CURRICULUM VITAE

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CITIZENSHIP: US Citizen

EDUCATION: BS, Microbiology and Cell Science, University of Florida, 2001. Graduated with high honors.

Ph.D., Immunology and Microbiology, University of Florida, College of Medicine, Interdisciplinary Program in Biomedical Sciences, 2006.

MISSION: The research program of the Brusko laboratory is broad in scope, but is ultimately directed at identifying a prevention and/or cure for type 1 (i.e., insulin-dependent) diabetes (T1D). Key to achieving this goal is an improved understanding of the interactions between environmental, immunologic, and genetic factors that underlie the inability of patients with T1D to maintain immunological tolerance to insulin secreting pancreatic beta cells. In order to achieve this goal, four avenues of research are actively pursued. The first is that of identifying immune defects that herald the progression towards diabetes. The second involves immunogenetics; identifying abnormalities in the humoral and cellular immune response that associate with genetic susceptibility and influence the progression to disease. These studies have highlighted TCR signaling, co-

stimulation, immune metabolism, and the IL-2 signaling axis as key pathways of disease susceptibility. The third involves the generation of antigen-specific regulatory T cells (Tregs) by lentiviral TCR gene transfer. Finally, our laboratory is developing time-release nanoparticle vaccines (so called negative vaccines with self-antigens) for disease prevention.

PROFESSIONAL EXPERIENCE:

2010-present	Associate Professor (tenure), Department of Pathology, Immunology and Laboratory Medicine, University of Florida, College of Medicine, Gainesville, FL.
2007-2010	Post Doctoral Fellow, Laboratory of Dr. Jeffrey Bluestone, Ph.D., Diabetes Center, University of California San Francisco, San Francisco, CA.
2006-2007	Post Doctoral Fellow, Laboratory of Dr. Mark Atkinson, Ph.D., Department of Pathology, Immunology and Laboratory Medicine, University of Florida, College of Medicine. Gainesville, FL.
2002-2006	Graduate student in the Interdisciplinary Program in Biomedical Sciences, University of Florida, Department of Pathology Immunology and Laboratory Medicine, University of Florida College of Medicine, Gainesville, FL.
2001-2002	Laboratory Technician, Laboratory of Dr. Mark Atkinson, Ph.D., Department of Pathology, Immunology and Laboratory Medicine, University of Florida, College of Medicine, Gainesville, FL.
2000-2001	Laboratory Technician and Undergraduate Research, Laboratory of Dr. Jing-Xiong She Ph.D. Department of Pathology, Immunology and Laboratory Medicine, University of Florida, College of Medicine, Gainesville, FL.
1998-2000	Laboratory Technician and Teaching Assistant, Laboratory of Dr. Jack Gartner Ph.D., Department of Natural Sciences, St. Petersburg

College, St. Petersburg, FL.

HONORS/AWARDS

2013	Pfizer Aspire Award Recipient
2012	JDRF Career Development Award
2011	American Diabetes Association, Scientific Sessions-Young Investigator Travel Grant Award
2010	JDRF Early Career Investigator Travel Award
2009	FOCIS Meeting -- National Institutes of Health and JDRF travel awards
2008	Midwinter Conference of Immunologists – JDRF Travel Award Recipient
2007	FOCIS Meeting--National Institutes of Health Travel Award Recipient
2005	Graduate Fellowship for Outstanding Research Award, College of Medicine, University of Florida
2001	Elected to the Golden Key Society

PUBLICATIONS:

1) ***Brusko T. M.*****,** C. H. Wasserfall, M. J. Clare-Salzler, D. A. Schatz, and M. A. Atkinson. 2005. Functional defects and the influence of age on the frequency of CD4+CD25+ T-cells in type 1 diabetes. *Diabetes* 54:1407-1414. PMID: 15855327. PMCID: PMC Journal in Process.

2) ***Brusko T. M.***, C. H. Wasserfall, A. Agarwal, M. H. Kapturczak, and M. A. Atkinson. 2005. An integral role for heme oxygenase-1 and carbon monoxide in maintaining peripheral tolerance by CD4+CD25+ regulatory T cells. *J.Immunol.* 174:5181-5186. PMID: 15843512. PMCID: PMC Journal in Process.

3) Goudy, K. S., B. R. Burkhardt, C. Wasserfall, S. Song, M. L. Campbell-Thompson, ***Brusko T.M.,*** M. A. Powers, M. J. Clare-Salzler, E. S. Sobel, T. M. Ellis, T. R. Flotte, and M. A. Atkinson. 2003. Systemic overexpression of IL-10 induces CD4+CD25+ cell populations in vivo and ameliorates type 1 diabetes in nonobese diabetic mice in a dose-dependent fashion. *J.Immunol.* 171:2270-2278. PMID: 12928371. PMCID: PMC Journal in Process.

4) Guo, D., M. Li, Y. Zhang, P. Yang, S. Eckenrode, D. Hopkins, W. Zheng, S. Purohit, R. H. Podolsky, A. Muir, J. Wang, Z. Dong, ***Brusko T.M.***, M. Atkinson, P. Pozzilli, A. Zeidler, L. J. Raffel, C. O. Jacob, Y. Park, M. Serrano-Rios, M. T. Larrad, Z. Zhang, H. J. Garchon, J. F. Bach, J. I. Rotter, J. X. She, and C. Y. Wang. 2004. A functional variant of SUMO4, a new I kappa B alpha modifier, is associated with type 1 diabetes. *Nat.Genet.* 36:837-841. PMID: 15247916. PMCID: PMC Journal in Process.

5) Haller, M. J., M. Samyn, W. W. Nichols, ***Brusko T.M.***, C. Wasserfall, R. F. Schwartz, M. Atkinson, J. J. Shuster, G. L. Pierce, and J. H. Silverstein. 2004. Radial artery tonometry demonstrates arterial stiffness in children with type 1 diabetes. *Diabetes Care* 27:2911-2917. PMID: 15562206. PMCID: PMC Journal in Process.

6) Kapturczak, M. H., C. Wasserfall, ***Brusko T.M.***, M. Campbell-Thompson, T. M. Ellis, M. A. Atkinson, and A. Agarwal. 2004. Heme oxygenase-1 modulates early inflammatory responses: evidence from the heme oxygenase-1-deficient mouse. *Am.J.Pathol.* 165:1045-1053. PMID: 15331427. PMCID: PMC Journal in Process.

7) Morales, A., C. Wasserfall, ***Brusko T.M.***, C. Carter, D. Schatz, J. Silverstein, T. Ellis, and M. Atkinson. 2004. Adiponectin and leptin concentrations may aid in discriminating disease forms in children and

adolescents with type 1 and type 2 diabetes. *Diabetes Care* 27:2010-2014. PMID: 15277432. PMCID: PMC Journal in Process.

8) You, S., C. Chen, W. H. Lee, ***Brusko T.M.***, M. Atkinson, and C. P. Liu. 2004. Presence of diabetes-inhibiting, glutamic acid decarboxylase-specific, IL-10-dependent, regulatory T cells in naive nonobese diabetic mice. *J.Immunol.* 173:6777-6785. PMID: 15557171. PMCID: PMC Journal in Process.

9) Zhang, Y. C., A. Pileggi, A. Agarwal, R. D. Molano, M. Powers, ***Brusko T.M.***, C. Wasserfall, K. Goudy, E. Zahr, R. Poggioli, M. Scott-Jorgensen, M. Campbell-Thompson, J. M. Crawford, H. Nick, T. Flotte, T. M. Ellis, C. Ricordi, L. Inverardi, and M. A. Atkinson. 2003. Adeno-associated virus-mediated IL-10 gene therapy inhibits diabetes recurrence in syngeneic islet cell transplantation of NOD mice. *Diabetes* 52:708-716. PMID: 12606512. PMCID: PMC Journal in Process.

10) Burkhardt BR, Greene SR, White P, Wong RK, Brestelli JE, Yang J, Robert CE, ***Brusko T.M.***, Wasserfall CH, Wu J, Atkinson MA, Gao Z, Kaestner KH, Wolf BA. PANDER-induced cell-death genetic networks in islets reveal central role for caspase-3 and cyclin-dependent kinase inhibitor 1A (p21).*Gene*. 2006 Jan 10; 369:134-41. PMID: 1642588. PMCID: PMC Journal in Process.

11) Carlos E. Araya, Clive H. Wasserfall, ***Brusko T.M.***, Wei Mu, Mark S. Segal, Richard J. Johnson, Eduardo H. Garin. A Case of Unfulfilled Expectations. Cytokines in Idiopathic Minimal Lesion Nephrotic Syndrome. *Pediatric Nephrology Reviews*. 2006 May;21(5):603-10. PMID: 16525836. PMCID: PMC Journal in Process.

12) ***Brusko T.M.,*** and Mark Atkinson. Treg in Type 1 Diabetes. *Cell Biochem Biophys*. 2007;48(2-3):165-75. PMID: 17709886. PMCID: PMC Journal in Progress.

13) Scumpia, P, Kelly-Scumpia, K., Reeves, W. Clare-Salzler, M., Delano, M., O'Malley, K., McAuliffe, P., Efron, P., ***Brusko T.M.***, Atkinson M., Wynn, J., Barker, T., Moldower, L. Increased natural CD4+CD25+ regulatory T cells and their suppressor activity do not contribute to mortality in murine polymicrobial sepsis. *J. Immunol*. 2006 Dec 1;177(11):7943-9. PMID: 17114466. PMCID: PMC Journal in Process.

14) Ostrov DA, Barnes CL, Smith LE, Binns S, ***Brusko T.M.***, Brown AC, Quint PS, Litherland SA, Roopenian DC, Iczkowski KA. Characterization of HKE2: an ancient antigen encoded in the major histocompatibility complex. *Tissue Antigens*. 2007 Feb;69(2):181-8.

PMID: 17257322. PMCID: PMC Journal in Progress.

15) ***Brusko T.M***., Clive Wasserfall, Kieran McGrail, Richard Schatz, Hilla Lee Viener, Desmond Schatz, Michael Haller, Jennifer Rockell, Peter Gottlieb, Michael Clare-Salzler, and Mark Atkinson**.** No Alterations in the Frequency of FOXP3^{+} Regulatory T-Cells in Type 1 Diabetes. *Diabetes*. 2007 Mar;56(3):604-12. PMID: 17327427. PMCID: PMC Journal in Progress.

16) Lowe CE, Cooper JD, ***Brusko T.M.***, Walker NM, Smyth DJ, Bailey R, Bourget K, Plagnol V, Field S, Atkinson M, Clayton DG, Wicker LS, Todd JA. Large-scale genetic fine mapping and genotype-phenotype associations implicate polymorphism in the IL2RA region in type 1 diabetes. *Nat Genet*. 2007 Sep; 39(9):1074-1082. PMID: 17676041. PMCID: PMC Journal in Progress.

17) ***Brusko T.M.***, Maigan A. Hulme, Courtney B. Myhr, Michael J. Haller, and Mark A. Atkinson. Assessing the In Vitro Suppressive Capacity of Regulatory T Cells. *Immunol Invest.* 2007;36(5-6):607-28. PMID: 18161521. PMCID: PMC Journal in Progress.

18) Greg Simon, Matthew Parker, Vijayakumar Ramiya, Clive Wasserfall, Yanfei Huang, Damien Bresson, R Fletcher Schwartz, Martha Campbell-Thompson, Lauren Tenace, ***Brusko T.M.***, Song Xue, Abraham Scaria, Michael Lukason, Scott Eisenbeis, John Williams, Michael Clare-Salzler, Desmond Schatz, Bruce Kaplan, Matthias Von Herrath, Karl Womer, and Mark A. Atkinson. Murine Anti-Thymocyte Globulin Therapy Alters Disease Progression in NOD Mice by a Time Dependent Induction of Immunoregulation. *Diabetes.* 2008 Feb;57(2):405-14. PMID: 18039815. PMCID: PMC Journal in Progress.

19) ***Brusko, T.M.,*** and Jeffrey Bluestone. Clinical application of regulatory T cells for the treatment of type 1 diabetes and transplantation. *Eur J Immunol*. 2008 Apr 8;38(4):931-934. PMID: 18395864. PMCID: PMC Journal in Progress.

20) ***Brusko T.M.***, Amy L. Putnam, and Jeffrey A. Bluestone. Human regulatory T cells: role in autoimmune disease and therapeutic opportunities*. Immunol. Rev.* 2008 Jun;223:371-90. PMID: 18613848. PMCID: PMC Journal in Progress.

21) Haller M.J., Viener, H., Wasserfall, C., ***Brusko T.M.***, Atkinson, M.A., Schatz, D.A. Autologous umbilical cord blood infusion for type 1 diabetes. *Exp Hematol*. 2008 Jun;36(6):710-5. PMID: 18358588. PMCID: PMC2444031.

22) George JF, Braun A, ***Brusko T.M.***, Joseph R, Bolisetty S, Wasserfall CH, Atkinson MA, Agarwal A, Kapturczak MH. Suppression by CD4+CD25+ Regulatory T Cells Is Dependent on Expression of Heme Oxygenase-1 in Antigen-Presenting Cells. *Am J Pathol*. 2008 May 29; 173(1):154-60. PMID: 18511516. PMCID: PMC2438293.

23) Stalvey MS, ***Brusko T.M.***, Mueller C, Wasserfall CH, Schatz DA, Atkinson MA, Flotte TR. CFTR mutations impart elevated immune reactivity in a murine model of cystic fibrosis related diabetes. Cytokine. 2008 Sep 6; 44(1):154-9. PMID: 18778952. PMCID: PMC Journal in Progress.

24) Song Xue, Clive H. Wasserfall, Matthew Parker, ***Brusko T.M.***, Sean McGrail, Kieran McGrail, Marcus Moore, Martha Campbell-Thompson, Desmond A. Schatz, Mark A. Atkinson, and Michael J. Haller. Exendin-4 Therapy in NOD Mice with New-Onset T1D Increases Regulatory T Cell Frequency. Immunology of Diabetes V: Ann NYAS 1150:152-158 (2008). Doi: 10.1196/annals.1447.049. PMID: 19120286. PMCID: PMC Journal in Progress.

25) ***Brusko T.M.*** [*], A.L. Putnam, M.R. Lee, W. Liu, G.L. Szot, T. Ghosh, M.A. Atkinson, and J.A. Bluestone. Expansion of Human Regulatory T Cells from Patients with Type 1 Diabetes. *Diabetes,* 2009 Mar;58(3):652-62. PMID: 19074986. PMCID: PMC2646064.
** Co-first author*

26) ***Brusko T.M.***, Mesenchymal stem cells: A possible "Border Patrol" for transplanted islets. Commentary. *Diabetes*, 2009 Aug;58(8):1728-9. PMID: 19638531. PMCID: PMC2712779.

27) Haller M.J., Wasserfall C.H., McGrail K.M., Cintron M, ***Brusko T.M.***, Wingard J.R., Kelly S.S., Shuster J.J., Atkinson M.A., Schatz D.A. Autologous Umbilical Cord Blood Transfusion in Very Young Children with Type 1 Diabetes. *Diabetes Care*. 2009 Nov;32(11):2041-6. PMID: 19875605. PMCID: PMC2768209.

28) ***Brusko T.M.,*** and Jeffrey Bluestone. Regulatory T cells directed to the site of the action. Commentary. Proc Natl Acad Sci U S A. 2009 Dec 1; 106(49):20553-4. PMID: 19955436. PMCID: PMC2791590.

29) ***Brusko T.M.***, Clive Wasserfall, C.H., Hulme M., Cabrera R., Schatz D., and M.A. Atkinson. Influence of Membrane CD25 Stability on T Lymphocyte Activity: Implications for Immunoregulation. *PLoS ONE.* 2009 Nov 24;4(11):e7980. PMID: 19956753. PMCID: PMC2775921.

30) ***Brusko T.M.***, Koya, R.C., Zhu, S, Lee, M.R., Putnam, A.L., McClymont, S.A., Nishimura, M.I., Han, S., Chang, L., Atkinson, M.A., Ribas, A., and Bluestone, J.A. Human antigen-specific regulatory T cells generated by T cell receptor gene transfer. *PLoS ONE*. 5(7): e11726. doi:10.1371/journal.pone.0011726. PMID: 20668510. PMCID: PMC2908680.

31) Stephanie A. McClymont, Amy L. Putnam, Michael R. Lee, Jonathan H. Esensten, Weihong Liu, Udo Baron, Sven Olek, Jeffrey A. Bluestone, and ***Brusko T.M.*** Plasticity of Human Regulatory T Cells in Healthy Subjects and Patients with Type 1 Diabetes. *J Immunol.* 2011;186(7);3918-26. PMID: 21368230. PMCID: PMC3091943.

32) Golovina TN, Mikheeva T, ***Brusko T.M.***, Blazar BR, Bluestone JA, et al. 2011 Retinoic Acid and Rapamycin Differentially Affect and Synergistically Promote the *Ex Vivo* Expansion of Natural Human T Regulatory Cells. PLoS ONE 6(1): e15868. doi:10.1371/journal.pone.0015868. PMID: 21253593. PMCID: PMC3017077.

33) Sobel, E.S., ***Brusko, T.M.***, E.J. Butfiloski, S. Li, C.M. Cuda, A.A. Abid, Westley H. Reeves, W. Hou, and L. Morel. Defective response of $CD4^+$ T cells to retinoic acid and TGF-beta in systemic lupus erythematosus. *Arthritis Research & Therapy*. 2011 Jun 27;13(3):R106. PMID: 21708033. PMCID: PMC3218921.

34) Haller, M.J., Wasserfall, C.H., Hulme, M.A., Cintron, M., ***Brusko, T.M.***, Wingard, J.R., Zeigler, A., Wallner, M., Simell, O, Shuster, J.J., Atkinson, M.A., Schatz, D.A. Autologous Umbilical Cord Blood Transfusion in Young Children with Type 1 Diabetes Increases Regulatory T Cells but Fails to Preserve C-Peptide. *Diabetes Care*. 2011 Dec;34(12):2567-9. PMID: 22011412. PMCID: PMC3220832.

35) Hulme, M.A., Wasserfall, C.H., Atkinson, M.A., ***Brusko T.M.,*** Central Role for Interleukin-2 in type 1 Diabetes. Perspectives. *Diabetes,* 2012 Jan;61(1):14-22. PMID: 22187370. PMCID: PMC327657.

36) R. Cabrera, A. Fitian, M. Ararat, Y. Xu, ***Brusko T.M.***, C. Wasserfall, M.A. Atkinson, C. Liu, and D.R. Nelson. Serum levels of soluble CD25 as a marker for hepatocellular carcinoma. *Oncology Letters*. 2012 Oct;4(4):840-846. PMID: 23205111. PMCID: PMC3506698.

37) Thompson, J.A., Perry, D. and ***Brusko T.M.*** Autologous Regulatory T Cells for the Treatment of Type 1 Diabetes. *Cur Diab Rep.* 2012 July 28. 10.1007/s11892-012-0304-5. PMID: 22843491. PMCID: PMC Journal in Progress.

38) R. Cabrera, M. Ararat, Y. Xu, ***Brusko T.M.***, C. Wasserfall, M.A. Atkinson, LJ Chang, C. Liu, and D.R. Nelson. Immune modulation of effector CD4+ and regulatory T cell function by sorafenib in patients with hepatocellular carcinoma. *Cancer Immunol Immunother*. 2012 Dec 7. PMID: 23223899. PMCID: PMC Journal in Process.

39) MJ Haller, CH Wasserfall, MA Hulme, M Cintron, ***Brusko T.M.***, KM McGrail, JR Wingard, DW Theriaque, JJ Shuster, RJ. Ferguson, M Kozuch, M Clare-Salzler, MA Atkinson, DA Schatz. Autologous Umbilical Cord Blood (UCB) Infusion Followed by Oral Docosahexanoic Acid (DHA) and Vitamin D (VitD) Supplementation for C-Peptide Preservation in Children with Type 1 Diabetes (T1D). *Biology of Blood and Marrow Transplantation*. 2013 Jul;19(7):1126-9. PMID: 23611977

40) C.B. Myhr, M.A. Hulme[a], C.H. Wasserfall[a], P.J. Hong[a], P.S. Lakshmi[a], D.A. Schatz[b], M.J. Haller[b], ***Brusko T.M.****, and M.A. Atkinson[a]*. The autoimmune disease-associated SNP rs917997 of *IL18RAP* controls IFNγ production by PBMC. *Journal of Autoimmunity*. 2013 Aug;44:8-12. PMID: 23891168. *Co-corresponding author

41)C. Mueller, J. Chulay, B. Trapnell, M. Humphries, B. Carey, R. Sandhaus, N.G. McElvaney, L. Messina, Q. Tang, F. Rouhani, M. Campbell-Thompson, A Dongtao Fu, A. Yachnis, D. Knop, G. Ye, M. Brantly, R. Calcedo, S. Somanathan, L. Richman, R. Vonderheide, M Hulme, ***Brusko T.M.***, J.M. Wilson, and T. Flotte. Human Treg responses allow sustained recombinant adeno-associated virus-mediated transgene expression. *J. Clin. Invest*. 2013 Nov 15. PMID: 24231351.

42)A. Gjymishka, R.M. Coman, ***Brusko T.M.***, S.C. Glover. Influence of host immunoregulatory genes, ER stress and gut microbiota on the shared pathogenesis of inflammatory bowel disease and Type 1 diabetes. *Immunotherapy* 12/2013; 5(12):1357-1366. PMID: 24283846

43) Lewis JS, Roche C, Zhang Y, ***Brusko TM***, Wasserfall CH, Atkinson M, Clare-Salzler MJ, Keselowsky BG. Combinatorial delivery of immunosuppressive factors to dendritic cells using dual-sized microspheres. *J Mater Chem B Mater Biol Med*. 2014 May 7;2(17):2562-2574. PMID: 24778809.

44) R. Herzog, D. Sarkar, M. Biswas, G. Liao, H. Seay, G. Perrin, D. Markusic, ***Brusko TM***, C. Terhorst, and B. Hoffman. Ex Vivo Expanded Autologous Polyclonal Regulatory T Cells Suppress of Inhibitor Formation in Hemophilia. *Molecular Therapy - Methods & Clinical Development.* 2014 Jul 30;1. pii: 14030.

45) MJ Haller, SE Gitelman, PA Gottlieb, AW Michels, SM Rosenthal, JJ Shuster, B Zou, ***TM Brusko***, MA Hulme, CH Wasserfall, CE Mathews, MA Atkinson, and DA Schatz. ATG and G-CSF Preserves Beta Cell Function in Established Type 1 Diabetes. *J. Clin. Invest.* Jan. 2, 2015;125(1):448–455. PMID: 25500887.

46) Y. Yin, SC. Choi, Z. Xu, D.J. Perry, H.R. Seay, B.P. Croker, E.S. Sobel, ***TM Brusko***, and L. Morel. Normalization of $CD4^+$ T Cell Metabolism Reverses Lupus. *Sci. Trans Med*. 2015 Feb 11;7(274):274ra18. PMID: 25673763.

47) C.A. Fuhrman, W. Yeh, H.R. Seay, P. Saikumar Lakshmi, G. Chopra, L. Zhang, D.J. Perry, S.A. McClymont, M. Yadav, M-C. Lopez, H.V. Baker, Y. Zhang, Y. Li, M. Whitley, D. Schack, M.A. Atkinson, J.A. Bluestone, and ***T.M. Brusko***. Divergent phenotypes of human regulatory T cells expressing the receptors TIGIT and CD226. *Journal of Immunology*. 2015 May 20. pii: 1402381. PMID: 25994968.

48) Xue S, Posgai A, Wasserfall C, Myhr C, Campbell-Thompson M, Mathews CE, ***T.M. Brusko***, Rabinovitch A, Savinov A, Battaglia M, Schatz D, Haller M, Atkinson M. Combination therapy reverses hyperglycemia in NOD mice with established type 1 diabetes. *Diabetes*. 2015 Jul 16. pii: db150164. PMID: 26185279

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51) M.J. Haller, S.E. Gitelman, P.A. Gottlieb, A.W. Michels, D.J. Perry, A.R. Schultz, M.A. Hulme, J.J. Shuster, B. Zou, C.H. Wasserfall, A. Posgai, C.E. Mathews, *T.M. Brusko*, M.A. Atkinson, D.A. Schatz. Anti-Thymocyte Globulin + G-CSF Combination Therapy Leads to Sustained Immunomodulatory and Metabolic Effects in a Subset of Responders with Established Type 1 Diabetes. *Diabetes*. 2016 Sep; db160823. PMID: 27669730.

PRESENTED ABSTRACTS AND INVITED LECTURES:

Brusko T. M., C. H. Wasserfall, M. J. Clare-Salzler, D. A. Schatz, and M. A. Atkinson. Functional defects and the influence of age on the frequency of CD4+ CD25+ T-cells in type 1 diabetes. Scientific Sessions of the American Diabetes Association. 2005. Presentation type: Oral

Brusko T. M., C. H. Wasserfall, M. A. Atkinson. Dynamics of CD4+CD25+ T cells and soluble CD25 in Type 1 Diabetes. Scientific Sessions of the American Diabetes Association. 2005. Presentation type: Oral

Brusko T. M., C. H. Wasserfall, M. A. Atkinson. 2006. CD25 Stability Controls the In Vitro Suppressive Capacity of CD4+CD25+ Regulatory T Cells. Scientific Sessions of the American Diabetes Association. 2006. Presentation type: Poster

Brusko T.M., C.H. Wasserfall, K.M. McGrail, A.L. Huegel, M.C. Moore, D.A. Schatz, M.A. Atkinson. Regulatory T Cells Require Serum for Suppression of Effector T Cell Proliferation and Express Stable Membrane-bound CD25. The Federation of Clinical Immunology Societies (FOCIS). 2007. Presentation type: Oral

Brusko T.M., Amy L. Putnam, Shirley Zhu, Michael R. Lee, Weihong Liu, Michael Nishimura, Richard Koya, and Jeffrey A. Bluestone. Engineered antigen-specific human regulatory T cells by viral TCR gene transfer. 2008 Beijing International Conference on Regulatory T Cells.
Type: Oral

Brusko T.M., A.L. Putnam, S. Zhu, M.R. Lee, W. Liu, M. Nishimura, R. Koya, and J.A. Bluestone. Development of engineered antigen-specific human regulatory T cells by viral TCR gene transfer. Meeting of the Midwinter Conference of Immunologists at Asilomar, Pacific Grove, CA, January 26-29th, 2009.

Brusko T.M., S. Zhu, A.L. Putnam, M.R. Lee, S. McClymont, W. Liu, M. Nishimura, R. Koya, T. Tree, J.L. Riley, and J.A. Bluestone. Development of engineered antigen-specific human regulatory T cells for the treatment of type 1 diabetes by TCR gene transfer. FOCIS (Federation of Clinical Immunology Societies), San Francisco, CA, June 11-14, 2009.

Brusko T.M. ADA (American Diabetes Association), 69th Scientific Sessions, New Orleans, LA June 5-9, 2009. Presentation type: Invited talk entitled “New therapies in the pipeline-regulatory T cells”

Brusko T.M. 9th International Conference on New Trends in Immunosuppression and Immunotherapy - Invited talk entitled “Pre-clinical and clinical use of Tregs in autoimmunity, Geneva, Switzerland. Feb 4-6th, 2010.

Brusko T.M. Tri-institutional Stem Cell Retreat - Invited talk entitled "Engineering tolerance to autoantigens in type 1 diabetes-Lentiviral TCR delivery to human regulatory T cells, Asilomar, CA. April 14-16th, 2010.

S. McClymont, M.R. Lee, A.L. Putnam, W. Liu, J. A. Bluestone, and ***Brusko T.M***. Stability and Plasticity of Human Regulatory T cells: Characterization of IFN-γ^+ Tregs. FOCIS (Federation of Clinical Immunology Societies), Boston, MA, June 11-14, 2010.

Brusko T.M., R.C. Koya, S. Zhu, M.R. Lee, S. McClymont, A.L. Putnam, M. Nishimura, J.A. Bluestone. Lentiviral TCR-engineered Tregs demonstrate effective suppression of T cell responses. FOCIS (Federation of Clinical Immunology Societies), Boston, MA, June 11-14, 2010.

Brusko T.M. Engineered antigen-specific human regulatory T cells for the treatment of type 1 diabetes. The 11th International Congress of the International Diabetes Society. Incheon, Korea. Oct 31-Nov.3 2010. *Invited lecture.*

Brusko T.M. Engineered antigen-specific regulatory T cells. The 11th Annual Rachmiel Levine Diabetes and Obesity Symposium, Advances in Diabetes Research. Pasadena, CA. March 20-23, 2011. *Invited lecture.*

Zhao Han, Robert Whitener, Mark A. Atkinson, Michael J. Haller, Desmond A. Schatz, Jeffrey A. Bluestone, and ***Brusko T.M***. Generation of antigen-specific regulatory T cells from human umbilical cord blood. Scientific Sessions of the American Diabetes Association (ADA) June 24 - 28, 2011. San Diego, CA. President's Poster Selection.

Brusko T.M. Flow cytometric analysis and cell sorting in the context of type 1 diabetes. South Eastern Cytometry Interest Group. University of Georgia, Athens, GA. June 23-24, 2011. *Invited lecture*.

Brusko T.M. Genetically-engineered Tregs-where are we going? UCSF Treg Retreat. San Francisco, CA. Aug 29, 2011. *Invited lecture*.

Brusko T.M. Tregs in the pathogenesis and treatment of type 1 diabetes. University of Alabama, Birmingham, AL. Sept. 20-21, 2011. *Invited lecture*.
Christopher Furhman and ***Brusko T.M***. Flow cytometric immunophenotyping of nPOD Donors. Annual JDRF nPOD meeting. Miami, FL. January 15-17, 2012. Presentation type: Oral and Poster.

Brusko, T.M. Immune Regulation in T1D. University of South Florida (USF). Tampa, FL. March 23, 2012. *Invited lecture*.

Brusko, T.M. Regulatory T Cells in the Pathogenesis and Treatment of Type 1 Diabetes. Meeting of the Pediatric Academic Society. Boston, MA. April 28-May 1, 2012. *Invited lecture*.

D.J. Perry, J.A. Thompson, Z. Han, M.A. Atkinson, and ***Brusko T.M.*** Modulation of T cell receptor and Interleukin-2 receptor signaling in human primary $CD4^+$ T cells. Meeting of the American Association of Immunologists (AAI). Boston, MA. May 4-8, 2012. Poster.

Thompson JA, Bluestone JA, ***Brusko T.M.*** Generation of antigen-specific human regulatory T cells by lentiviral knockdown of endogenous receptor and *de novo* TCR expression. Abstract - Federation of Clinical Immunology Societies (FOCIS) June 2012. Vancouver, BC. Poster

Brusko T.M. Immune Regulation in T1D. JDRF Autoimmunity Consortium Center Seminar Series. Harvard Medical School. Boston, MA. October 16-17, 2012. *Invited lecture*.

Brusko, T.M. Type 1 Diabetes-Moving beyond daily insulin injections. Tampa Bay Diabetes Society lecture series. University of South Florida (USF), Diabetes Center. Tampa, FL. Nov 1, 2012. *Invited lecture*.

Fuhrman C., Kelsey K., Wiencke J., Christensen B., Elliot M., Atkinson M.A., Wasserfall C.H., ***Brusko T.M.*** Epigenetic global methylation signature of CD8+ T cells in type 1 diabetes. Annual meeting of the JDRF nPOD Program. Atlantic Beach, FL. February 10-13th, 2012. Oral

Brusko, T.M. Toward cellular therapies for the treatment of type 1 diabetes. Meeting of the American Diabetes Association's 73rd Scientific Sessions, June 21-25, 2013 in Chicago, Illinois. *Invited lecture*.

Brusko, T.M. Immunotherapy for type 1 diabetes. UF Adult Endocrinology Seminar Series. April 4, 2013. Gainesville, FL. *Invited lecture*.

Brusko, T.M. Nanoparticle conjugated Tregs for the treatment of type 1 diabetes. June 27, 2013. Boston, MA. FOCiS JDRF Sponsored Symposium. *Invited lecture*.

Brusko, T.M. Altered T cell metabolism in type 1 diabetes. Meeting of the Immunology of Diabetes Society (IDS). Lorne, Australia. Dec 3-12, 2013. Oral

Brusko, T.M. Moving Beyond GWAS in Type 1 Diabetes. University of Miami Immunology Seminar Series. April 29 2014. Miami, FL. *Invited lecture*.

Brusko, T.M. Moving Beyond GWAS in Type 1 Diabetes. University of Florida Animal Sciences Seminar Series. August 28th 2014. Gainesville, FL. *Invited lecture*.

K.D. Davidson[2], C.A. Fuhrman[1], W. Yeh[1], H.R. Seay[1], K.T. Balavage[1], and ***Brusko, T.M*.** Lymphocyte expression and activity of the co-stimulatory molecules CD226 and TIGIT in decidual tissue and umbilical cord blood. Abstract - Federation of Clinical Immunology Societies (FOCIS) June 25-28, 2014. Chicago, IL. Poster

PS Lakshmi, Myhr, G Tahhan, C Wasserfall, M Wallet, M Atkinson, and ***Brusko, T.M*.** Genetic regulation of TLR7/8 by SNP rs5979785 and its impact on T1D. Abstract - Federation of Clinical Immunology Societies (FOCIS) June 25-28, 2014. Chicago, IL. Poster

S. Rothweiler, H.R Seay, H. Robins, J.A. Bluestone, ***T.M. Brusko***. The adaptive immune repertoire in T1D. Meeting of the JDRF nPOD consortium. St. Petersburg, FL Feb 22-25th 2015. Poster

Brusko, T.M. Immunometabolic dysregulation in type 1 diabetes. Meeting of the Immunology of Diabetes Society (IDS). Munich, Germany. April 9-13, 2015. Oral invited lecture.

Brusko, T.M. " Optimizing Treg stability and specificity for the treatment of type 1 diabetes". Meeting of the American Society for Cell and Gene Therapy (ASCGT). New Orleans, LA. May 13 - 16, 2015. Invited lecture.

Brusko, T.M. Sean N. Parker Autoimmunity Research Retreat. University of California, San Francisco (UCSF). May 28th, 2015. Invited participant.

Brusko, T.M. "A cord blood stem cell program involving Treg cell expansion for the treatment of type 1 diabetes". Sanford Research's 5th annual T1D Symposium, "Advances in Stem Cell Therapies for Type 1 Diabetes". Sioux Falls, South Dakota. June 18-19th, 2015. Oral invited lecture.

J. Cserny, J.S. Lewis, B.G. Keselowsky, H.R. Seay, M.J. Haller, D.J. Perry, ***Brusko, T.M***. Development of Nanoparticle-coupled Regulatory T cell Vaccine for Treatment of Type 1 Diabetes. Federation of the Clinical Immunology Society (FOCiS). Boston, MA. June 22-28.

Brusko, T.M. The business of science: using SBIR funding to advance science and translation. UF Department of Pathology and Laboratory Medicine. Grand rounds lecture seminar series. Gainesville, FL. June 3, 2015.

Brusko, T.M. “Engineering T cells”. 76th Scientific Sessions of the American Diabetes Association (ADA). New Orleans, LA. June 10-14th, 2016. Oral invited lecture.

Yeh, W-I. A. Schultz, Atkinson M., Wasserfall, C., Newby, B., Mathews, C., Seay, H.R., Chen, Y-G., and ***Brusko, T.M***. “The type 1 diabetes costimulatory molecule CD226 impacts lymphocyte frequency and CD8+ T cell function”. 76th Scientific Sessions of the American Diabetes Association (ADA). New Orleans, LA. June 10-14th, 2016. Oral invited lecture.

CO-AUTHORED ABSTRACTS:

Y. Zhang, C., Pileggi, A., Damaris Molano, R., Wasserfall, C., Campbell-Thompson, M., Zahr, E., Poggioli, R., ***Brusko T.M.***, Flotte, T., Ricordi, C, Atkinson, M., Inverardi, L. Adeno-Associated Virus Mediated Interleukin-10 Gene Therapy Markedly Inhibits Islet Allograft Rejection in NOD Mice. Scientific Sessions of the American Diabetes Association. 2004. Presentation type: Oral

Stalvey M., Muller C., Wasserfall, C., ***Brusko T.M.***, Schatz, D., Atkinson, M., Flotte, T. Modeling cystic fibrosis related diabetes in CFTR-deficient mice: Effects of CFTR genotype on glycemic control after sub-lethal beta cell injury or pulmonary sensitization and challenge. North American Cystic Fibrosis Conference, 2005. Presentation type: Oral

Wasserfall, C., Schwartz R., Simon, G., Binns, S., ***Brusko T.M.***, Stalvey, M., Clare-Salzler, M., Song, S., Campbell-Thompson, M., Flotte, T., Atkinson, M. A dichotomous role for interleukin-10 in the pathogenesis of type 1 diabetes. Scientific Sessions of the American Diabetes Association. 2005. Presentation type: Oral

Haller MJ, Viener HL, ***Brusko T.M.***, Wasserfall C, McGrail K, Staba S, Cogle C, Atkinson M, Schatz DA. Insulin requirements, HbA1c, and stimulated C-peptide following autologous umbilical cord blood transfusion in children with T1D. DIABETES 56: A82-A82 Suppl. 1, JUN 2007
Type: Oral

A.L. Putnam, ***Brusko T.M.***, M.R. Lee, W. Liu, G.L. Szot, and J.A. Bluestone. Moving Tregs to the clinic: expansion and characterization of human regulatory T cells. 2008 Beijing International Conference on Regulatory T Cells.
Type: Oral

Putnam AL, McClymont, SA, ***Brusko T.M.***, Lee MR, Liu W, Ghosh T, Bluestone JA. Expanded Tregs as a cellular therapy in Type 1 Diabetes. International Society of Cellular Therapy (ISCT), San Diego CA, May 2009.

Tang, M., Lu, Y., ***Brusko T.M.***, Wasserfall, C., Zhang, B., Campbell-Thompson, M., Atkinson, M., Song, S. Prevention of Type 1 diabetes by AAT gene therapy is dose and time dependent. Scientific Sessions of the American Diabetes Association. 2005.

Haller, M., Cooper, S., Putnam, A., Freed, B., ***Brusko T.M.***, Chase, P., Atkinson, M., Schatz, D. Autologous cord blood transfusion associated with prolonged honeymoon in a child with type 1 diabetes (T1D). Scientific Sessions of the American Diabetes Association. 2005.

Goudy K, Wasserfall C, Burkardt BA, ***Brusko T.M.***, et al. Evaluation of mechanism, dose, and time dependency for AAV-IL-10 gene therapy in NOD mice. *Diabetes* 51: 1159 Suppl. 2 JUN 2002

Putnam AL, McClymont, SA, ***Brusko T.M.***, Lee MR, Liu W, Ghosh T, Bluestone JA. Stability and purity of expanded human $CD4^{+}CD127^{lo/-}CD25^{+}$ Tregs for use in cellular for the treatment of type 1 diabetes. Abstract - Federation of Clinical Immunology Societies (FOCIS) June 2009.

Stalvey, M., Wasserfall, C., ***Brusko T.M.***, Flotte, T., Schatz, D., Atkinson, M. A pro-inflammatory state and hyperglycemia are associated with a cystic fibrosis related diabetes mouse model. Scientific Sessions of the American Diabetes Association. 2005.

Putnam A, Lee M, Liu WH, Escosa H, ***Brusko T.M.***, Bluestone J.
CLINICAL IMMUNOLOGY. Volume: 135. Pages: S23-S23. 2010.
The Use of CD4+CD127lo/-CD25+Polyclonal Tregs for the Treatment of Recent Onset T1D in a Phase I Clinical Trial.

Cabrera R., Ararat M., Cao M., Xu Y., Wasserfall C., ***Brusko T.M.***, Atkinson M.A., Liu C., and Nelson D.R. Sorafenib modulates immune responses in patients with hepatocellular carcinoma. 102nd Annual Meeting of the American Association for Cancer Research. Orlando, FL. April 2-6, 2011.

Fuhrman, C.A., Gubernick, D.M., ***Brusko T.M.***, Ostrov D.A. Targeting the PD-1/PD-L1 complex with drug-like small molecules to induce T-cell tolerance. Meeting of the American Association of Immunologists (AAI). San Francisco, CA. May 13-17th, 2011.

Hulme MA, Wasserfall CW, ***Brusko T.M.***, Haller MJ, Schatz DA, Ostrov DA, Atkinson MA. Small Molecule modifications of the IL-2 receptor:Implications for therapy in type 1 diabetes. Scientific Sessions of the American Diabetes Association (ADA) June 24 - 28, 2011. San Diego, CA.

MJ Haller, C Wasserfall, K McGrail, M Cintron, ***Brusko T.M.***, J Wingard, WB Slayton, MA Atkinson, DA Schatz. Pilot Study of Autologous Umbilical Cord Blood (UCB) Transfusion Followed by Docosahexanoic Acid (DHA) and Vitamin

D (VitD) Supplementation in Children with Type 1 Diabetes (T1D) Scientific Sessions of the American Diabetes Association (ADA) June 8-12, 2012. Philadelphia, PA.

Hulme MA, Han Z, Alexander J, Wasserfall CW, Haller MJ, Schatz DA, ***Brusko T.M.***, and Atkinson MA. Soluble CD25 Expression in Primary Human CD4+ T cells enhances cellular expansion and IL-2 responsiveness. Immunology of Diabetes Society (IDS). June 15 - 18, 2011. Victoria, BC, CA.

Myhr C, Wasserfall CW, Haller MJ, Schatz DA, ***Brusko T.M.***, and Atkinson MA. Increased IL-18 Pathway Phenotypes are Associated with Human Type 1 Diabetes. Immunology of Diabetes Society (IDS). June 15 - 18, 2011. Victoria, BC, CA.

Chen J, Lightfoot YL, Thompson J, ***Brusko T.M.***, Mathews CE. Mt-MD2^{a} Protects Mouse and Human β Cells Against Immune Insults. Immunology of Diabetes Society (IDS). June 15 - 18, 2011. Victoria, BC, CA.

D. Sarkar, D.M. Markusic, C. Terhorst, ***Brusko T.M.***, R.W. Herzog. Suppression of Inhibitor Formation in Protein and Gene Therapy for Hemophilia Using *Ex Vivo* Expanded Treg. American Society of Hematology.

Perry D., Li J., ***Brusko T.M.***, Mathews C., Chen J. Patients and Individuals At-risk for Developing Type 1 Diabetes Exhibit Peripheral T Cell Mitochondrial Inner Membrane Hyperpolarization. American Diabetes Association (ADA) Scientific Sessions. June 21 – 25, 2013. Chicago, IL.

Newby B., Lightfoot Y., Thompson J., Clare-Salzler M., ***Brusko T.M.***, Mathews C. Type 1 Interferons Prime Human β Cells for Destruction by Autoreactive Human Cytotoxic T Lymphocytes. American Diabetes Association (ADA) Scientific Sessions. June 21 – 25, 2013. Chicago, IL.

Sarkar D., Markusic D., Terhorst C., ***Brusko T.M.***, Herzog RW. Suppression of Inhibitor Formation in Protein and Gene Therapy for Hemophilia Using Ex Vivo Expanded Treg. MOLECULAR THERAPY Volume: 21 Supplement: 1 Pages: S45-S45 Meeting Abstract: 109 Published: JUN 2013.

M.J. Haller, M.A. Atkinson, S.E. Gitelman, P.A. Gottlieb, A. Michels, S. Sanda, S. Rosenthal, M.A. Dennis, M. Cintron, R. Wesch, M. Wertz, K. McGrail, J. Lungaro, M. Schwartz, M.A. Hulme, ***Brusko, T.M.***, C.E. Mathews, C. Wasserfall, D.A. Schatz. Combination Low-Dose Antithymocyte Globulin (ATG) and Granulocyte Colony Stimulating Factor (GCSF) Preserves Beta-Cell Function in Patients with Established Type 1 Diabetes (T1D). American Diabetes Association (ADA) Scientific Sessions. June 15, 2014. San Francisco, CA.

Ventriglia, G, Sebastiani, G, Stabilini, A, Mancarella, F, Nigi, L ***Brusko, T.M.***, Battaglia, M; Dotta, F.MiR-125a-5p is up-regulated in un-functional CD4+FOXP3+T regulatory cells deriving from pancreatic lymph nodes of patients with type 1 diabetes and targets C-C chemokine receptor type 2. DIABETOLOGIA. Volume: 57 Page: S104. Supplement: 1 Meeting Abstract: 231. Published: SEP 2014.

M Hulme, M Nelson, C. Graves[1], B. Amador[1], ***Brusko, T.M,*** and S. Wallet. Altered gastrointestinal environment and immune cellular plasticity during disease progression of type 1 diabetes. Meeting of the Immunology of Diabetes Society (IDS). Munich, Germany. April 9-13, 2015. Poster

AA Titov, ***Brusko, T.M***, HV Baker, E Sobel and L Morel. MDM2 ubiquitin ligase in Lupus CD4 T-Cell pathology. Meeting of the American Association of Immunologists. Seattle, WA, May 13-17th 2016. Poster

GRANT FUNDING

Juvenile Diabetes Foundation Research International (JDRF) Pilot and Feasibility Grant: *The Influence of CD25 genotypes on the Control of CD25 and FOXP3 Expression.* Funding period 1-year. P.I. Mark Atkinson as addendum to Immunoregulatory Based Therapies for Type 1 Diabetes. 7-2006-328.

Juvenile Diabetes Foundation Research International (JDRF) Post-Doctoral Fellowship. *Engineered regulatory T cells as a means to restore tolerance in T1D*. Funding period 2-years.

Juvenile Diabetes Foundation Research International (JDRF) Advanced Post-Doctoral Fellowship. Development of antigen-specific human Tregs for the treatment of T1D. Funding period 3-years with 1-year transition funding. Award 10-2010-191.

California Institute for Regenerative Medicine (CIRM). Tolerance induction using engineered stem cell-specific regulatory T cells. 3 Year funding period. Awarded as co-investigator under Jeffrey Bluestone-PI, *(RM1-01703).*

Juvenile Diabetes Foundation Research International (JDRF) Pilot and Feasibility Grant: Investigating human autoreactive T cell responses in humanized mice.. Funding period 1-year (9/1/10-8/31/11). Role: P.I. under JDRF Center director Jeffrey A. Bluestone. Addendum to Collaborative Center for Cell Therapy (CCCT) grant 4-2005-1168.

Juvenile Diabetes Foundation Research International (JDRF) Innovative Grant: Nanoparticle-coupled Tregs for the treatment of type 1 diabetes. Funding period 1-year (09/01/11-9/1/12). 5-2011-469. Role: P.I.

Juvenile Diabetes Foundation Research International (JDRF) Award 25-2010-702. Post transcriptional regulation of pancreas-targeting nTreg cells. PI-Manuela Battaglia, Institute San Rafaelle. Milan, Italy. June 30, 2010-June 30th, 2013. Role: Sub-contracted Co-investigator.

Juvenile Diabetes Foundation Research International (JDRF). Autoimmunity Center Consortium (ACC) Cord Blood Center Grant, Project 1 Cord Blood Therapies for Type 1 Diabetes. JDRF 4-2007-1065. PI-Mark Atkinson. Aug 1, 2011-Aug 1, 2012. Role: Co-investigator.

Juvenile Diabetes Foundation Research International (JDRF). Career Development Award. Investigating human autoreactive T cells in humanized mice. JDRF 2-2012-280. 5/1/12-5/1/16. Role P.I.

American Diabetes Association (ADA). Innovative Grant: Role of T cell mitochondrial function in type 1 diabetes. 7/1/12-6/30/14. Role: Co-investigator.

Juvenile Diabetes Foundation Research International (JDRF). Pioneering pilot grant: Lymphocyte mitochondrial dysfunction on type 1 diabetes. JDRF 17-2012-595. PI – Jing Chen. 09/01/2012-08/31/2015. Role: Co-Investigator.

National Institutes of Health (NIH). R01-AI045050. Characterization of SLE-susceptibility loci on mouse chromosome 1. PI – Laurence Morel. 05/01/2013-04/30/2018. Role: Co-Investigator.

Alliance for Lupus Research (ALR). CD4 T cell metabolism in SLE: Characterization and target identification. Feb 1, 2013-Jan 31, 2016. PI – Laurence Morel. Role Co-Investigator.

PerkinElmer Sponsored Non-restricted Research Grant. Autologous umbilical cord blood expanded regulatory T cell therapy in children with type 1 diabetes. Co-PIs – T.M. Brusko and MJ Haller (Peds). 06/2013-06/2014. Role: Co-PI.

UF Sponsored Seed Grant. Mucosal Therapeutics for Type 1 Diabetes. PI – David Pascual (Veterinary Medicine). 5/1/2013-4/30/2015. Role: Co-I.

National Institutes of Health (NIH). P01. Immune function and the progression to type 1 diabetes. PI – Mark A. Atkinson. 05/01/2013-04/30/2018. Role: Co-Investigator for Project 2

Pfizer - Inspire Hemophilia Grant. Regulatory T Cells with Chimeric Antigen Receptor for Immune Tolerance to Factor VIII. 10/1/13-9/30/15. Role: PI

American Diabetes Association (ADA). Basic Science Award (#7-13-BS-022): Influence of IL-12 and IL-18 on immunoregulation and type 1 diabetes pathogenesis. 7/1/13-6/30/16. Role: PI.

National Institutes of Health (NIH). Small Business Innovative Research (SBIR) grant. 1R43DK100132-01. Polymeric biomaterial-based microparticle vaccine for amelioration of type 1 diabetes. 9/15/2013-8/31/2014. J. Lewis (PI). Role: Founding Scientific Member for OneVax, LLC**.**

Diabetes Research Connection. Nanoparticle coupled regulatory T cells for the treatment of type 1 diabetes. Pilot and feasibility grant mechanism. 1/1/15 – 12/31/15. Role: PI.

National Institutes of Health (NIH). NIDDK Small Business Innovative Research (SBIR). 1R43DK103402-01A1. A novel biomaterial-based therapy to prevent type 1 diabetes. 09/15/2014 - 08/31/2015. G. Marshall (PI). Role: Founding Scientific Member for OneVax, LLC and UF sub-contract PI**.**

National Institutes of Health (NIH). NIDDK Human Islet Research Network (HIRN) UC4 grant (1UC4DK104194-01). Genetic Regulation of Human Beta Cell Destruction. 09/30/2014 – 06/30/2019. C. Mathews (PI/PD). Role: Project Co-Investigator.

The Leona M. and Harry B. Helmsley Charitable Trust. George S. Eisenbarth award for team science. 10/1/14-10/1/17. A. Pugliese (PI). Role: Co-Investigator.

Cord Blood Registry (CBR) Sponsored Non-restricted Research Grant. Cord blood expansion of regulatory T cells. Co-PIs – T.M. Brusko and MJ Haller (Peds). 01/19/2015-01/18/16. Role: Co-PI.

Hyundai Hope on Wheels. Sponsored Non-restricted Research Grant. Minimizing Leukemia Relapses: A Phase I Dose Escalation Study of Decitabine in High Risk. PI- Lamis Eldjerou (Peds). Role: Project Co-Investigator. 11/1/14-11/1/15.

University of Florida Preparatory Grant Program. Therapeutic targeting of immune metabolism. PI/PDs, Laurence Morel and Clayton Mathews. Role: Co-I and Immune Profiling Core PI. May 1, 2015-April 30, 2017.

American Diabetes Association (ADA). Minority Undergraduate Internship Funding Award (#1-16-MUI-02): Determining the influence of IL-12 and IL-18 signaling on Treg activity. 1/1/16-12/31/2016. Role: Mentor PI.

National Institutes of Health. Human Islet Research Network (HIRN) Pilot Award. Characterization and in silico reconstruction of TCRs for modeling autoreactive T cells in T1D. NIH NIDDK 0U01DK104162-02. Sub-contract through the City of Hope 2/1/16-1/31/17. Joyce Nilan-PI, Role: UF PI.

National Institutes of Health. The CD226 and TIGIT costimulatory axis in type 1 diabetes. NIAID R01 (7/1/15-6/30/20). Role: PI

Cord Blood Registry (CBR) Sponsored Non-restricted Research Grant. Clinical Trial Planning Grant for Treg Therapy in Type 1 Diabetes. PI –MJ Haller (Peds). 06/29/2016-11/30/17. Role: Co-I.

National Institutes of Health. Insulin Specific T and B cells in Type 1 Diabetes. NIDDK DP3 1DP3DK110845-01 (08/01/2016-07/31/2019). PIs –J. Cambier and A. Michaels, Univ. of Colorado. Role: Co-I.

Univ of California San Francisco/National Institutes of Health/NIAID. 1P01AI118688 Disruption of T cell tolerance in type 1 diabetes. 06/06/2016-05/31/2019. Mark Anderson (PI) Role: Co-I

PENDING RESEARCH SUPPORT

Univ of California San Francisco/ National Institutes of Health NIDDK DP3 Role of transposable elements in pluripotent stem cells and early development. 12/1/2016-11/30/2019. Alex Marson (PI) Role: Co-I

Onevax, LLC./ National Institutes of Health SBIR. Biomaterial-based delivery of Interleukin-2 to Regulatory T Cells for the amelioration of Type 1 diabetes. 04/03/2017-04/02/2018. Greg Marshall (PI). Role Co-I

Onevax, LLC./ National Institutes of Health R21 Delivery of biomaterial-conjugated regulatory T Cells for the amelioration of Type 1 Diabetes. 707/03/2017-07/02/2019 Greg Marshall (PI) Role: Co-I

GRANT REVIEWS AND STEERING COMMITTEES

Institutional Grant Reviews
Student grant review committee (2006)

Medical Guild Research Incentive Awards (2010)

Experimental Pathology, departmental post-doctoral grant review committee (2011), University of Florida, College of Medicine

Thrasher Research Fund for children's medical research grant reviewer. (2011, Ad Hoc)

JDRF Medical Science Review Committee (MSRC) member. Served to review the Autoimmunity Center Consortiums, strategic grant review committees, and training award applications, which include Advanced Postdoctoral Fellowships (APFs), Postdoctoral Fellowships (PFs), Career Development Awards (CDAs) and Early Career Patient Oriented Diabetes Research Award (ECPDRs). (2011-2014); Reviewer for JDRF RFA: Studies Relevant to the Discovery and Development of Antigen Specific Therapies for Human Type 1 Diabetes, 2013.

NIH Type 1 Diabetes TrialNet: Ancillary studies presentations and publications (PPS) subcommittee review member (2016-ongoing)
NIH RFA-DK-10-012 Type 1 Diabetes Impact Award (DP3) – Member of the scientific review panel.
(2011)

American Diabetes Association (ADA) – Research Grant Review Committee (RGCR) member.
(2013-2015)

American Diabetes Association (ADA) – Scientific Sessions Abstract and Late Breaking Abstract Reviewer (Immunology) 2012.

NIH NIDDK – RFA-DK-11-024. "Small Business Innovative Research to Develop New Methods and Technologies able to Identify Individuals at risk of developing Type 1 Diabetes (T1D) (R43)". SBIR study section reviewer.
(2012)

French National Research Agency. "Blanc" program specialized reviewer. B7-IT. Committee SVSE 1
(2012)

Israel Science Foundation. ISF-JDRF Joint Program in Type 1 Diabetes Research. Ad hoc reviewer. (2012).

NIH NIDDK. Special emphasis panel review committee member. RFA-DK-11-019 entitled, "Function of Type 1 Diabetes Genes (DP3).
June 28-29, 2012.

Landsteiner Foundation for Blood Transfusion Research. Scientific advisory council. Ad hoc grant reviewer. July 13, 2012.

The Joslin Diabetes Research Center (DRC) at Harvard Medical School. Ad Hoc reviewer for internal Pilot and Feasibility Awards. Jan. 2013.

The Decade of Discovery in Diabetes (DoDD) Grant reviewer for the partnership between the University of Minnesota and the Mayo Clinic. May 2013.

Helmsley Trust Breakthrough Therapeutics Initiative Grant Reviewer. Dec. 2013.

JDRF Biomarker Working Group. Committee member 2013-2015.

NIH Ad Hoc member. TrialNet Biomarkers and Mechanisms Panel

Helmsley T1D Exchange Living Biobank Scientific Advisory Board Steering Committee Participant. March 5th, 2014, Tampa, FL

R&D Challenge Fund, The Guy's & St Thomas' Charity, South London and the Maudsley Charity, the Medical Research Cousil and the Welcome Trust. King's College London. Ad Hoc Grant Reviewer. March 2014.

Advisory Board Member
Help a Diabetic Child Foundation
www.helpadiabeticchild.org

Diabetes UK
Reviewer for the Special Emphasis Panel for the Prevention and Treatment of Type 1 Diabetes
Ad hoc grant reviewer, July, 2014

Discovery-Diabetes (DIS-DIA) peer review panel of the 2015 PRMRP Program for the Department of Defense Congressionally Directed Medical Research Programs (CDMRP). Ad Hoc Grant Reviewer. July 2015.

Science Foundation Ireland. SFI/EI Technology Innovation Development Award (TIDA) 2015 Peer review panel.
Ad Hoc Grant Reviewer. August 2015.

National Institutes of Health (NIH) – National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
Small Business Innovation Research (SBIR) to Develop New Methods and Technologies for Assessment of Risk and for Early Diagnosis and Prognosis of Type 1 Diabetes (T1D) (R43/R44). Special emphasis panel review committee member. RFA-DK-11-024. Ad Hoc Grant Reviewer. January 2016.

TEACHING AND LECTURES

Faculty lecturer

GMS 6140 – Principles of Immunology (Spring 2011)
Topics: Peripheral immune regulation; Modulation of immune responses

GMS 6382 – Advanced Cellular and Molecular Immunology (Fall 2011)
Topics: Regulatory T cells and immune tolerance

GMS 6140 – Principles of Immunology (Spring 2012)
Topics: T cell Development and tolerance, Team Based Learning- Lymphocyte Development, Helper T cell subsets and responses, APC regulation of the immune response, Peripheral immune regulation, Modulation of immune responses

GMS6335 – Advanced Stem Cell Engineering: Tissue Engineering (Fall 2013
Guest lecture on cell therapies in T1D)

BMS 4905 – Mentor sponsored undergraduate research

Faculty mentor
Independent Study in Bioinformatics (MCB 4934, section 1D27, 3 credits)

COURSE DIRECTOR

GMS 6392 –Advanced topics in Immunology (Fall 2012)
Topics: Literature driven discussion of immune regulation and advanced T cell biology.

Medical Guild Faculty Judge - Immunology Concentration student competition (2011, 2012)

PROFESSIONAL DEVELOPMENT

Innovation HUB-002 - SBIR Workshop
Oct. 20, 2011
FEID: 59-6002052

ExCyte advanced flow cytometry module training
Dec. 8, 2014

SERVICE AND ADMINISTRATION

UF Faculty Senate Counsel – Committee member (2014-2017)

UF Faculty Senate Counsel -- Land Use and Facilities Planning Committee Member (term 2015-2018)

UF Commencement Marshall Service (2014-2015)

Coordinator for the Center for Immunology and Transplantation (2014-present)

<u>Undergraduate student research course mentor</u>

<u>University Scholars Program</u>
Research project topic: Bioinformatic analysis of genotype and phenotype interactions in type 1 diabetes

<u>UF-HHMI Science for Life undergraduate intramural research program faculty mentor</u>
Topic: Isolation and expansion of human Tregs via CD226 negative selection

Topic: Single-cell TCR analysis from nPOD tissues in T1D

High student research mentor-Student Science Training Program (SSTP)
Overall, the UF-SSTP offers the motivated student a unique and intensive learning environment designed to provide challenging and inspiring experiences and to stimulate interest in science-related careers.

University of Florida's Center for Precollegiate Education and Training Program (UF CPET). Annual Florida Junior Science, Engineering, and Humanities Symposium (JSEHS). 2013, 2014, 2015.
Host lab

Admissions Reviewer
Interviewer for the UF MD/PhD program 2013, 2014
UF College of Medicine IDP Interviewer 2012, 2013
UF College of Medicine Maternal and Fetal medicine fellowship reviewer 2013

External Admission to Candidacy Examination (ACE) committee member
Weill Medical College of Cornell University
03/13

COMMUNITY OUTREACH

Invited lecture for 60 high school journalism students hosted by the UF Diabetes Center of Excellence and UF journalism schools. Topic: Biomedical research reporting. June 18, 2011.

Guest lecture for JDRF nPOD program. Tour for organ procurement organization (OPO) staff. October 10, 2011.

Host to mini-medical school tours for elementary and high-school education teachers. November 10, 2011.

JDRF Walk to Cure Diabetes, Jacksonville, FL. March 23, 2012.

JDRF Signature Outreach Event Invited Platform Lecture to 200 T1D families. Nickelodeon Suites Hotel. Orlando, FL. August 24-25th, 2012.

UF Diabetes Center of Excellence - Research and Patient Care Symposium. Round table interactive discussion panel member. Gainesville, FL. November 16th, 2012.

Radio Interview. Healthy Talk Segment on RadioMD.com, in partnership with LifeExtension. Interview by Dr. Sheldon Baker, MD. Sept 16, 2015.

SECTIONS CHAIRED

Immunology session chair

2006 University of Florida, College of Medicine Pediatric Science Day
Section on Immunology and Infectious Disease

Immunology session chair
Autoimmunity Working Group Organizer
2013, 2014, 2016 JDRF nPOD meetings
Atlantic Beach, FL; St. Petersburg Beach, FL; Miami, FL

Oral Session Chair at the American Diabetes Association's 73rd Scientific Sessions, June 21-25, 2013 in Chicago, Illinois.
Human Immunology in Clinical Trials

Biomarker Symposium Discussion Chair. Boston, MA. JDRF sponsored symposium. June 28th 2013.

Clinical Immunology Session Chair. Lorne, Australia. Immunology of Diabetes Society. December 9, 2013.

SERVICE

Diabetes Center of Excellence development search committee member (2011)

Diabetes Center of Excellence faculty search committee member (2014)

nPOD faculty search committee member (2012)

Host for Dept. of Pathology mixer July 9th, 2013 – "Focus on diabetes research"

International Student Award faculty selection committee member - 2013

HHMI international student award selection committee member - 2013

Faculty Judge – Poster session of the Center for Mucosal Immunology
Joint meeting of the UF College of Medicine and Veterinary Medicine
Oct. 2013

Faculty Judge – Poster session of the Immunology of Diabetes Society Meeting. Lorne, Australia. Dec. 2013

NIH HIRN annual meeting organization committee member for CMAI (2016)

JOURNAL REVIEWER:
Science Immunology
Science Translational Medicine
Journal of Clinical Investigation
Diabetes

Proceedings of the National Academy of Sciences (PNAS), USA
New England Journal of Medicine
Diabetes Care
Clinical Experimental Immunology
Journal of Pediatrics
International Journal of Endocrinology
Journal of Immunology
Nature Publishing Group – Molecular Therapy
Haematologica
Oncotarget
Medical Hypotheses
Cytotherapy
Cell Transplantation
Diabetes/Metabolism Research and Reviews
Journal of Visualized Experiments (JoVE)
Cancer Immunology Immunotherapy
Pediatric Diabetes
BioMed Central-Immunology
OMICS Publishing Group-Clinical
Acta Diabetologica
Medical Microbiology and Immunology
Medical Principles and Practice
Hormone and Metabolic Research
Public Library of Science (PLoS)-One
Inflammation Research
Clinical Immunology
Current Opinion in Immunology

EDITORIAL ACTIVITIES:

F1000 Associate faculty member and reviewer

Associate Editor – *BMC Immunology* (2012-2015)

SOCIETY MEMBERSHIPS:

American Diabetes Association
American Association for the Advancement of Sciences
Federation of Clinical Immunology Societies
(Immunology of Diabetes Society)
American Association of Immunologists (AAI)

External Activities:
Founding member of *One*Vax, LLC

Mission: *One*Vax, LLC is a business developed to harness the intellectual and research advances of University of Florida faculty for applications in the

advancement of human health, and specifically, type 1 diabetes. Members of the UF Diabetes Institute and the Department of Biomedical Engineering constitute the core membership and provide the scientific direction of the company. The initial business interests of the company involve the development of novel vaccine formulations that incorporate biomaterials and polymers for applications including multicomponent and time-release drug delivery. While the business interests of OneVax go beyond this notion and include disease biomarker discovery, the core goal of the company is to harness our knowledge of the immune system and biomaterials to create a tolerogenic vaccine to prevent and/or reverse the autoimmune cause of type 1 diabetes.

SCIENTIFIC ADVISORY BOARDS
Caladrius Biosciences

Merck – Expert advisor on Treg cell therapies and applications in autoimmune diseases (2016)

Sanofi-Aventis Groupe – T1D Prevention and Cure Advisory Board Meeting (2016)

INTELLECTUAL PROPERTY

Co-inventor for patent application entitled: "*Antigen-Specific, Tolerance-Inducing Microparticles and Uses Thereof*" by Keselowsky et. al.
US Provisional Patent Application Docket filed October 22, 2010. This technology describes the use of biocompatible biomaterials to elute immunomodulatory agents.

Inventor for provisional patent entitled: "*Materials and Methods for modulating immune responses*".
Brusko et al. This technology utilizes regulatory T cells and nanoparticle vaccine formulations to induce immune tolerance in autoimmunity.

Provisional Patent Application:Invention Title: "Regulatory T Cells with Chimeric Antigen Receptor for Immune Tolerance to Factor VIII." Co-Inventors: Todd M. Brusko and Roland Herzog

Provisional Patent Application: Invention Title: "Novel Regulatory T Cells, Methods for their isolation and uses." Co-Inventors: Todd M. Brusko, Christopher Fuhrman, Howard Seay.