

# Jennifer E. Bruin, PhD

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## FACULTY APPOINTMENTS

2016 - present **Assistant Professor (Tenure-Track)**, Carleton University  
Department of Biology and Institute of Biochemistry

## EDUCATION

2018 **Certificate in University Teaching**, Education Development Centre, Carleton University

2010 - 2016 **Postdoctoral Fellow**, University of British Columbia  
Department of Cellular and Physiological Sciences; Diabetes Research Group  
Project Title: *Treating diabetes with stem cell-derived islets*.  
Supervisor: Dr. Timothy Kieffer

2005 - 2010 **PhD**, Medical Sciences, McMaster University  
Department of Obstetrics and Gynecology; Reproductive Biology Division  
Thesis Title: *Fetal and neonatal nicotine exposure: effects on pancreatic beta cells*.  
Supervisor: Dr. Alison Holloway; Committee Members: Dr. Warren Foster, Dr. Hertzell Gerstein

2000 - 2005 **BSc, Honours**, University of Guelph  
Major: Biomedical Toxicology, Co-operative Education

## FUNDING AND AWARDS

### EXTERNAL OPERATING & EQUIPMENT FUNDING AWARDS

Funding Organization <i>Grant Title</i>	Duration	Amount	Role	Status
<b>NSERC Discovery Grant</b> <i>Mechanisms underlying the regulation of beta cell function by environmental pollutants</i>	2017 - 2022	\$165,000	PI	Awarded
<b>Ontario Institute of Regenerative Medicine New Ideas Grant</b> <i>The impact of persistent environmental pollutants on pancreatic endocrine cell development</i>	2017 - 2018	\$75,000	PI	Awarded
<b>Canada Foundation for Innovation John R. Evans Leaders Fund</b> <i>Contribution of environmental chemicals to beta cell dysfunction and death in diabetes</i>	2018	\$80,000	PI	Awarded
<b>Ontario Research Fund</b> <i>Contribution of environmental chemicals to beta cell dysfunction and death in diabetes</i>	2018	\$80,000	PI	Awarded
<b>CIHR Project Grant</b> <i>Contribution of environmental chemicals to beta cell dysfunction and death in diabetes</i>	2018 - 2023	\$750,000	PI	Awarded

**GRADUATE & POSTDOCTORAL FUNDING**

<b>Funding Organization</b>	<b>Duration</b>	<b>Role</b>	<b>Amount</b>	<b>Status</b>
Canadian Diabetes Association Postdoctoral Fellowship	2015 – 2016	PDF	\$40,000	Awarded
	2016 – 2018	PDF	\$80,000	Declined
L'Oréal Canada for Women in Science Research Excellence Fellowship	2012	PDF	\$20,000	Awarded
JDRF Postdoctoral Fellowship	2011 – 2015	PDF	\$143,184	Awarded
CIHR Postdoctoral Fellowship	2011 (4 mo)	PDF	\$18,750	Awarded
	2011 – 2014	PDF	\$116,250	Declined
CIHR Transplantation Research Training Award	2010 – 2012	PDF	\$19,500	Awarded
CIHR / Ontario Women's Health Doctoral Award	2007 – 2010	PhD Student	\$66,000	Awarded
CIHR / Strategic Training Program in Tobacco Research Top-Up Award	2006 – 2009	PhD Student	\$9,000	Awarded
Ontario Tobacco Research Unit Ashley Studentship Award	2009 – 2010	PhD Student	\$7,500	Awarded
	2008 – 2009	PhD Student	\$7,500	Awarded
	2007 – 2008	PhD Student	\$7,500	Awarded
Ontario Graduate Scholarship	2007 – 2008	PhD Student	\$15,000	Declined
	2006 – 2007	PhD Student	\$15,000	Awarded
CIHR Canada Graduate Scholarship	2006 – 2007	MSc Student	\$17,500	Declined

**PRESENTATION AWARDS**

2015	<i>Best Oral Presentation by a Postdoctoral Fellow.</i> UBC Department of Cellular and Physiological Sciences Annual Research Retreat. Vancouver, BC
2014	<i>Best Poster Presentation.</i> Till & McCulloch Meetings. Ottawa, ON
2014	<i>Best Oral Presentation by a Postdoctoral Fellow.</i> UBC Department of Cellular and Physiological Sciences Annual Research Retreat. Vancouver, BC
2013	<i>Best Oral Presentation by a Postdoctoral Fellow.</i> UBC Department of Cellular and Physiological Sciences Annual Research Retreat. Vancouver, BC
2012	<i>Best Senior Oral Presentation Award.</i> Alberta-BC Islet Workshop. Silver Star Resort, BC
2010	<i>Best Oral Presentation Award.</i> Stem Cell Network Annual Scientific Meeting. Calgary, AB
2010	<i>1<sup>st</sup> Place Poster Award.</i> BC Preclinical Research Symposium. Vancouver, BC
2009	<i>Poster Presentation Award.</i> 3 <sup>rd</sup> Annual Health Research in the City Conference: Gene-Environment Interaction. Hamilton, ON
2009	<i>Oral Presentation Award.</i> McMaster University Health Sciences Research Day. Hamilton, ON
2008	<i>Gold Poster Award Recipient.</i> CIHR National Student Research Poster Competition: Institute of Human Development, Child and Youth Health. Winnipeg, MB
2008	<i>Poster Award Recipient.</i> McMaster University Health Sciences Research Day. Hamilton, ON
2006	<i>Best Oral Presentation Award.</i> McMaster University Department of Obstetrics and Gynecology 32 <sup>nd</sup> Annual RT Weaver Research Day. Hamilton, ON

**INVITED PRESENTATIONS**

2018	CRCHUM and Montreal Diabetes Research Center Seminar Series. Montreal, QC.
2018	Ontario Institute of Regenerative Medicine Annual Stem Cells & Regenerative Symposium. Toronto, ON.
2017	15th Transplantation Science Symposium. Victoria, BC.
2017	Ottawa Carleton Institute Symposium, 3 Minute Faculty Talk Competition. Ottawa, ON.
2017	Ottawa Hospital Endocrinology and Metabolism Grand Rounds. Ottawa, ON.

- 2016 Canadian Diabetes Association Professional Conference and Annual Meeting. Ottawa, ON.  
 2016 Carleton Biology Seminar Series. Ottawa, ON.  
 2016 University of Alberta, Alberta Diabetes Institute. Edmonton, AB.  
 2016 Carleton University, Department of Biology. Ottawa, ON.  
 2015 University of Ottawa, Department of Cellular and Molecular Medicine. Ottawa, ON.  
 2015 University of Toronto, Leslie Dan Faculty of Pharmacy. Toronto, ON.  
 2014 1<sup>st</sup> Annual Vancouver Diabetes Research Day. Vancouver, BC.  
 2014 18<sup>th</sup> Annual Transplantation Research Day. Vancouver, BC.  
 2014 17<sup>th</sup> Annual Canadian Diabetes Association (CDA) Professional Conference. Winnipeg, Manitoba.  
 2014 Diabetes, Infectious Diseases and Immunology Seminar Series; Child & Family Research Institute. Vancouver, BC.  
 2014 Keystone Symposia: Emerging Concepts and Targets in Islet Biology. Keystone, Colorado.  
 2013 BC Stem Cell and Regenerative Medicine Initiative Retreat. Vancouver, BC.  
 2011 Kyoto University Global Center of Excellence "Center for Frontier Medicine" International Symposium. Awaji Island, Japan.  
 2011 23<sup>rd</sup> Annual Diabetes Directors Seminar. Vancouver, BC.  
 2009 McEwen Centre for Regenerative Research. Toronto ON.  
 2009 Department of Cellular and Physiological Sciences, UBC. Vancouver, BC.  
 2009 Sprott Centre for Stem Cell Research, Ottawa Health Research Institute. Ottawa, ON.  
 2009 Roberts Vascular Biology Research Group; University of Western Ontario. London, ON.  
 2008 Center for Addiction and Mental Health, Transdisciplinary Tobacco Rounds. Toronto, ON.

## COMMUNITY OUTREACH

- 2018 Hosted Elmwood High School Grade 12 Biology students for a day in the lab.  
 2017 OSSTF District 25 Planned Science Professional Development Day. Ottawa, ON.  
 2017 Carleton University Science Café. Ottawa, ON.  
 2016 Earl of March Secondary School. Ottawa, ON.  
 2015 Pacific TD JDRF Ride Kick-Off Event. Vancouver, BC.  
 2015 Annual Diabetes Days for Health Professionals and for Families; Hospital for Sick Children. Toronto, ON.  
 2014 Crofton House School, Grade 12 Students. Vancouver, BC.  
 2014 JDRF Diabetes Research Symposium. Victoria, BC.  
 2014 JDRF TELUS Walk to Cure Diabetes, Corporate Leadership Breakfast. Vancouver, BC.  
 2014 JDRF Ride for Diabetes Research, Awards Ceremony. Vancouver, BC.  
 2012 Crofton House School, Grade 9 Careers & Health Education Program. Vancouver, BC.

## PUBLICATIONS

### PUBLICATION SUMMARY

Category	Published	Submitted	In Preparation
Peer-reviewed Manuscripts	27	0	1
Book Chapters	1	0	0
Presentations / Published Abstracts	55	0	0

### PEER-REVIEWED MANUSCRIPTS

# Indicates trainee from the Bruin Lab

\* Indicates equal contribution by authors

- Ibrahim M, MacFarlane E<sup>#</sup>, Blair H<sup>#</sup>, Hoyeck M<sup>#</sup>, Rick K<sup>#</sup>, O'Dwyer S, **Bruin JE**. Xenobiotic metabolism enzymes from the CYP1A family are inducible and active in mouse and human islets. *Manuscript in preparation*.
- Saber N, **Bruin JE**, O'Dwyer S, Schuster H, Rezania A, Kieffer TJ. Sex differences in maturation of human ES cell-derived  $\beta$  cells in mice. *Endocrinology*. 159(4):1827-1841 (2018).

3. **Bruin JE\***, Saber N\*, Fox JK, Mojibian M, Arora P, Rezania A, Kieffer TJ. Hypothyroidism impairs human stem cell-derived pancreatic progenitor cell maturation in mice. *Diabetes*. 65(5):1297-1309 (2016).
4. Szabat M, Page MM, Panzhinskiy E, Skovsø S, Mojibian M, Fernandez-Tajes J, **Bruin JE**, Bround MJ, Lee JTC, Xu EE, Taghizadeh F, O'Dwyer S, van de Bunt M, Moon KM, Sinha S, Han J, Fan Y, Lynn FC, Trucco M, Borchers CH, Foster LJ, Nislow C, Kieffer TJ, Johnson JD. Reduced Insulin Production Relieves Endoplasmic Reticulum Stress and Induces  $\beta$  Cell Proliferation. *Cell Metabolism*. 23(1):179-93 (2016).
5. **Bruin JE**, Rezania A, Kieffer TJ. Replacing and safeguarding pancreatic beta cells for diabetes. *Science Translational Medicine*. Dec 2; 7(316):316ps23 (2015).
6. **Bruin JE**, Fox JK, Asadi A, Rezania A, Kieffer TJ. Accelerated maturation of human stem cell-derived pancreatic progenitor cells into insulin-secreting cells in immunodeficient rats relative to mice. *Stem Cell Reports*, 5: 1081-1096 (2015).
7. Quiskamp N, **Bruin JE**, Kieffer TJ. Differentiation of human pluripotent stem cells into beta cells: potential and challenges. *Best Practice and Research Clinical Endocrinology and Metabolism*. 29(6):833-47 (2015).
8. **Bruin JE**, Saber N, Braun N, Fox JK, Mojibian M, Asadi A, Drohan C, O'Dwyer S, Rosman-Balzer DS, Swiss VA, Rezania A, Kieffer TJ. Treating diet-induced diabetes and obesity with human embryonic stem cell-derived pancreatic progenitor cells and antidiabetic drugs. *Stem Cell Reports*. 4(4):605-620 (2015).
9. Asadi A\*, **Bruin JE\***, Kieffer TJ. Characterization of antibodies to products of proinsulin processing using immunofluorescence staining of pancreas in multiple species. *Journal of Histochemistry & Cytochemistry*. 63(8):646-62 (2015).
10. Rezania A, **Bruin JE**, Arora P, Rubin A, Batushansky I, Asadi A, O'Dwyer S, Quiskamp N, Mojibian M, Albrecht T, Yang YH, Johnson JD, Kieffer TJ. Reversal of diabetes with insulin-producing cells derived in vitro from human pluripotent stem cells. *Nature Biotechnology*. 32:1121-1133 (2014).
11. **Bruin JE**, Erener S, Vela J, Hu X, Kurata HT, Johnson JD, Lynn FC, Piret JM, Rezania A, Kieffer TJ. Characterization of polyhormonal insulin-producing cells derived in vitro from human embryonic stem cells. *Stem Cell Research*. 12(1):194-208 (2014).
12. **Bruin JE\***, Rezania A\*, Xu J, Narayan K, Fox JK, O'Neil JJ, Kieffer TJ. Maturation and function of human embryonic stem cell-derived pancreatic progenitors in macroencapsulation devices following transplant into mice. *Diabetologia*. 56(9):1987-98 (2013).
13. Rezania A\*, **Bruin JE\***, Xu J\*, Narayan K, Fox JK, O'Neil JJ, Kieffer TJ. Enrichment of human embryonic stem cell-derived NKX6.1-expressing pancreatic progenitor cells accelerates the maturation of insulin-secreting cells *in vivo*. *Stem Cells*. 31(11):2432-42 (2013).
14. Tuduri E, **Bruin JE**, Denroche HC, Fox JK, Johnson JD, Kieffer TJ. Impaired Ca<sup>2+</sup> signaling in beta cells lacking leptin receptors by Cre-loxP recombination. *PLoS One*. 8(8):e71075 (2013).
15. Denroche HC, Quong WL, **Bruin JE**, Tuduri E, Asadi A, Glavas MM, Fox JK, Kieffer TJ. Leptin administration enhances islet transplant performance in diabetic mice. *Diabetes*. 62(8):2738-46 (2013).
16. Mojibian M, Harder B, Hurlburt A, **Bruin JE**, Asadi A, Kieffer TJ. Implanted islets in the anterior chamber of the eye are prone to autoimmune attack in a mouse model of diabetes. *Diabetologia*. 56(10):2213-21 (2013).
17. Rezania A\*, **Bruin JE\***, Riedel MJ, Mojibian M, Asadi A, Xu J, Gauvin R, Narayan K, Karanu F, O'Neil JJ, Ao Z, Warnock GL, Kieffer TJ. Maturation of human embryonic stem cell-derived pancreatic progenitors into functional islets in diabetic mice. *Diabetes*. 61(8):2016-29 (2012).
18. Tuduri E, **Bruin JE**, Kieffer TJ. Restoring insulin production for type 1 diabetes. *Journal of Diabetes*. 4:319-331 (2012).
19. **Bruin JE**, Woynillowicz AK, Tarnopolsky MA, Hettinga BP, Gerstein HC, Holloway AC. Maternal antioxidants prevent beta cell apoptosis and promote formation of dual hormone-expressing endocrine cells in male offspring following fetal and neonatal nicotine exposure. *Journal of Diabetes*. 4(3):297-306 (2012).

20. Lagunov A, Anzar M, Sadeu JC, Khan MIR, **Bruin JE**, Woynillowicz AK, Buhr M, Holloway AC, Foster WG. Effect of *in utero* and lactational nicotine exposure on the male reproductive tract in peripubertal and adult rats. *Reproductive Toxicology*. 31(4):418-423 (2011).
21. **Bruin JE**, Gerstein HC, Holloway AC. Long-term consequences of fetal and neonatal nicotine exposure: a critical review. *Toxicological Sciences*. 116(2):364-74 (2010).
22. Kellenberger L, **Bruin JE**, Greenaway J, Solinger NE, Moorehead R, Holloway AC, Petrik J. The role of dysregulated glucose metabolism in epithelial ovarian cancer. *Journal of Oncology*. 2010:514310 (2010).
23. **Bruin JE**, Petrik JJ, Hyslop J, Tarnopolsky MA, Raha S, Gerstein HC, Holloway AC. Rosiglitazone improves pancreatic mitochondrial function in an animal model of dysglycemia: Role of the insulin-like growth factor axis. *Endocrine*. 37(2) 303-311 (2010).
24. **Bruin JE**, Petre MA, Raha S, Morrison KM, Gerstein HC, Holloway AC. Fetal and neonatal nicotine exposure in Wistar rats causes a progression of pancreatic mitochondrial alterations and leads to beta cell dysfunction. *PLoS ONE*. 3(10):e3371 (2008).
25. **Bruin JE**, Petre MA, Lehman MA, Raha S, Gerstein HC, Morrison KM and Holloway AC. Maternal exposure to nicotine increases oxidative stress in the pancreas of the offspring. *Free Radical Biology and Medicine*. 44(11):1919-25 (2008).
26. Holloway AC, Petrik JJ, **Bruin JE**, Gerstein HC. Rosiglitazone prevents diabetes by increasing beta-cell mass in an animal model of type 2 diabetes characterized by reduced beta-cell mass at birth. *Diabetes Obesity and Metabolism*. 10(9):763-71 (2008).
27. **Bruin JE**, Gerstein HC, Morrison KM and Holloway AC. Increased pancreatic beta cell apoptosis following fetal and neonatal exposure to nicotine is mediated via the mitochondria. *Toxicological Sciences*. 103(2):362-70 (2008).
28. **Bruin JE**, Kellenberger LD, Gerstein HC, Morrison KM, Holloway AC. Fetal and neonatal nicotine exposure and postnatal glucose homeostasis: Identifying critical windows of exposure. *Journal of Endocrinology*. 194(1):171-8 (2007).

#### **PUBLISHED BOOK CHAPTERS**

**Bruin JE** and Kieffer TJ. Differentiation of human embryonic stem cells into pancreatic endocrine cells. Hayat, MA (ed). *Stem Cells and Cancer Stem Cells: Therapeutic Applications in Disease and Injury*. Springer. Vol 8, Chapter 18, p 192-206 (2012).

#### **PRESENTATIONS / PUBLISHED ABSTRACTS**

Underlined name indicates presenting author.

# Indicates trainee from the Bruin Lab

\* Indicates equal contribution by authors.

1. Hoyeck MP<sup>#</sup>, **Bruin JE**. Effects of chronic low-dose TCDD exposure during pregnancy on offspring pancreas development and function; a potential risk factor for increased diabetes susceptibility. 7<sup>th</sup> Annual DREAM Diabetes Research Symposium. Winnipeg MB, November 2018 (**Submitted**).
2. Hoyeck MP<sup>#</sup>, **Bruin JE**. The effects of chronic maternal TCDD exposure on neonatal pancreas development. *Ottawa-Carleton Institute of Biology Annual Symposium*. Ottawa ON, May 2018 (**Oral; Award Recipient**).
3. Matteo-Parodi GM<sup>#</sup>, Ibrahim M, O'Dwyer S, **Bruin JE**. The role of Cyp1a1/1a2 in regulating glucose homeostasis and beta cell function in mice. *Ottawa-Carleton Institute of Biology Annual Symposium*. Ottawa ON, May 2018 (Oral).
4. MacFarlane E<sup>#</sup>, **Bruin JE**. Investigating the impact of TCDD exposure on human beta cell development in vitro. *Ottawa-Carleton Institute of Biology Annual Symposium*. Ottawa ON, May 2018 (Poster).

5. Ibrahim M, O'Dwyer S, Kieffer TJ, **Bruin JE**. Cytochrome P450 enzymes in Pancreatic Islets. *Gordon Research Conference: Pancreatic Diseases*. Waterville Valley NH, USA. June 2017 (Oral).
6. Ibrahim M, O'Dwyer S, Kieffer TJ, **Bruin JE**. Xenobiotic metabolism enzymes from the CYP1A family are inducible and active in mouse and human islets. *Alberta-British Columbia Islet Workshop*. Silver Star Resort, BC. February 2017 (Oral).
7. Saber N, **Bruin JE**, O'Dwyer S, Schuster H, Rezania A, Kieffer TJ. Accelerated maturation of human embryonic stem cell-derived pancreatic progenitor cells in female versus male mice. *Alberta-British Columbia Islet Workshop*. Silver Star Resort, BC. February 2017 (Oral).
8. Ibrahim M, O'Dwyer S, Kieffer TJ, **Bruin JE**. Xenobiotic metabolism enzymes from the CYP1A family are inducible and active in mouse and human islets. *Canadian Diabetes Association Professional Conference and Annual Meeting*. Ottawa, ON. October 2016 (Poster).
9. **Bruin JE**, Saber N, Drohan C, O'Dwyer S, Rezania A, Kieffer TJ. Effects of pregnancy on transplanted pancreatic beta cell progenitors derived from human embryonic stem cells. *Canadian Diabetes Association Professional Conference and Annual Meeting*. Ottawa, ON. October 2016 (Oral).
10. **Bruin JE**, Ibrahim M, Kieffer TJ. Xenobiotic metabolism enzymes from the CYP1A family are inducible in mouse and human islets. *2<sup>nd</sup> Vancouver Diabetes Research Day*. Vancouver, BC. Sept 2015 (Poster).
11. **Bruin JE**, Saber N, Drohan C, O'Dwyer S, Rezania A, Kieffer TJ. Effects of pregnancy on transplanted pancreatic beta cell progenitors derived from human embryonic stem cells. *Alberta-British Columbia Islet Workshop*. Silver Star Resort, BC. February 2015 (Oral).
12. Quiskamp N\*, **Bruin JE\***, Patterson S, Han JM, Saber N, Fox JK, Levings MK, Kieffer TJ. Evaluating the immunoisolation of macroencapsulated hESC-derived beta cells in humanized mice. *1<sup>st</sup> Annual Vancouver Diabetes Research Day*. Vancouver, BC. November 2014 (Poster).
13. Drohan C\*, **Bruin JE\***, Saber N, O'Dwyer S, Rezania A, and Kieffer TJ. Effects of pregnancy on transplanted pancreatic beta cell progenitors derived from human embryonic stem cells. *1<sup>st</sup> Annual Vancouver Diabetes Research Day*. Vancouver, BC. November 2014 (Poster).
14. **Bruin JE**, Saber N, O'Dwyer S, Mojibian M, Fox JK, Rezania A, Kieffer TJ. Development of human embryonic stem cell-derived pancreatic progenitor cells into mature insulin-secreting cells in mice with thyroid dysfunction. *Till & McCulloch Annual Meetings*. Ottawa, ON. October 2014 (**Poster; Award Recipient**).
15. Drohan C\*, **Bruin JE\***, Saber N, O'Dwyer S, Rezania A, and Kieffer TJ. Effects of pregnancy on transplanted pancreatic beta cell progenitors derived from human embryonic stem cells. *Till & McCulloch Annual Meetings*. Ottawa, ON. October 2014 (Poster).
16. **Bruin JE**, Saber N, Fox JK, Braun N, Rezania A, Kieffer TJ. Treatment of type 2 diabetes in immunodeficient mice with macroencapsulated insulin-secreting cells derived from human embryonic stem cells. *International Society for Stem Cell Research 12<sup>th</sup> Annual Meeting*. Vancouver, BC. June 2014 (Poster).
17. **Bruin JE**, Saber N, Fox JK, Braun N, Rezania A, Kieffer TJ. Human embryonic stem cell-derived pancreatic progenitor cells treat type 2 diabetes in immunodeficient mice. *Keystone Symposia: Emerging Concepts and Targets in Islet Biology*. Keystone, Colorado, USA. April 2014 (Poster).
18. Saber N\*, **Bruin JE\***, Fox JK, Braun N, Rezania A, Kieffer TJ. Maturation of human embryonic stem cell-derived progenitors in immunodeficient mice with type 2 diabetes. *Till & McCulloch Annual Meeting*. Banff, AB. October 2013 (Poster).
19. Saber N\*, **Bruin JE\***, Fox JK, Braun N, Rezania A, Kieffer TJ. Maturation of human embryonic stem cell-derived progenitors in immunodeficient mice with type 2 diabetes. *5<sup>th</sup> Annual Islet Society Meeting*. Vancouver, BC. July 2013 (Poster).
20. **Bruin JE**, Rezania A, Xu J, Narayan K, Fox JK, O'Neil JJ, Kieffer TJ. Maturation and function of macroencapsulated human embryonic stem cell-derived pancreatic progenitor cells in diabetic mice. *Beta Cell Workshop 2013*. Kyoto, Japan. April 2013 (Oral and Poster).

21. **Bruin JE**, Fox JK, Patel M, Rezania A, Kieffer TJ. Maturation of human embryonic stem cell-derived progenitors into insulin-secreting cells is influenced by the recipient species. *Alberta-British Columbia Islet Workshop*. Silver Star Resort, BC. February 2013 (Oral).
22. **Saber N\***, **Bruin JE\***, Fox JK, Braun N, Rezania A, Kieffer TJ. Maturation of human embryonic stem cell-derived progenitors in immunodeficient mice with type 2 diabetes. *Alberta-British Columbia Islet Workshop*. Silver Star Resort, BC. February 2013 (Oral).
23. **Asadi A**, **Bruin JE**, Kieffer TJ. Immunofluorescence characterization of proinsulin processing in human fetal and adult pancreas. *Alberta-British Columbia Islet Workshop*. Silver Star Resort, BC. February 2013 (Oral).
24. **Bruin JE**, Fox JK, Patel M, Rezania A, Kieffer TJ. Maturation of human embryonic stem cell-derived progenitors into insulin-secreting cells is influenced by the recipient species. *BC Stem Cell and Regenerative Medicine Initiative Retreat*. Vancouver, BC. January 2013 (Poster).
25. **Bruin JE**, Fox JK, Narayan K, Xu J, Rezania A, Kieffer TJ. Accelerating the in vivo maturation of macro-encapsulated human embryonic stem cell derived-pancreatic progenitor cells by manipulating NKX6.1 expression in culture. *European Association for the Study of Diabetes (EASD) Annual Meeting*. Berlin, Germany. October 2012 (Poster).
26. **Bruin JE**, Xu J, Narayan K, Fox JK, Rezania A, Kieffer TJ. Treatment of diabetes in mice by transplant of macro-encapsulated human embryonic stem cell-derived pancreatic progenitor cells. *Canadian Diabetes Association (CDA) 15<sup>th</sup> Annual Meeting*. Vancouver, BC. October 2012 (Oral).
27. **Asadi A**, **Bruin JE**, Kieffer TJ. Immunofluorescence characterization of proinsulin processing in human fetal and adult pancreas. *CDA 15<sup>th</sup> Annual Meeting*. Vancouver, BC. October 2012 (Poster).
28. Denroche HC, **Quong WL**, **Bruin JE**, Tuduri E, Fox J, Kieffer TJ. Leptin administration improves islet transplant efficacy in streptozotocin-induced diabetic mice. *CDA 15<sup>th</sup> Annual Meeting*. Vancouver, BC. October 2012 (Poster).
29. **Bruin JE**, Fox JK, Asadi A, Narayan K, Xu J, Rezania A, Kieffer TJ. Influence of the *in vivo* environment on maturation and function of hESC-derived pancreatic progenitors following transplantation. *Western Region Islet Study Group Annual Conference*. Pack Forest Conference Center, Eatonville, WA. May 2012 (Oral).
30. **Vela J\***, **Bruin JE\***, Erener S, Hu X, Kurata HT, Piret JM, Johnson JD, Rezania A, Kieffer TJ. Differentiation of human embryonic stem cells into immature pancreatic cells that resemble human fetal pancreas in vitro. *Stem Cell Network 11<sup>th</sup> Annual Meeting*. Montreal, QC. April 2012 (Poster).
31. **Bruin JE**, Rezania A, Riedel MJ, Mojibian M, Asadi A, Xu J, Gauvin R, Narayan K, Karanu F, O'Neil JJ, Zo Z, Warnock GL, Kieffer TJ. Maturation of human embryonic stem cell-derived pancreatic progenitors into functional islets in diabetic mice. *Alberta-British Columbia (A-BC) Islet Workshop*. Silver Star Resort, BC. February 2012 (**Oral; Award Recipient**).
32. **Denroche HC\***, **Quong WL\***, **Bruin JE**, Tuduri E, Fox JK, Kieffer TJ. Low dose leptin therapy enhance islet transplant efficacy in streptozotocin-induced diabetic mice. *Alberta-British Columbia (A-BC) Islet Workshop*. Silver Star Resort, BC. February 2012 (Oral).
33. **Mojibian M**, Hulburt A, Harder B, Gage B, **Bruin JE**, Korbitt GS, Kieffer TJ. Non-invasive longitudinal imaging of transplanted tissue in the anterior chamber of the eye. *Alberta-British Columbia (A-BC) Islet Workshop*. Silver Star Resort, BC. February 2012 (Oral).
34. **Bruin JE**, Korbitt GS, Xu J, Gauvin R, Narayan K, Karanu F, Rezania A, Kieffer TJ. In vivo maturation of neonatal porcine islets and human embryonic stem cell-derived pancreatic progenitor cells in macro-encapsulated devices. *15<sup>th</sup> BC Transplantation Research Day*. Vancouver, BC. December 2011 (Poster).
35. **Mojibian M**, Hulburt A, Harder B, Gage B, **Bruin JE**, Korbitt GS, Kieffer TJ. Non-invasive longitudinal imaging of transplanted tissue in the anterior chamber of the eye. *15<sup>th</sup> BC Transplantation Research Day*. Vancouver, BC. December 2011 (Poster).
36. **Bruin JE**, Riedel MJ, Mojibian M, Xu J, Gauvin R, Narayan K, Karanu F, Rezania A, Kieffer TJ. In vivo maturation of human embryonic stem cell-derived pancreatic precursor cells to functional islet-like cells

- capable of treating STZ-induced diabetes. *International Society for Stem Cell Research 9<sup>th</sup> Annual Meeting*. Toronto, ON. June 2011 (Poster).
37. **Bruin JE**, Riedel MJ, Mojibian M, Xu J, Gauvin R, Narayan K, Karanu F, Rezania A, Kieffer TJ. In vivo maturation of human embryonic stem cell-derived pancreatic precursor cells to functional islet-like cells capable of treating STZ-induced diabetes. *Western Region Islet Study Group Annual Conference*. Lake Arrowhead, CA. April 2011 (Oral).
  38. **Bruin JE**, Riedel MJ, Mojibian M, Xu J, Gauvin R, Narayan K, Karanu F, Rezania A, Kieffer TJ. In vivo maturation of human embryonic stem cell-derived pancreatic precursor cells towards a mixed pancreatic endocrine cell population. *14<sup>th</sup> Annual BC Transplantation Research Day*. Vancouver, BC. Dec 2010 (Oral).
  39. **Bruin JE**, Riedel MJ, Mojibian M, Xu J, Gauvin R, Narayan K, Karanu F, Rezania A, Kieffer TJ. In vivo maturation of human embryonic stem cell-derived pancreatic precursor cells. *Stem Cell Network Annual Scientific Meeting*. Calgary, AB. November 2010 (**Oral; Award Recipient**).
  40. **Bruin JE**, Riedel MJ, Mojibian M, Xu J, Gauvin R, Narayan K, Karanu F, Rezania A, Kieffer TJ. In vivo maturation of human embryonic stem cell-derived pancreatic precursor cells towards a mixed pancreatic endocrine cell population. *1<sup>st</sup> Annual BC Preclinical Research Symposium*. Vancouver, BC. October 2010. (**Poster; Award Recipient**).
  41. **Bruin JE**, Woynillowicz AK, Tarnopolsky MA, Gerstein HC, Holloway AC. Maternal antioxidant supplementation prevents nicotine-induced beta cell deficits in the neonate. *CIHR-Institute of Human Development, Child and Youth Health Scientific Forum*. Hamilton, ON. September 2009 (Poster).
  42. **Bruin JE**, Woynillowicz AK, Tarnopolsky MA, Gerstein HC, Holloway AC. Maternal antioxidant supplementation prevents nicotine-induced beta cell deficits in the neonate. *91<sup>st</sup> Annual Endocrine Society Meeting*. Washington, DC. June 2009 (Oral).
  43. **Bruin JE**, Woynillowicz AK, Tarnopolsky MA, Gerstein HC, Holloway AC. Maternal dietary anti-oxidant supplementation prevents beta cell loss and mitochondrial swelling following fetal and neonatal nicotine exposure. *Gordon Research Conference: Oxidative Stress and Disease*. Barga, Italy. March 2009 (Poster).
  44. **Bruin JE**, Petre MA, Raha S, Morrison KM, Gerstein HC, Holloway AC. Fetal and neonatal nicotine exposure in Wistar rats causes a progression of pancreatic mitochondrial alterations and leads to beta cell dysfunction. *3<sup>rd</sup> Annual Health Research in the City Conference: Gene-Environment Interaction*. Hamilton ON. February 2009 (**Poster; Award Recipient**).
  45. **Bruin JE**, Petre MA, Raha S, Morrison KM, Gerstein HC, Holloway AC. Fetal and neonatal nicotine exposure in Wistar rats causes a progression of pancreatic mitochondrial alterations and leads to beta cell dysfunction. *McMaster University Health Sciences Graduate Annual Research Day*. Hamilton, ON. January 2009 (**Oral; Award Recipient**).
  46. **Bruin JE**, Woynillowicz AK, Tarnopolsky MA, Gerstein HC, Holloway AC. Fetal and neonatal nicotine exposure and postnatal pancreatic mitochondria: an antioxidant intervention. *34<sup>th</sup> Annual RT Weaver Scientific Research Day*. Hamilton, ON. November 2008 (Oral).
  47. **Bruin JE**, Woynillowicz AK, Tarnopolsky MA, Gerstein HC, Holloway AC. Perinatal Nicotine and Adult-Onset Diabetes: Intervention with Antioxidants. *McMaster University Women's and Infant's Health Research In Progress Rounds*. Hamilton ON. October 2008 (Oral).
  48. **Bruin JE**, Raha S, Morrison KM, Gerstein HC, Holloway AC. Mitochondrial alterations in the adult pancreas following fetal and neonatal nicotine exposure in a rodent model of dysglycemia. *90<sup>th</sup> Annual Endocrine Society Meeting*. San Francisco, CA. June 2008 (Poster).
  49. **Bruin JE**, Petre MA, Raha S, Morrison KM, Gerstein HC, Holloway AC. Fetal and neonatal nicotine exposure in Wistar rats causes a progression of pancreatic mitochondrial alterations and leads to beta cell dysfunction. *CIHR National Student Poster Competition*. Winnipeg MB. June 2008 (**Poster; Gold Award Recipient**).
  50. **Bruin JE**, Petre MA, Raha S, Morrison KM, Gerstein HC, Holloway AC. Fetal and neonatal nicotine exposure in Wistar rats causes a progression of pancreatic mitochondrial alterations and leads to beta cell dysfunction. *Society for Research on Nicotine and Tobacco 14<sup>th</sup> Annual Meeting*. Portland, OR. February 2008 (Poster).



51. **Bruin JE**, Gerstein HC, Morrison KM, Holloway AC. Increased pancreatic beta cell apoptosis following fetal and neonatal exposure to nicotine is mediated via the mitochondria. *McMaster University Health Sciences Graduate Annual Research Day*. Hamilton, ON. January 2008 (**Poster; Award Recipient**).
52. **Bruin JE**, Holloway AC. Mechanisms of beta cell loss following fetal and neonatal exposure to maternal nicotine. *33<sup>rd</sup> Annual RT Weaver Scientific Research Day*. Hamilton, ON. November 2007 (Oral).
53. **Bruin JE**, Lehman MA, Gerstein HC, Holloway AC. Mechanism of increased beta cell apoptosis at birth in rats exposed to nicotine during fetal and neonatal development. *89<sup>th</sup> Annual Endocrine Society Meeting*. Toronto, ON. June 2007 (Poster).
54. **Bruin JE**, Kellenberger LD, Gerstein HC, Morrison KM, Holloway AC. The effects of in utero and lactational exposure to nicotine on postnatal glucose homeostasis in male Wistar rats. *32<sup>nd</sup> Annual RT Weaver Scientific Research Day*. Hamilton, ON. 2006 (**Oral; Award Recipient**).
55. **Bruin JE**, Kellenberger LD, Gerstein HC, Morrison KM, Holloway AC. The effects of in utero and lactational exposure to nicotine on postnatal glucose homeostasis in male Wistar rats. *Canadian Tobacco Control Research 3<sup>rd</sup> Annual Symposium for Research to Inform Tobacco Control*. Toronto, ON. 2006 (Poster).

## TEACHING

### CARLETON UNIVERSITY - INSTRUCTOR

Winter 2018	BIOL5503, Selected Topics: Research Communication, 0.5 credits
Fall 2018	BIOC4009, Biochemistry of Disease, 0.5 credits
Winter 2018	BIOL4201, Advanced Cell Culture and Tissue Engineering, 0.5 credits
Fall 2017	BIOC4009, Biochemistry of Disease, 0.5 credits
Winter 2017	BIOL4201, Advanced Cell Culture and Tissue Engineering, 0.5 credits

### CARLETON UNIVERSITY - GUEST LECTURER

Fall 2018	BIOL5402, Advanced Endocrinology
Winter 2018	BIOL5002/BIOL6102/CHEM5800/CHEM6800, Seminars in Biochemistry
Winter 2017	BIOL3202, Principles of Developmental Biology
Fall 2016	BIOL3301, Biotechnology II

### UNIVERSITY OF BRITISH COLUMBIA - INSTRUCTOR

2011 - 2015	PHYL424, Mammalian Endocrinology
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### McMASTER UNIVERSITY – TEACHING ASSISTANT

2008 - 2009	HTH SCI 1AA3/1BB3, Human Biochemistry (Head Teaching Assistant)
2005 - 2008	HTH SCI 1AA3/1BB3, Human Biochemistry (Teaching Assistant)

### CARLETON UNIVERSITY - EDUCATION DEVELOPMENT CENTRE TRAINING

07/2018	EDC Certificate in University Teaching Program
10/19/2017	Capture: An Introduction to Creating Course Videos
10/11/2017	Midterm Feedback: Collection, Reflection, Action
08/18/2017	Introduction to CuLearn
08/08/2017	Experiential Learning Practices in the Classroom

## TRAINEE SUPERVISION

### HQP SUMMARY

Category	Completed	In Progress	Upcoming
Undergraduate Summer Students	5	0	0
Undergraduate Directed Study (BIOC3901/4901)	4	0	0
Undergraduate Honours Thesis (4907/4908)	4	3	0
MSc Thesis	0	4	0
PhD Thesis	0	0	2
Technical Staff	0	1	0

### UNDERGRADUATE STUDENTS *(only Carleton trainees are included in summary table)*

Dates	Name	Position
09/2018 – 04/2019	Kelsea McKay	Honour's Thesis, BIOL4908
09/2018 – 04/2019	Laura Harkness	Honour's Thesis, BIOL4908
09/2018 – 04/2019	Rayanna Merhi	Honour's Thesis, BIOL4908
09/2018 – 04/2019	Salar Farokhi Boroujeni	Work Study Student
09/2018 – 04/2019	Hannah Blair	Work Study Student
05/2018 – 09/2019	Salar Farokhi Boroujeni	Summer Student, Dean's Summer Research Internship
05/2018 – 09/2019	Laura Harkness	Directed Study, BIOL4901
05/2018 – 09/2019	Melody Zhang	Honour's Thesis, BIOL4908
05/2018 – 09/2019	Hannah Blair	Summer Student, Walker Summer Research Award
01/2018 – 04/2018	Kelsea McKay	Directed Study, BIOL3901
09/2017 – 04/2018	Andrea Smith	Honour's Thesis, BIOL4908
09/2017 – 04/2018	Arina Prakash	Honour's Thesis, BIOL4908
09/2017 – 04/2018	Jocelyn Bonti-Ankomah	Honour's Thesis, BIOL4908
09/2017 – 04/2018	Hannah Blair	Work Study Student
05/2017 – 09/2018	Andrea Smith	Directed Study, BIOL4901
05/2017 – 09/2018	Arina Prakash	Directed Study, BIOL4901
05/2017 – 08/2018	Catherine Copley	Summer Student, Dean's Summer Research Internship
05/2017 – 09/2018	Hannah Blair	Summer Student, NSERC USRA
05/2017 – 08/2018	Mariam Elsayw	Summer Student, Dean's Summer Research Internship
05/2016 – 09/2016	Muna Ibrahim (UBC)	Summer Student
01/2016 – 04/2016	Muna Ibrahim (UBC)	Directed Study, CAPS 448
05/2015 – 12/2015	Muna Ibrahim (UBC)	Undergraduate Co-op Student
05/2014 – 12/2014	Campbell Drohan (UBC)	Undergraduate Co-op Student
05/2015 – 09/2015	Nelly Saber (UBC)	Undergraduate Co-op Student
09/2012 – 09/2013	Nelly Saber (UBC)	Undergraduate Co-op Student
09/2012 – 12/2012	Natalie Braun (U Heidelberg)	Summer Student - DAAD Intern "RISE worldwide"
09/2010 – 09/2011	Javier Vela (UBC)	Undergraduate Co-op Student

### GRADUATE STUDENTS

Dates	Name	Position
09/2018 – present	Noa Gang	MSc Student
09/2017 – present	Myriam Hoyeck	MSc Student
05/2017 – present	Geronimo Parodi-Matteo	MSc Student
05/2017 – present	Erin MacFarlane	MSc Student

### TECHNICAL STAFF

Dates	Name	Position
01/2017 – present	Kayleigh Rick, MSc	Laboratory Technician

## SERVICE CONTRIBUTIONS

### STUDENT COMMITTEE SUMMARY

Category	Completed	In Progress
MSc Supervisory Committee Member	0	4
PhD Supervisory Committee Member	0	1
MSc Thesis Defense – Examiner	3	n/a
MSc Thesis Defense – Chair	3	n/a
PhD Thesis Defense – Examiner	0	n/a
PhD Thesis Defense – Chair	0	n/a
PhD Qualifying Exam – Examiner	2	n/a
PhD Qualifying Exam – Chair	1	n/a

### SUPERVISORY COMMITTEE MEMBER

Years	Student Name	Supervisor(s)	Role
2018 - present	Mais Jubouri	Dr Jan Meningen Dr Jean-Michel Weber	MSc Committee Member
2018 - present	Tristan Smythe	Dr Rob Letcher	PhD Committee Member
2017 - present	Erin Vanzyl	Dr Bruce McKay	MSc Committee Member
2017 - present	Laura Corrigan	Dr Shelley Hepworth	MSc Committee Member
2016 - present	Braydon Hall	Dr Cory Harris	MSc Committee Member

### THESIS DEFENSE / QUALIFYING EXAMS

Year	Student Name	Supervisor(s)	Role
2018	Peng Di	Dr. Vance Trudeau	PhD Qualifying Exam – Examiner
2018	Gamat Allam	Dr Shelley Hepworth	MSc Thesis Defense – Chair
2018	Ashley Cooper	Dr Alex Wong	PhD Qualifying Exam – Examiner
2018	Rasha Al-Attar	Dr Ken Storey	PhD Qualifying Exam – Chair
2017	Kathleen Chandler	Dr Natalina Salmaso	MSc Thesis Defense – Examiner
2017	Katie Hill	Drs Rob Letcher & Bill Willmore	MSc Thesis Defense – Examiner
2017	Adelle Strobel	Drs Rob Letcher & Bill Willmore	MSc Thesis Defense – Examiner
2017	Brittany Sullivan	Dr Steve Cooke	MSc Thesis Defense – Chair
2016	Kim Birnie-Gauvin	Drs Steve Cooke & Bill Willmore	MSc Thesis Defense – Chair

### CARLETON UNIVERSITY COMMITTEES

2018 – 2019	Carleton University Animal Care Committee
2017 – 2018	Carleton University Vivarium User Group
2017 – 2018	Carleton University Vivarium Planning Committee
2017 – 2018	Carleton University, Faculty of Science Decanal Search Committee
2016 – 2018	Tenure and Promotion Committee, Department of Biology, Carleton University
2017	Carleton University, Department of Chemistry – Organic Toxicology Hiring Committee

### EXTERNAL GRANT PEER REVIEWER

2018	CIHR Institute Community Support (ICS) Planning and Dissemination Grants program
2018	Mitacs Accelerate Proposal Reviewer
2018	National Medical Research Council, Ministry of Health, Singapore
2017	Medicine by Design New Ideas Fund – “New Tools & Devices” Competition

### EXTERNAL COMMITTEES

2018	Ontario Institute of Regenerative Medicine Council Member
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**JOURNAL PEER REVIEWER**

2018 *Physiology*  
2017 *American Journal of Physiology - Endocrinology and Metabolism*  
2017 *Islets*  
2017 *Stem Cell Reports*  
2017 *Journal of Developmental Origins of Health and Disease*  
2017 *Environment International*  
2016 *Journal of Molecular Endocrinology*  
2016 *Toxicological Sciences*  
2016 *Trends in Endocrinology & Metabolism*