my time at Carleton. I have also supervised numerous students who received NSERC Undergraduate Student Research Awards (USRA), Walker Awards (Department of Chemistry and Institute of Biochemistry, Carleton) and Dean's Summer Research Internships (for first year students in Science at Carleton).

PUBLICATIONS (Supervised or Co-Supervised Trainees In Bold)

REFEREED PAPERS PUBLISHED OR ACCEPTED

1) Mohamed R, Willmore WG. Effects of cadmium on the WNT signalling pathway in the colon. Toxicological Letters (submitted).

2) Allen CH, Skillings R, Ahmed D, Sanchez SC, Altwasser K, **Hilan G**, Willmore WG, Chauhan V, Cassol E, Murugkar S. (2023). Investigating ionizing radiation-induced changes in breast cancer cells using stimulated Raman scattering microscopy. Journal of Biomedical Optics, 28(7), 076501. https://doi.org/10.1117/1.JBO.28.7.076501

3) Cameron SJ, **Sheng J**, Hosseinian F, Willmore WG. 2022. Nanoparticle effects on stress response pathways and nanoparticle-protein interactions. International Journal of Molecular Sciences. 2022. 23(14): 7962. doi: 10.3390/ijms23147962. PMID: 35887304; PMCID: PMC9323783.

4) Chopra, A, Willmore WG†, Biggar KK†. 2022. Insights into a cancer-target demethylase: substrate prediction through systematic specificity analysis for KDM3A. Biomolecules, 12(5), 641. https://doi.org/10.3390/biom12050641 †contributed equally to this publication.

5) Bhattarai K, Richard T, Fatica T, Frangione B, Willmore WG, Holcik M. 2022. AMPK-related protein kinase ARK5 regulates subcellular localization of RNA-binding protein hnRNP A1 during hypertonic stress. Journal of Biological Chemistry. 2022 298(9): 102364. doi: 10.1016/j.jbc.2022.102364. PMID: 35963429; PMCID: PMC9478406

6) Florian M, Li B, Patry D, Truong J, Caldwell D, Coughlan MC, Woodworth R, Yan J, Chen Q, Petrov I, **Mahemuti L**, Lalande M, Li N, Chan LHM, Willmore WG, Jin X. 2022. Interplay of obesity, ethanol, and contaminant mixture on clinical profiles of cardiovascular and metabolic diseases: Evidence from an animal study. Cardiovascular Toxicology 22(6): 558-578. doi: 10.1007/s12012-022-09738-6. PMID: 35429258; PMCID: PMC9107407.

7) Hoekstra M, **Chopra A**, Willmore WG, Biggar KK. 2022. Evaluation of Jumonji C lysine demethylase substrate preference to guide identification of *in vitro* substrates. STAR Protocols 3(2): 101271.

8) Reid CH, Patrick PH, Rytwinski T, Taylor JJ, Willmore WG, Reesor B, Cooke SJ. 2022. An updated review of cold shock and cold stress in fish. Journal of Fish Biology 100(5): 1102-1137. doi: doi.org/10.1111/jfb.15037

9) Ahmed D, Humphrey A, Roy D, Sheridan ME, Versey Z, Jaworski A, Edwards A, **Donner J**, Abizaid A, Willmore W, Kumar A, Golshani A, Cassol E. 2021. HIF-1α Regulation of cytokine production following TLR3 engagement in murine bone marrow derived macrophages is dependent on viral nucleic acid length and glucose availability. Journal of Immunology 207(11): 2813-2827.

10) Earnest KG, McConnell EM, **Hassan EM**, Wunderlich M, Hosseinpour B, Bono BS, Chee MJ, Mulloy JC, Willmore WG, DeRosa MC, Merino EJ. 2021. Development and characterization of a DNA aptamer for MLL-AF9 expressing acute myeloid leukemia cells using whole cell-SELEX. Scientific reports, 11(1), 19174.

11) Mohamed R, **Kennedy C**, Willmore WG. 2021. Responses of Porcupine and Wntless proteins to oxidative, hypoxic and endoplasmic reticulum stresses. Cellular Signalling 85: 110047.

12) Alqarni SA, Willmore WG, Albert J, Smelser CW. 2021. Self-monitored and optically powered fiber-optic device for localized hyperthermia and controlled cell death *in vitro*. Applied Optics 60(8): 2400-2411.

13) Walters ME, Willmore WG, Tsopmo A. 2020. Antioxidant, physicochemical, and cellular secretion of glucagon-like peptide-1 properties of oat bran protein hydrolysates. Antioxidants (Basel) 9(6): 557.

14) Chopra A, Cho WC, Willmore WG†, Biggar KK†. 2020. Hypoxia-inducible lysine methyltransferases: G9a and GLP hypoxic regulation, non-histone substrate modification, and pathological relevance. Frontiers in Genetics 11: 579636. †contributed equally to this publication.

15) Nguyen KC, Zhang Y, Todd J, Kittle K, Lalande M, Smith S, Parks D, Navarro M, Tayabali AF, Willmore WG. 2020. Hepatotoxicity of cadmium telluride quantum dots induced by mitochondrial dysfunction. Chemical Research in Toxicology 33(9): 2286-2297.

16) Loyez M, **Hassan EM**, Lobry M, Liu F, Caucheteur C, Wattiez R, DeRosa MC, Willmore WG, Albert J. 2020. Rapid detection of circulating breast cancer cells using a multiresonant optical fiber aptasensor with plasmonic amplification. ACS Sensors 5(2): 454-463.

17) Chopra A, Adhikary H, Willmore WG†, Biggar KK†. 2020. Insights into the function and regulation of Jumonji C lysine demethylases as hypoxic responsive enzymes. Current Protein and Peptide Science. 20(27): 642-654. †contributed equally to this publication.

18) Chopra A, Willmore WG†, Biggar KK†. 2019. Protein quantification and visualization via ultraviolet-dependent labeling with 2,2,2-trichloroethanol. Scientific Reports 9(1): 13923. †contributed equally to this publication.

19) Koppert J, Jean-Ruel H, O'Neill D, Harder C, Willmore W, Ianoul A, Albert J. 2019. Self-heating tilted fiber Bragg grating device for melt curve analysis of solid-phase DNA hybridization and thermal cycling. Analytical and Bioanalytical Chemistry 411(26): 6813-6823.

20) Nguyen KC, Zhang Y, Todd J, Kittle K, Patry D, Caldwell D, Lalande M, Smith S, Parks D, Navarro M, Massarsky A, Moon TW, Willmore WG, Tayabali AF. 2019. Biodistribution and systemic effects in mice following intravenous administration of cadmium telluride quantum dot nanoparticles. Chemical Research in Toxicology 32(8): 1491-1503.

21) Esfandi R, Willmore WG, Tsopmo A. 2019. Antioxidant and anti-apoptotic properties of oat bran protein hydrolysates in stressed hepatic cells. Foods. 8(5): E160.

22) Birnie-Gauvin K, Flávio H, Kristensen ML, Walton-Rabideau S, Cooke SJ, Willmore WG, Koed A, Aarestrup K. 2019. Cortisol predicts migration timing and success in both Atlantic salmon and sea trout kelts. Scientific Reports 9(1): 2422.

23) Esfandi R, Willmore WG, Tsopmo A. 2019. Peptidomic analysis of hydrolyzed oat bran proteins, and their *in vitro* antioxidant and metal chelating properties. Food Chemistry 279: 49-57.

24) Ahmed D, Jaworski A, Roy D, Willmore W, Golshani A, Cassol E. 2018. Transcriptional profiling suggests extensive metabolic rewiring of human and mouse macrophages during early interferon alpha responses. Mediators of Inflammation 5906819.

25) Moteshareie H, Hajikarimlou M, Mulet Indrayanti A, Burnside D, Paula Dias A, Lettl C, Ahmed D, Omidi K, Kazmirchuk T, Puchacz N, Zare N, Takallou S, Naing T, Hernández RB, Willmore WG, Babu M, McKay B, Samanfar B, Holcik M, Golshani A. 2018. Heavy metal sensitivities of gene deletion strains for ITT1 and RPS1A connect their activities to the expression of URE2, a key gene involved in metal detoxification in yeast. PLoS One 13(9): e0198704.

26) Jadavji NM, Emmerson JT, Shanmugalingam U, MacFarlane AJ, Willmore WG, Smith PD. 2018. A genetic deficiency in folic acid metabolism impairs recovery after ischemic stroke. Experimental Neurology 309: 14-22.

27) Cameron SJ, Hosseinian F, Willmore WG. 2018. A current overview of the biological and cellular effects of nanosilver. International Journal of Molecular Sciences 19(7) pii: E2030.

28) Strobel A, Willmore WG, Sonne C, Dietz R, Letcher RJ. 2018. Organophosphate esters in East Greenland polar bears and ringed seals: Adipose tissue concentrations and *in vitro* depletion and metabolite formation. Chemosphere 196: 240-250.

29) Hill KL, Hamers T, Kamstra JH, Willmore WG, Letcher RJ. 2018. Organophosphate triesters and selected metabolites enhance binding of thyroxine to human transthyretin *in vitro*. Toxicology Letters 285: 87-93.

30) Hill KL, Mortensen ÅK, Teclechiel D, Willmore WG, Sylte I, Jenssen BM, Letcher RJ. 2018. *In vitro* and *in silico* competitive binding of brominated polyphenyl ether contaminants with human and gull thyroid hormone transport proteins. Environmental Science and Technology 52(3): 1533-1541.

31) Mahemuti L, Chen Q, Coughlan MC, Qiao C, **Chepelev NL**, **Florian M**, Dong D, **Woodworth RG**, Yan J, Cao XL, Scoggan KA, Jin X, Willmore WG. 2018. Bisphenol A induces DSB-ATM-p53 signaling

leading to cell cycle arrest, senescence, autophagy, stress response, and estrogen release in human fetal lung fibroblasts. Archives of Toxicology 92(4): 1453-1469.

32) Birnie-Gauvin K, Larsen MH, Aarestrup K, Willmore WG, Cooke SJ. 2018. N-acetylcysteine manipulation fails to elicit an increase in glutathione in a teleost model. Fish Physiology and Biochemistry 44(1): 137-142.

33) Hill KL, Hamers T, Kamstra JH, Willmore WG, Letcher RJ. 2017. Optimization of an *in vitro* assay methodology for competitive binding of thyroidogenic xenobiotics with thyroxine on human transthyretin and albumin. MethodsX 4: 404-412.

34) Hassan EM, Willmore WG, McKay BC, DeRosa MC. 2017. *In vitro* selections of mammaglobin A and mammaglobin B aptamers for the recognition of circulating breast tumor cells. Scientific Reports 7(1): 14487.

35) Jadavji NM, Emmerson JT, MacFarlane AJ, Willmore WG, Smith PD. 2017. B-vitamin and choline supplementation increases neuroplasticity and recovery after stroke. Neurobiology of Disease 103: 89-100.

36) Elmer LK, O'Connor CM, Philipp DP, Van Der Kraak G, Gilmour KM, Willmore WG, Barthel BL, Cooke SJ. 2017. Oxidative ecology of paternal care in wild smallmouth bass, *Micropterus dolomieu*. Journal of Experimental Biology 220(Pt 10): 1905-1914.

37) Birnie-Gauvin K, Peiman KS, Larsen MH, Aarestrup K, Willmore WG, Cooke SJ. 2017. Short-term and long-term effects of transient exogenous cortisol manipulation on oxidative stress in juvenile brown trout. Journal of Experimental Biology 220(Pt 9): 1693-1700.

38) Peiman KS, **Birnie-Gauvin K**, Larsen MH, Colborne SF, Gilmour KM, Aarestrup K, Willmore WG, Cooke SJ. 2017. Morphological, physiological and dietary covariation in migratory and resident adult brown trout (Salmo trutta). Zoology (Jena). 123:79-90. doi: 10.1016/j.zool.2017.07.002. Epub 2017 Jul 14. PMID: 28807503.

39) Du Y, **Esfandi R**, Willmore WG, Tsopmo A. 2016. Antioxidant activity of oat proteins derived peptides in stressed hepatic HepG2 cells. Antioxidants (Basel, Switzerland). 5(4): pii: E39.

40) Mahemuti L, Chen Q, Coughlan MC, Zhang M, **Florian M**, **Mailloux RJ**, Cao XL, Scoggan KA, Willmore WG, Jin X. 2016. Bisphenol A exposure alters release of immune and developmental modulators and expression of estrogen receptors in human fetal lung fibroblasts. Journal of Environmental Science (China). 48: 11-23.

41) Hassan EM, Willmore WG, DeRosa MC. 2016. Aptamers: promising tools for the detection of circulating tumor cells. Nucleic Acid Therapeutics 26(6): 335-347.

42) Zolderdo AJ, Algera DA, Lawrence MJ, Gilmour KM, Fast MD, **Thuswaldner J**, Willmore WG, Cooke SJ. 2016. Stress, nutrition and parental care in a teleost fish: exploring mechanisms with supplemental feeding and cortisol manipulation. Journal of Experimental Biology 219(Pt 8): 1237-1248.

43) Canez CR, Shields SW, **Bugno M**, Wasslen KV, Weinert HP, Willmore WG, Manthorpe JM, Smith JC. 2016. Trimethylation enhancement using (13)C-diazomethane ((13)C-TrEnDi): increased sensitivity and selectivity of phosphatidylethanolamine, phosphatidylcholine, and phosphatidylserine lipids derived from complex biological samples. Analytical Chemistry 88(14): 6996-7004.

44) Taylor JJ, Sopinka NM, Wilson SM, Hinch SG, Patterson DA, Cooke SJ, Willmore WG. 2016. Examining the relationships between egg cortisol and oxidative stress in developing wild sockeye salmon (*Oncorhynchus nerka*). Comparative Biochemistry and Physiology, Part A: Molecular and Integrative Physiology 200: 87-93.

45) Bugno M, **Daniel M**, **Chepelev NL**, Willmore WG. 2015. Changing gears in Nrf1 research, from mechanisms of regulation to its role in disease and prevention. Biochimica et Biophysica Acta (BBA) - Gene Regulatory Mechanisms 1849: 1260-1276.

46) Raby GD, Clark TD, Farrell AP, Patterson DA, Bett NN, **Wilson SM**, Willmore WG, Suski CD, Hinch SG, Cooke SJ. 2015. Facing the river gauntlet: understanding the effects of fisheries capture and water temperature on the physiology of coho salmon. PLoS One. 10(4): e0124023.

47) Nguyen KC, Rippstein P, Tayabali AF, Willmore WG. 2015. Mitochondrial toxicity of cadmium telluride quantum dot nanoparticles in mammalian hepatocytes. Toxicological Sciences. 146(1): 31-42.

48) Taylor JJ, **Wilson SM**, Sopinka NM, Hinch SG, Patterson DA, Cooke SJ, Willmore WG. 2015. Are there intergenerational and population-specific effects of oxidative stress in sockeye salmon (*Oncorhynchus nerka*)? Comparative Biochemistry and Physiology A Molecular and Integrative Physiology 184: 97-104.

49) Mailloux RJ, Willmore WG. 2014. S-glutathionylation reactions in mitochondrial function and disease. Frontiers in Cell and Developmental Biology. 2: 68.

50) Mailloux RJ, **Florian M**, Chen Q, Yan J, Petrov I, Coughlan MC, **Laziyan M**, Caldwell D, Lalande M, Patry D, Gagnon C, Sarafin K, Truong J, Chan HM, Ratnayake N, Li N, Willmore WG**,** Jin X. 2014. Exposure to a Northern contaminant mixture (NCM) alters hepatic energy and lipid metabolism exacerbating hepatic steatosis in obese JCR rats. PLoS ONE 9(9): e106832.

51) Wilson SM, **Taylor JJ**, **Mackie TA**, Patterson DA, Cooke SJ, Willmore WG. 2014. Oxidative stress in Pacific salmon (*Oncorhynchus spp.*) during spawning migration. Physiological and Biochemical Zoology 87: 346-352.

52) Nguyen VM, Martins EG, Robichaud D, Raby GD, Donaldson MR, Lotto AG, Willmore WG, Patterson DA, Farrell AP, Hinch SG, Cooke SJ. 2014. Disentangling the roles of air exposure, gill net injury, and facilitated recovery on the postcapture and release mortality and behavior of adult migratory sockeye salmon (*Oncorhynchus nerka*) in freshwater. Physiological and Biochemical Zoology 87: 125–135.

53) Mailloux RJ, Jin X, Willmore WG. 2013. Redox regulation of mitochondrial function with emphasis on cysteine oxidation reactions. Redox Biology 2: 123-139.

54) Nguyen KC, Willmore WG, Tayabali AF. 2013. Cadmium telluride quantum dots cause oxidative stress leading to extrinsic and intrinsic apoptosis in hepatocellular carcinoma HepG2 cells. Toxicology 306: 114-123.

55) Chepelev NL, Zhang H, Liu H, **McBride S**, **Seal AJ**, Morgan TE, Finch CE, Willmore WG, Davies KJA, Forman HJ. 2013. Competition of nuclear factor erythroid 2 factors related transcription factor isoforms, Nrf1 and Nrf2, in antioxidant enzyme induction. Redox Biology 1: 183-189.

56) Samanfar B, Omidi K, Hooshyar M, Laliberte B, Alamgir M, **Seal AJ**, **Ahmed-Muhsin E**, Veteri DF, Said K, Chalabian F, Wainer G, Burnside D, Shostak K, **Bugno M**, Willmore WG, Smith ML, Golshani A. 2013. Large-scale investigation of oxygen response mutants in *Saccharomyces cerevisiae*. Molecular Biosystems 9: 1351-1359.

57) Agil R, Gagnet A, **Gliwa J**, Avis TJ, Willmore WG and Hosseinian F. 2013. Lentils enhance probiotic growth in yogurt and provide added benefit of antioxidant protection. LWT – Food Science and Technology 50(1): 45-49.

58) Chepelev NL, **Enikanolaiye MI**, **Chepelev LL**, Chen QX, Scoggan KA, Coughlan MC, Cao XL, Jin X and Willmore WG. 2013. Bisphenol A activates Nrf1/2-antioxidant response element pathway in HEK 293 cells. Chemical Research in Toxicology 26: 498-506.

59) Wilson SM, Gravel M-A., **Mackie TA**, Willmore WG and Cooke SJ. 2012. Oxidative stress associated with parental care in smallmouth bass (*Micropterus dolomieu*). Comparative Biochemistry and Physiology, Part A 162: 212-218.

60) Raby GD, Donaldson MR, Hinch SG, Patterson DA, Lotto AG, Robichaud D, English KK, Willmore WG, Farrell, Davis MW and Cooke SJ. 2012. Validation of reflex indicators for measuring vitality and predicting the delayed mortality of wild coho salmon bycatch released from fishing gears. Journal of Applied Ecology 49(1): 90-98.

61) Chepelev NL, **Bennitz JD**, **Huang T**, **McBride SL** and Willmore WG. 2011. The Nrf1 CNC-bZip protein is regulated by the proteasome and activated by hypoxia. PLoS ONE 6(12): e29167.

62) Gliwa J, Gunenc A, Ames N, Willmore WG and Hosseinian FS. 2011. Antioxidant activity of alkylresorcinols from rye bran and their protective effects on cell viability of PC-12AC cells. Journal of Agricultural and Food Chemistry 59: 11473-11482.

63) Chepelev NL and Willmore WG. 2010. Regulation of iron pathways in response to hypoxia. Free Radical Biology & Medicine. 50(6): 645-666.

64) Cao X-L, Corriveau J, Popovic S, Coughlan MC, **Chepelev N**, Willmore W, Schrader T and Jin X. 2010. Background bisphenol A in experimental materials and its implication to low-dose *in vitro* study. Chemosphere 81: 817-820.

65) Cao X-L, Corriveau J, Popovic S, Coughlan MC, **Chepelev N**, Willmore WG, Schrader T and Jin X. 2010. How low can levels of bisphenol A in in vitro low dose studies go: limitations from the background levels of experimental materials. In vitro toxicological studies of bisphenol A: a preliminary report. Data report to the joint FAO/WHO expert meeting to review toxicological and health aspects of bisphenol A (BPA). Toxicology Research Division, Bureau of Chemical Safety, Food Directorate, Health Products and Food Branch, Health Canada.

66) Hirota SA, Fines K, Ng J, Traboulsi D, Lee J, Ihara E, Li Y, Willmore WG, Chung D, Scully MM, Louie T, Medicott S, Lejeune M, Chadee K, Armstrong G, Colgan SP, Muruve DA, MacDonald J and Beck PL. 2010. Hypoxia-inducible factor signaling provides protection in *Clostridium difficile*-induced intestinal injury. Gastroenterology 139(1): 259-269.

67) Chepelev NL, **Bennitz JD**, Wright JS, Smith JC, Willmore WG. 2009. Oxidative modification of citrate synthase by peroxyl radicals and protection with novel antioxidants. Journal of Enzyme Inhibition and Medicinal Chemistry 24(6): 1319-1331.

68) Belew MS*, Quazi FI*, Willmore WG† and Aitken SM†. 2008. Kinetic characterization of recombinant human cystathionine β-synthase purified from *E. coli*. Protein Expression and Purification 64: 139-145. *†contributed equally to this publication.

69) Harris CS, Mo F, Migahed L, **Chepelev L**, Haddad PS, Wright JS, Willmore WG, Arnason JT and Bennett SAL. 2007. Plant phenolics regulate neoplastic cell growth and survival: a quantitative structure-activity and biochemical analysis. Canadian Journal of Pharmacology and Physiology 85: 1124-1138.

70) Willmore WG and Storey KB. 2007. Characterization of glutathione reductase from the slider turtle *Trachemys scripta elegans*. Molecular and Cellular Biochemistry 297: 139-149.

71) Flueraru M, Willmore WG, Poulter MO, Durst T, Charron M and Wright JS. 2006. Cytotoxicity and cytoprotective activity of naphthalenediols in rat cortical neurons. Chemical Research in Toxicology 19: 1221-1227.

72) Flueraru M, **Chichirau A**, **Chepelev LL**, Willmore WG, Durst T, Charron M, Barclay LRC and Wright JS. 2005. Cytotoxicity and cytoprotective activity in naphthalenediols depends on their tendency to form naphthoquinones. Free Radical Biology & Medicine 39: 1368-1377.

73) Farha MA, **Niles J** and Willmore WG. 2005. Post-translational modification and protein stabilization of erythroid-specific 5-aminolevulinate synthase under hypoxia. Biochemistry and Cell Biology 83: 620-630.

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75) Chichirau A, **Flueraru M**, **Chepelev LL**, Wright JS, Willmore WG, Durst T, Hussain HH and Charron M. 2005. Mechanism of cytotoxicity of catechols and a naphthalenediol in PC-12AC cells: the connection between extracellular autoxidation and molecular electronic structure. Free Radical Biology & Medicine 38: 344-355.

76) Farha MA and Willmore WG. 2004. Hypoxic stabilization and proteolytic degradation of erythroid-specific 5-aminolevulinate synthase. International Congress Series 1275: 71-78.

77) Willmore WG, Cowan KJ and Storey KB. 2001. Effects of anoxia exposure and aerobic recovery on metabolic enzyme activities in the freshwater turtle *Trachemys scripta elegans*. Canadian Journal of Zoology 79: 1822-1828.

78) Willmore WG, English TE, and Storey KB. 2001. Mitochondrial gene responses to low oxygen stress in turtle organs. Copeia 2001: 628-637.

79) Horiguchi H, Kayama F, Oguma E, Willmore WG, Hradecky P and Bunn HF. 2000. Cadmium and platinum suppression of erythropoietin production in cell culture: clinical implications. Blood 96: 3743-3747.

80) Willmore WG, Huang LE, Gu J, Goldberg, MA and Bunn HF. 1999. Inhibition of hypoxia-inducible factor 1 activation by carbon monoxide and nitric oxide. Journal of Biological Chemistry 274(13): 9038-9044.

81) Willmore WG and Storey KB. 1997. Glutathione systems and anoxia tolerance in turtles. American Journal of Physiology; Regulatory, Integrative and Comparative Physiology 273 (42): R219-R225.

82) Willmore WG and Storey KB. 1997. Antioxidant systems and anoxia tolerance in a freshwater turtle *Trachemys scripta elegans*. Molecular and Cellular Biochemistry 170: 177-185.

83) Willmore WG and Storey KB. 1996. Multicatalytic proteinase activity during anoxia and recovery in the slider turtle *Trachemys scripta elegans*. Biochemistry and Molecular Biology International 38(3): 445-451.

84) Hermes-Lima M, Willmore WG, and Storey KB. 1995. Quantification of lipid hydroperoxides in tissue extracts based on Fe (III) xylenol orange complex formation. Free Radical Biology & Medicine 19(3): 271-280.

BOOKS PUBLISHED

1) Garrett RH, Grisham CM, Willmore WG*, Andreopoulos R*, Gallouzi I-E*. Biochemistry, First Canadian Edition. 2013. Nelson Education, Toronto.

BOOK CHAPTERS PUBLISHED (Supervised or Co-Supervised Trainees In Bold)

1) Chepelev L, **Chepelev N**, Shadnia H, Willmore WG, Wright JS, Dumontier M. 2009. Development of Small Molecule Ligands and Inhibitors. In: Small Molecules for Protein Targeting. Hioyuki Osada (ed). John Wiley & Sons, Inc., Hoboken, NJ.

2) Willmore WG. 2004. Control of Transcription in Eukaryotic Cells. In: Functional Metabolism: Regulation and Adaptation. Kenneth B. Storey (ed). Wiley-Liss, Inc., Hoboken, NJ.

3) Willmore WG. 2004. Translational Controls and Protein Synthesis in Eukaryotic Cells. In: Functional Metabolism: Regulation and Adaptation. Kenneth B. Storey (ed). Wiley-Liss, Inc., Hoboken, NJ.

ABSTRACTS IN REFEREED CONFERENCE PROCEEDINGS (Supervised or Co-Supervised Trainees In Bold)

1) Chopra A, Willmore WG†, Biggar KK†. 2019. Systematic discovery of novel KDM3A substrates: First permutation-based exploration of the substrate specificity of an iron(II)/2-oxoglutarate-dependent dioxygenase. †contributed equally to this poster. Keystone Symposia, Hypoxia: Molecules, Mechanisms and Disease, Keystone Resort, Colorado, January 19-23, 2020.

2) Mohamed R, **Kennedy C**, Willmore WG. 2019. Responses of Porcupine and Wntless proteins to oxidative, hypoxic and endoplasmic reticulum stresses in HEK293T and HCT116 cell lines. 22nd Annual Chemistry and Biochemistry Graduate Research Conference, Concordia University, Montreal, Quebec. November 15, 2019.

3) Mohamed R, **Kennedy C**, Willmore WG. 2017. The role of stressors on the expression and function of Porcupine and Wntless in human colorectal carcinoma cells. Society for Free Radical Biology and Medicine (SFRBM) 24th Annual Meeting, Baltimore, Maryland. November 29-December 2, 2017. Free Radical Biology & Medicine 112(S1): S96.

4) Cameron S, Hosseinian F, Willmore WG. 2017. Effects of nanosilver on antioxidant and xenobiotic response pathways in HEK293T cells. Society for Free Radical Biology and Medicine (SFRBM) 24th Annual Meeting, Baltimore, Maryland. November 29-December 2, 2017. Free Radical Biology & Medicine 112(S1): S20.

5) Nguyen KC, Tayabali AF, Willmore WG. 2016. Hepatotoxicity of cadmium telluride quantum dot nanoparticles: mitochondrial generated reactive oxygen species as a mechanism. Society for Free Radical Biology and Medicine (SFRBM) 23rd Annual Meeting, San Francisco, California. November 16-19, 2016. Free Radical Biology & Medicine 100(S1): S43.

6) Willmore WG. 2016. Nuclear factor (erythroid-derived 2)-like-1 (NFE2L1): at the crossroads of stress responses. Society for Free Radical Biology and Medicine (SFRBM) 23rd Annual Meeting, San Francisco, California. November 16-19, 2016. Free Radical Biology & Medicine 100(S1): S47.

7) Daniel M and Willmore WG. 2015. Oxidative stress and cellular aging in response to polybrominated diphenyl ether flame retardants. Society for Free Radical Biology and Medicine (SFRBM) 22nd Annual Meeting, Boston, Massachusetts, November 18-21, 2015. Free Radical Biology & Medicine 87(S1): S128-S129.

8) Cameron S, **Hovey O**, Hosseinian F, Willmore WG. 2015. Nanosilver effects on detoxification pathways in human embryonic kidney cells. Society for Free Radical Biology and Medicine (SFRBM) 22nd Annual Meeting, Boston, Massachusetts, November 18-21, 2015. Free Radical Biology & Medicine 87(S1): S110.

9) Bugno M, **Mailloux RJ**, Willmore WG. 2014. Modulation of Nrf1 by endoplasmic reticulum stress and the unfolded protein response. Society for Free Radical Biology and Medicine (SFRBM) 20th Annual Meeting, San Antonio, Texas, November 20-24, 2014. Free Radical Biology & Medicine 76(S1): S68.

10) Mahemuti L, Chen Q, Coughlan MC, Zhang M, **Florian M**, **Mailloux RJ**, Cao X-L, Scoggan K, Willmore WG, Jin X. 2014. Bisphenol A (BPA) exposure alters release of immune and developmental modulators and expression of estrogen receptors (ERs) in human fetal lung fibroblasts (HFLF). Society for Free Radical Biology and Medicine (SFRBM) 20th Annual Meeting, San Antonio, Texas, November 20-24, 2014. Free Radical Biology & Medicine 76(S1): S62.

11) Mailloux RJ, Fu A, Florian M, Petrov I, Chen Q, Coughlan MC, **Mahemuti L**, Yan J, Caldwell D, Patry D, Lalande M, Willmore WG, Jin X. 2014. Northern contaminants disrupt insulin secretion in rat pancreas and Min6 insulinoma cells. Society for Free Radical Biology and Medicine (SFRBM) 20th Annual Meeting, San Antonio, Texas, November 20-24, 2014. Free Radical Biology & Medicine 76(S1): S112.

12) Nguyen KC, Tayabali AF, Willmore WG. 2013. Mitochondrial toxicity of cadmium telluride quantum dot nanoparticles in human hepatocytes. Society for Free Radical Biology and Medicine (SFRBM) 19th Annual Meeting, San Diego, California, November 14-18, 2013. Free Radical Biology & Medicine 65(S2): S149.

13) Mailloux RJ, Jin X, Willmore WG. 2013. Redox switches and mitochondria; S-glutathionylation in the control of mitochondrial bioenergetics. Society for Free Radical Biology and Medicine (SFRBM)

19th Annual Meeting, San Diego, California, November 14-18, 2013. Free Radical Biology & Medicine 65(S2): S145.

14) Mailloux RJ, Coughlan MC, Gagnon C, **Florian M**, **Mahemuti L**, Lalande M, Caldwell D, Willmore WG, Ratnayake N, Jin X. 2013. Effects of Northern contaminants and alcohol consumption in the JCR/LA Rat, a model of metabolic and cardiovascular diseases. Society for Free Radical Biology and Medicine (SFRBM) 19th Annual Meeting, San Diego, California, November 14-18, 2013. Free Radical Biology & Medicine 65(S2): S30.

15) Mailloux RJ, **Florian M**, Chen Q, Petrov I, Coughlan MC, **Mahemuti L**, Lalande M, Caldwell D, Li N, Willmore WG, Jin X. 2013. Impact of a Northern contaminant mixture (NCM) on energy metabolism and cholesterol homeostasis in the liver of JCR rats. Society for Free Radical Biology and Medicine (SFRBM) 19th Annual Meeting, San Diego, California, November 14-18, 2013. Free Radical Biology & Medicine 65(S2): S31.

16) Willmore WG. 2012. The Nrf1 CNC-bZIP protein is regulated by the proteasome and activated by hypoxia. Oxygen Radicals, Gordon Research Conference, Ventura Beach Marriott, Ventura, California, February 5-10, 2012.

17) Chepelev NL, **Bennitz JD**, **Huang T**, **McBride SL**, Willmore WG. 2011. The Nrf1 CNC-bZip protein is regulated by the proteasome and activated by hypoxia. Nrf1 (NFE2L1) transcription factor is regulated by multiple stimuli through the stability of its inhibitory p65 Nrf1 form. Society for Free Radical Biology and Medicine (SFRBM) 18th Annual Meeting, Atlanta, Georgia, November 18-22, 2011. Free Radical Biology & Medicine 51(S1): S12-S13.

18) Willmore WG, **Chepelev NL**, **Bennitz JD**, **Huang T**, **McBride S**. 2011. Regulation of NFE2L1 CNC-bZIP protein by multiple post-translational modifications. Society for Free Radical Biology and Medicine (SFRBM) 18th Annual Meeting, Atlanta, Georgia, November 18-22, 2011, Free Radical Biology & Medicine 51(S1): S17.

19) Chepelev NL, **Enikanolaiye MI**, Chen QX, Coughlan MC, Scoggan KA, Jin X, Willmore WG. Human antioxidant response element-Nrf1/2 pathway-mediated defense against bisphenol A exposure. Society for Free Radical Biology and Medicine (SFRBM) 17th Annual Meeting, Orlando, Florida, November 17-21, 2010. Free Radical Biology & Medicine 49(S1): S127-S128. **won Mini-Fellowship Award ($2,000 U.S.D.)**

20) Chepelev NL and Willmore WG. The Nrf1 CNC/bZIP protein is regulated by the proteasome and activated by hypoxia. Society for Free Radical Biology and Medicine (SFRBM) 16th Annual Meeting, San Francisco, California, November 18-22, 2009. Free Radical Biology & Medicine 47(S1): S4. **won Young Investigator Award ($1,000 U.S.D.)**

21) Chepelev NL, and Willmore WG. Regulation of Nrf1 levels and ARE binding activity during hypoxia in COS7 cells. 6th Annual Meeting of the Canadian Oxidative Stress Consortium (COSC), Winnipeg, Manitoba May 7-10, 2009. **(talk) won COSC Travel Award**

22) Chepelev NL, Wright JS and Willmore WG. Oxidative modification and inactivation of citrate synthase by peroxyl radicals and protective effects of novel antioxidants. Oxygen Radicals Gordon Research Conference, Ventura, California, February 3-8, 2008.

23) Willmore WG. Hydroxylation as an understudied posttranslational modification of proteins controlling hypoxic responses. 7th International Congress of Comparative Physiology and Biochemistry, Salvador, Bahia, Brazil, August 12-16, 2007. Comparative Biochemistry and Physiology 148A(S1): S61.

24) Willmore WG, **Huang S**, **Robbins J**, Zhu H, and Bunn HF. *In vivo* and *in vitro* studies of Hypoxia-Inducible Factor-1 (HIF-1) dimerization and DNA-binding in response to prooxidant stress. Society for Free Radical Biology and Medicine 13th Annual Meeting, Denver, Colorado, November 15-19, 2006. Free Radical Biology & Medicine 41(S1): S44.

25) Chepelev NL, Wright JS and Willmore WG. Oxidative modification and inactivation of citrate synthase by peroxyl radicals and protective effects of novel antioxidants. Society for Free Radical Biology and Medicine (SFRBM) 13th Annual Meeting, Denver, Colorado, November 15-19, 2006. Free Radical Biology & Medicine 41(S1): S133. **won SFRBM Travel Award ($1,000 U.S.D.)**

26) Flueraru M, **Chichirau A**, Shadnia H, **Chepelev LL**, Poulter MO, Willmore WG, Durst T, Charron M, Barclay LRC and Wright JS. Testing naphthalenediols for toxicity and protective effects against oxidative stress in rat cortical neurons. Society for Free Radical Biology and Medicine 12th Annual Meeting, Austin, Texas, November 16-20, 2005. Free Radical Biology & Medicine 39(S1): S12.

27) Farha MA and Willmore WG. Post-translational modification and protein stabilization of ALAS2 under hypoxia. Canadian Society of Biochemistry, Molecular & Cellular Biology (CSBMCB) 47th Annual Meeting, Mont Tremblant, Quebec, May 27-30, 2004. Biochemistry and Cell Biology 82(6): 755.

28) Willmore WG and Bunn HF. Protection from mixed function oxidation of pyruvate kinase activity by transition metals. 6th Annual Meeting of the Oxygen Society, New Orleans Marriott, New Orleans, Louisiana, November 18-22, 1999. Free Radical Biology & Medicine 27(S1): 34.

29) Willmore WG, Gorr TA and Bunn HF. Effects of ROS on hypoxia- and cobalt-induced HIF-1 binding and erythropoietin expression in Hep3B. 6th Annual Meeting of the Oxygen Society, New Orleans Marriott, New Orleans, Louisiana, November 18-22, 1999. Free Radical Biology & Medicine 27(S1): 164.

30) Willmore WG and Bunn HF. Role of mitochondria in oxygen sensing. 6th Annual Meeting of the Oxygen Society, New Orleans Marriott, New Orleans, Louisiana, November 18-22, 1999. Free Radical Biology & Medicine 27(S1): 190.

INVITED PRESENTATIONS

1) Oxygen Sensing to Tissue Engineering: Utilizing Extracellular Matrix Modifiers in Tissue Models. Faculty of Pharmacy and Pharmaceutical Sciences Seminar Series, University of Alberta, April 23, 2024.

2) Oxygen Sensing and Tissue Remodelling. First Tissue Engineering and Applied Materials (TEAM) Hub Workshop, Carleton University, Ottawa, Ontario, June 26-28, 2023.

3) Nuclear factor (erythroid-derived 2)-like-1 (NFE2L1 or Nrf1): at the cross roads of stress responses. Canadian Oxidative Stress Consortium 2018, University of Alberta, Edmonton, Alberta, May 30-June 1, 2018.

4) NRF1: The lesser-known player in the antioxidant response. Canadian Oxidative Stress Consortium 2016, University of Guelph, Guelph, Ontario, June 3, 2016.

5) NFE2L1 (Nrf1): the lesser-known player in the antioxidant response. Seminar Series, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, April 21, 2016.

6) Oxidative stress in Pacific salmon (*Oncorhynchus spp.*) during spawning, migration and capture/release. Plenary Talk. Second International Conference on Oxidative Stress in Aquatic Ecosystems, La Paz, Mexico, November 11-14, 2015.

7) Bisphenol A (BPA) activates Nrf1/2-antioxidant response element pathway in HEK 293 cells. Health Canada Science Forum, Ottawa Convention Centre, Ottawa, Ontario. December 4, 2012.

8) Nuclear factor-erythroid 2 p45 subunit-related factor 1 (Nrf1) as an understudied factor in the xenobiotic/antioxidant response. Canadian Oxidative Stress Consortium, Lakehead University, Thunder Bay, Ontario. May 12, 2012.

9) Regulation of NFE2L1 CNC-bZIP (Nrf1) protein by multiple post-translational modifications. Oxygen Radicals, Gordon Research Conference, Ventura Beach Marriott, Ventura, California, February 9, 2012.

10) Adaptive responses to oxidative stress encountered during hypoxia: the role of Nrf1 and the antioxidant response element. National Research Council of Canada, Institute of Biological Sciences, March 9, 2011.

11) Environmental stressors as chemical mediators of oxygen toxicity. Explore! Environmental Stressors Symposium, Environmental Health and Research Initiative, Senate Room, Robertson Hall, Carleton University, February 27, 2009.

12) Adaptation to hypoxia: control by oxygen-dependent protein modification. Department of Biology, Guest Seminar Series, University of Waterloo, Waterloo, Ontario. November 16, 2007.

13) Hydroxylation as an understudied posttranslational modification of proteins controlling hypoxic responses. The 7th International Congress of Comparative Physiology and Biochemistry, Pestana Bahia Hotel, Salvador, Bahia, Brazil. August 14, 2007.

14) "Oxygen on the brain": cellular adaptation to low oxygen conditions. Department of Chemistry and Biochemistry, Laurentian University, Sudbury, Ontario. September 21, 2006.

15) Oxygen-dependent protein modifications and their role in adaptive responses to low oxygen. Protein Function Discovery Group, Queen's University, Kingston, Ontario. March 31, 2006.

16) Adaptive responses to low oxygen. Third International Conference of Comparative Physiology & Biochemistry in Africa: Animals and Environments, Ithala Game Reserve, KwaZulu-Natal, South Africa. August 7-13, 2004

17) The oxygen paradox: life at oxygen extremes. Carleton University Spring Conference, Opinicon Lodge, Chaffey's Lock, Ontario. May 1, 2004.

18) Adaptive response to oxygen stress: nonspecific and specific modification of protein structure and function by oxygen. The 42nd Annual Meeting of the Canadian Society of Zoologists (CSZ). Comparative Physiology and Biochemistry. Metabolic Plasticity in Animal Adaptations. Wilfrid Laurier University, Kitchener/Waterloo, Ontario. May 10, 2003.

19) Adaptive response to oxygen stress: nonspecific and specific modification of protein structure and function by oxygen. Ottawa Carleton Chemistry Institute, Ottawa, Ontario. May 6, 2003.

20) Protein regulation by oxygen: a tale of two extremes. Department of Biology, Queen's University. Kingston, Ontario. February 11, 2003.

21) Oxygen: a two-edged sword. Oxygen control of Hypoxia-Inducible Factor-1 (HIF-1) structure and function. Department of Biology, University of Ottawa, Ottawa, Ontario. November 21, 2002.

22) Oxygen: a two-edged sword. Oxygen regulation of protein structure/function and gene expression. Department of Biochemistry, Microbiology, and Immunology, University of Ottawa, Ottawa, Ontario. October 24, 2002.

23) Oxygen: a double-edged sword. Oxygen effects on protein structure and function. National Wildlife Research Council, Hull, Quebec. April 17, 2002.

CONFERENCES/WORKSHOPS ORGANIZED

1) First Tissue Engineering and Applied Materials (TEAM) Hub Workshop, Carleton University, Ottawa, June 26 to 28, 2023. One of the primary organizers of this conference with 130 attendees. Events included talks by guest speakers from academia, government and industry, student poster presentations and panel discussions on future collaborations with TEAM Hub (**www.teamhubottawa.com**).

2) National Research Council-Carleton University Biotechnology (NRC-CU) Internship, February 2019, One week internship for 30 Carleton University Biotechnology students at the NRC for training in Biotechnology careers. Events included talks by guest speakers from government and industry, group workshops for students and tours of government and industrial facilities. Student received a certificate of completion at the end of the internship.

3) Chair, Eighth Meeting of the Canadian Oxidative Stress Consortium, Carleton University, Ottawa, June 11 to 13, 2014. Chaired this national conference which included bringing in sponsors (including the Society of Free Radical Biology and Medicine), inviting in Keynote and Guest speakers and re-creating the Consortium's website (**www.carleton.ca/cosc**).

4) Faculty champion of Explore! Environmental Stressors Symposium, Environmental Health and Research Initiative, Senate Room, Robertson Hall, Carleton University, February 27, 2009.

Appendix 1
SCHOLARSHIPS, FELLOWSHIPS, AND GRANTS

Name of Scholarship, Fellowship, Grant or Award and Source of Funds	Title	Period Held	Total Grant in CDN (number of years*)
Carleton University Research Development Grants	The Crosstalk Between Oxygen Sensing And Tissue Remodelling	05/24-04/25	$ 10,000 (7)
NRC New Beginnings Initiative	Inside-Out: Understanding atypical expression of intracellular proteins at the cell surface to improve therapeutic development	04/24-09/25	$ 25,000 (8)
CIHR Planning and Dissemination Grant[5] (Awarded)	Tissue Engineering and Applied Materials (TEAM) Hub: Accelerating translation 3D bioprinted tissue models to therapeutics for age-associated and chronic diseases Leila Mostaço-Guidolin and five others	co-applicant 05/23-05-24	$ 10,000 (1)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	Hypoxic incubators to conduct studies in low oxygen environments	05/23-05/24	$ 35,156 (1)
NSERC(1) Alliance Grant/Kinectrics Inc. (Awarded)	Developing Forensic Biomarkers for Fish Killed by Cold Shock and Impinged at Nuclear Power Plant Water Cooling Intakes Steven Cooke and two others	co-applicant 05/22-05/23	$ 60,000 (1)
Internal Award - Carleton University[7] (Awarded)	High Resolution Confocal Microscope Carleton University Leila Mostaço-Guidolin and two others	co-applicant 01/22-01/23	$ 751,994
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	Microfluidics high-resolution 3D-bioprinting for a multidisciplinary team Leila Mostaço-Guidolin and two others	co-applicant 05/21-05/22	$ 150,000 (1)
Carleton University Multidisciplinary Research Catalyst Fund (MRCF)	Multidisciplinary Tissue Engineering Cluster (M-TEC) Leila Mostaço-Guidolin and three others	co-applicant 05/21-05/22	$ 40,000 (1)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	Hypoxic workstation to conduct studies in low oxygen environments	05/19-05/20	$ 67,518 (1)
NSERC[1] Discovery Grant (Awarded)	Signaling cross-talk between endoplasmic reticulum and oxidative stresses	05/17-05/22	$ 170,000 (5)
Carleton University Research Achievement Award (Awarded)	Development of a BioSensor for the detection of metastasized and circulating breast cancer cells	05/16-04/17	$ 15,000 (1)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	400 MHz NMR Magnet Sean Barry and seven others	co-applicant 05/15-05/16	$ 141,475 (1)
NSERC[1] CRD Grant (Awarded)	Point-of-care fiber optic multifunction platform Jacques Albert and two others	co-applicant 10/14-10/15	$ 30,000 (1)
NSERC[1] CREATE Grant (Awarded)	Research in Environmental, Analytical Chemistry and Toxicology (REACT) Laurie Chan and eight others	co-applicant 05/14-05/21	$ 1,650,000 (6)
NSERC[1] ENGAGE Grant (Awarded)	Surface Plasmon Resonance -Tilted Fibre Bragg Grating (SPR-TFBG) fibre optic biosensor to detect metastasized cancer cells in cancer patients	11/13-04/14	$ 25,000 (1)
NSERC[1] Discovery Grant (Awarded)	Mitochondrial biogenesis and the decline of hypoxia, oxidative stress and toxin tolerance with age	05/12-05/17	$ 140,000 (5)
Northern Contaminants Project, Aboriginal Affairs and Northern Development Canada (AANDC) (Awarded)	*In vivo* study of the effects of a Northern contaminant mixture on the development of metabolic and cardiovascular diseases under conditions typifying the diets and lifestyles of Northerners Xiaolei (Dawn) Jin and four others.	co-applicant 09/09-09/11	$ 233,709 (2)
NSERC[1] Strategic Grant; Special Capture Fisheries Competition (Awarded)	Increasing the sustainability of multi-sector Pacific salmon fisheries in coastal rivers of British Columbia. Carleton University Steven J. Cooke and four others	co-applicant 09/08-09/11	$ 587,600 (3)
Chemicals Management Plan (CMP) Fund for Research on Bisphenol A (Awarded)	Investigation of the genomic and nongenomic mechanisms underlying the "low dose effects" of bisphenol A. CMP Research Network, Health Canada Xiaolei (Dawn) Jin and three others	co-applicant 09/08-09/10	$ 215,000 (3)

[1] Natural Science and Engineering Research Council of Canada
[2] Canada Foundation for Innovation
[3] Canadian Breast Cancer Foundation
[4] Ministry of Research and Innovation of Ontario
[5] Canadian Institutes of Health Research
[6] Ontario Innovation Trust/Ontario Research Fund
[7] Carleton University
[8] National Research Council
u = unlimited time

Appendix 1 (Continued)
SCHOLARSHIPS, FELLOWSHIPS, AND GRANTS

Name of Scholarship, Fellowship, Grant or Award and Source of Funds	Title	Period Held	Total Grant in CDN (number of years*)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	High-throughput fluorescence HPLC detection of low abundance metabolites and functional groups. Carleton University William Willmore and two others	09/08-09/09	$ 42,782 (1)
CBCF[3] Research Project Grant (Awarded)	Reducing breast cancer risk factors by molecular engineering: the redesign of hormonal supplements. Carleton University James S. Wright and six others	co-applicant 09/07-09/09	$ 194,000 (2)
NSERC[1] Discovery Grant (Awarded)	Role of protein hydroxylation in cellular response to hypoxia Carleton University	05/07-05/12	$ 165,000 (5)
MRI[4] Early Researcher Award (Awarded)	Adaptation to low oxygen in cardiovascular disease. Carleton University	09/07-09/12	$ 150,000 (5)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	Proteomic equipment for profiling nuclear and organellar proteins. Carleton University William Willmore and five others	09/05-09/06	$ 30,010 (1)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	Core facility for biochemistry and molecular biology. Carleton University Susan Aitken and four others	co-applicant 09/05-09/06	$ 25,943 (1)
NSERC[1] Strategic Grant (Awarded) (co-applicant in last year of grant)	Anti-aging effects of novel antioxidants. Carleton University James S. Wright and seven others	co-applicant 09/03-09/04	$ 151,000 (1)
CFI[2] Infrastructure Operating Fund (Awarded)	Facility for free radical research investigating protein structure/function modification in response to oxygen. Carleton University	05/04-05/09	$ 56,420 (5)
CIHR[5] Institutional Development Grant (Awarded)	The role of Hypoxia-Inducible Factor-1 (HIF-1) in Amyloid Precursor Protein (APP) gene expression. Carleton University	09/02-09/03	$ 10,000 (1)
NSERC[1] Discovery Grant (Awarded)	Role of reactive oxygen species in hypoxic signal transduction. Carleton University	09/02-09/07	$ 165,000 (5)
NSERC[1] Research Tools and Instruments (Category 1) Grant (Awarded)	Role of reactive oxygen species in hypoxic signal transduction. Carleton University	09/02-09/03	$ 46,401 (1)
CFI[2] New Opportunities Grant (Awarded)	Facility for free radical research investigating protein structure/function modification in response to oxygen. Carleton University	05/02-05/03	$ 188,068 (1)
OIT/ORF[6] New Opportunities Grant (Awarded)	Facility for free radical research investigating protein structure/function modification in response to oxygen. Carleton University	07/02-07/03	$ 188,069 (1)
Carleton University Startup Funds (Awarded)	Hypoxic inhibition of protein prolyl hydroxylation. Carleton University	01/02-present	$ 40,000 (u)
CIHR[5] Postdoctoral Fellowship (Awarded) (declined after first year)	Regulation of hypoxia-induced gene expression by reactive oxygen species. Harvard Medical School, Boston, MA	04/00-12/01	$ 38,500 (1)
NSERC[1] Postgraduate Scholarship B (Awarded)	Enzyme function and gene expression in hypoxic survival of hibernating turtles. Carleton University	04/94-04/96	$ 34,800 (2)
NSERC[1] Postgraduate Scholarship A (Awarded)	Enzyme function and gene expression in hypoxic survival of hibernating turtles. Carleton University	04/92-04/94	$ 30,000 (2)
NSERC[1] Undergraduate Student Research Award (Awarded)	Role of aldosterone receptors in pinnaped hyponatremia. University of Guelph	04/90-08/90	$ 3,000 (1)
NSERC[1] Undergraduate Student Research Award (Awarded)	Role of aldosterone receptors in pinnaped hyponatremia. University of Guelph	04/89-08/89	$ 3,000 (1)

[1] Natural Science and Engineering Research Council of Canada
[2] Canada Foundation for Innovation
[3] Canadian Breast Cancer Foundation
[4] Ministry of Research and Innovation of Ontario
[5] Canadian Institutes of Health Research
[6] Ontario Innovation Trust/Ontario Research Fund
[7] Carleton University
[8] National Research Council
u = unlimited time

Appendix 2
TRAINING OF HIGHLY QUALIFIED PERSONNEL (HQP); GRADUATE STUDENTS IN BOLD

Name	Type of HQP Training and Status	Years Supervised or Co-supervised	Title of Project or Thesis	Present Position
Sarah Desroches	Doctoral (In progress)	Co-Supervised 2024 -	Biomechanical properties to increase platelet production from megakaryocytes	ongoing
Kinsley Boers	Undergraduate (Completed)	Supervised 2024 - 2025	Gene expression in the transition from fibroblast to myofibroblast	ongoing
Keoni Haynes	Undergraduate (Completed)	Supervised 2024 - 2025	Gene expression in the transition from fibroblast to myofibroblast	ongoing
Rafailia Taulla	Undergraduate (Completed)	Supervised 2024 - 2025	Gene expression in the transition from fibroblast to myofibroblast	ongoing
Renee Wint-White	Undergraduate (Completed)	Supervised 2024 - 2025	Gene expression in the transition from fibroblast to myofibroblast	ongoing
Michlin Farah	Undergraduate (Completed)	Supervised 2023 - 2024	Hypoxic fibroblast production of extracellular matrix	Pharmacology
Caroline Reda-Gad	Undergraduate (Completed)	Supervised 2023 - 2024	Development of methodology for discovery of proteins induced by cold shock in fish	Health Canada
Jahlen Ritchie	Undergraduate (Completed)	Supervised 2023 - 2023	Role of HSP40/DNAJA1 in cellular adaptation to hypoxia	Undergraduate, Biology, Carleton University
Nadia Abzan	Doctoral (In progress)	Co-Supervised 2022 -	Development of 3D lung models of asthma	ongoing
Mohamad Alsaleh	Undergraduate (Completed)	Supervised 2018 - 2019	The effect of hypoxia and hypoxic mimetic agents on extracellular matrix proteins	Master's Student, Biology, Carleton University
Isaac Wong	Undergraduate (Completed)	Supervised 2021 - 2022	Role of hypoxia in collagen-based ECM remodelling	Master's, Biotechnology, University of Calgary / Project Coordinator at Biohubx
Andrew Stevens	Undergraduate (Completed)	Supervised 2021 - 2022	Role of hypoxia in collagen-based ECM remodelling	Undergraduate, Biology, Carleton University
Erica Cheyne	Undergraduate (Completed)	Supervised 2021 - 2022	The role of NLRP3 and the inflammasome in hypoxia and radiation stress response in TK6 cells	Undergraduate, Biology, Carleton University
Anna Kirkland	Undergraduate (Completed)	Supervised 2021 - 2021	Endoplasmic reticulum (ER) stress caused by nanosilver exposure	Undergraduate, Chemistry
Julie Hamati	Undergraduate (Completed)	Co-Supervised 2019 - 2020	The characterization of KGE02, a DNA aptamer selected against acute myeloid leukemia cells	Master's, Chemistry, Carleton University
Joshua O'Grady	Undergraduate (Completed)	Co-Supervised 2019 - 2020	The biochemical characterization of a DNA aptamer targeting acute myeloid leukemia cells	Master's, Chemistry, Carleton University
Stephen Holland	Undergraduate (Completed)	Supervised 2016 - 2017	NFE2L1 transcription factor turnover *in vitro* studies	Doctoral Student, Ottawa Hospital Research Institute
Jenny Vuong	Undergraduate (Completed)	Supervised 2017 - 2018	Role of EGLN1 in hypoxic conditions and on NFE2L1 and NFE2L2	Registered Nurse, Canadian Armed Forces/Medical Student, St. George's University School of Medicine, Carribean
James Donnor	Undergraduate (Completed)	Co-Supervised 2017 - 2018	Role of glutathione in antioxidant protection of primary macrophages during the inflammatory response	Doctoral Student, Health Sciences, Carleton University
Matthew Hoekstra	Undergraduate (Completed)	Supervised 2017 - 2018	Analysis of NFE2L1: Structure, function, post-translational modifications and homology modelling	Doctoral Student, Biology, Carleton University
Catherine Kennedy	Undergraduate (Completed)	Supervised 2017 - 2018	The role of stressors on PORCN and WLS function in human colorectal carcinoma cells	Medical Student, St. George's University School of Medicine, Caribbean
Alexandra Star	Doctoral (In progress)	Supervised 2022 -	Cell surface GRP78 as a therapeutic target for brain disorders	ongoing

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Appendix 2 (continued)
TRAINING OF HIGHLY QUALIFIED PERSONNEL (HQP); GRADUATE STUDENTS IN BOLD

Name	Type of HQP Training and Status	Years Supervised or Co-supervised	Title of Project or Thesis	Present Position
George Hilan	Master's (Completed)	Co-Supervised 2022 - 2024	De novo self-assembled RNA nanostructures incorporating multiple glucose-regulated protein silencing RNAs	Job hunting
Bahareh Hosseinpour	Doctoral (In progress)	Co-Supervised 2020 -	The biochemical characterization of a DNA aptamer targeting acute myeloid leukemia cells	ongoing
Myra Thapar	Doctoral (In progress)	Co-Supervised 2021 -	The role of cold shock proteins in fish freezing survival	ongoing
Stephanie Hewetson	Master's (Completed)	Supervised 2022 - 2024	Role of GRP78/BIP/HSP5A in hypoxic regulation of ER stress	Health Canada
Bhavya Mohan	High School Student (Completed)	Supervised 2016 - 2021	ABiTEs aptamers to bring killer T-cells to cancer cells	Undergraduate/Student Researcher, University of British Columbia/BC Cancer
Alison McVetty	Undergraduate (Completed)	Co-Supervised 2019 - 2020	Determination of post-translational modifications of NFE2L1 by 2-D gel electrophoresis	Job searching
Meriam Tayar	Undergraduate (Completed)	Supervised 2019 - 2020	The role of Osterix and hypoxia in bone homeostasis and disease	Dentistry, McGill University
Jason Kuipers	Undergraduate (Completed)	Supervised 2019 - 2020	Role of HIF in expression of NFE2L1 protein	Technical Officer, National Research Council Canada
Myra Thapar	Master's (Completed)	Co-Supervised 2021 - 2023	The role of cold shock proteins in fish freezing survival	Doctoral Student, Biology, Carleton University
Vanessa Gallo	Master's (Completed)	Co-Supervised 2020 - 2022	Development of antimicrobials against *Acinetobacter baumannii*	Technical Officer, National Research Council of Canada
Jessica Sheng	Master's (Completed)	Supervised 2019 - 2021	Cellular effects nanosilver on cancer and non-cancer cells: Potential environmental and human health impacts	Technical Officer, Health Canada
Matt Clinch	Master's (Completed)	Supervised 2019 - 2021	Role of NFE2L1 in ER stress in colon cancer cells	Scientific Training Specialist at AbCellera, British Columbia
Anand Chopra	Doctoral (Completed)	Co-Supervised 2018 - 2023	The role of KDM3A in oxygen sensing	Postdoctoral Fellow
Jacob Billingsley	Master's (Completed)	Supervised 2018 - 2020	The role of p53 in ER stress response	Research Technician I, Ottawa Health Research Institute, University of Ottawa
Kavleen Aulakh	Master's (Completed)	Co-Supervised 2015 - 2016	Laser stimulus in human neuroblastoma cell	unknown
Ramak Esfandi	Doctoral (Completed)	Co-Supervised 2017 - 2023	Antioxidant effects of peptides isolated from oat bran	Postdoctoral Fellow, University of Western Ontario
Dan Budiansky	Undergraduate (Completed)	Supervised 2016 - 2017	Effects of toxins on deacetylation of NFE2L1 by SIRT1	Incoming Neurosurgery Resident, University of Ottawa
Kim Birnie-Gauvin	Master's (Completed)	Co-Supervised 2015 - 2018	Oxidative stress and life history traits in brown trout in Denmark	Postdoctoral Researcher, DTU - Technical University of Denmark
Florian Gounin	Exchange Student From France (Completed)	Supervised 2016	Effects of hypoxia on PGC-1α function in C2C12 muscle cells	Master's student, France
Emily Brown (b)	Undergraduate (Completed)	Supervised 2015 - 2018	Characterization of potential phosphorylation sites on NFE2L1	Master's student, University of Ottawa
Anand Chopra (b)	Undergraduate (Completed)	Supervised 2015 - 2018	Proteolytic processing of NFE2L1 by calpains.	Doctoral student, Carleton University
Ramak Esfandi	Master's (Completed)	Co-Supervised 2015 - 2017	Antioxidant and antiapoptotic properties of oat bran protein hydrolysates in AAPH-induced oxidative stress in HepG2 cells	Doctoral student, Carleton University
Haiyun Bo	Master's (Completed)	Supervised 2016 - 2021	Effects of hypoxia on NFE2L1 function and cellular location	Biology Administration, Carleton University

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Name	Type of HQP Training and Status	Years Supervised or Co-supervised	Title of Project or Thesis	Present Position
Rowida Mohammed	Doctoral (Completed)	Supervised 2016 - 2021	Effects of endoplasmic reticulum stress on NFE2L1 function	Postdoctoral Fellow, University of Ottawa/Instructor, Carleton University
Mary Daniel	Master's (Completed)	Supervised 2014 - 2016	Effects of toxins on deacetylation of NFE2L1 by SIRT1	Publications Officer, Department of National Defence Canada
Jason Koppert (h)	Master's (Bio. Eng.) (Completed)	Co-Supervised 2014 - 2016	Development of an *in vitro* optical fibre real-time PCR device (with Spartan Bioscience, Ottawa)	Medical School, University of Toronto
Nafisa Jadavji	Research Associate (Completed)	Co-Supervised 2015 - 2018	Impact of methylenetetrahydrofolate reductase deficiency in primary neuronal and astrocyte cultures	Assistant Professor, Biomedical Sciences, Midwestern University, Arizona
Ryan Mailloux	Research Associate (Completed)	Co-Supervised 2013 - 2014	Effects of Northern contaminants on obese mice	Director, School of Human Nutrition, McGill University
Abdulrahman Almohaisen	Master's (Completed)	Supervised 2013 - 2015	Effects of Northern contaminants on obese mice	Lecturer, King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia
Eman Hassan	Doctoral (Completed)	Co-Supervised 2013 - 2018	Development of an aptamer against mammaglobin B; a breast cancer target protein	Research Scientist, Health Canada
Jessica Taylor	Master's (Completed)	Co-Supervised 2012 - 2014	Transgenerational effects of oxidative stress in sockeye salmon	Technician, Biology Department, Carleton University
Shana Cameron (h)	Doctoral (Completed)	Co-Supervised 2013 - 2021	Oxidative stress caused by nanosilver	Safety Evaluator, Plant Health and Biosecurity, Canadian Food Inspection Agency
Katie Hill (formerly Wooding)	Master's (part-time) (Completed)	Co-Supervised 2013 - 2017	*In vitro* competitive binding assay to measure polybrominated diphenyl ethers	Scientific Evaluator III, Health Canada
Amit Scheer	Public School (Completed)	Supervised 2013-2014	Novel aptamer-nanotech treatments for cancer	high school student, Sanofi BioGENius Challenge
QiXuan (Charlie) Chen	Postdoctoral Researcher (Completed)	Co-Supervised 2011 - 2013	Effects of Northern contaminants on obese mice	Research Associate, Canadian Food Inspection Agency
Andrew Seal	Master's (Completed)	Supervised 2011 - 2013	Potential deacetylation of NFE2L1 by SIRT1	Teacher's College
Julia Gliwa	Master's (Completed)	Co-supervised 2011 - 2013	Antioxidant properties of alkylresorcinols in rye bran	Custom Biologics, Toronto
Maria Florian	CIHR Postdoctoral Researcher (In Progress)	Co-Supervised 2010 - 2013	Low density lipoproteins and adiponectin in mice treated with Northern contaminants	Research Associate, Ottawa Hospital Research Institute
Andrew Robinette	Master's (Completed)	Supervised 2010 - 2013	Effects of hypoxia on PGC-1α function in C2C12 muscle cells	unknown
Jin Yan	Postdoctoral Researcher (Completed)	Co-supervised 2010 - 2011	Low density lipoproteins and adiponectin in rats treated with Northern contaminants	Health Canada, policy
Festus Iyuke	Master's (Completed)	Co-supervised 2010 - 2012	Computational predictions of post-translational modifications	unknown
Magdalena Bugno	Master's (Completed)	Supervised 2010 -	Role of apoptosis stimulating protein of p53 in hypoxia	Laboratory Technician, Sick Kids Hospital, Toronto
Saad Ulhaq	Master's (Completed)	Co-Supervised 2010 - 2012	Response of eNOS to heavy metal Northern contaminants	Account Manager, KOM Networks
Laziyan Mahemuti	Doctoral (Completed)	Co-Supervised 2011 -	Protein and gene responses to bisphenol A	Health Canada
Kathy Nguyen	Doctoral (part-time) (Completed)	Co-Supervised 2010-2015	Oxidative stress from quantum nanodots (cadmium telluride)	Health Canada
Samantha Wilson	Master's (Completed)	Co-Supervised 2011 - 2013	Oxidative stress in life history and capture and release of pacific salmon in British Columbia	Laboratory Manager, Simon Fraser University, Vancouver, British Columbia

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Name	Type of HQP Training and Status	Years Supervised or Co-supervised	Title of Project or Thesis	Present Position
Gail MacDonald	Technician (Completed)	Supervised 2009 - 2011	Role of muscle form of pyruvate kinase and PIAS3 in hypoxia	National Cancer Institute of Canada, Clinical Trials Group, Kingston, Ontario
Nikita Rayne	Master's (Completed)	Co-supervised 2008 - 2010	Role of mutations in human CBS in glutathione synthesis	Accounting, Ottawa Hospital
Zhen Liu	Master's (Completed)	Co-supervised 2007 - 2009	Computational predictions of post-translational modifications	IBM, Ottawa
Xuena Yang	Master's (Completed)	Supervised 2007 - 2009	Protein interaction with HIF-1α and role of Nat5 in hypoxia	Merck Sharp & Dohme (China) Co., Ltd., Regulatory Affairs Associate, Beijing, China
Remmick So (h)	Master's (Completed)	Supervised 2007 - 2009	Role of muscle form of pyruvate kinase in hypoxia	COO, Sussex Research
Jessica Cherith Bethune	Master's (Completed)	Supervised 2007 - 2009	Role of PIAS3 in hypoxia	Submission Coordinator, Health Canada
Eman Ahmed-Muhsin (b,d,i)	Master's (Completed)	Supervised 2007 - 2009	RNAi of CNOT8 in mammalian cells	Dentistry, McGill University, NSERC Canada Graduate Scholarship
Muluken Shambel Belew (e,f)	Master's (Completed)	Co-supervised 2006 - 2008	Role of homocysteine in glutathione production	Ph.D., Biochemistry, Microbiology & Immunology, University of Ottawa
Nikolai Chepelev (b,c,d,g,h)	Doctoral (Completed)	Supervised 2005 - 2011	Role of protein hydroxylation in adaptation to hypoxia	NSERC Visiting Postdoctoral Fellow, Health Canada
Agnieszka Bielecki (a)	Master's (Completed)	Supervised 2004 - 2006	Role of hypoxia in amyloid-precursor protein expression	Laboratory Technician, Health Canada, Ottawa
Ahmed Al-Ansari	Master's (Completed)	Supervised 2004 - 2006	Role of CO and NO in ALAS2 regulation	Ph.D., Biology, University of Ottawa
Mohamed Abu-Farha	Master's (Completed)	Supervised 2003 - 2005	Stabilization of erythroid-specific ALAS under hypoxia	Senior Research Associate, Dasman Diabetes Institute, Kuwait
Alexandru Chichirau	Master's (part-time) (Completed)	Co-supervised 2003 - 2008	Cytotoxicity of catechols in PC12 cells	QBM Cell Science, Ottawa
Mihaela Flueraru (c,d)	Doctoral (Completed)	Co-supervised 2002 - 2006	Antioxidant properties of vitamin E analogs	Laboratory Coordinator, Level 10, Carleton University, NSERC Visiting Fellowship (declined)
Naomi Bose	Undergraduate (Completed)	Supervised 2014 - 2015	Effects of hypoxia on PGC-1α function in C2C12 muscle cells	Medical School, University of Ottawa
Lisa Decotret	Undergraduate (Completed)	Supervised 2014 - 2015	Regulation of Nrf1 by ER stress	Master's, Department of Pathology and Laboratory Medicine, University of British Columbia
Eunnara Cho	Undergraduate (Completed)	Supervised 2014 - 2015	Modulation of Nrf1 by ER stress and the unfolded protein response	Ph.D., Biology, Carleton University, Health Canada
Jessie Thuswaldner	Undergraduate (Completed)	Supervised 2014 - 2015	Oxidative stress from elevated cortisol in smallmouth bass	Nursing, University of Ottawa
Haiyun Bo	Undergraduate (Completed)	Supervised 2014 - 2015	Activity of γ-glutamyltrans-peptidase during hypoxic stress	Undergraduate Administrator, Biology, Carleton University
Longfei Wang	Undergraduate (Completed)	Supervised 2014 - 2015	Purification and stabilization techniques for Taq polymerase	M.Sc., Biology, University of Toronto
Mercy Danquah	Undergraduate (Completed)	Supervised 2014 - 2015	Purification and stabilization techniques for Taq polymerase	Laboratory Volunteer, University of Ottawa
Owen Hovey	Undergraduate (Completed)	Supervised 2014 - 2015	Characterization of potential phosphorylation sites on Nrf1	Laboratory Technician, Health Canada
Peter Stolarski	Undergraduate (Completed)	Supervised 2014 - 2015	Effects of nanosilver on neuronal cells	Health Canada, Administration
Usman Khan	Undergraduate (Completed)	Co-supervised 2014 - 2015	Aptamer binding to MCF7 breast cancer cells	Medical School, University of Ottawa

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Name	Type of HQP Training and Status	Years Supervised or Co-supervised	Title of Project or Thesis	Present Position
Andries Seldt	Undergraduate (Completed)	Co-supervised 2014 - 2015	Cloning and expression of mammaglobin B	Unknown.
Julia Kirby	Undergraduate (Completed)	Supervised 2013 - 2014	PGC-1α function in response to hypoxia	M.Sc., Department of Physiology and Pharmacology, University of Western Ontario
Kelsey Mittlestadt	Undergraduate (Completed)	Supervised 2013 - 2014	PGC-1α function in response to hypoxia	M.Sc. Department of Pharmacology, University of Toronto
Jason Koppert	Undergraduate (Completed)	Supervised 2013 - 2014	Development of an *in vitro* optical fibre real-time PCR device	M.Sc. (Bio. Eng.), Carleton University
Marzieh Sarmadi	Undergraduate (Completed)	Supervised 2013 - 2014	Oxygen-dependent modification of ASPP proteins	unknown
Qian Wang	Undergraduate (Completed)	Supervised 2013 - 2014	Novel acetylation sites in Nrf1 and their regulation by SIRT1	M.Sc., Department of Biochemistry, University of Alberta
Thao Nguyen	Undergraduate (Completed)	Supervised 2013 - 2014	Role of erythropoietin in neuroprotection during hypoxia	M.Sc., Department of Chemistry, University of Ottawa
James Podrebarac	Undergraduate (Completed)	Co-supervised 2013 - 2014	MUC-1 aptamer binding to MCF-7 cells	M.Sc., Department of Parasitology, McGill University
Trisha Mackie	Undergraduate (Completed)	Supervised 2010 - 2012	Oxidative stress in aging (spawning) salmon	Doctorate of Veterinary Medicine, University of Guelph
Skye McBride	Undergraduate (Completed)	Supervised 2010 - 2012	Effects of hypoxia on NFE2L1 function and the Antioxidant Response	RCMP
Arran McBride	Undergraduate (Completed)	Supervised 2010 - 2012	DNA damage in mice exposed to air particulate toxins	M.D.
Kendra Young	Undergraduate (Completed)	Supervised 2011 - 2012	Hydroxylation of activators and inhibitors of p53	B.Sc., Biology, Carleton University
Samantha Wilson (b,h)	Undergraduate (Completed)	Co-supervised 2009 - 2011	The effects of parental care in fish on oxidative stress parameters	M.Sc., Carleton University, NSERC Canada Graduate Scholarship
Timothy Beaudoin	Undergraduate (Completed)	Supervised 2009 - 2010	Dimeric and tetrameric forms of pyruvate kinase in hypoxia	Unknown
Noor Ahmed-Muhsin (b)	Undergraduate (Completed)	Supervised 2007 - 2009	Role of succinate semialdehyde dehydrogenase in hypoxia	Dentistry, University of Toronto
Julia DiLabio (b)	Undergraduate (Completed)	Supervised 2008 - 2009	Effects of hypoxia on huntingtin expression	MD program, University of Toronto
Erika Langley	Undergraduate (Completed)	Co-supervised 2009 - 2010	Infectious progeny viruses produced by mumps strains	Unknown
Praveeni Perera	Undergraduate (Completed)	Co-supervised 2008 - 2009	Effects of methylmercury on antioxidant parameters in mammals	MBA program, Sprott School of Business, Carleton University
Guang Shi	Undergraduate (Completed)	Co-supervised 2008 - 2009	A new substrate for human fatty acid desaturase in cell lines	M.Sc., Biochemistry, University of Toronto
Jason Weiss	Undergraduate (Completed)	Supervised 2008	Role of Hypoxia Response Element in Alzheimer's	MDS Nordion, Ottawa
Joshua Bennitz (b)	Undergraduate (Completed)	Supervised 2007 - 2008	Antioxidant Response Element function in hypoxia	MD program, University of Toronto
Ioana Nicolau (b)	Undergraduate (Completed)	Supervised 2007 - 2008	Role of neuronal nitric oxide synthase in hypoxia	Technical Assessment Unit (TAU) Epidemiologist, McGill University
Subhra Mohapatra (b)	Undergraduate (Completed)	Supervised 2007 - 2008	Role of hypoxia response element in Alzheimer's	MD program, St. George University, Grenada
Aishwarya Ramakrishnan	Undergraduate (Completed)	Supervised 2007 - 2008	Role of endothelin converting enzyme-1 in hypoxia	Laboratory Technician, Dept. Microbiology & Immunology, Dalhousie University
Amelia Ng	High School (Completed)	Supervised 2006	Lab maintenance and some experiments	Carleton University undergraduate, Biochemistry
Richard Harris	Undergraduate (Completed)	Supervised 2006	RNAi of HIF-1 alpha in mammalian cells	Ph.D., Biology, University of Guelph

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TRAINING OF HIGHLY QUALIFIED PERSONNEL (HQP); GRADUATE STUDENTS IN BOLD

Name	Type of HQP Training and Status	Years Supervised or Co-supervised	Title of Project or Thesis	Present Position
Edward Chouchani	Undergraduate (Completed)	Co-supervised 2006	Hypoxic induction of fatty acid desaturases in yeast	Postdoctoral Fellow, University of Cambridge, England
Shannon Shamsuzzhoa	Undergraduate (Completed)	Supervised 2005 - 2006	Molecular modeling of human prolyl hydroxylases	Fisher Scientific, Inc., Ottawa
Xin Chen	Undergraduate (Completed)	Supervised 2005 - 2006	Redox regulation of glucose-6-phosphate dehydrogenase activity	M.Sc., Pharmaceutical Sciences, University of Toronto
Jacques Niles	Technician (Completed)	Supervised 2004 - 2005	Glutathione status under hypoxic conditions	DNA Genotek, Kanata, Ontario
Suzanne Ferguson	Undergraduate (Completed)	Co-supervised 2005 - 2006	Role of POP2 in hypoxic signal transduction	M.Sc., Biochemistry, Microbiology & Immunology, University of Ottawa
Youser Al-Ali	Undergraduate (Completed)	Supervised 2006	Glutathione synthesis under hypoxic conditions	Unknown
Connie Zhang	Undergraduate (Completed)	Supervised 2005 - 2006	RNAi of HIF-1 alpha in mammalian cells	Unknown
Leonid Chepelev	Undergraduate (Completed)	Co-supervised 2005 - 2006	Disruption of electron transfer by quinone compounds in isolated mitochondria	M.D. Program, University of Ottawa
Jinghua Huang	Undergraduate (Completed)	Supervised 2004 - 2005	Oxidative modification of yeast glutathione reductase	Palcan Fuel Cells Ltd., Vancouver
Ping Ping Tong	Undergraduate (Completed)	Supervised 2004	Cloning and tagging of human Redox Factor-1 (REF-1)	Singvax Pte. Ltd., Singapore
Tarek Abd El Halim (b)	Undergraduate (Completed)	Supervised 2004	Role of glutathione reductase in hypoxia survival	M.D./Ph.D. program, University of Toronto
Vanessa Abd El Halim (b)	Undergraduate (Completed)	Supervised 2004	Determination of intracellular ROS using dichlorofluorescein	M.D. program, University of Ottawa
Dawn Jurgens (b)	Undergraduate (Completed)	Supervised 2003 - 2004	Gamma-glutamyltranspeptidase function under hypoxia	M.Sc., Biochemistry, Microbiology & Immunology, University of Ottawa
Sandra Mortimer (b)	Undergraduate (Completed)	Supervised 2003 - 2004	Function of Antioxidant Response Element (ARE) under hypoxia	Iogen Corporation, Ottawa
Sharon Husak (b)	Undergraduate (Completed)	Supervised 2003 - 2004	Role of hypoxia in APP expression and Alzheimer's disease	Ph.D., Chemistry, University of Toronto
Jason O'Brien	Undergraduate (Completed)	Co-supervised 2003 - 2004	Dioxin-responsive gene expression in chicken embryos	M.Sc., Biology, University of Ottawa
Christina Kavanagh	Undergraduate (Completed)	Supervised 2003 - 2004	Role of peroxiredoxins in cellular survival of hypoxia	Unknown
Christopher Jackson (b)	Undergraduate (Completed)	Supervised 2003	Cloning and tagging of human protein disulfide isomerase	Nelson Education, Toronto
Jason McEwan	Undergraduate (Completed)	Supervised 2002 - 2003	Hypoxia-inducible carbonic anhydrases in rainbow trout	M.Sc., Business, University of Ottawa
Justin Soriano	Undergraduate (Completed)	Supervised 2002 - 2003	Role of glutaredoxin in cellular survival of hypoxia	Syn-X Pharma, Toronto
Mathew Hendry	Undergraduate (Completed)	Supervised 2002 - 2003	Cloning and tagging of human glutathione reductase	Biosense Webster (Johnson & Johnson), Ontario Heart Institute, Ottawa
Mitra Tabatabaie Azad (b)	Undergraduate (In Progress)	Supervised 2002 - 2003	Glutathione status in hypoxic mammalian cell lines	Unknown
Amira Sultan (b)	Undergraduate (Completed)	Supervised 2003	Lipid peroxidation under low oxygen conditions	M.Sc., Pharmaceutical Sciences, University of Toronto
Suufi Rirash	Undergraduate (Completed)	Supervised 2003	Role of glutathione peroxidase in cell survival of hypoxia	St. Lawrence River Institute of Environmental Sciences, Cornwall
Farin Hassam	Undergraduate (Completed)	Supervised 2002 - 2003	Glutathione status of K562 cells exposed to hypoxia	Health Law Institute, University of Alberta
Hiree Abdi	Undergraduate (Completed)	Supervised 2002	Glutathione reductase function in hypoxic COS7 cells	B.Sc., Commerce, University of Toronto
Sherif Elsaraj	Undergraduate (Completed)	Supervised 2002 - 2003	Role of superoxide dismutase in cellular survival of hypoxia	Dentist, The Hope Dental Care Centre, Kanata

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Summary Table of Highly Qualified Personnel (HQP) In Past 6 Years

Training of HQP

Number of students, fellows and other research personnel that I:

	Currently		Over the past six years (excluding the current HQP)		
	Supervise	**Co-supervise**	**Supervised**	**Co-supervised**	**Total**
Undergraduate	4	0	17	4	**25**
Master's	0	0	5	5	**10**
Doctoral	1	4	1	4	**10**
Postdoctoral	0	0	0	1	**1**
Others (Technicians, Exchange Students, High School Students)	0	0	1	0	**1**
Total	**5**	**4**	**24**	**14**	**46**

Summary Table of Highly Qualified Personnel (HQP) Lifetime

Training of HQP

Number of students, fellows and other research personnel that I:

	Total (Career)		Total
	Supervised	**Co-supervised**	
Undergraduate	71	15	**86**
Master's	17	17	**34**
Doctoral	3	11	**14**
Postdoctoral	0	5	**5**
Technicians	2	0	**2**
Exchange Students	1	0	**1**
High School Students	3	0	**3**
Total	**97**	**48**	**145**