

Curriculum vitae of **Jamie William Joseph**

Assistant Professor, CIHR New Investigator
School of Pharmacy
University of Waterloo

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Education

August 2004 – July 2007 **CIHR Postdoctorate Fellow**

- Supervisor: Dr. C. Newgard, Dept. of Pharmacology, Duke University
- Title of project: The role of pyruvate cycling in glucose-stimulated insulin secretion.

Sept. 1999 – July 2004 **Doctorate of Philosophy**

- Supervisor: Dr. M. Wheeler, Dept. of Physiology, University of Toronto
- Title of thesis: Characterization of pancreatic β -cell function in UCP-2 knockout mice.

Sept. 1997 – Aug. 1999 **Masters of Science**

- Supervisor: Dr. P. Brubaker, Dept. of Physiology, University of Toronto
- Title of thesis: Design of an oral GLP-1 delivery system for the treatment of type II diabetes.

Sept. 1992 – Aug. 1997 **Honours Bachelor of Science degree in Physiology**

- Supervisor: Dr. S. Sims, Dept. of Physiology, Univ. of Western Ontario
- Title of thesis: Regulation of Ca^{2+} -Dependent K^+ Channels in Human smooth muscle cells.

Experience

University of Waterloo

Assistant Professor, CIHR New Investigator
School of Pharmacy; University of Waterloo

200 University Avenue West; Waterloo, Ontario, N2L 3G1, Canada

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Laboratory focus: 1) The role of novel metabolic pathways in the regulation of insulin release.

2) Novel gene delivery technologies for the treatment of diabetes.

August 2007 – Present

Duke University

Supervisor: Dr. C. Newgard (Department of Pharmacology and Cancer Biology)

Director of the Sarah W. Stedman Nutrition and Metabolism Center

W. David and Sarah W. Stedman Distinguished Professor, Duke University Medical Center, 4321 Medical Park Drive, Suite 200, Durham, NC 27704

Office phone: 919-668-6059, Business Officer (Terri Milich; email: milic002@mc.duke.edu): 919-479-2313, FAX: 919-477-0632, e-mail: Newga002@mc.duke.edu

Study: The role of pyruvate cycling in glucose-stimulated insulin secretion.

Position: CIHR Postdoctorate Fellow

Key techniques: Islet perfusion; perfused pancreas; adenovirus production (siRNA and overexpression); Real-time PCR; molecular biology; western blotting; determination of the ATP/ADP ratio in isolated islets and INS1 cells; metabolomics of organic acids and acyl CoA; enzymatic assays; mitochondrial metabolite transport; glucose oxidation and utilization; thin layer chromatography (lipids), proteomics, *in vivo* microbubble targeted gene delivery in rats.

August 2004 – July 2007

Marine Biological Laboratory

February 2003 and July 2003

Supervisor: Dr. Peter J.S. Smith

Senior Scientist, Marine Biological Laboratory & Director, BioCurrents Research Center (NIH:NCRR),

7 MBL Street, Woods Hole, MA 02543

(508)-289-7241; (508)-289-7265; Fax (508)-540-6902

email psmith@mbl.edu; www.mbl.edu/BioCurrents

Study: Electrical coordination between distinct sites in the pancreas coincides with pulsatile insulin secretion in mice.

Position: Invited researcher

Key Techniques: Single-cell oxygen microelectrode training. Collaboration on combined perfused mouse pancreas and measuring electrical activity from distinct sites in the pancreas. Other training includes the use of an oxygen-sensitive microelectrode system for the detection of single-cell oxygen consumption. This system can also detect ionic flux, reactive oxygen species, glucose utilization, nitric oxide at the single cell level in real time.

University of Toronto

Sept. 1999 – July 2004

Supervisor: Dr. M. Wheeler (Department of Physiology)

Medical Science building Rm 3352, Toronto, Ontario, M5S 1A8; (416)-978-6737;

michael.wheeler@utoronto.ca

Study: Characterization of pancreatic β -cell function in UCP-2 knockout mice.

Position: CIHR Ph.D. Student

Key Techniques: Real-time PCR; genotyping and colony maintenance of knockout mice (UCP2 (-/-) mice) and transgenic mice (muscle-specific mutant human IGF1 receptor, CD36 overexpression mice); *in vivo* experimentation including OGTT, IPGTT (with plasma sampling for insulin), ITT; constructed and calibrated a perfused mouse pancreas set-up; rat and mouse islet isolation and dispersion; molecular biology including northern, southern and western blotting, RNA isolation and RT-PCR, cloning and adenovirus' production; imaging including cytosolic Ca^{2+} (fura-2, fluo-4) and mitochondrial membrane potential determination (Rh123, JC-1, TMRE); islet single cell oxygen consumption measurements; determination of the ATP/ADP ratio in isolated islets; immunocytochemistry and immunohistochemistry (β -cell proliferation, apoptosis and β -cell mass); laser scanning confocal microscopy (live and fixed cells/ tissues).

University of Toronto

Sept. 1997 - Aug. 1999

Supervisor: Dr. P. Brubaker (Department of Physiology)

Medical Science building Rm 3366, Toronto, Ontario, M5S 1A8; (416)-978-2593; p.brubaker@utoronto.ca

Study: Design of an oral GLP-1 delivery system for the treatment of type II diabetes.

Position: Master's Student.

Key Techniques: Radioimmunoassays (RIA); animal handling (eg *sc* and *ip* injections and oral gavage) and various animal surgeries (e.g. cannulation of the carotid artery, portal vein & jugular artery in rats; set-up a perfused pancreas model in mice); Transmission electron microscopy (TEM); cryogenic tissue slicing; fluorescent confocal light microscopy; drug encapsulation into microspheres; high performance liquid chromatography (HPLC).

Defense and Civil Institute of

June 96 - Aug. 1996

Environmental Medicine (DCIEM)

Supervisor: Dr. Bob Cheung (Department of Aerospace Life Support)

1133 Sheppard Ave. W. P.O. Box 2000, North York, Ontario; M3M 3B9; (416)-635-2053 (Ext. 2053)

Study: Effects of sustained acceleration on human vestibulo-oculomotor responses.

Techniques: Preparing subjects for centrifugation, data acquisition, data analysis, eye movement analysis using real-time EL-MAR eyetracking and pupillometry system, and technical support.

University of Western Ontario

Sep. 95 - Apr. 1996; Sep. 94 - Apr. 1995

Supervisor: Dr. Stephen M. Sims (Department of Physiology)

Dental Science Building, Rm 2025, London, Ontario, N6A 5C1; (519)-661-3768

Study: Regulation of Ca^{2+} -Dependent K^+ Channels in Human smooth muscle cells.

Esophageal Smooth Muscle Cells (4th year project, 1995-1996).

Techniques: Patch-clamping (cell-attached, whole cell, nystatin perforated patch clamping); computer based video analysis system for cell movement; computer image analysis software and plotting software.

University of Western Ontario

May 95 - July 1995; Sept. 92 - Apr. 1993

Supervisor: Dr. Tim Zacharewski (Dept. of Pharmacology and Toxicology)
Medical Science Building, Rm 216, London, Ontario, N6A 5C1; (519)-661-4026

Received: The PMAC-HRF/MRC Summer Research Scholarship in Medicine

Study: Development of a quantitative RT-PCR internal standard to assess murine Cytochrome P450-1A1 levels using site directed mutagenesis.

Techniques: Reverse transcription-PCR (RT-PCR) and quantitative RT-PCR; restriction enzyme digest of DNA fragments; RNA isolation; vector manipulation (gene insertion and deletion); cell transfections; PCR Amplification of cDNA and mRNA fragments; single and double stranded DNA sequencing (using S-35 & P-32); oligonucleotide site directed mutagenesis; luciferase assay.

McMaster University Medical Centre

Jan. 90 - June 90; June 93 - Aug. 93

Supervisor: Dr. Singal (Department of Immunology)
Hamilton, Ontario, L8N 3Z5; (905)-521-2100 Ext. 6267

Techniques: DNA Isolation; preparation of solutions; PCR; dot blot hybridization (using P-32); HLA DR, DQ typing of patients.

Teaching

University of Waterloo

January 2009 - current

Course: Pharm 110 - A systems approach to the study of the human body part 1

Course: Pharm 111 - A systems approach to the study of the human body part 2

Coordinator: Dr. Jamie Joseph

Description: This course was conceived by myself and developed with the help of Marissa Cunningham. This newly developed course integrating physiology, anatomy and histology in a lecture/ lab based course designed specifically for first year Pharmacy students. Pharmacy's Anatomy, Physiology and Histology course (Pharm 110 and 111) will cover all the major human body systems. The major themes are the relationships between structure and function and homeostasis of the cellular environment. A systems based approach will be used. The lectures and laboratory exercises are essential components to the understanding of the structure and function of the human body. During the anatomy labs students will examine anatomical models, human cadaveric materials and histology slides. During the physiology laboratories students will investigate common physiological processes. In addition to the anatomy and physiology labs we also offer three histology labs focusing on histological techniques and tissue identification.

University of Toronto

January 2003 - April 2003

Course: THE500H Teaching in Higher Education

Instructor: Dr. Susan McCahan, (Department of Mechanical and Industrial Engineering)

Description: Course for Ph.D. students interested in teaching careers in higher education. Course focus' on developing effective teaching methods at the university level, and provides information on current research and effective strategies in teaching.

University of Toronto

Sept. 1998 - January 2004

Supervisor: Dr. C. Perumalla (Department of Physiology), c.perumalla@utoronto.ca

Medical Science building Rm 3217, Toronto, Ontario, M5S 1A8; (416)-978-7760

Duties: Senior Teaching Assistant (TA) for physiology (PSL 200Y, Active Learning Component). Taught Pharmacy, Radiation science and 3rd year physiology students (PSL 372).

Responsibilities: Supervision of new TA's, writing TA manual for PSL 200Y (to be published in 2003), marking laboratory reports, writing exams, marking, exam invigilation, active learning component instructor, wrote TA trainee manual. Note: active learning component refers to the laboratory component to the physiology course.

University of Toronto

March 1999 – May 2004

Supervisors: Dr. Steve G. Matthews (Department of Physiology, March 1999-2003), Medical Science building Rm 3240B, Toronto, Ontario, M5S 1A8; (416)-978-1974, stephen.matthews@utoronto.ca.

Dr Roy Baker (March 2004) Co-Director MNU, Department of Biochemistry, Undergraduate Coordinator, 416-978-6921, Fax: 416-978-8548, roy.baker@utoronto.ca.

Duties: Teaching assistant for the Metabolism and Nutrition course given to first year medical students.

Responsibilities: Invigilation and marking hand written exam component.

Competitive Awards obtained

1. **Canadian Institutes of Health Research New Investigator Award** (April 2008-2013; Salary award, \$60,000/yr)
2. **Merck Frosst Biology Research Day abstract competition winner** (Oct. 27 2006; travel expenses to Montreal to give an oral presentation of my work)
3. **Top Poster at the Annual Pharmacology and Cancer Biology Retreat** (Sept. 2006; \$50; 1st prize).
4. **Canadian Institutes of Health Research Fellowship Award** (\$45,000+5,000 per year, August 2004-2007). **Description:** Prestigious award given to Canadian postdoctorate fellows.
5. **Third Prize at the Banting & Best Diabetes Centre/Toronto Diabetes Day Abstract Competition** (\$200; May 2004).
6. **Banting & Best Diabetes Centre Trainee Travel Award** (\$1000; Oct. 2003).
7. **Third Prize at the Banting & Best Diabetes Centre/Toronto Diabetes Day Abstract Competition** (\$75; May 2003).
8. **Canadian Institutes of Health Research Doctoral Research Award** (\$19,030 per year, Sept. 2001-2004). **Description:** Prestigious award given to only about 200 PhD students across all disciplines.
9. **Banting & Best Diabetes Centre Trainee Travel Award** (\$1000; Oct. 2002).
10. **American Diabetes Association and Research Symposium on Islet Biology travel grant** (\$800, Oct. 2002)
11. **Banting and Best Diabetes Centre- Novo Nordisk Scholarship** (\$20,000; Sept. 2001)
12. **Banting & Best Diabetes Centre Trainee Travel Award** (\$750; Oct. 2001)
13. **Ontario Graduate Scholarship** (\$15,000, Sept. 2001).
14. **Second Prize at the Banting & Best Diabetes Centre/Toronto Diabetes Day Abstract Competition** (\$100; May 2001).
15. **Ontario Graduate Scholarship** (\$11,500, Sept. 2000)
16. **Banting and Best Diabetes Centre- Novo Nordisk Scholarship** (\$17,000; Sept. 2000)
17. **Honorable Mention at the Banting & Best Diabetes Centre/Toronto Diabetes Day Abstract Competition** (\$50; May 2000)
18. **University of Toronto Open Student Scholarship** (\$17,000; Sept. 1999)
19. **Ontario Graduate Scholarships in Science and Technology** (\$10,000; Sept. 1998)
20. **Second Prize at the Banting & Best Diabetes Centre/Toronto Diabetes Day Abstract Competition** (\$150; May 1999)
21. **Banting and Best Diabetes Centre- Novo Nordisk Scholarship** (\$15,000; Sept. 1999)
22. **BBDC Trainee Travel Award** (\$500; April 1999)
23. **University of Toronto Open Student Scholarship** (\$10,000; Sept. 1998)
24. **Banting and Best Diabetes Centre- Novo Nordisk Scholarship** (\$10,000; Sept. 1998)
25. **Banting and Best Diabetes Centre- Novo Nordisk Scholarship** (\$10,000; Sept. 1997)
26. **The Federal Government of Canada's Summer Studentship** (\$5,600; Summer '96)
27. **The PMAC-HRF/MRC Summer Research Scholarship in Medicine** (\$3,600; Summer '95)
28. **Youth Appreciation Week Citation for Volunteering from the Hamilton Optimist Club** (1991)
29. **Computer Studies Award for Computer analysis** (Sept. 90)
30. **Scott Park Award of Excellence** (Sept. 90)

Patents

Joseph J.W., P. L. Brubaker (1998). An Oral Delivery System for Therapeutic Peptides. *U.S. Patent* (discontinued).

Manuscripts

1. Jensen M.V., **J.W. Joseph**, S.M. Ronnebaum, S.C. Burgess, A.D. Sherry, C.B. Newgard (2008). Metabolic Cycling in Control of Glucose-stimulated Insulin Secretion. *Am J Physiol Endocrinol Metab.* Aug 26. [Epub ahead of print]. Percent Contributions: **25% of the work.**
2. Ronnebaum S.M., **J.W. Joseph**, O. Ilkayeva, S.C. Burgess, D. Lu, T.C. Becker, A.D. Sherry, C.B. Newgard (2008). Chronic suppression of acetyl CoA carboxylase 1 in β -cells impairs insulin secretion via

inhibition of glucose rather than lipid metabolism. *Journal of Biological Chemistry* 283(21):14248-56. Percent Contributions: **25% of the work.**

3. Kimple M.E., **J.W. Joseph**, C.L. Bailey, P.T. Fueger, I.A. Hendry, C.B. Newgard, P.J. Casey (2008). $G\alpha_z$ negatively regulates insulin secretion and glucose clearance. *Journal of Biological Chemistry* 283(8) 4560-4567. Percent Contributions: **20% of the work.**
4. **Joseph J.W.**, M.L. Odegaard, S.M. Ronnebaum, S.C. Burgess, J. Muehlbauer, A.D. Sherry, C.B. Newgard (2007). Normal Flux through ATP-citrate lyase or fatty acid synthase is not required for glucose-stimulated insulin secretion. *Journal of Biological Chemistry* 282(43):31592-31600. Percent Contributions: **90% of the work.**
5. **Joseph J.W.**, M.V. Jensen, O. Ilkayeva, F. Palmieri, C. Alarcon, C.J. Rhodes, C.B. Newgard (2006). The mitochondrial citrate/isocitrate carrier plays a regulatory role in glucose-stimulated insulin secretion. *Journal Biological Chemistry* 281(47):35624-32. Percent Contributions: **85% of the work.**
6. Ronnebaum S., O. Ilkayeva, S.C. Burgess, **J.W. Joseph**, D. Lu, R.E. Stevens, T.C. Becker, A.D. Sherry, C.B. Newgard, and M.V. Jensen (2006). A pyruvate cycling pathway involving cytosolic NADP-dependent isocitrate dehydrogenase and NADPH production regulates glucose-stimulated insulin secretion. *Journal of Biological Chemistry* 281(41): 30593–30602. Percent contributions: **15% of the work.**
7. Jensen M.V., **J.W. Joseph**, S. Burgess, O. Ilkayeva, S. Ronnebaum, D. Lu, M. Odegaard, T.C. Becker, A.D. Sherry, C.B. Newgard (2006). Compensatory Responses to Pyruvate Carboxylase Suppression in Islet β -cells: Preservation of Glucose-Stimulated Insulin Secretion. *Journal of Biological Chemistry* 281(31): 22342-22351. Percent Contributions: **20% of the work.**
8. McQuaid T.S., M.C. Saleh, **J.W. Joseph**, A. Gyulhandanyan, J.E. Manning-Fox, J.D. Maclellan, M.B. Wheeler, C.B. Chan (2006) cAMP-mediated signaling normalizes glucose-stimulated insulin secretion in uncoupling protein-2 overexpressing β -cells. *Journal of Endocrinology* 190(3):669-80. Percent Contributions: **20% of the work.**
9. MacDonald P.E., **J.W. Joseph**, P. Rorsman (2005) Mechanisms mediating distal glucose-sensing in pancreatic β -cells. *Philos. Trans. R. Soc. Lond B Biol Sci.* 360(1464):2211-25. Percent Contributions: **15% of the work.**
10. **Joseph, J.W.**, C.B. Chan, M.B. Wheeler (2005) UCP2 knockout mouse islets have lower oxygen consumption and faster oscillations in oxygen consumption. *Canadian Journal of Diabetes* 29(1):19-26. Percent contributions: **95% of the work.**
11. **Joseph, J.W.**, V. Koshkin, M.C. Saleh, W.I. Sivitz, C.Y. Zhang, B.B. Lowell, C.B. Chan, M.B. Wheeler (2004) Free fatty acid-induced β -cell defects are dependent on uncoupling protein 2 expression. *Journal of Biological Chemistry* 279(49):51049-56. Percent contributions: **90% of the work.**
12. Héron-Milhavet L., Haluzik M., Ibrahim A., Yakar S., Kim D., Gavrilova O., Pack S., Jou W.C., Ibrahim A., Kim H., Hunt D., Yau D., Asghar Z., **Joseph J.W.**, Wheeler M.B., Abumrad N.A., LeRoith D. (2004) Muscle-specific overexpression of CD36 reverses the insulin resistance and diabetes of MKR mice. *Endocrinology* 145(10):4667-4676. Percent contributions: **5% of the work.**
13. MacDonald P.E., **J.W. Joseph**, Patel M., Yau D., Asghar Z., Oudit G.Y., Backx P., M.B. Wheeler (2004) Defective glucose-stimulated insulin secretion in mice lacking the G-protein regulated p110g isoform of phosphoinositide 3-kinase. *Endocrinology* 145:4078-4083. Percent contributions: **25% of the work.**
14. Kim, H., M. Haluzik, Z. Asghar, D. Yau, **J.W. Joseph**, A.M. Fernandez, M.L. Reitman, S. Yakar, B. Stannard, L. Heroin, M.B. Wheeler, D. LeRoith (2003) Peroxisome proliferator-activated receptor α (PPAR α) agonist treatment of MKR mice with type 2 diabetes reverses the lipotoxic state and improves glucose homeostasis. *Diabetes* 52:1770–1778. Percent contributions: **10% of the work.**

15. Kang, G., **J.W. Joseph**, O.G. Chepurny, M. Monaco, M.B. Wheeler, J.L. Bos, H Schwebe, H-G Genieser and G.G. Holz (2003) Epac-Selective cAMP analog 8-pCPT-2'-O-Me-cAMP as a stimulus for Ca²⁺-induced Ca²⁺ release and exocytosis in pancreatic β -Cells. *Journal of Biological Chemistry* 278(10):8279-8285. Percent contributions: **30% of the work.**
16. **Joseph, J.W.**, V. Koshkin, C.B. Chan, C-Y. Zhang, B.B. Lowell, M.B. Wheeler (2002) UCP2 negatively regulates both insulin secretion and pancreatic β -cell compensation to a high fat diet. *Diabetes* 51(11):3211-9. Percent contributions: **95% of the work.**
17. MacDonald, P.E., S. Sewing, J. Wang, **J.W. Joseph**, S.R. Smukler, J. Wang, M.C. Saleh, C.B. Chan, A.M.F. Salapatek, R.G. Tsushima, M.B. Wheeler (2002) Inhibition of Kv2.1 voltage-dependent K⁺ channels in pancreatic β -cells enhances glucose-dependent insulin secretion. *Journal of Biological Chemistry* 277(47):44938-45. Percent contributions: **15% of the work.**
18. Chan, C.B., De Leo, D., **J.W. Joseph**, T.S. McQuaid, X.F. Xu, R.G. Tsushima, P.S. Pennefather, A.M. Salapatek, M.B. Wheeler (2001) Increased Uncoupling protein-2 levels in β -cells are associated with impaired glucose-stimulated insulin secretion: Mechanism of action. *Diabetes*, 50(6):1302-10. Percent contributions: **25% of the work.**
19. **Joseph, J.W.**, Chan, C.B., Wheeler, M.B. (2001) β -cell Stimulus-Secretion Coupling and a Role for Uncoupling Protein 2. *Canadian Journal of Diabetes*, 24(8). Percent contributions: **95% of the work.**
20. **Joseph, J.W.**, J. Giguere, S. St.-Pierre, P. L. Brubaker (2000) Oral Delivery of a Glucagon-like peptide-1 in a modified polymer preparation normalizes basal glycemia in diabetic *db/db* mice. *Diabetologia*, 43(10):1319-28. Percent contributions: **90% of the work.**

Papers in Progress

21. Odegaard M.L., S.C. Burgess, O. Ilkaveva, D. Lu, M. Odegaard, A.D. Sherry, C.B. Newgard, **J.W. Joseph** (2009). The role of the α -ketoglutarate carrier (OGC) in glucose stimulated insulin release. *Manuscript in preparation for the Journal of Biological Chemistry*. Percent Contributions: **40% of the work.**
22. Tanya Sheinin, Stephanie Schaefer, M. Odegaard, S.M. Ronnebaum, Christopher B. Newgard, **J.W. Joseph** (2009). Malate transport by the mitochondrial dicarboxylate carrier (DIC) plays a regulatory role in glucose-stimulated insulin secretion. *Manuscript in preparation for the Journal of Biological Chemistry*. Percent Contributions: **70% of the work.**
23. Fueger P.T., **Joseph J.W.**, H.E. Hohmeier, C.B. Newgard (2009). Histone Deacetylase Inhibition Protects β -Cells from Inflammatory Cytokine-Induced Cytotoxicity. *Manuscript submitted to the Journal of Biological Chemistry*. Percent Contributions: **15% of the work.**
24. Jensen M.V., **J.W. Joseph**, S.C. Burgess, O. Ilkaveva, S. Ronnebaum, D. Lu, M. Odegaard, T.C. Becker, A.D. Sherry, C.B. Newgard (2009). Manipulation of glycerol kinase levels in pancreatic β -cells and its involvement in glucose-stimulated insulin secretion. *Manuscript in preparation for the Journal of Biological Chemistry*. Percent Contributions: **20% of the work.**

Abstracts

1. Fueger P.T., S.M. Ronnebaum, **J.W. Joseph**, D. Lu, H.E. Hohmeier, C.B. Newgard (2008). Role of histone deacetylases in β -cell survival and function. *Keystone: Islet and β -cell Biology/ cell development and transplantation*. Snowbird, Utah, Abstract 135.
2. M.L. Odegaard, **J.W. Joseph**, S.M. Ronnebaum, M.V. Jensen, O. Ilkayeva, C.B. Newgard (2008). Transport through the α -ketoglutarate/2-oxoglutarate carrier is necessary for glucose- and glutamine-stimulated insulin release. *Keystone: Islet and β -cell Biology/ cell development and transplantation*. Snowbird, Utah, Abstract 250.

3. Ronnebaum S.M., **J.W. Joseph**, O. Ilkayeva, S.C. Burgess, D. Lu, T.C. Becker, A.D. Sherry, C.B. Newgard (2008). ACC1 impairs mitochondrial glucose oxidation and glucose-stimulated insulin secretion. *Keystone: Islet and β -cell Biology/ cell development and transplantation*. Snowbird, Utah, Abstract 306.
4. Ronnebaum S.M., **J.W. Joseph**, O. Ilkayeva, S.C. Burgess, D. Lu, T.C. Becker, C.B. Newgard (2007). Suppression of acetyl CoA carboxylase 1 expression in β -cells impairs mitochondrial glucose oxidation and glucose-stimulated insulin secretion. *Pharmacology and Cancer Biology Retreat*, Wrightsville Beach, NC, Abstract 5.
5. Doughty D., **J.W. Joseph**, J. Zhang, D. Pagliarini, J. Dixon, P. Casey (2007). Identification and initial characterization of an inhibitor of the mitochondrial phosphatase PTPMT1. *Pharmacology and Cancer Biology Retreat*, Wrightsville Beach, NC, Abstract 87.
6. Odegaard M., **J.W. Joseph**, S.M. Ronnebaum, M.V. Jensen, O. Ilkayeva, C.B. Newgard (2007). The mitochondrial 2-oxoglutarate carrier plays an important role in glucose- and amino acid-stimulated insulin secretion. *Pharmacology and Cancer Biology Retreat*, Wrightsville Beach, NC, Abstract 95.
7. **Joseph J.W.**, S.M. Ronnebaum, M. Odegaard, Christopher B. Newgard (2007). The mitochondrial dicarboxylate carrier (DIC) plays a regulatory role in glucose-stimulated insulin secretion. *American Diabetes Association*, Chicago, Abstract P-1748.
8. Odegaard M., **J.W. Joseph**, S.M. Ronnebaum, M.V. Jensen, O. Ilkayeva, C.B. Newgard (2007). The Mitochondrial 2-oxoglutarate Carrier Plays an Important Role in Glucose- and Amino Acid-Stimulated Insulin Secretion. *American Diabetes Association*, Chicago, Abstract P-1750.
9. Ronnebaum S.M., **J.W. Joseph**, O. Ilkayeva, D. Lu, T.C. Becker, Christopher B. Newgard (2007). Suppression of Acetyl CoA Carboxylase I Expression in Beta-Cells Impairs Mitochondrial Glucose Oxidation and Glucose-stimulated Insulin Secretion. *American Diabetes Association*, Chicago, Abstract P-1742.
10. **Joseph J.W.**, M.V. Jensen, J. Muehlbauer, C.B. Newgard (2006). Evidence against the involvement of ATP-Citrate Lyase in glucose-stimulated insulin secretion. *American Diabetes Association*, Washington DC, Abstract P-1623.
11. Ronnebaum S.M., M.V. Jensen, **J.W. Joseph**, J.C. Schisler, D. Lu, T.C. Becker, C.B. Newgard (2006). Cytosolic NADP-Dependent Malic Enzyme Regulates Glucose-Stimulated Insulin Secretion in INS-1-Derived 832/13 Cells, but Not Isolated Rat Islets: Potential Role of the Mitochondrial Malate Carrier. *American Diabetes Association*, Washington DC, Abstract P-1630.
12. Becker T.C., H.E. Hohmeier, M.V. Jensen **J.W. Joseph** (2006). The citrate transporter and glucose-stimulated insulin secretion. *Keystone: Understanding Islet Biology (X1)*, Taos, New Mexico, Abstract 106.
13. Jensen M.V., **J.W. Joseph**, O. Ilkayeva, S. Burgess, S. Ronnebaum, D. Lu, M. Odegaard, T.C. Becker, D. Sherry, C.B. Newgard (2006). The citrate transporter and glucose-stimulated insulin secretion. *Keystone: Understanding Islet Biology (X1)*, Taos, New Mexico, Abstract 208.
14. **Joseph J.W.**, M. Jensen, O. Ilkayeva, C.B. Newgard (2006). The citrate transporter and glucose-stimulated insulin secretion. *Keystone: Understanding Islet Biology (X1)*, Taos, New Mexico, Abstract 210.
15. **Joseph J.W.**, J.J. Collier, P.T. Fueger, C.B. Newgard (2005). The mitochondrial citrate carrier plays a key role in glucose-stimulated insulin secretion. *American Diabetes Association*, San Diego, California, Abstract 173-OR.
16. Fueger P.T., J.J. Collier, **Joseph J.W.**, H.E. Hohmeier, C.B. Newgard (2005). Histone Deacetylase Inhibition Protects β -Cells from Inflammatory Cytokine-Induced Cytotoxicity. *American Diabetes Association*, San Diego, California, Abstract 1757-P.
17. Collier J.J., P.T. Fueger, **Joseph J.W.**, H.E. Hohmeier, C.B. Newgard (2005). Stat5b and Dexamethasone Protect Rat Insulinoma Cells From Cytokine-mediated Cytotoxicity via Divergent Mechanisms. *American Diabetes Association*, San Diego, California, Abstract 1762-P.

18. **Joseph J.W.**, C.B. Chan, M.B. Wheeler (2004). The Lack of Uncoupling Protein-2 Prevents the Effects of Free Fatty Acids on the Pancreatic β -Cell. *American Diabetes Association*, Orlando, Florida, *Diabetes* 53[supp 2], Abstract 1666-P.
19. **Joseph J.W.**, C.B. Chan, M.B. Wheeler (2004). Uncoupling Protein-2 Knockout Mouse Islets Have Lower β -Cell Glucose-Stimulated Oxygen Consumption. *American Diabetes Association*, Orlando, Florida, *Diabetes* 53[supp 2], Abstract 1665-P.
20. MacDonald P.E., **J.W. Joseph**, Backx P., M.B. Wheeler (2003) p110 gamma knockout mice have blunted first phase insulin secretion and abnormal islet physiology. *American Diabetes Association*, Orlando, Florida, *Diabetes* 53[supp 2], Abstract.
21. **Joseph J.W.**, C.B. Chan, M.B. Wheeler (2003). Uncoupling-Protein-2 Knockout Mice Have Enhanced Glucose-Stimulated Insulin Secretion and Proliferation after a High Fat Diet. *American Diabetes Association*, New Orleans, Louisiana, *Diabetes* 52[supp 2], Abstract OR-14.
22. Kang G., **J.W. Joseph**, M.B. Wheeler, G.G. Holz (2003). Signal Transduction Properties of cAMPGEFs Revealed by Use of Epac-Selective cAMP Analog 8-pCPT-2-O-Me-Camp. *American Diabetes Association*, New Orleans, Louisiana, *Diabetes* 52[supp 2], Abstract OR-16.
23. Heron-Milhavet L., M. Haluzik, A. Ibrahim, S. Yakar, H. Kim, D. Yau, Z. Asghar, **J.W. Joseph**, M.B. Wheeler, N.A. Abumrad, D. LeRoith (2003). Muscle-Specific Overexpression of CD36 Reverses the Insulin Resistance and Diabetes of MKR Mice. *American Diabetes Association*, New Orleans, Louisiana, *Diabetes* 52[supp 2], Abstract 1354-P.
24. Yau D., Z. Asghar, **J.W. Joseph**, H. Kim, D. Le Roith, M.B. Wheeler (2003). Fibrate-induced amelioration of islet abnormalities in a transgenic model of type 2 diabetes. *Endocrinology Society 85th Annual Meeting*, Philadelphia, Abstract OR12-4
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28. Chan, C.B., **J.W. Joseph**, M.B. Wheeler (2002) Pancreatic β -Cell Adaptations to High FFA in UCP2 Knockout Mice. *Canadian Physiological Society*, Vernon, BC.
29. **Joseph, J.W.**, C.B. Chan, M.B. Wheeler (2001) Effects of high fat diet on insulin secretion and glucose tolerance in UCP2 knockout mice. *North American Association for the Study of Obesity (NAASO)*, Quebec City, Abstract 049.
30. **Joseph, J.W.**, G. Holz, C. Chan, M.B. Wheeler (2001) Uncoupling protein 2 is a negative regulator of pancreatic β -cell function. *Annual Meeting for the Banting and Best Diabetes Centre*.
31. Chan, C.B., De-Leo, D., **J.W. Joseph**, T.S. McQuaid, M. Saleh, F. Xu, P. Pennefather, A.M. Salapatek, M.B. Wheeler (2001) UCP2 Regulates Insulin Secretion in β -cells. *American Diabetes Association Philadelphia*, Abstract 209-OR.
32. Chan, C.B., T. McQuaid, **J.W. Joseph**, M.B. Wheeler (2001) Evidence for Compartmentalization of ATP in β -cells Unveiled by UCP-2 Over-Expression. *Canadian Diabetes Association Professional Conference Annual Meeting*, Abstract #101D, 2001.

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34. **Joseph J.W.**, M.B. Wheeler (2000) UCP2 is a negative regulator of insulin secretion. *Annual Meeting for the Banting and Best Diabetes Centre*.
35. Zhang, C-Y., De-Leo, D., **J.W. Joseph**, O. Boss, T. Hagen, D. Grujic, A. J. Vidal-Puig, C. B. Chan, M. B. Wheeler (2000) Uncoupling Protein 2 Negatively Regulates Insulin Secretion. *Endocrinology Society 82nd Annual Meeting, Toronto, ON*, Abstract #274.
36. **Joseph J.W.**, J. Giguere, S. St.-Pierre, P. L. Brubaker (1999) Oral Delivery of a GLP-1 Analog Lowers Basal and Fed Glycemia in a Mouse Model of Type II Diabetes. *American Diabetes Association*, Abstract.
37. **Joseph J.W.**, P. L. Brubaker (1999) An Oral Glucagon-Like Peptide-1 Preparation is Effective at Treating a Mouse Model of Type II Diabetes Over a 10 hour Period. *Annual Meeting for the Banting and Best Diabetes Centre*.
38. **Joseph J.W.**, J. Giguere, S. St.-Pierre, P. L. Brubaker (1998) Oral Delivery of Therapeutic Peptides for the Treatment of Type II Diabetes. *Canadian Diabetes Association Professional Conference Annual Meeting*, Abstract #101A, 1998.
39. **Joseph J.W.**, P. L. Brubaker (1998) Development of an Oral Delivery System for the Treatment of Non-Insulin Dependent Diabetes Mellitus (NIDDM). *Annual Meeting for the Banting and Best Diabetes Centre*.
40. Jeng W., I. Chernenko, J. Giguere, S. St.-Pierre, **J.W. Joseph**, M.B. Wheeler, P.L. Brubaker (1998) Biological Activities of Modified GLP-1. *Endocrinology Society 80th Annual Meeting, New Orleans, LA*, Abstract #P2-98.
41. Cheung B., P. Sarkar, **J. W. Joseph** (1997) Degradation of visual pursuit during sustained +3Gz acceleration. *Aviation Space and Environ. Medicine* 68(7), 645.
42. Cheung B., H. C. Goltz, **J. W. Joseph** (1997) Changes in pupil size during +3Gz exposure. *Aviation Space and Environmental Medicine* 68(7), 645.

Oral Presentations - International

Joseph J.W. (2007) NADPH is a novel signaling molecule involved in the regulation of glucose-stimulated insulin release from pancreatic β -cells. University of Waterloo, Department of Biology, Waterloo, October.

Joseph J.W., C.B. Newgard (2007) NADPH is a novel signaling molecule for glucose-regulated insulin release from pancreatic β -cells. University of Ottawa, Ottawa, March.

Joseph J.W., C.B. Newgard (2007) NADPH and glucose-regulated insulin release from pancreatic β -cells. Merck Frosst, Montreal, February.

Joseph J.W., C.B. Newgard (2006) Novel pathways in the control of fuel-stimulated insulin release from pancreatic β -cells. University of Waterloo, Waterloo, December.

Joseph J.W., C.B. Newgard (2006) Pyruvate cycling, pyruvate isocitrate pathways and NADPH, a novel pathway for glucose-regulated insulin secretion. Merck Frosst, Montreal, October.

Joseph J.W., C.B. Newgard (2006) Pyruvate cycling and glucose-regulated insulin secretion. University of Edmonton, June.

Joseph J.W., C.B. Newgard (2006) Novel approaches for identifying novel pathways in the metabolic regulation of insulin secretion. McGill University, June.

Joseph J.W., C.B. Newgard (2006) Pyruvate cycling plays a key role in glucose-stimulated insulin secretion from pancreatic β -cells. York University, March.

Joseph J.W., C.B. Newgard (2006) A metabolomics and proteomics approach for identifying novel pathways in the metabolic regulation of insulin secretion. *IEEE 2006 International Conference of the Engineering in Medicine and Biology Society*. New York, NY.

Joseph J.W., J. Collier, P. Fueger, C.B. Newgard (2005) The mitochondrial citrate carrier plays a key role in glucose-stimulated insulin secretion. *American Diabetes Association*, San Diego, California, Abstract 173-OR.

Joseph J.W. (August 2003) The role of Uncoupling-Protein-2 in glucose-stimulated insulin secretion. *Invited Talk, Duke University, NC*.

Joseph J.W. (July 2003) Uncoupling-Protein-2 and the pancreatic β -cell. *Invited talk, Murine Biology Laboratories, Woods Hole, MA*.

Joseph J.W., C.B. Chan, M.B. Wheeler (June 2003) Uncoupling-Protein-2 Knockout mice have enhanced glucose-stimulated insulin secretion and proliferation after a high fat diet. *American Diabetes Association New Orleans, Louisiana*, Abstract OR-14.

Joseph J.W., C.B. Chan, M.B. Wheeler (October 2002) Enhanced secretory and proliferative capacity of UCP2 knockout mice after a high fat diet. *Research symposium on islet biology*, North Falmouth, MA.

Joseph J.W., M.B. Wheeler (March 2002) Does uncoupling protein-2 participate in the regulation of energy metabolism and ROS production. *2nd Annual Oxidative Stress Consortium*, University of Toronto.

Joseph J.W., C.B. Chan, M.B. Wheeler (February 2002) Uncoupling protein 2 acts as a negative regulator of insulin secretion and pancreatic β -cell compensation to a high fat diet. *Boston Ithaca meeting*, Mount Tremblant, Quebec.

Joseph J.W., C.B. Chan, M.B. Wheeler (2001) Effects of high fat diet on insulin secretion and glucose tolerance in UCP2 knockout mice. *North American Association for the Study of Obesity (NAASO)*, Quebec City, Abstract 049.

Oral Presentations - Local

Joseph J.W., C.B. Newgard (2005) The citrate carrier and glucose-stimulated insulin secretion. *Stedman Works-In-Progress (SWIP)*, Duke University.

Joseph J.W., M.B. Wheeler (2003) The lack of uncoupling protein-2 prevents diet-induced pancreatic β -cell abnormalities. *Frontiers in Physiology*, University of Toronto.

Joseph J.W., M.B. Wheeler (2000) UCP2 is a negative regulator of glucose-stimulated insulin secretion. *Frontiers in Physiology*, University of Toronto.

Joseph J.W., P. L. Brubaker (1999) Potential for Treating Type II Diabetes Using an Oral Glucagon-Like Peptide-1 Preparation. *Frontiers in Physiology*, University of Toronto.

Joseph J.W., P.L. Brubaker (1998) Oral Delivery of Glucagon-Like Peptide-1 for the treatment of NIDDM. *Endocrinology and Diabetes Research Grouping's Monthly Meeting*, University of Toronto.

Joseph J.W., P. L. Brubaker (1998) Oral Delivery of Therapeutic Peptides. *University of Toronto/ McGill Exchange*, University of Toronto.

Joseph J.W., P. L. Brubaker (1998) Development of an Oral Delivery System for Therapeutic Peptides. *Frontiers in Physiology*, University of Toronto.

Committees

University of Waterloo Animal Care Committee. Goals: to review the University of Waterloo applications for animal research and teaching (January 2008 - Present). Meetings: once per month. Responsibilities: Review animal use protocols for the University of Waterloo.

University of Waterloo Faculty Committee on Student Appeals. Goals/responsibilities: assessment of student appeals (September 2008 - Present). Meetings: approximately once per month.

University of Waterloo School of pharmacy curriculum development committee. Goals: to develop the new School of Pharmacy's curriculum at the University of Waterloo (August January 2007 - Present). Meetings: once per month. Responsibilities: Develop and review proposals relating to pharmacy's curriculum.

University of Toronto Faculty Advisory Committee on Animal Services. Goals: to review animal use protocols at the University of Toronto (September 2003-May 2004). Meetings: once per month. Responsibilities: Review animal use protocols for the faculty of Medicine.

Journal Review Panels

1. Canadian Journal of Diabetes (2007-current; reviewed one paper for publication)
2. American Journal of Physiology (2007-current; reviewed two paper for publication)
3. Biochemistry and Cell Biology (2008-current; reviewed one paper for publication)
4. PLOS Journal (2008-current; reviewed one paper for publication)

Grant Review Panels

Canadian Diabetes Association (2008-current; reviewed one grant)

Profession Memberships

Endocrine Society (Since 2000)
Metabolomics Society (Since 2008)
American Diabetes Association (Since 2003)

Website

Website (www.betacellmetabolism.org): A pancreatic β -cell insulin secretion and metabolism resource. This website includes information on my research projects and CV.

Extracurricular Activities

Hockey, volleyball, weight lifting, running, soccer, baseball, ultimate Frisbee.

References

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