

## Martha L. Campbell-Thompson, DVM, PhD

**Address:** Department of Pathology, Immunology, and Laboratory Medicine  
Experimental Pathology Division  
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**Position:** Professor

**Current Research:** Beta-cell biology, Type 1 Diabetes, Islet neuroanatomy and neurophysiology

**Education:** B.S., High Honors, Chemistry, University of Florida, 1976  
D.V.M., Honors, College of Veterinary Medicine, University of Florida, 1980  
Ph.D., Physiological Sciences, College of Veterinary Medicine, Univ. of Florida, 1988

**Membership Professional Societies (current):**  
American Diabetes Association (2007- )  
Society for Neurosciences (2017- )

**University of Florida memberships:**  
Diabetes Institute, Center of Immunology and Transplantation

**Honors, Awards:**  
Large Animal Resident of the Year, University of Florida College of Veterinary Medicine, 1983, 1984  
Diplomat American College of Veterinary Surgeons, 1986  
Comparative Gastroenterology Society Graduate Student Award, 1987  
Charles F. Simpson Memorial Scholarship, 1988  
Florida Veterinary Medical Graduate Student Award, 1988  
Women's Health Research Center advisory board, 2004-2006  
McKnight Brain Institute Brain Tumor Bank advisory board, 2007-2009  
Howard Hughes Medical Institute Undergraduate Mentor Award, 2009  
nPOD Founding Investigator Award, 2018

**Recent Presentations:**  
Invited Speaker, What do organ donor specimens tell us about type 1 diabetes? International Society for Pediatric and Adolescent Diabetes 40th Annual Meeting, Toronto, Canada, Sept. 10, 2014.  
Invited Speaker, Pancreas Exocrine and Endocrine Pathology in the Progression to Type 1 Diabetes 58th Annual Meeting of the Japan Diabetes Society, May 21st to 24th, 2015, Shimonoseki, Japan  
Lecturer, Histopathology of Type 1 Diabetes, Department of Pathology, Okinaka Memorial Institute for Medical Research, May 25, 2015, Tokyo, Japan  
Pancreas innervation as a target for neuromodulation, SPARC annual PI meeting, March 8, 2017, Bethesda MD  
Pancreas volume in type 1 diabetes, TrialNet Steering Committee, October 27, 2017  
Insulinitis in Type 1 Diabetes, NIH HIRN webinar, Feb. 2017  
Insulinitis and Residual Beta-cells in Type 1 Diabetes, Rachmiel Levine-Arthur Riggs Diabetes Research Symposium, Pasadena CA, Feb. 2018  
Loss of pancreas volume in first-degree relatives of patients with type 1 Diabetes, JDRF nPOD annual meeting, 2018  
Transformational Technologies in Islet Biology session. Visible Pancreas Project: Islets in Health and Diabetes, American Diabetes Association annual meeting June, 2018  
Diabetes Center Grand Rounds, Mount Sinai, Human islet innervation revisited, Feb 15, 2019  
Endocrine and exocrine mass in Type 1 Diabetes, Rachmiel Levine-Arthur Riggs Diabetes Research Symposium, Pasadena CA, Apr. 2019  
UF Diabetes Institute Grand Rounds, The Brain-Pancreas Axis and Islet Neurobiology, May 22, 2019

**Review Boards, Ad Hoc Reviews:**  
Editorial board: Laboratory Investigation, 2005-2011  
*Ad hoc* reviewer: Diabetes, Diabetologia, PLOS, PNAS, Gastroenterology, American Journal of Physiology, Laboratory Investigation, JOVE, Veterinary Surgery, Journal of Histochemistry and Cytochemistry, Hepatology, British Journal of Cancer, Cancer Research, Biology of Reproduction

2018- present: JCI Insight, PLOSone, Diabetes, Diabetes Care, Scientific Reports, Diabetologia, Journal Histochemistry and Cytochemistry

### Professional Experience:

2013-present- Affiliated faculty, Biomedical Engineering, College of Engineering, UF  
 2013-present- Graduate Faculty, Department of Pathology, Immunology, and Lab. Med., IDP Immunology and Microbiology, Molecular Cell Biology, Cancer Cell Biology, UF  
 2007-present- Professor, Department of Pathology, Immunology and Lab. Med., UF  
 2007-2012- Associate Director, Experimental Pathology, Department of Pathology, Immunology and Lab. Med., UF  
 2004-present- Director, Molecular Pathology Core, Department of Pathology, UF  
 2008-2009- Information Security Administrator, interim, Department of Pathology, Immunology and Lab. Med., UF  
 2004-present- Affiliated Graduate Research Professor, Physiological Sciences, College of Veterinary Medicine, UF  
 2003-2007- Associate Professor, Department of Pathology, Immunology and Lab. Med., UF  
 2001-2003- Associate Director, Molecular Pathology and Immunology Core, Department of Pathology, UF  
 2001-2003- Assistant Professor, Department of Pathology, Immunology and Lab. Med., UF  
 1993-2001- Assistant Professor, Gastroenterology, Department of Medicine, College of Medicine, UF  
 1990-1993- Instructor, Gastroenterology, Department of Medicine, College of Medicine, UF  
 1988-1990- Postdoctoral Associate, Gastroenterology, College of Medicine, UF  
 1984-1987- Graduate Teaching Assistant, College of Vet. Med. Univ. of Florida  
 1981-1984- Resident in Large Animal Surgery, College of Vet. Med. Univ. of Florida  
 1980-1981- Intern in Equine Surgery, College of Vet. Med. Univ. of Calif., Davis

### Publications:

1. Thompson FJ, **Campbell ML**. Arterial supply of the feline motor cortex. *Stroke* 12:233-36, 1981.
2. Peyton LC, **Campbell ML**, Wolf GA, Kirk WW. The use of random skin flaps in equine reconstructive surgery. *Equine Vet Sci* 3:80-7, 1983.
3. **Campbell ML**, Colahan PT, Brown MP, et al. Cecal impaction in the horse. *J Am Vet Med Assoc* 184:950-52, 1984.
4. **Campbell ML**, Ackerman N, Peyton LC. Radiographic gastrointestinal anatomy of the foal. *Vet Rad* 25:194-204, 1984.
5. **Campbell ML**, Peyton LC. Muscle flap closure of a frontocutaneous fistula in a horse. *Vet Surg* 13:185-88, 1984.
6. Goring R, **Campbell ML**, Hillidge C. Surgical correction of bilateral choanal atresia in a foal. *Vet Surg* 12:211-16, 1984.
7. **Campbell-Thompson ML**, Brown MP, Slone DE, Merritt AM, Moll HD, Levy M: Gastroenterostomy for treatment of gastroduodenal ulcer disease in 14 foals. *J Am Vet Med Assoc* 188:840-844, 1986
8. Berry CR, Merritt AM, Burrows CF, **Campbell ML**, Drudge JH. Evaluation of myoelectrical activity of the equine ileum infected with *Strongylus vulgaris* larvae. *Am J Vet Res* 47:27-30, 1986.
9. **Campbell-Thompson ML**, Merritt AM. Effect of ranitidine on gastric acid secretion in young male horses. *Am J Vet Res* 48:1511-15, 1987.
10. **Campbell-Thompson ML**, Merritt AM. Gastroduodenal ulceration in foals. *Am Assoc Equine Practnr*, p 29-40, 1987.
11. Merritt AM, **Campbell-Thompson ML**, Lowrey SL. Effect of xylazine treatment on equine proximal gastrointestinal tract myoelectrical activity. *Am J Vet Res*, 50:945-949, 1989.
12. Merritt AM, **Campbell-Thompson ML**, Lowrey SL. Effect of butorphanol (Torbugesic®) on equine antroduodenal motility. *Equine Vet J, Supp* 7:21-23, 1989.
13. **Campbell-Thompson ML**, Merritt AM. Diagnosis and treatment of gastroduodenal ulceration and gastric outflow obstruction in foals and adult horses, *Am. Assoc. Equine Practnr.*, 1989, p. 57-70.
14. **Campbell-Thompson ML**, Merritt AM. Basal and pentagastrin stimulated gastric acid secretion in the young horse. *Am J Phy* 1990, 259:R1259-1266.
15. McGuigan JE, **Campbell-Thompson ML**. Complementary peptide to the carboxyl-terminal tetrapeptide of gastrin. *Gastroenterology* 1992, 103:749-758.

16. **Campbell-Thompson ML**, McGuigan JE. Canine parietal cell binding by antibodies to the complementary peptide of somatostatin. *Am J Med Sci*, 1993, 305:365-373.
17. **Campbell-Thompson ML**. Secretagogue-induced [<sup>14</sup>C]aminopyrine uptake in isolated equine parietal cells. *Am J Vet Res*, 1994, 55:67-72.
18. Tannahill CL, Stevenot SA, **Campbell-Thompson ML**, Nick HS, and JF Valentine. Regulation of manganese superoxide dismutase during acute colitis: specific induction in rat colonic glandular epithelium, smooth muscle, and myenteric neurons. *Gastroenterology* 1995; 109:800-812.
19. **Campbell-Thompson ML**, JW Verlander, KA Curran, WG Campbell, BD Cain, CS Wingo, and JE McGuigan. In situ hybridization of H,K-ATPase  $\beta$  subunit mRNA in rat and rabbit kidney. *Am. J. Physiology*. 1995; 269:F345-F354.
20. **Campbell-Thompson, ML**. Estrogen receptor  $\alpha$  and  $\beta$  expression in upper gastrointestinal tract with regulation of trefoil factor family 2 mRNA levels in ovariectomized rats. *Biochem Biophysiol Res Comm*, 1997; 240:478-483.
21. Matthews JC, Beveridge MJ, Malandro MS, Rothstein JD, **Campbell-Thompson M**, Verlander JW, Kilberg MS, Novak DA: Activity and protein localization of multiple glutamate transporters in gestation day 14 vs. day 20 rat placenta. *Am J Physiol* 274:C603-614, 1998  
  
**Campbell-Thompson, ML**, GY Lauwers, KK Rehyer, J Cromwell, KT Shiverick. 17Beta- estradiol modulates gastroduodenal preneoplastic alterations in rats exposed to the carcinogen N-methyl-N'-nitro-N-nitrosoguanidine. *Endocrinology*, 140 (10):4886-4894, 1999. PMID: 10499548
22. **Campbell-Thompson, ML**, IJ Lynch, B Bhardwaj. Expression of estrogen receptor subtypes and ER $\beta$  isoforms in colon cancer. *Cancer Research*, 61:234-240, 2001. PMID: 11212261
23. **Campbell-Thompson, ML**, KK Reyher, L Wilkinson. Immunolocalization of ER $\alpha$  and ER $\beta$  in the rat stomach. *Journal of Endocrinology*, 171:65-73, 2001.
24. Goudy, KS, S Song, C Wasserfall, C Zhang, J Cross, M Kapturczak, A Muir, M Powers, MS Jorgensen, **M Campbell-Thompson**, JM Crawford, TM Ellis, TR Flotte, MA Atkinson. Adeno-associated virus vector mediated interleukin-10 gene delivery prevents type 1 diabetes in NOD mice. *Proc Nat Acad Sci*, 98: 13913-13918, 2001.
25. Donsante, A, Vogler, C, Muzyczka, N, Crawford, JM, Barker, J, Flotte, T, **Campbell-Thompson, M**, Daly, T, Sands, MS. Observed incidence of tumorigenesis in long-term rodent studies of rAAV vectors. *Gene Therapy*, 8 (17): 1343-1346, 2001.
26. Song, S., Scott-Jorgensen, M, Wang, J, Poirier, A, Crawford, J, **Campbell-Thompson, M**, Flotte, TR. Intramuscular administration of recombinant adeno-associated virus 2  $\alpha$ -1 antitrypsin (rAAV-SERPINA1) vectors in a nonhuman primate model: safety and immunologic aspects. *Molecular Therapy*, 6:329-335, 2002.
27. Zhang, YC, Molano, RD, Pileggi, A, Powers, M, Cross, J, Wasserfall, C, Scott-Jorgensen, M, **Campbell-Thompson, M**, Crawford, JM, Flotte, T, Ellis, TM, Ricordi, C, Atkinson, MA, Inverardi, L. Adeno-associated virus-mediated transduction of islets with interleukin-4 results in impaired function in a model of syngeneic marginal islet mass transplantation. *Transplantation*, 74:1184-1186, 2002.
28. McGarry, MA, Charles, GD, Medrano, T, Bubb, ML, Grant, MB, **Campbell-Thompson, ML**, Shiverick, KT. Benzo(a)pyrene, but not TCDD, alters cell adhesion proteins in human uterine RL95-2 cells. *Biochemical Biophy Research Comm*, 294 (1): 101-107, 2002.
29. Zhang YC, Pileggi A, Agarwal A, Molano RD, Powers M, Brusko T, Wasserfall C, Goudy K, Zahr E, Poggioli R, Scott-Jorgensen M, **Campbell-Thompson M**, Crawford JM, Nick H, Flotte T, Ellis TM, Ricordi C, Inverardi L, Atkinson MA. Adeno-associated virus-mediated IL-10 gene therapy inhibits diabetes recurrence in syngeneic islet cell transplantation of NOD mice. *Diabetes* 52(3):708-16, 2003.
30. Goudy, KS, Burkhardt, BR, Wasserfall, C, Song, S, **Campbell-Thompson, M**, Brusko, T, Powers, MA, Clare-Salzler, MJ, Sobel, ES, Ellis, TM, Flotte, TR, Atkinson, MA. Systemic overexpression of IL-10 induces CD4+CD25+ cell populations in vivo and ameliorates type I diabetes in nonobese diabetic mice in a dose-dependent fashion. *Journal of Immunology*, 2271-2278, 2003.

31. ShklyaeV, S, Aslanidi G, Tennant M, Prima V, Kohlbrenner E, Kroutov V, Sautin Y, **Campbell-Thompson M**, Crawford J, Shek E, Scarpace P, and Zolotukhin S. Sustained rAAV-Mediated Peripheral Expression of Transgene Adiponectin Offsets the Development of Diet-Induced Obesity in Sprague-Dawley Rats. *PNAS* 100 (24):14217-14222, 2003.
32. Song, S., Goudy, K, **Campbell-Thompson, ML**, Wasserfall, C, Scott-Jorgensen M, Wand J, Tang Q, Crawford, JM, Ellis TM, Atkinson, MA, Flotte, TR., Recombinant adeno-associated virus (rAAV2) mediated alpha-1 antitrypsin gene therapy prevents type 1 diabetes in NOD mice. *Gene Therapy*, 11(2):121-6, 2004.
33. Zhang, C. , M. Powers, C. Wasserfall, T. Brusko, S. Song, T. Flotte, R. Snyder, M. Potter, M. Scott-Jorgensen, **M. Campbell-Thompson**, J. M. Crawford, HS Nick, A Agarwal, .T. M. Ellis, M.A. Atkinson. Immunity to adeno-associated virus serotype 2 delivered transgenes imparted by genetic predisposition to autoimmunity. *Gene Therapy*, 11(3):233-40, 2004.
34. Lu, Y., H. Dang, B. Middleton, Z. Zhang, I. Washburn, **M. Campbell-Thompson**, M. A. Atkinson, S. S. Gambhir, J. Tian, and D. L. Kaufman. Bioluminescent monitoring of islet graft survival after transplantation. *Molecular Therapy*, 9 (3): 428-436, 2004.
35. Serreze, DV, Wasserfall, C, Ottendorfer, EW, Stalvey, M, Pierce, MA, Gauntt, C, O'Donnell, B, Flanagan, JB, **Campbell-Thompson, M**, Ellis, TM, Atkinson, MA. Diabetes acceleration or prevention by a Coxsackie virus B4 infection: critical requirements for both interleukin-4 and interferon gamma. *J Virology*, 79(2):1045-52, 2005.
36. Handlogten, M, Hong, S-P, Vander, AW, Steinbaum, ML, **Campbell-Thompson, ML**, Weiner, ID. Expression of ammonium transporter proteins, RH B Glycoprotein and Rh C Glycoprotein, in the intestinal tract. *Am J Physiol: GI*, 2005.
37. Chen, S, M. Kapturczak, C. Wasserfall, O.Y. Glushakova, L. Zhang, P. Cruz, **M. Campbell-Thompson**, W.W. Hauswirth, K.I. Berns, K.M. Madsen, B.P. Croker, M.A. Atkinson, T.R. Flotte, C. C. Tisher, A. Agarwal. Efficient transduction of vascular endothelial cells with recombinant adeno-associated virus serotype 1 and 5 vectors. *Human Gene Therapy*, 16(2):235-47, 2005.
38. Chen S, Kapturczak MH, Wasserfall C, Glushakova OY, **Campbell-Thompson M**, Deshane JS, Joseph R, Cruz PE, Hauswirth WW, Madsen KM, Croker BP, Berns KI, Atkinson MA, Flotte TR, Tisher CC, Agarwal A. Interleukin 10 attenuates neointimal proliferation and inflammation in aortic allografts by a heme oxygenase-dependent pathway. *Proc Nat Acad Sciences*, 102(20):7251-6, 2005.
39. Loiler SA, Tang Q, Clarke T, **Campbell-Thompson ML**, Chiodo V, Hauswirth W, Cruz P, Perret-Gentil M, Atkinson MA, Ramiya VK, Flotte TR. Localized Gene Expression Following Administration of Adeno-associated Viral Vectors via Pancreatic Ducts. *Mol Ther*. 12(3):519-27, 2005.
40. Zhang, Y Clare, Pileggi, Antonello, Molano, R Damaris, Wasserfall, Clive, **Campbell-Thompson, M.**, Ricordi, C., Atkinson, M.A., Inverardi, L. Systemic Overexpression of Interleukin-10 Fails to Protect Allogeneic Islet Transplants in Nonobese Diabetic Mice. *Transplantation* 80(4):530-533, 2005.
41. Conlon TJ, Cossette T, Erger K, Choi YK, Clarke T, Scott-Jorgensen M, Song S, **Campbell-Thompson M**, Crawford J, Flotte TR. Efficient Hepatic Delivery and Expression from a Recombinant Adeno-associated Virus 8 Pseudotyped alpha1-Antitrypsin Vector. *Molecular Therapy* 12(5):867-75, 2005.
42. Kohlbrenner, E, Aslanidi1, G, Nash, K, ShklyaeV, S, **Campbell-Thompson, M**, Byrne, BJ, Snyder, RO, Warrington, K, Muzyczka, N, and Zolotukhin, S. Successful production of pseudotyped rAAV vectors using a modified baculovirus expression system. *Molecular Therapy* 12(6):1217-1225, 2005.
43. Lu, Y, Choi, Y-K, **Campbell-Thompson, M**, Li, C, Tang, Q, Crawford, JM, Flotte, TR, and Song, S. Therapeutic level of functional human alpha 1 antitrypsin (hAAT) secreted from murine muscle transduced by adeno-associated virus (rAAV1) vector. *J Gene Med*, 8:730-735, 2006.
44. Lu, Y, M. Tang, C. Wasserfall, Z. Kou, **M. Campbell-Thompson**, T. Gardemann, J. Crawford, M. Atkinson, S. Song. Alpha 1 antitrypsin gene therapy modulates cellular immunity and efficiently prevents type 1 diabetes in NOD mice. *Human Gene Therapy*, 17:625-34, 2006.
45. Stalvey, M, Muller, C, Schatz, DA, Wasserfall, CH, **Campbell-Thompson, ML**, Theriaque, DW, Flotte, TR, Atkinson, MA. Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) Deficiency Exacerbates Islet Cell Dysfunction Following Beta Cell Injury. *Diabetes*, 55:1939-45, 2006.
46. Lu, Y., Dang, H., Middleton, B., Zhang, Z., Washburn, L., Stout, D.B., **Campbell-Thompson, M.**, Atkinson, M.A., Phelps, M., Gambhir, S.S, Tian, J., and Kaufman, D.L. Noninvasive imaging of islet grafts using positron-emission tomography. *Proc Nat Acad Sciences* , 103(30)11294-9, 2006.

47. Lu, Y, Tian, J, Dang, H, Middleton, B, Zhang, Z., Washburn, L., Stout, DB, **Campbell-Thompson, M**, Atkinson, MA, Middleton, B, Gambhir, SS, Kaufman, DL. Long-term monitoring of transplanted islets using positron emission tomography. *Molecular Therapy*, 14:851-6, 2006.
48. Fishbein L, X. Zhang, L.B. Fisher, H. Li, **M. Campbell-Thompson**, A. Yachnis, A. Rubenstein, D. Muir, M.R. Wallace. In Vitro Studies of Steroid Hormones in Neurofibromatosis 1 Tumors and Schwann Cells. *Molecular Carcinogenesis*, 46(7):512-23, 2007.
49. Flotte, TR, Conlon, TJ, Poirier, A, **Campbell-Thompson, M**, Byrne, BJ. Preclinical characterization of a recombinant adeno-associated virus 1 (rAAV1) pseudotyped vector demonstrates dose-dependent injection site inflammation and dissemination of vector to distant sites. *Human Gene Therapy*, 18(3):245-56, 2007.
50. Zhang B, Lu Y, **Campbell-Thompson M**, Spencer T, Wasserfall C, Atkinson M, Song S: Alpha1-antitrypsin protects beta-cells from apoptosis. *Diabetes* 56:1316-1323, 2007.
51. Nakagawa T, Sato W, Glushakova O, Heinig M, Clarke T, **Campbell-Thompson M**, Yuzawa Y, Atkinson MA, Johnson RJ, Croker B: Diabetic endothelial nitric oxide synthase knockout mice develop advanced diabetic nephropathy. *J Am Soc Nephrol* 18:539-550, 2007.
52. Chen B, Kapturczak MH, Joseph R, George JF, **Campbell-Thompson M**, Wasserfall CH, Atkinson MA, Tisher CC, Flotte TR, Agarwal A, Chen S: Adeno-associated viral vector-mediated interleukin-10 prolongs allograft survival in a rat kidney transplantation model. *Am J Transplant* 7:1112-1120, 2007.
53. Cruz PE, Mueller C, Cossette TL, Golant A, Tang Q, Beattie SG, Brantly M, **Campbell-Thompson M**, Blumenkamp KS, Teckman JH, Flotte TR: In vivo post-transcriptional gene silencing of alpha-1 antitrypsin by adeno-associated virus vectors expressing siRNA. *Lab Invest* 87:893-902, 2007.
54. Aslanidi G, Kroutov V, Philipsberg G, Lamb K, **Campbell-Thompson M**, Walter GA, Kurenov S, Ignacio Aguirre J, Keller P, Hankenson K, Macdougald OA, Zolotukhin S: Ectopic expression of Wnt10b decreases adiposity and improves glucose homeostasis in obese rats. *Am J Physiol Endocrinol Metab* 293:E726-736, 2007.
55. Sabo-Attwood T, Blum JL, Kroll KJ, Patel V, Birkholz D, Szabo NJ, Fisher SZ, McKenna R, **Campbell-Thompson M**, Denslow ND: Distinct expression and activity profiles of largemouth bass (*Micropterus salmoides*) estrogen receptors in response to estradiol and nonylphenol. *J Mol Endocrinol* 39:223-237, 2007.
56. Golubovskaya VM, Finch R, Kweh F, Massoll NA, **Campbell-Thompson M**, Wallace MR, Cance WG: p53 regulates FAK expression in human tumor cells. *Mol Carcinog*, 47:373-82, 2008.
57. Polyak, S, Mah, C, Porvasnik, S, Herlihy JD, **Campbell-Thompson, M**, Byrne, BJ, Valentine, JF. Gene Delivery to Intestinal Epithelial Cells In vitro and In vivo with Recombinant Adeno-Associated Virus Types 1, 2 and 5. *Dig Dis Sci*, May;53(5):1261-70. Oct 13., 2008, Epub 2007.
58. Simon G, Parker M, Ramiya V, Wasserfall C, Huang Y, Bresson D, Schwartz RF, **Campbell-Thompson M**, Tenace L, Brusko T, Xue S, Scaria A, Lukason M, Eisenbeis S, Williams J, Clare-Salzler M, Schatz D, Kaplan B, Von Herrath M, Womer K, Atkinson MA: Murine antithymocyte globulin therapy alters disease progression in NOD mice by a time-dependent induction of immunoregulation. *Diabetes* 57:405-414, 2008.
59. Mueller C, Torrez D, Braag S, Martino A, Clarke T, **Campbell-Thompson M**, Flotte TR: Partial correction of the CFTR-dependent ABPA mouse model with recombinant adeno-associated virus gene transfer of truncated CFTR gene. *J Gene Med* Jan; 10:51-60, 2008.
60. Beattie SG, Goetzman E, Tang Q, Conlon T, **Campbell-Thompson M**, Matern D, Vockley J, Flotte TR. Biochemical correction of short-chain Acyl CoA Dehydrogenase (SCAD) deficiency after portal vein injection of rAAV8-SCAD. *Human Gene Therapy*, 19(6): 579-588, 2008.
61. Waichi Sato, Sato W, Kosugi T, Zhang L, Roncal CA, Heinig M, **Campbell-Thompson M**, Yuzawa Y, Atkinson MA, Grant MB, Croker BP, Nakagawa T. The Pivotal Role of VEGF on Glomerular Macrophage Infiltration in Advanced Diabetic Nephropathy. *Lab Invest*. 88(9):949-61, 2008.
62. Beattie SG, Goetzman E, Tang Q, Conlon T, **Campbell-Thompson M**, Matern D, Vockley J, Flotte TR. Recombinant adeno-associated virus-mediated gene delivery of long chain acyl coenzyme A dehydrogenase (LCAD) into LCAD-deficient mice. *J Gene Med*. 10(10):1113-23, 2008.

63. Nakayama T, Sato W, Kosugi T, Zhang L, **Campbell-Thompson M**, Yoshimura A, Croker BP, Johnson RJ, Nakagawa T. Endothelial injury due to eNOS deficiency accelerates the progression of chronic renal disease in the mouse. *Am J Physiol Renal Physiol.* 2009 Feb; 296(2):F317-27. Epub 2008 Nov 26.
64. Xue S, Wasserfall CH, Parker M, Brusko TM, McGrail S, McGrail K, Moore M, **Campbell-Thompson M**, Schatz DA, Atkinson MA, Haller MJ. Exendin-4 therapy in NOD mice with new-onset diabetes increases regulatory T cell frequency. *Ann N Y Acad Sci.* Dec. 1150:152-6, 2008.
65. Mueller C, Bragg, SA, Martino, AT, Tang Q, **Campbell-Thompson M**, Flotte TR. The pros and cons of immunomodulatory IL-10 gene therapy with recombinant AAV in a Cfr(-/-)-dependent allergy mouse model. *Gene Therapy* 2009 Feb;16(2):172-83. Epub 2008 Sep 25.
66. Wang L, McLaughlin, T, Cossette T, Tang Q, Foust K, **Campbell-Thompson M**, Martino A, Cruz P, Loiler S, Mueller C, Flotte TR. Recombinant AAV Serotype and Capsid Mutant Comparison for Pulmonary Gene Transfer of Alpha-1-Antitrypsin Using Invasive and Non-invasive Delivery. *Molecular Therapy*, 17(1):81-7, 2009. Epub 2008 Oct 21.
67. **Campbell-Thompson M**, Dixon LR, Wasserfall C, Monroe M, McGuigan JM, Schatz D, Crawford JM, Atkinson MA. Pancreatic adenocarcinoma patients with localized chronic severe pancreatitis show increased single beta cell numbers without alterations in fractional insulin area. *Diabetologia*, 52(2):262-70, 2009. Epub 2008 Nov 11. PMID: 19002428
68. Xue S, Wasserfall CH, Parker M, McGrail S, McGrail K, **Campbell-Thompson M**, Schatz DA, Atkinson MA, and MJ Haller. Exendin-4 Treatment of Non-obese Diabetic Mice Increases Beta-cell Proliferation and Fractional Insulin Reactive Area. *Journal Diabetes Complications.* Epub Feb 12, 2009.
69. Kosugi T, Heinig M, Nakayama T, Connor T, Yuzawa Y, Li Q, Hauswirth WW, Grant MB, Croker BP, **Campbell-Thompson M**, Zhang L, Atkinson MA, Segal MS, Nakagawa T. Lowering Blood Pressure Blocks Mesangiolytic and Mesangial Nodules, but not Tubulointerstitial Injury, in Diabetic eNOS Knockout Mice. *Am J Pathol.* 174(4):1221-9, 2009.
70. Huang Y, Parker M, Xia C, Peng R, Wasserfall C, Clarke T, Wu L, Chowdhry T, **Campbell-Thompson M**, Williams J, Clare-Salzler M, Atkinson MA, Womer KL. Rabbit Polyclonal Anti-Mouse Thymocyte Globulin Administration Alters Dendritic Cell Profile and Function in NOD Mice to Suppress Diabetogenic Responses. *J Immunol.* 182(8):4608-15, 2009.
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73. Kosugi T, Nakayama T, Li Q, Chiodo VA, Zhang L, **Campbell-Thompson M**, Grant M, Croker BP, Nakagawa T. Soluble-Flt-1 Gene Therapy Ameliorates Albuminuria, but Accelerates Tubulointerstitial Injury in Diabetic Mice. *Am J Physiol Renal Physiol.* 2009 Mar;298(3):F609-16.
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## Abstracts (&gt; 2012)

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22. Jacobsen, L, Haller, M, Kaddis H, Burgka M, Wasserfall C, **Campbell-Thompson M**, Pugliese A, Atkinson MA, Schatz D. Cause of death in the first 100 type 1 diabetes nPOD subjects: psychosocial implications. nPOD annual meeting, Feb. 2016 (poster).
23. Konukiewitz B, Atkinson MA, Kloppel G, **Campbell-Thompson, M**. Pancreatic Microadenomas as Precursors of Pancreatic Neuroendocrine Neoplasms in Patients with Diabetes Mellitus: Systematic Review of the nPOD Cases. nPOD annual meeting, Feb. 2016 (poster).
24. Kuipers J, et al, Nanotomy of human Islets: from biobank to database and analysis of viral hallmarks. nPOD annual meeting, Feb. 2016 (poster).
25. Lenchik, N, Butterworth E, **Campbell-Thompson M**, Mathews C, Atkinson MA, Gerling I. Differences in Transcriptomes of Individual Human Islets from Control, Newly Diagnosed and Established T1D Donors. nPOD annual meeting, Feb. 2016 (poster).
26. Butterworth E, Lenchik N, Mathews C, Gerling I, Atkinson MA, **Campbell-Thompson M**. Individual Islet Laser Microdissection By Insulinitis Phenotype for Whole Transcriptomic Analysis in Human Type 1 Diabetes. nPOD annual meeting, Abstract Book P. 44. Feb. 2016 (poster).
27. Lenchik, N, Butterworth E, **Campbell-Thompson M**, Mathews C, Atkinson MA, Gerling I. Differences in Transcriptomes of Individual Human Islets from Control, Newly Diagnosed and Established T1D Donors. ADA annual meeting, June 2016 (oral).
28. Rachana Haliyur, Chunhua Dai, David M. Blodgett, Rita Bottino, **Martha Campbell-Thompson**, Radhika Aramandla, Gregory Poffenberger, Fong Cheng Pan, Matthias G. von Herrath, Mark Atkinson, David M. Harlan, Roland Stein, Marcela Brissova, Alvin C. Powers. Remaining  $\beta$  Cells in Recent-onset Type 1 Diabetes Have Essentially Normal Gene Expression and Function, But  $\alpha$  Cells Are Significantly Compromised. ADA annual meeting, 2016 (oral).
29. Jacobsen, L, Haller, M, Kaddis H, Burgka M, Wasserfall C, **Campbell-Thompson M**, Pugliese A, Atkinson MA, Schatz D. Cause of death in the first 100 type 1 diabetes nPOD subjects: psychosocial implications. ADA annual meeting, June 2016 (poster).
30. Lenchik NI, Gerling IC, Gessler J, Butterworth E, **Campbell-Thompson M**, Mathews CE, Atkinson M, Krogvold L, Dahl-Jorgensen K. Gene Expression Differences in Individual Human Pancreatic Islets from Control, Newly Diagnosed T1D, and Established T1D Donors. Presented at the 8<sup>th</sup> Annual meeting of the international nPOD consortium. Abstract Book P. 46, Feb. 2016.
31. Elizabeth Butterworth, Andre Revell, Nataliya Lenchik, Mark Atkinson, Clayton Mathews, Ivan Gerling, **Martha Campbell-Thompson**. Single Islet Transcriptomes using Laser Microdissection in Human Type 1 Diabetes. NIH HIRN 2016 annual meeting (poster).
32. Nataliya Lenchik, Clayton Mathews, **Martha Campbell-Thompson**. Mark Atkinson, Lars Krogvold, Alberto Pugliese, George W. Burke, Knut Dahl-Jorgensen, Ivan Gerling. Molecular Systems Biology Model of Type 1 Diabetes Development Based on Expression Profiles of Laser-Captured Human Islets. NIH HIRN 2016 annual meeting (poster).
33. Nataliya Lenchik, Clayton Mathews, **Martha Campbell-Thompson**. Mark Atkinson, Lars Krogvold, Julie Gessler, Elizabeth Butterworth, Knut Dahl-Jorgensen, Ivan Gerling. Gene Expression Differences in Individual Human Pancreatic Islets from Control, Newly Diagnosed T1D, and Established T1D Donors. NIH HIRN 2016 annual meeting (poster).
34. Lenchik NI, Butterworth E, Tadesse BT, **Campbell-Thompson M**, Mathews CE, Atkinson M, Gerling IC,. Transcriptomic Diversity in 120 Individual Islets Collected from nPOD donors with or without Type 1 Diabetes. Presented at the 9<sup>th</sup> Annual meeting of the international nPOD consortium. Feb. 2017.
35. Tadesse BT, Lenchik NI, Butterworth E, **Campbell-Thompson M**, Mathews C, Atkinson MA, Gerling IC. Transcriptome Studies on Individual Islets of Langerhans from the Human Pancreas in Type 1 Diabetes. *J Invest Med*. 65#2: 632, 2017.
36. Canzano J, Butterworth E, Fu A, Atkinson M, **Campbell-Thompson M**. Endocrine microvascular changes in human type 1 diabetes. nPOD annual meeting, Feb. 2017 (oral).
37. Paul D. Piehowski, Jing Chen, Adam C. Swensen, Daniel J. Orton, Lian Yi, Mani Annamalai, Richard D. Smith, **Martha Campbell-Thompson**, Mark A. Atkinson, Rohit N. Kulkarni, Clayton E Mathews, and Wei-Jun Qian. Nanoscale Proteomics

Profiling of Laser Capture Microdissected Human Islets Revealed Novel Proteome Changes of the Islet Cells at the Pre-T1D Stage. ADA annual meeting, June 2017.

38. Jacobsen L, Schatz D, Filipp S, Gurka M, Haller M, Wasserfall C, Atkinson M, **Campbell-Thompson M**. Islet autoantibodies are associated with insulinitis but not beta cell loss in T1D. ADA annual meeting, June 2017 (oral).
39. Joseph S. Canzano, Elizabeth A. Butterworth, Lith H. Nasif, Dongtao A. Fu, Mark A. Atkinson, **Martha Campbell-Thompson**. Islet Microvasculature Alterations Induced by Loss of Beta-Cells in Patients with Type 1 Diabetes. Keystone Islet Biology, Feb. 2018 (poster).
40. **Campbell-Thompson M** et. al. Relative Pancreas Volume is Reduced in Autoantibody Negative First Degree Relatives and Subjects with Pre-Type 1 Diabetes. JDRF nPOD 2018 annual meeting (oral).
41. Giepmans, B, J. Kuipers, A. Wolters, I. Kusmartseva, G. Frisk, **M. Campbell-Thompson**. Exocrine-endocrine interactions at the onset of Type 1 Diabetes revealed by 'ColorEM'. JDRF nPOD 2018 annual meeting (poster).
42. Dirr E, Patel Y, Johnson R, **Campbell-Thompson M**, Otto K. Pancreatic neuromodulation in a diabetic rat model. JDRF nPOD 2018 annual meeting (poster).
43. Jackson, JR, Rabaglino MB, **Campbell-Thompson**. Deregulation of T helper Cell Pathways in the Basal Plate of Placenta is Associated with Preeclampsia. Society for Reproductive Investigation Meeting, March 2018 (poster).
44. **Campbell-Thomson M**, Johnson RJ, Oweiss K, Otto K. Neuromodulation-based treatment of diabetes: identifying anatomical and physiological pancreatic innervation targets. NIH SPARC annual meeting, 2018 (poster).
45. **Martha Campbell-Thompson**, Elizabeth Butterworth, Lith Nasif, Ann Fu, Nataliya Lenchik, Mark Atkinson, Clayton Matthews, Ivan Gerling. High resolution Islet Imaging and Differential Gene Expression Analysis for Characterization of the Sympathetic Nervous System in Type 1 Diabetes. NIH HIRN 2018 annual meeting (poster).
46. **Martha Campbell-Thompson**, Elizabeth Butterworth, Nataliya Lenchik, Mark Atkinson, Clayton Matthews, Ivan Gerling. Deep Transcriptome Data from 261 Individual Laser-captured Islets of Diverse Clinical Donor Type (Non-diabetic, Autoantibody Positive, Type 1 Diabetic), and Immunohistochemical Phenotype (Insulin, CD3 stains). NIH HIRN 2018 annual meeting (poster).
47. Ying Zhu, Paul D. Piehowski, Maowei Dou, Jing Chen, Rui Zhao, Ronald J. Moore, Richard D. Smith, Mark A. Atkinson, **Martha Campbell-Thompson**, Clayton E Mathews, Ryan T. Kelly, and Wei-Jun Qian. Nanodroplet Processing Platform for Spatially Resolved in-situ Proteome Characterization of Pancreatic Islets and Tissue Sections NIH HIRN 2018 annual meeting (poster).
48. Scott Stimpson, Jing Chen, Daniel Perry, Elizabeth Butterworth, Nataliya Lenchik, **Martha Campbell-Thompson**, Wei-Juan Qian, Mark Atkinson, Todd Brusko, Ivan Gerling, Clayton Mathews. Metabolic Switch to Glycolysis Is Present in Islets and Immune Cells of T1D Patients and At-Risk Individuals. NIH HIRN 2018 annual meeting (oral).
49. **Campbell-Thompson M** et. al. Relative Pancreas Volume is Reduced in Autoantibody Negative First Degree Relatives and Subjects with Pre-Type 1 Diabetes. ADA 2018 annual meeting (poster).
50. **Martha Campbell-Thompson**, Elizabeth Butterworth, Nataliya Lenchik, Mark Atkinson, Clayton Matthews, Ivan Gerling. High resolution Islet Imaging and Differential Gene Expression Analysis for Characterization of the Sympathetic Nervous System in Type 1 Diabetes. NIH HIRN annual meeting, May, 2018.
51. Elizabeth Butterworth, Lith Nasif, Kamal Nasif, Katelyn Carty, Clayton Matthews, Mark Atkinson, Ivan Gerling, **Martha Campbell-Thompson**. Sympathetic Innervation of human alpha-cells. ADA annual meeting, July, 2018.
52. **Martha Campbell-Thompson**, Elizabeth Butterworth, Nataliya Lenchik, Mark Atkinson, Clayton Matthews, Ivan Gerling. Analysis of Transcriptome Data from 261 Individual Laser-captured Islets from Non-diabetic, Autoantibody Positive and Type 1 Diabetic Organ Donors. ADA 2018 annual meeting (poster).
53. Adam Swensen; Paul D. Piehowski; Jing Chen; Ercument Dirice; Vladislav Petyuk; Lian Yi; Ronald J. Moore; **Martha Campbell-Thompson**; Mark A Atkinson; Clayton E Mathews; Rohit N Kulkarni; Weijun Qian. Laser Microdissection Coupled Nano-Proteomic Characterization of Functional Dysregulation in Pancreatic Islets of Pre-Type 1 Diabetic Patients. ADA 2018 annual meeting.

54. Maarit Oikarinen, Jutta E. Laiho, Sami Oikarinen, Sarah J. Richardson, Irina Kusmartseva, **Martha Campbell-Thompson**, Noel G. Morgan, Alberto Pugliese, Sisko Tauriainen, Antonio Toniolo, Heikki Hyöty and the nPOD and PEVNET study groups. Detection of enterovirus protein and RNA in multiple tissues from nPOD organ donors with type 1 diabetes. Europic 2018.
55. Dirr E, Patel Y, Johnson R, **Campbell-Thompson M**, Otto K. Pancreatic neuromodulation in a diabetic rat model. IEEE Engineering in Medicine and Biology Society, July 2018 (oral).
56. **Campbell-Thompson M**. Human islet innervation revisited. NIH Autonomic Nervous System: Role in the regulation of peripheral metabolism and pathophysiology of metabolic disease meeting, Rockville MD, Sept. 20-21, 2018 (Invited poster).
57. ME Pearce, TL Redler, HD Nguyen, VP Dugan, **ML Campbell-Thompson**, RD Johnson. Immunohistochemical and morphometric differences between DRG and nodose sensory neurons innervating the pancreatic islets of the rat. SFN, 2018 annual meeting (poster).
58. Julie K Bray, Lith Nasif, **Martha Campbell-Thompson**, Thomas D Schmittgen. Acinar-to-ductal metaplasia assay of human acini cell culture. nPOD annual meeting, 2019 (poster).
59. Adam Swensen, Ying Zhu, Maowei Dou, Paul D. Piehowski, Jing Chen, Rui Zhao, Ronald J. Moore, Mark A. Atkinson, **Martha Campbell-Thompson**, Ryan T. Kelly, Clayton E Mathews, and Wei-Jun Qian. Nanoscale Deep Proteome Profiling of Pancreatic Islets from Presymptomatic Autoantibody Positive and T1D Subjects. nPOD annual meeting, 2019 (poster).
60. Grace B Nelson, Nataliya Lenchik, Elizabeth A. Butterworth, **Martha Campbell-Thompson**, Clayton Mathews, Mark Atkinson, Ivan C. Gerling. Activation of Toll Like receptor pathways in insulitic islets of T1D. nPOD annual meeting, 2019 (oral).
61. Adam C. Swensen, Paul D. Piehowski, Jing Chen, Ying Zhu, Emily K. Sims, Ronald J. Moore, **Martha Campbell-Thompson**, Ryan T. Kelly, Carmella Evans-Molina, Clayton E Mathews, and Wei-Jun Qian. Evidence of Incomplete Prohormone Processing in Type 1 Diabetes from Mass Spectrometry-based Proteomics. nPOD annual meeting, 2019 (poster).
62. Bruggeman BS, **Campbell-Thompson M**, Filipp S, Atkinson MA, Schatz D, Jacobsen L. Effect of Substance Use on Type 1 Diabetes Histopathology. ADA annual meeting, 2019 (poster).

#### Book Chapters:

1. **Campbell-Thompson, ML**. Upper Gastrointestinal Surgery in Foals. Vet Clinics of North America: Equine Practice, 5(2):351-362, 1989.
2. Ackerman N, **Campbell-Thompson ML**. Radiography of the gastrointestinal system. In: Anderson NV, ed. Veterinary Gastroenterology, 2nd ed., 1992.
3. **Campbell-Thompson ML**. Diseases of the Stomach. Equine Medicine and Surgery, 4rd ed., Colahan PT, et. al. Eds., Goleta CA, American Veterinary Publications, 1991; 593-606.
4. **Campbell-Thompson ML**, Merritt, AM. Diseases of the Stomach. Equine Medicine and Surgery, 5th ed., Colahan PT, et. al. eds., Goleta CA, American Veterinary Publications, 1998.
5. Pugliese A, **Campbell-Thompson M**, Staeva T, Atkinson M. JDRF nPOD: a novel resource and study approach in type 1 diabetes research. Diabetes and Viruses. H. Hyoty, K. Taylor, A. Toniolo, A. Zuckerman, Eds. Springer Science, New York, NY, 2012.
6. Fu, A, **Campbell-Thompson, M**. Alpha one antitrypsin immunohistochemistry. Methods Molecular Biology-Springer, 2016.
7. Fu, A, **Campbell-Thompson, M**. Alpha one antitrypsin special staining. Methods Molecular Biology-Springer, 2016.

#### Current Funding:

2-SRA-2019-697-S-B (Campbell-Thompson)

11/1/18-10/31/20

JDRF

Neural regulation of alpha cell function and dysregulation in type 1 diabetes

This proposal will map the sympathetic innervation of islet alpha-cells in control and diabetic tissues samples and conduct RNAseq on microdissected islets during the progression to type 1 diabetes.

OT2 OD023861 (Campbell-Thompson) 7/1/16-7/31/20

NIH National Center for Advancing Translational Sciences

SPARC: Neuromodulation-based treatment of diabetes: identifying anatomical and physiological pancreatic innervation targets

This study will map the autonomic and sensory efferent and afferent networks to the pancreatic islet.

PO1 AI42288 (Atkinson) 5/1/013- 4/30/23

NIH/NIAID

Immune Function and the Progression to Type 1 Diabetes

This is a program project investigating the relationship between genetic susceptibility for IDD and various immune functions. The project monitors patient populations and provides technical support including nurse time for subject recruitment. The Molecular Pathology Core provides histopathology and immunolocalization services to program investigators.

Role: Collaborator (Core B)

25-2013-268 (Atkinson) 1/1/14-12/30/23

JDRF nPOD

This program provides organ procurement, processing, analysis, and distribution services for a human pancreas initiative. Organ donors are screened for autoantibodies known to increase risk of diabetes. Autoantibody positive pancreata are banked as well as donors without diabetes and those with type 1 or 2 diabetes. Dr. Campbell-Thompson serves as the Core pathologist.

Role: Co-Investigator

U54 CA233444 (Odedina) 9/17/18-08/31/23

NIH/NCI

2/3 Florida-California Cancer Research, Education & Engagement (CaRE2) Health Equity Center

The overarching goals of the Florida-California CaRE2 Health Equity Center will be to address cancer health disparities in Black and Latino populations in Florida and California through cutting-edge translational science, training and education of URM scientists and students, and development of culturally-sensitive tools and programs for community initiatives tailored to the needs of Black and Latino populations.

Role: Co-investigator

R01DK080706 (Knutson) 7/1/19-4/30/23

NIH/NIDDK

Zip Proteins and Iron Metabolism

This project is examining the role of zip proteins in iron metabolism with a focus on islet beta-cells.

Role: Collaborator

#### **Past Funding:**

HR0011-17-2-0019 (Otto, PI) 10/1/16-9/30/19

DARPA

Cognitive Augmentation through Neuroplasticity (CAN): Autonomic Pancreatic Neuromodulation for Treatment of Diabetes

This project will test whether the autonomic nervous system can be modulated by electrical stimulation to improve beta cell insulin production and/or secretion.

Role: Collaborator

UC4 DK104155 01 (Gerling, I PI) 9/19/14-8/31/18

NIH-NIDDK

Defining Islet Heterogeneity Using Single Islet Transcriptomics

Dr. Campbell-Thompson is PI of aim 2 and will examine transcriptome data from islets with or without residual beta cells and CD3+ inflammation. Neural markers including growth factors and neuropeptides will also be analyzed for alterations associated with the natural history of type 1 diabetes.

Role: Co-PI

1 DP3 DK101120-01 (Campbell-Thompson, PI) 9/20/13-8/31/17

NIH NIDDK

Pancreas volume in type 1 diabetes

This clinical trial application will examine pancreas volume in subjects at risk for type 1 diabetes (autoantibody-positive, high risk HLA), recent onset type 1 diabetic patients, and matched controlled subjects using noninvasive imaging. Clinical data will be analyzed for correlation to pancreas volume.

Helmsley Charitable Trust (Pugliese, PI) 10/1/16-9/30/18  
Helmsley Charitable Trust  
nPOD-Autoimmunity Working group  
This study will investigate transcriptomes of infiltrating islet lymphocytes and pancreatic lymph nodes by RNAseq using samples isolated by laser microdissection.  
Role: Co-investigator, subcontract

2015PG-T1D052 (Pugliese, PI) 10/1/15-9/30/16  
Helmsley Charitable Trust  
Overall goals Optical clearing methods for human islets to investigate beta cell differentiation  
This study will investigate methods to optimize visualization of islet beta cells for studies on beta cell specific transcription factors in diabetes and autoantibody-positive, nondiabetic organ donors as well as neonatal non-diabetic donors and innervation of the pancreatic islets.  
Role: Co-investigator

25-2012-770 (Atkinson, PI) 9/1/12-8/30/15  
JDRF nPOD Viral (nPOD-V) Work Group  
Overall goals This application is for studies aimed at the role of viruses, particularly enteroviruses, in the pathogenesis of type 1 diabetes using nPOD samples. Dr. Campbell-Thompson is the Task 1 leader and Tasks 3,4 collaborator and will provide expertise in immunolocalization assays for viral detection reagents and examine viral protein and immune responses. The no cost extension year is to complete studies using new reagents for virus detection.  
Role: Co-investigator

ECCA (Campbell-Thompson, PI) 10/1/14-6/30/15  
Diabetes and Pancreatic Cancer  
Overall goals This internal grant will provide funds for pilot studies on transcriptome analysis of pancreatic neuroendocrine tumors from patients within the nPOD biobank at the University of Florida.  
Role: PI

47-2014-1 (Homann, D, PI) 11/1/13-4/30/15  
Mapping the Histopathological Landscape of Type 1 Diabetes: A Pilot Study  
Overall goals Dr. Campbell-Thompson is PI of a study that will examine recent methodologies in clearing tissues for high resolution 3D imaging for human pancreas samples.  
Role: Co-PI

R01-A058150 (Morel, PI) 2/15/10-2/14/15  
NIH-NIAD  
B cell Development Defects in Murine Lupus  
Overall goals M. Campbell-Thompson assisted with immunohistochemical studies and morphometric analyses in murine models of human Lupus (SLE) disease.  
Role: Co-I

17-2012-3 (Pugliese, PI) 1/1/12-12/30/14  
JDRF nPOD-Transplantation (nPOD-T)  
Overall goals The Organ Procurement and Pathology Core provides organ procurement, processing, analysis, and distribution services for a human pancreas initiative in pancreas/kidney-pancreas transplantation and is an expansion of the main nPOD program. Last year is a no cost extension.  
Role: Co-PI

COM-FEO (Campbell-Thompson (PI) 6/1/13-6/1/14  
University of Florida  
Faculty Enhancement Opportunity  
Overall goals These funds will be used to obtain training in laser capture microdissection and imaging.  
Role: PI

1S10OD016350-01 (Campbell-Thompson) 4/1/13-3/30/14  
NIH  
Leica 7000 laser capture microdissection  
Overall goals This application was to purchase a laser capture microscope system for the Molecular Pathology Core and its major users.  
Role: PI



P01 HL59412 (Byrne, B, PI)

6/1/08-5/31/14

NIH-NHLBI

Novel Approaches to Human Gene Therapy Using Viral Vectors for Lung and Cardiovascular Diseases

Overall goals Core services include assessment of the histopathology of vector therapies, transgene detection, and preclinical studies.

Last year is a no cost extension.

Role: PI (Core C)

6-2006-1140 (Campbell-Thompson, M, PI)

1/1/06-12/30/13

JDRF nPOD Organ Processing and Pathology Core

Overall goals This Core provides organ procurement, processing, analysis, and distribution services for a human pancreas initiative.

Organ donors are screened for autoantibodies known to increase risk of diabetes. Autoantibody positive pancreata are banked as well as donors with donors without diabetes and those with type 1 or 2 diabetes. This program was combined with the main nPOD coordinating center award after 2012.

Role: PI

PO1 AI42288 (Atkinson, MA, PI)

8/1/07-7/30/13

NIH/NIAID

Immune Function and the Progression to Type 1 Diabetes

Overall goals This is a program project investigating the relationship between genetic susceptibility for IDD and various immune functions. The project monitors patient populations and provides technical support including nurse time for subject recruitment. The Molecular Pathology Core provides histopathology and immunolocalization services to program investigators.

Role: Co-PI (Core B)

5P01DK058327-089002 (Byrne, B, PI)

8/1/05 – 3/1/12

NIH-NIDDK

Transduction of Hepatocytes with rAAV for Correction of Genetic Abnormalities

Overall goals M. Campbell-Thompson was the Director of the Immunology/Pathology Core for studies of rAAV gene therapy for hepatocytes-directed gene therapy including for alpha-1-antitrypsin deficiency and glycogen storage disease Type IV. Core services included assessment of the immunological response to vector therapy, histopathologic toxicity of vector therapy, and immunolocalization gene expression.

Role: PI (Core C)

5U54CA105296 (Contag, C, PI)

9/1/08-2/30/12

NIH-NCI

Multimodality Imaging of GI Cancers for Diagnosis and Directed Therapy

Overall goals A consortium of investigators at Stanford University and Vanderbilt University will utilize animal models of Barrett's esophagus and study human patients with Barrett's esophagus to determine the efficacy of novel endoscopic confocal optical imaging in detecting mucosal dysplasia and the efficacy of COX-2 inhibitors in preventing mucosal dysplasia. The Molecular Pathology Core provided services for animal and human tissue processing for histopathology and molecular expression of key genes.

Role: Collaborator

10H0153 (Campbell-Thompson, PI)

2/1/10-1/31/12

Applied Genetics Technologies Corporation

Clinical trial AAV-hAAT

Overall goals The Molecular Pathology Core served as the histopathology facility for analysis of muscle biopsies in this Phase 2 clinical trial and provided initial pathology reviews and image analysis. Dr. Tony Yachnis provided the major histopathology review and qualitative scoring of immunolocalization.

Role: PI

Alpha One Antitrypsin Foundation (Song, S, PI)

7/1/08-6/30/11

Collaborator

Development of AAT Deficient Mouse Models

Overall goals M. Campbell-Thompson provided histopathology reviews and immunohistochemical analysis in AAT-directed studies using mouse models.

07H0643 (Wilkinson, E, PI)

9/1/08-8/30/10

Collaborator

Centers for Disease Control

Monitoring the Impact of a Prophylactic HPV Vaccine on HPV types in Cervical Cancer

Overall goals The Molecular Pathology Core served as the Florida Central Pathology facility and provided histological services for HPV genotyping using paraffin sections from HPV-associate tumors.

7-2000-328 JDRF (Atkinson M PI)

6/1/06-5/30/09

PI (Core B)

Immunoregulatory Based Therapies for Type 1 Diabetes

Overall goals This PPG examined the influence of three pharmacological agents and a broad range of immune cell types for the purpose of the prevention and reversal of type 1 diabetes.

7-2005-875 JDRF (Grant, MB, PI) 7/1/06-6/30/09 PI (Core B)

Novel Mechanisms and Therapies Targeting Dysfunctional Endothelium

Overall goals This PPG studied mechanisms of endothelial injury and repair in type 1 diabetes. The focus was to identify the mechanism(s) underlying the dysfunction of resident endothelial cells and circulating endothelial precursor cells (EPC) in the diabetic vasculature in kidney and eye.

5U01CA44968-18 4/01/01-03/30/08 PI

Cooperative Human Tissue Network

Overall goals The goals of this subcontract were to provide remnant human tissues for cancer research through the University of Alabama's regional center (William Grizzle, MD, PI) for the NCI's Cooperative Human Tissue Network. Dr. Campbell-Thompson provided administrative and operational oversight.

08-RDK062302A (Zolothukin, PI) 3/1/03-2/29/08 Collaborator

rAAV-mediated metabolic engineering in vivo

Overall goals Dr. Campbell provided assistance with animal necropsy and expertise in histopathological evaluations and immunohistochemistry studies.

NCRR U42 RR016586 (Byrne, B, PI) 9/01/01-8/31/06 Co-I

National Gene Vector Laboratory Toxicology Center

Overall goals Core services included assessment of the histopathologic toxicity of vector therapy and morphological assessment of gene expression.

NEI U10 EY13729 9/01/02-8/30/06 Co-PI

Gene Therapy for Leber Congenital Amaurosis

Overall goals William Hauswirth, PI. This proposal focused on preclinical experiments for RPE65 retinal disease. It also proposes preclinical toxicology and Phase 1 trials for the disease. Core services included assessment of the histopathologic toxicity of vector therapy.

P01 HL51811 5/1/05-4/30/07 PI

Gene & Pharmacological Therapies For Cystic Fibrosis

Overall goals W. Gulliano, PI. Renewal of a long-standing PO1 at Johns Hopkins for gene therapy of cystic fibrosis. The Molecular Pathology Core provided services for human tissue collection and analysis for CF patients and for animal studies in gene therapy for CF.

R21CA098741-03 (Campbell-Thompson, M, PI) 7/1/03-6/30/06

Alternative Estrogen Replacement Therapy for Prevention of Colon Cancer

Overall goals The goals of this project are to test a red clover extract with high ER $\beta$  activity for chemoprevention of colon cancer using human cancer cells and chemical-induction of aberrant crypt foci and tumors in rodent models. M. Campbell-Thompson is responsible for all aspects of these studies including histopathology and immunohistochemistry.

JDFI 4-2000-947 1/1/00 -6/30/06 Co-I (Core)

JDRF Center for Treatment of Type I Diabetes with Gene Therapy and Transplantation

Overall goals Juvenile Diabetes Research Foundation Center; Mark Atkinson, PI.; MCT was Associate Director of the Pathology/Immunology Core for murine and human studies of recombinant adeno-associated virus gene therapy for Type I diabetes mellitus, includes gene therapy of vascular beds to ameliorate hypertensive complications, and gene therapy of pancreas to abrogate autoimmune-mediated destruction of islets.

P01-DK058327 7/1/00 - 6/30/05 Core Co-I

Transduction of hepatocytes with rAAV for correction of genetic abnormalities

Overall goals Terence R. Flotte, Principal Investigator; MCT was Director of the Immunology/Pathology Core for murine studies of recombinant adeno-associated virus gene therapy for hepatocytes-directed gene therapy including for alpha-1-antitrypsin deficiency and glycogen storage disease Type IV. Core services include assessment of the immunological response to vector therapy, histopathologic toxicity of vector therapy, and morphological assessment of gene expression.

DAMD170110707 Steroid Hormones and NF1 Tumorigenesis 10/1/01-8/30/04 Co-I

(Wallace, PI)

This project studied the role of steroid hormones in cell proliferation and gene expression in human neurofibromas, established Schwann cell cultures, and mouse NF1 models.

NIH (AGTC 01120609) Preclinical toxicology studies of recombinant AAV vectors 2/21/02-4/30/03 PI  
Applied Genetics Technology Corporation, sponsor.  
Core services included GLP-level assessment of the histopathologic toxicity of vector therapy.

UF DSR RGP Alpha 1 antitrypsin for the treatment of rheumatoid arthritis 3/1/06-2/30/07 Co-PI  
Overall goals Song, S. PI. AAV-AAT gene therapy was used in a collagen-injection model of rheumatoid arthritis to test anti-inflammatory activity.

UF DSR Opportunity Fund Molecular Tissue Bank at the University of Florida 5/15/02-05/14/03 PI  
This shared resource collected human cancer tissues and their normal counterparts for investigators at the University of Florida.

Am Can Soc FL Inactivation of EGF receptor-signaling by 17 $\beta$ -estradiol in colon cancer cells 1/1/01-6/30/03 PI  
The aims of this project are to determine how ER $\beta$ -mediated functions interact with EGF receptor signaling pathways in human colon cancer cell lines engineered to overexpress ER $\beta$  isoforms.

UF DSR College Incentive Fund Estrogen receptors in human colon cancer 7/1/00-6/30/01 PI  
The major goals of this project were to establish colon cancer cells lines that overexpress ER $\beta$ 1 (wild-type) and determine effects on Cox-2, vitamin D receptor, and p53 levels following ligand treatments.

Am. Can. Soc. F99UF-1 Estrogen receptor splicing variants in human colon carcinomas 2/1/99-1/30/00 PI  
The major goals of this project were to determine relative expression levels for estrogen receptor subtypes and splicing variants in human adenomas and colon tumors and colon cancer cell lines.

## Teaching

### High School Students

Priya Iyer, Intel International Summer Science Student Program, July-Aug., 2003 (winner science fair Biochemistry division and qualifier for State and International competitions, 2004)

Jessica Greer, Intel International Summer Science Student Program, July-Aug., 2003; 2005- 2007, independent studies, UF College of Medicine (class of 2013)

Roshan Agarwal, 2011, high school summer research, pre-med/PhD combined program (GLUT1/2 expression), PhD program CA

Katherine Rodriguez, 2012, Student Science Training Program (MDA5 expression)

### Undergraduate Research Assistants

1. Lauren B. Wilkinson, 1995-1997, University of Michigan College of Dentistry
2. Lissette Leon, 1996, sophomore, University of Florida College of Veterinary Medicine
3. Heather Eckert, 1996, sophomore, University of Florida College of Veterinary Medicine
4. Charlyn Austria, 1997-1998, pre-med
5. Kristen Ryher, 1997-1998, Cornell College of Veterinary Medicine
6. Joshua Cromwell, 1998-1999, pre-med
7. Amy Bui, 1998, sophomore medical student, University of Florida, College of Medicine
8. Ted Lin, 1999-2000, pre-med, University Scholars Program
9. Vernon Nathaniel, 1999, freshman medical student, University of Florida, College of Medicine, Minority Scholars Program
10. Lauren Tunacek, 2000, Physician's assistant (UF, 2010)
11. Matthew Levine, 2000, pre-med, FIU Medical School (2001)
12. Paola Ballister, 2001, recipient American Cancer Society- Fla. Division research scholarship, FSU medical school, 2004
13. Kelly Miller, 2002-2003, accepted UF IDP graduate program
14. Laini Gaar, 2003-2004, independent studies, University Scholars Program 2004, UF College of Medicine (class of 2009)
15. Daniel Golden, 2003-2004, independent studies, U Miami medical school (class of 2009), Surgery resident 2010.
16. Varun Kapoor, 2005-2006, independent studies, pre-med
17. Sofia Sidar, 2006, independent studies, pre-graduate school
18. Thao Huynh, 2006, independent studies, pre-MD/PhD
19. Eryka Gayle, 2006, independent studies, Vanderbilt Medical school (class of 2012)
20. Heather Greenberg, 2006, independent studies, Emory medical school (class of 2012)
21. Kevin Nead, 2006, independent studies, pre-med, Howard Hughes International Fellowship award (Strasberg, 2007), Stanford Medical School (class of 2013)
22. Qianqian Zhao, 2007, research volunteer, Dartmouth undergraduate
23. Jackie Fane, 2008-2009, independent studies, pre-med
24. Matali Agarwal, 2008-2011, independent studies, Florida State Medical School (class of 2015)
25. Alison Holder, 2009-2011, research volunteer, UF Medical School (class of 2015)
26. Rashad Agarwal, 2012, research volunteer, MD/PhD program
27. Kristina Weitzel, 2013-2015, research volunteer, independent studies (BMS 4905), UF Medical School (class of 2019)

28. Wesley Dickerson, 2014-2015, research assistant, biological scientist, MBA
29. Cecilia Vazquez, 2014- 2015, research assistant, pre-med
30. Julia Cooper, 2015-2016, research assistant, pre-grad
31. Anne Tolson, 2015, research assistant
32. Kevin Peng, 2016, research assistant, pre-graduate school (biomedical engineering); McNair Diabetes Undergraduate Research Fellowship at Baylor College of Medicine summer 2017
33. Lith Nasif, 2015-2018, research assistant, independent studies, accepted UF College of Medicine MD PhD starting class 2019
34. Ian Xi, 2016-2017, research assistant, pre-graduate school (biomedical engineering)
35. Jash Patel, 2017-2018, research assistant, pre-med
36. Lindsay Wald, 2016- 2019, independent studies, pre-med, University Scholars Program, College of Medicine 2018-2019
37. Kamal Nasif, 2017- 2018, research assistant, independent studies, College of Engineering, computer sciences major
38. Omar Beck, 2018- 2019, research assistant, independent studies, pre-med
39. Akram Weheba, 2019, research assistant, pre-med
40. Malavika A Nair, 2019- present, research assistant, pre-med, Neurobiological Sciences major
41. LeeAnn Hewitt, 2019- present, research assistant, College of Nursing
42. Nicole Winn, 2019- present, research assistant, pre-med
43. Sydney Haselden, 2019-present, research assistant, pre-med

### **Minority Mentor Program**

Tanya Tsangarakis, 2012, freshman UF

### **Postbac graduates**

Wesley F. Dickerson, Biological Scientist 2013-2015, biological scientist; Brandeis MBA 2016-2018

Joe Canzano, Biological Scientist 2016-2017; Masters student in College of Engineering 2017-2019; UC Santa Barbara PhD candidate 2019.

Katelyn McCarty, Biological Scientist 2017-2018, UF College of Medicine starting class 2018

Jesus Aponte, Computer scientist 2018- present; Masters 2019 College of Engineering

Nicholas Kowalkowski, Biological Scientist 2018-present; pre-med

### **Graduate Committee Membership**

1. Charlotte Hotchkiss, DVM PhD (1986), committee member UF College Veterinary Medicine
2. Diane Kitchen, DVM PhD (1997), committee member UF College Veterinary Medicine
3. Lauren Fishbein, MD PhD (2004), committee member UF College of Medicine
4. Nichole Nichols, MS (May 2004), committee member UF College Veterinary Medicine, class of 2008
5. Robert F. Schwartz, MS Medical Sciences (Dec. 2005), UF College of Medicine
6. Vindhya Vijay, MS, co-chair, UF Biomedical Engineering, 2013-2014
7. Lara Ianov, PhD candidate committee member, UF Neuroscience, 2013-2017, UAB scientist bioinformatics
8. Hamadi R. McInTosh, PhD candidate committee member, UF Biomedical Engineering, 2015-present
9. Julie Bray, TL1 mentor, PhD candidate committee member, Department of Pharmacy, UF College of Pharmacy, 2016-present
10. Eric Atkinson, PhD candidate committee member, UF Biomedical Engineering, 2016-present
11. Marcus Lundberg, PhD candidate, opponent at proposal defense, Uppsala, Sweden, August 2018
12. Lais Silva Wright, PhD candidate committee member, UF College of Pharmacy, 2018-present
13. Molly Huber, PhD candidate committee member, UF College of Medicine, 2019- present

### **Post-doctoral Committee Membership**

Olorunseun Ogunwobi, Pathology, Immunology, and Laboratory Medicine, 2011-2013

### **Clinical Fellow Supervisory Committee Membership**

Bimota NamBam, MD, Endocrinology fellow, 2013-2015

Jessica Jackson, MD, OB GYN fellow, 2017-2018

Brittany Bruggeman, MD, Endocrinology fellow, 2019-present

### **NIH KO7**

David Cheng, Assistant Professor, 2016 KO7 awardee National Cancer Institute co-mentor, Department of Epidemiology, University of Florida, co-mentor (active)

### **Faculty**

1. Ann Fu, MD PhD, Assistant Scientist, 2007-
2. John Elyar, PhD, Assistant Scientist, 2006-2008
3. Tarun Hutchinson, Assistant Scientist, 2016-2017
4. Jing Chen, Associate Scientist, 2019- (mentor)

**Other Teaching Activities**

1. Honors IDH4912- Spring 2018
2. BMS4905- 2008 to present
3. BME6971 Masters Research- 2014
4. Summer 2018 Independent Study/Internship- College of Engineering (Kamal Nasif)
5. Course Director, Musculoskeletal System (VEM 5111), College of Veterinary Medicine, February 1997.
6. UF HSC Workshop for Writers of NIH Shared Instrumentation (SIG) and High End Instrumentation (HEI) Grants, March 31, 2017- panel discussant.
7. Lectures:
  - a. Regulatory peptides, gastric secretion and gastrointestinal secretion lectures. College of Veterinary Medicine, VEM 5112, Gastrointestinal Physiology. 1990-1997.
  - b. In situ hybridization workshop lectures, ICBR, UF, 1998-2000.
  - c. Introduction to Clinical/Translational Research (M. Limacher, Course Director)- Tissue Banking, 2006, 2007.
  - d. Hematology/Oncology Fellows Wet Lab, ICBR, March, 2007. Immunohistochemistry for breast cancer.
  - e. College of Medicine residents and fellows, Molecular Pathology lab rotations in IHC and FISH, 2003, 2005-2009; Lectures on Tissue Banking, Molecular Pathology of Colon Cancer, Digital Pathology.

**Other Research and Service Activities**

1. Grand Rounds, Mount Sinai Diabetes Center, Human islet innervation revisited, Feb. 2019
2. American Diabetes Association Session Chair, 76<sup>th</sup> Scientific sessions, June 10, 2016, New Orleans, LA
3. Grant reviews
  - a. Department Clinical Research Committee- 2006, 2019
  - b. Department Experimental Pathology Investigational Grant (EPIG) grant review committee member (2009-10, 2012, 2013), chair (2011)
  - c. UF COM Faculty Enrichment Opportunity Fund-2013-2018
  - d. COM Research Opportunity Seed Funding- 2013, 2014
  - e. North Carolina Biotechnology Center Science and Technology Development Program- 2015 Institutional Developmental Grant Program, 2014.
  - f. NIH study sections- 2010- present: Diabetes Research Center, Shared Instrumentation Grants, CADO study section
  - g. JDRF study sections- 2006- present: Beta Cell regeneration Training Review, Strategic Research Agreements
4. Seminars
  - a. Pathology Grand Rounds- Host- Guillaume de Lartigue, Feb. 2019
  - b. Presenter- Laser Microdissection for Targeted Cell Collection- Department Infrastructure Series, May 5, 2019.
5. COM Mission Track Promotion Committee, 2014-2017
6. Journal or book covers
  - a. Flotte et. al.; Hepatology, 2010
  - b. Bluestone J, Atkinson M, Arvan P, editors. Type 1 Diabetes, Coldspring Harbor Press, 2012
  - c. Diabetes Journal, November, 2013
  - d. Campbell-Thompson, et al. Diabetologia. Relative pancreas volume in type 1 diabetes. February 2016
  - e. Campbell-Thompson, et al. Diabetes. Insulinitis in Type 1 Diabetes. March 2016.
  - f. Canzano, et al. Histochemistry and Cytochemistry, Feb. 2019
7. Patents/copyrights:
  - a. UF# 11934 Monoclonal antibody for CCK-B receptor. Seven companies purchased the license for this antibody and/or evaluated clones.
  - b. UF# 13615 "Pathology Application for Surgical Pathology Diagrams". No further activity.
  - c. UF# 15885: "Serum Trypsinogen Levels in Type 1 Diabetes". No further activity.
  - d. UF# 16546 "Non-invasive diagnostic biomarker for pancreatic islet populations". Licensing underway.
8. Genbank
  - a. Homo sapiens alternatively-spliced estrogen receptor alpha mRNA, partial cds; GenBank: AF120105.1. 1999.