Harvard Medical School/Harvard School of Dental Medicine
Format for the Curriculum Vitae

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Place of Birth: Putnam, Connecticut, USA

Education

05/1990	B.S.	Biology	Trinity College, Hartford
05/1997	M.D., Ph.D.	Medicine and Developmental Biology (David W. Rowe, M.D.)	University of Connecticut School of Medicine

Postdoctoral Training

07/1997 - 06/2000	Internship/Residency	Pediatrics	Yale-New Haven Hospital
07/2000 - 06/2003	Fellowship	Pediatric Endocrinology (Mentor: Joseph A. Majzoub, M.D.)	Boston Children's Hospital

Faculty Academic Appointments

07/2003 - 02/2011	Instructor	Department of Pediatrics	Harvard Medical School
05/2010 -	Principal Faculty		Harvard Stem Cell Institute
03/2011 - 02/2017	Assistant Professor	Department of Pediatrics	Harvard Medical School
06/2011 -	Faculty	Biological and Biomedical Sciences	Harvard Medical School

07/2014 - 06/2020	Member of the Harvard-MIT Health Sciences and Technology Faculty		Harvard Medical School/ MIT
12/2016 -	Affiliated Faculty	Department of Stem Cell and Regenerative Biology	Harvard University/ Harvard Medical School
03/2017 -	Associate Professor	Department of Pediatrics	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions

07/2003 -	Assistant in Medicine	Department of Pediatrics (Endocrinology)	Boston Children's Hospital
07/2003 -	Staff Physician	Department of Pediatrics	Brigham and Women's Hospital
07/2003 -	Staff Physician	Department of Pediatrics	Beth Israel Deaconess Medical Center
07/2003 – 06/2005	Staff Physician	Pediatric and Adolescent Unit	Joslin Diabetes Center
07/2011 -	Adjunct Investigator	Diabetes and Endocrinology Research Core	Joslin Diabetes Center
07/2011 -	Adjunct Faculty	T32 Training Grant (Diabetes)	Joslin Diabetes Center
02/2010 -	Member	Harvard Cancer Center	Dana Farber Cancer Institute
07/2012 -	Adjunct Faculty	T32 Training Grant (Pediatric Gastroenterology)	Boston Children's Hospital
07/2014 - 06/2020	HST Affiliated Faculty		Massachusetts Institute of Technology
07/2016 -	Affiliate Faculty	Department of Stem Cell and Regenerative Biology	Harvard University
01/2021 -	Adjunct Faculty	T32 Training Grant (Gastroenterology)	Brigham and Women's Hospital
08/2022	Faculty	Pediatrics	Tufts Medical Center

Other Professional Positions

01/1995-	Visiting Lecturer	Department of Biology	Trinity College, Hartford

05/1995

Major Administrative Leadership Positions

Local

07/2003 – 06/2005	Director, Division Seminar Series	Boston Children's Hospital (Endocrinology)
07/2005 – 09/2007	Director, Emergency Endocrine Lecture Series	Boston Children's Hospital (Endocrinology)
09/2011 – 08/2013	Co-Director, HST060 (Endocrinology)	Harvard-MIT Health Sciences and Technology
09/2013 - 07/2019	Director, HST060 (Endocrinology)	Harvard-MIT Health Sciences and Technology
09/2013 -	Founding Director, Intestinal Organoid Core	Harvard Digestive Disease Center
02/2013 -	Member, Executive Committee	Harvard Digestive Disease Center
07/2016 -	Associate Chief	Division of Endocrinology, Department of Pediatrics, Boston Children's Hospital
11/2016 -	Co-Director, SCRB 167 (Stem Cells and Regeneration in the Pathobiology and Treatment of Disease)	Harvard College

Committee Service

Local

2009 -	Chair, Committee to Integrate Basic and Clinical Research	Boston Children's Hospital (Endocrinology)
2009 -	Intern Selection Interview Committee	Boston Children's Hospital
2011	Preliminary Qualifying Examination Committee: Chaiyaboot Ariyachet	Harvard Medical School (BBS)
2012	Preliminary Qualifying Examination Committee: Will McLean	Harvard-MIT Health Sciences and Technology
2012	Faculty Co-Chair, Seventh Annual HSCI Malkin Retreat	Harvard Stem Cell Institute
2012	Senior Honors Thesis Committee:	Harvard University (SCRB)

	Brian Butler	
2013	Ph.D. Dissertation Exam Committee: Ronnie Yoo	Harvard Medical School (BBS)
2013	Senior Honors Thesis Committee: Christopher Michael Goldstein	Harvard University (SCRB)
2014	Ph.D. Thesis Defense Exam Committee: Will McLean	Harvard-MIT Health Sciences and Technology
2014 - 2019	Dissertation Advisory Committee: Tyler Huycke	Harvard Medical School (BBS)
2015	Ph.D. Thesis Defense Exam Committee: Abby Sakar	Harvard Medical School (BBS)
2015	Preliminary Qualifying Examination Committee: Naren Tallapragada	Harvard Medical School (Systems Biology)
2015-2018	Dissertation Advisory Committee: Daniel Montoro	Harvard Medical School (BBS)
2015-	Curriculum Committee	Harvard-MIT Health Sciences and Technology
2015 - present	Awards Committee, Research Faculty Council	Boston Children's Hospital
2017 - present	M.D./Ph.D. Admissions Interview Committee	Harvard Medical School
2018	Preliminary Qualifying Examination Committee: Bing Shui	Harvard Medical School (BBS)
2018	Ad Hoc Promotion Committee: Jeffrey Dvorin, MD, PhD	Department of Pediatrics, HMS
2018-2019	Immunology Faculty Search Committee	Boston Children's Hospital
2019- present	Dissertation Advisory Committee, Chair: Irene Wong	Harvard Medical School (BBS)
2019-2020	Endocrinology Faculty Search Committee	Boston Children's Hospital
2020	Preliminary Qualifying Examination	Harvard School of Public Health

	Committee: Stuart Adamson	
2020-2023	Scholarship Oversight Committee, Chair: Kristie Aamodt, MD, PhD	Boston Children's Hospital
2021-2024	Dissertation Advisory Committee: Sara Rudolph	Tufts University School of Medical
2021-2024	Dissertation Advisory Committee: Joshua Luchan	Northeastern University
2021-present	Dissertation Advisory Committee: Elise Gubbins	MIT
2021 -	Physician Wellness Council	Boston Children's Hospital
2024	Dissertation Advisory Committee: Stuart Adamson	Harvard School of Public Health

National and International

2009	Training and Research Committee	Congenital Adrenal Hyperplasia Research Education and Support (CARES) Foundation Comprehensive Centers Meeting
2009	Bone Health Committee	Congenital Adrenal Hyperplasia Research Education and Support (CARES) Foundation Comprehensive Centers Meeting
2012-2014	Annual Meeting Program Committee	Pediatric Endocrine Society
2021-2022	PES/NIH Liaison Committee	Pediatric Endocrine Society
2021-2022	PES 50th Anniversary Interview Committee	Pediatric Endocrine Society
2023-present	Chair, PES/NIH Liaison Committee	Pediatric Endocrine Society
2024	Meeting Chair	International Adrenal Meeting

Professional Societies

2003 -	Pediatric Endocrinology Society
2005 -	Society for Pediatric Research
2003 -	The Endocrine Society

2003 -	International Society for Stem Cell Research	
2015 -	American Gastroenterological Society	
	2014-2016	Member, Abstract Selection Committee
	2016	Chair, Abstract Selection Committee
	2016-2017	DDW: Session Moderator
2018	The American Society for Clinical Investigation	

Grant Review Activities

2007	Study Section: Regular Research Grants, November 2007	Juvenile Diabetes Research Foundation
2009	Seed Grant Review Committee, April 2009	Harvard Stem Cell Institute
2009	Study Section: Intestinal Stem Cell Consortium (U01), June 2009	NIDDK, NIH
2009	Challenge Grant Review, May 2009	NIDDK, NIH
2010	Study Section: Beta Cell Biology Consortium (U01), March 2010	NIDDK, NIH
2010	Seed Grant Review Committee, April 2010	Harvard Stem Cell Institute
2010	Advanced Investigator Award, July 2010	European Research Council
2011	Seed Grant Review Committee, April 2011	Harvard Stem Cell Institute
2012	Seed Grant Review Committee, April 2012	Harvard Stem Cell Institute
2012	Study Section: Intestinal Stem Cell Consortium (U01), July 2012	NIDDK, NIH
2012	Sternlicht Award Selection Committee	Harvard Stem Cell Institute
2013	Study Section: Intestinal Stem Cell Consortium (U01), August 2013	NIDDK, NIH
2014	Study Section: Consortium on Targeting and Regeneration (HIRN-CTAR) (UC4). (Formerly Beta Cell Biology Consortium)	NIDDK, NIH
2014	General Direction for Scientific Research and Health Innovation Grant Review	Italian Ministry of Health

2015	NRSA Fellowship Review Panel	NIDDK, NIH
2018	Crohn's Disease Ancillary Study Review	NIDDK, NIH
2019	Action Medical Research for Children	Registered Charity United Kingdom
2021	Study Section: RFA DK20, DP1Catalyst Award Stage I Review	NIDDK, NIH
2024	Study Section: RFA-DK-23-014, DP1Catalyst Award Stage I Review	NIDDK, NIH
2024	Study Section: PAR-22-069, High Impact, Interdisciplinary Science in NIDDK Research Areas (RC2)	NIDDK, NIH

Editorial Activities

Ad hoc reviewer for:
Science
Cell
Journal of Clinical Investigation
JCI Insight
PNAS
Cell Stem Cell
Nature Genetics
Nature Medicine
Nature Communications
Cell Reports
Gastroenterology
Endocrinology
Stem Cells
Journal of Clinical Endocrinology and Metabolism
Pediatrics
Journal of Anatomy
Molecular and Cellular Endocrinology
Trends in Cell Biology
Frontiers in Endocrinology
Cellular and Molecular Gastroenterology and Hepatology
Hormone Research in Paediatrics

Guest Editor for:
Cellular and Molecular Gastroenterology and Hepatology

Honors and Prizes

1990	Terhan Ergin Scholar	Hartford Hospital Summer Research Fellowship	Excellence in Research
1990	Honors in Biology	Trinity College, Hartford	
1990	The J. Wendell Burger Prize in Biology	Trinity College, Hartford	Excellence in Biology
1992 - 1995	Connecticut High Technology Scholar	State of Connecticut Board of Education	Excellence in Graduate Studies
1993	Associate Member	Sigma Xi	
1997	Medical Student Achievement Award	Endocrine Society	
1997	Linda Ives Award	Department of Pediatrics University of Connecticut School of Medicine	Outstanding Performance in Pediatric Rotation
2005	Best Oral Presentation	Children's Hospital Boston	Research Day Prize
2005	Innovative Award	The Juvenile Diabetes Research Foundation	New Strategy to Identify Progenitor Cells
2010	Presidential Early Career Award for Scientists and Engineers		The White House
2012	Teaching Award Nominee		Harvard Medical School
2013	Teaching Award Nominee		Harvard Medical School
2013	Excellence in Mentoring Award Nominee		Harvard Medical School
2014	Excellence in Mentoring Award Nominee		Harvard Medical School
2014	Post-Doctoral Association Mentoring Award Nominee		Boston Children's Hospital
2014	Endowed Chair in Endocrinology		Boston Children's Hospital
2015	Induction, Honorary Member Beta Beta Beta National Biological Honor Society		Trinity College, Hartford, CT
2016	Academy for Teaching and Educational Innovation and Scholarship		Boston Children's Hospital

2017	Faculty Teaching Honor Roll	Boston Combined Residency Program in Pediatrics
2018	The American Society for Clinical Investigation	
2018	Faculty Teaching Honor Roll	Boston Combined Residency Program in Pediatrics
2018	Excellence in Mentoring Award Nominee	Harvard Medical School
2020	HST Directors' Award for Service	Harvard Medical School, MIT
2021	Excellence in Mentoring Award Nominee	Harvard Medical School
2021	Faculty Teaching Honor Roll	Boston Combined Residency Program in Pediatrics
2024	28th Annual John F. Crigler, Jr., M.D., Memorial Lectureship in Endocrinology	Boston Children's Hospital
2023-2024	Faculty Teaching Honor Roll	Boston Combined Residency Program in Pediatrics

Report of Funded and Unfunded Projects

Funding Information

Past

2001 - 2002 Isolation and Characterization of Adrenocortical Stem Cells
Research Award, Endocrine Fellows Foundation
PI ($7,500)
The main goal of this project was to establish methodologies to isolated and characterize putative adrenal stem cells.

2002 - 2003 Isolation and Characterization of Adrenocortical Stem Cells
Research Award, Lawson Wilkins Pediatric Endocrine Society
PI ($35,000)
The main goal of this project was to compare isolation methods and characterize putative adrenal stem cells.

2003 - 2005 Adrenal Regeneration and Stem Cells
Clinical Scholars Award, Lawson Wilkins Pediatric Endocrine Society
PI ($60,000)
The main goal of this project was to characterize the regenerative potential of putative adrenal stem cells.

2004 - 2009 Adrenal Regeneration: Stem Cells and Lineage Development
Career Development Award, NIH, NIDDK, K08 066305
PI ($649,181)
The major goals of this project are to identify the adrenal stem cell and characterize its lineage development.

2005 – 2006 Identification of Adult Stem Cells in Pancreas using mTert:GFP Transgenic Mice
The Jacob Wexelblatt Innovative Award, Juvenile Diabetes Research Foundation
PI ($100,000)
The major goal of this project was to validate mTert-GFP transgenic mice in intestine and pancreas.

2006 – 2008 Characterization of Putative Intestinal Stem Cells using mTert-GFP Transgenic Mice
Seed Grant, Harvard Stem Cell Institute
PI ($180,000)
The major goals of this project are to identify, isolate and characterize intestinal stem cells using mTert-GFP Transgenic mice and establish their cell fate potential using functional assays.

2006 – 2007 Characterization of intestinal stem cells using mTert-GFP mice
Pilot and Feasibility Grant, Harvard Digestive Disease Center
PI ($25,000)
The major goals of this project are to identify, isolate and characterize intestinal stem cells using mTert-GFP Transgenic mice and establish their cell fate potential using functional assays.

2007 – 2009 Telomerase Positive Adult Kidney-Derived Stem Cells
Young Investigator Award, National Kidney Foundation
Co-Investigator
The major goals of this project are to identify, isolate and characterize putative kidney progenitor cells and establish their cell fate potential using functional assays.

2007 – 2009 Genetic Tracking of Adult Kidney Progenitors in Renal Repair
Renal Innovations Program, Genzyme
Co-Investigator
The major goal of this project is to test mTert-Cre transgenic mice, as a lineage tracing tool, to identify and characterize putative kidney progenitor cells and establish their cell fate potential.

2007 – 2009 mTert-GFP and Pancreatic Progenitor Cells
NIH, NIDDK R21 DK 078198
PI ($275,000)
The major goal of this project is to test mTert-Cre transgenic mice, as a lineage-tracing tool, to identify and characterize putative pancreatic progenitor cells and establish their cell fate potential.

2007 – 2010 Cell Fate Potential of Putative Progenitor Cells from Telomerase Tg Mice
Regular Research Grant, Juvenile Diabetes Research Foundation, 1-2007-116
PI ($165,000)
The major goals of this project are to identify, isolate and characterize putative pancreatic progenitor cells using mTert-GFP Transgenic mice and establish their cell fate potential using functional assays.

2010 – 2011 Characterization of Telomerase-Expressing Intestinal Stem Cell Populations
NIH, NIDDK 1 U01 DK 085527-01
Co-Investigator
The major goal is to characterize the role of mTert-expressing ISCs under regenerative conditions.

2006 – 2011 Role of IRS2 in beta cell physiology
NIH, NIDDK 2 R01 DK 055326-07
Co-Investigator
The major goals are to characterize the role of IRS2 in beta cell physiology and regeneration.

2010 – 2011 Characterization of Liver Stem Cells
Children's Hospital Boston, Research Faculty Council, Pilot and Feasibility Grant
PI ($30,000)
The major goals of this project are to identify, isolate and characterize putative hepatic progenitor cells using telomerase reporter mice and to establish their cell fate potential using functional assays.

2011 – 2012 Towards Regenerative Therapeutics for IBD: The Role of Stem Cells in vivo
Harvard Institute for Translational Immunology Helmsley Crohn's Pilot Grants Program
PI ($100,000)
The major goal is to characterize the role of endogenous ISCs in response to inflammatory stress.

2010 – 2014 Tissue Regeneration and Repair Program: Regulation of Intestinal Regeneration-Role of Slowly Cycling Stem Cells
Harvard Stem Cell Institute, Junior Faculty Research Grant
PI ($300,000)
The major goals of this collaborative program, which includes 6 PIs from Harvard Medical School affiliated hospitals and is co-lead by me and Dr. Benjamin Humphreys, is to better define the mechanisms underlying tissue regeneration in various tissues. My sub-project is focused on defining the signaling pathways regulating intestinal stem cells during regeneration.

2012 – 2014 A high-throughput method for simultaneous profiling of mRNA and protein levels
NIH, NIDDK 1 R21 DK098818
Co-Investigator
The major goal is to develop high-throughput methodology to simultaneously profile

mRNA and protein levels within small numbers of stem cells.

2012 – 2014 Role of Slowly Cycling Stem Cells in Intestinal Cancer
NIH, NCI 1 R21 CA 158861-01
PI ($220,000)
The major goal of this project is to identify, isolate, and characterize putative intestinal cancer stem cells generated by targeted stabilization of β-catenin. Analysis of these cells will provide unique insight into the mechanisms regulating the initial steps of cancer stem cell initiation.

2012 – 2014 How Does Endometrium Regenerate? Role of Epithelial Stem Cells.
NHMRC (Australian Medical Research Council)
Associate Investigator
The major goal is to characterize the role of *mTert*-expressing ISCs and Wnt signaling during endometrial remodeling.

2012 – 2014 Neogenesis of beta cells by the IRS2-signaling cascade
JDRF
Co-Investigator
The major goals are to characterize the role of IRS2 in beta cell neogenesis resulting from mTert-expressing cells.

2016 – 2018 Organ-on-Chips Tools for Testing of Radiation Countermeasures
Bill and Melinda Gates Foundation
Investigator
The major goals are to use primary human intestinal organoids on Organ-on-Chip to study radiation countermeasures.

2010 – 2018 Characterization of Telomerase Expressing Intestinal Stem Cells
NIH, NIDDK 1 R01 DK 084056-01
PI ($1,277,125)
The major goals of this project are to characterize dormant intestinal stem cells using telomerase reporter mice and to define their role in intestinal regeneration.

2013 – 2018 Mechanisms of Adrenal Lineage Development
NIH, NIDDK 1 R01 DK100653A
PI ($808,282)
The goal of these studies is to determine the mechanism underlying adrenal lineage conversion.

2012 – 2017 ADAM10 In Intestinal Homeostasis and Regeneration
NIH, NIDDK 1 R01 DK093697
Collaborator
The goal of these studies is to determine the effect of ADAM10 signaling within intestinal stem cells.

2017 – 2019 Cell-Based Therapy for the Treatment of Congenital Adrenal Hyperplasia
IFCAH/ESPE
PI (Euro120,000)
The goal of this grant is to develop efficient reprogramming strategies to convert human urinary stem cells and human amniotic stem cells into cortisol-producing cells.

2016 – 2021 Reprogram gastric tissue to functional insulin-secreting cells
NIH, NIDDK 1 R01 DK106253-01A1
Co-Investigator
The goal of these studies is to define the mechanism underlying reprogramming of gastric tissue into insulin secreting cells.

2016 – 2021 GuMI: New In Vitro Platforms to Parse the Human Gut Epithelial-Microbiome-Immune Axis
NIH, Bioengineering Research Partnerships, R01 EB021908-01
Co-Investigator
The goal of this proposal is to optimize conditions for long-term culture of human intestinal monolayers in microfluidic CHIP platforms using bioengineering principles, to integrate with defined microbial species and to employ systems biology to understand the epithelial/immune interactions.

2018 - 2021 FGF Signaling in Primary Aldosteronism
AHA 18TPA34230077
PI ($300,000)
The goal of this grant is to define the role of FGF signaling in the pathophysiology of Primary Aldosteronism

2017 – 2022 Molecular basis of action and pathogenesis of Clostridium difficile toxin B
NIH, NIAID 1 R01 AI132387-01
Co-Investigator
The goal of this proposal is to investigate *C. Difficile* pathogenesis using human organoids.

2019 - 2023 Regulation of the Intestinal Stem Cells During Regeneration
NIH, NIDDK R01 DK119488
PI ($1,072,364)
The major goal of this grant is to define the mechanisms regulating dormant intestinal stem cells during regeneration.

Current

2016 – 2024 Reprogramming Gastrointestinal Stem Cells into Beta Cells
Coors Foundation
PI ($2,000,000)
The goal of this proposal is to optimize methods to expand human gastrointestinal stem cells in vitro followed by conversion into functional beta cells.

2019 – 2029 Rosettes in Adrenal Development, Maintenance and Disease
NIH, NIDDK 2R01 DK123694
PI ($3,830,285)
The major goal of this grant is to define the role of the rosette in postnatal adrenal zonation and transdifferentiation and disease pathogenesis.

2023 – 2028 Shigella mediated regulation of epithelial cell inflammasomes
NIH, NIAID 1 R01 AI169795-01A1
Co-Investigator
The goal of this agreement is to provide human intestinal organoids to investigate Shigella's role of in the regulation of epithelial cell inflammasomes.

2024 – 2028 Lipid-Mediated Control of Acetyl-CoA Metabolism in the Pathogenesis of NAFLD
NIH, NIDDK 2R01 DK048873-29A1
Co-Investigator
To use human and mouse organoids to explore intestinal transport of lipids and their role in NAFLD.

2018 – present Optimization of human organ chip protocols and disease modeling.
Wyss Institute for Biologically Inspired Engineering
Co-Investigator
The goal of this support is to facilitate the provide a continuous supply of intestinal organoids and reagents to support ongoing collaborative projects with the Wyss.

2012 – present Integrated Epithelial and Mucosal Biology- CORE C
NIH, NIDDK, 2P30DK034854-36
Core Director
The goal of this core is to provide training to investigators interested in this technology and promote collaborations across disciplines.

2018 – present Research in Developmental Endocrinology and Metabolism
NIH, NIDDK T32DK007699
Associate PI
The goal is to provide training for postdoctoral fellows in pediatric endocrinology.

2024-2026 Role of Enteroendocrine Cell Differentiation in the Pathogenesis of CFRD
Cystic Fibrosis Foundation
PI ($504,000)
The goal of this proposal is to identify the role of enteroendocrine cells in the pathophysiology of cystic fibrosis related diabetes.

Current Unfunded Projects

Numerous ongoing collaborative projects exist within the Gastrointestinal Organoid Core.

Numerous ongoing collaborative projects with investigators studying adrenocortical

development and carcinoma.

Report of Local Teaching and Training

Teaching of Students in Courses

2001 - 2005	Human Systems, Endocrinology of Growth, Metabolism and Reproduction 2nd year medical students	Harvard Medical School 4-hours per year
2004 - 2015	Integrated Human Physiology 1st year medical students	Harvard Medical School 4-hours per year
2011 - 2013	HST-060 (Endocrinology) Co-Director and Lecturer 1st year medical students	Harvard-MIT Health Sciences and Technology 50-hours per year
2013 - 2015	SCRB-137/167 How to harvest the power of intestinal stem cells for therapy? Undergraduates	Harvard University 2-hours per year
2013 - 2019	HST-060 (Endocrinology) Director and Lecturer 1st year medical students	Harvard-MIT Health Sciences and Technology 50-hours per year
2016 - present	SCRB-167 Stem cells and disease the patient experience Co-Director and Lecturer Undergraduates	Harvard University 50-hours per year
2017	Endocrinology (Pathways) Group Leader	Harvard Medical School 4-hours per year
2020 - present	HST-060 (Endocrinology) Lecturer 1st year medical students	Harvard-MIT Health Sciences and Technology 2-hours per year

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

2005 - present	Adrenal Insufficiency Summer Endocrine Lecture Series	BCH One hour lecture per year
2005 - 2009	Glucocorticoid Excess Emergency Endocrine Series	BCH One hour lecture per year
2009	Congenital Adrenal Hyperplasia	BCH, BIDMC, BWH

	Longwood Endocrine Fellows Seminar	One hour lecture
2010-present	Congenital Adrenal Hyperplasia	BCH
2007, 2012, 2018, 2022	Adrenal Insufficiency	BCH, Residency One hour lecture

Clinical Supervisory and Training Responsibilities

2003 - present	Ambulatory Pediatric Endocrine Clinic Preceptor / Children's Hospital Boston	One session per month
2003 - present	Inpatient Pediatric Endocrine Service Preceptor / Children's Hospital Boston	Two weeks per year

Laboratory and Other Research Supervisory and Training Responsibilities

2003 - 2006	Daniel Henderson/ Internal Medicine Resident at Columbia-New York Presbyterian Hospital	Daily mentorship for three years.
2003 - 2005	Anna Payne-Tobin/ Graduate Student, University of California at San Francisco	Supervised ten weeks of summer research during high school.
2005 - 2006	Suzanne Cormack, PhD/ MD The University of Warwick (UK)	Daily mentorship for 6 months in my laboratory during graduate studies at University of Durham, UK.
2006 - 2010	Dana Ambruzs/ MS, Research Scientist, Viacyte	Daily mentorship for three years.
2006 - 2011	Luke Deary, PhD Candidate Dartmouth College	Supervised ten weeks of summer research during high school, Research Assistant.
2007	Louis Kang/ MD, PhD Candidate, UPenn School of Medicine	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2007 - 2008	Mariette Kranendonk / MD, University of Utrecht, Netherlands	Daily mentorship for 6 months.
2008	Laura Fogli/ PhD Student, New York University School of Graduate Studies	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2008	Niklas Smedemark-Margulies/ Fellow, Harvard University Dept of Chemistry	Supervised ten weeks of senior research elective Buckingham Brown & Nichols School.

2009	Amy Chen/ Medical Student Harvard Medical School ‘16	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2010	Jessica Sagers/Undergraduate Brigham Young University ‘12	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2011	Bristol Brandt/Medical Student University of Kansas’16	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2012	Benjamin Mead/ PhD Student, Harvard-MIT HST Program	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2012	Ansel George/Undergraduate University of Texas ’12	Supervised nine weeks of summer research i2b2-HST Summer Institute in Biomedical Informatics and Integrative Genomics (BIG)
2013	Sinibaldo Romero/MD, PhD Candidate, University of Minnessota	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2014	Juliana Castrillon/Undergraduate Harvard College ‘15	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2015	Danny Trotier/University of Cincinnati School of Medicine ‘18	Supervised ten weeks of summer research as an Endocrine Society Medical Student Scholar.
2015	Gabrielle Crosby/Undergraduate UMass Amherst ‘16	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2015 - 2016	Isabel Kendall/Groton School	Supervised 12 weeks of summer research and ongoing research during academic year.
2016	Lucy Gao University of Pennsylvania ‘17	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2016-2017	Lauren Miller University of Minnisotta	Supervised ten weeks of summer research.
2017	Heather Sigurdson Harvard College ‘18	SCRB 91r. Supervised Research Elective during Spring Semester.
2017	Roshini Kalagara Brown University ‘20	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.
2019	Anish Karpurapu Duke University ‘22	Supervised ten weeks of summer research as a Harvard Stem Cell Institute Scholar.

2021	Bridget Shanahan Merrimack College	Supervised ten weeks of summer research with Dr. Daniel Zeve.
2021-2023	Abrahim Elseht	Research Assistant
2022-2024	Emma Mohlmann	Research Assistant
2022-2024	Karina Sharma	Research Assistant

Formally Supervised Trainees

2005 - Diana Carlone, PhD, Assistant Professor of Pediatrics, Harvard Medical School
Published 12 papers, including *Cell Stem Cell*, *Cell Reports* and *PNAS*; Received NIH Small Grant Program (R03), two NIH Exploratory/Developmental Research Grant Awards (R21), Research Project Grant (R01)

2007 - 2009 Loredana Farilla, MD, Behavior technician and horticultural therapist
Published paper in *PNAS*.

2007 - 2009 Michael Dedekian, MD, Staff Physician, Maine Medical Center
Supervised post-doctoral training during pediatric endocrinology fellowship.

2009 - 2020 Camilla Richmond, MD, Instructor in Pediatrics, Harvard Medical School
Published 7 papers, including in *Cell Reports, Stem Cell Reports* and *PNAS*; Received National Research Service Award (F32), NIH Loan Repayment Program, Eleanor and Miles Shore 50th Anniversary Fellowship Award for Scholars in Medicine (HMS), IBD Fellowship, (BCH), P&F Award, HDDC, P&F Award, Harvard Digestive Disease Center, NIH, K12HD052896-09 (Fleisher, PI), Career Development Award, Office of Faculty Development, K08DK106562 (Richmond, PI), Mentored Clinical Scientist Research Career Development Award

2010 - 2012 Bethany (Freedman) Peri, MD, PhD., Pediatric Endocrinologist and Clinical Informaticist, Eli Lilly and Company
Published paper in *Developmental Cell*; Received Fellowship awards from the Endocrine Fellows Foundation and the Pediatric Endocrine Society

2010 - 2012 Tracy Ediger, MD, PhD, Assistant Professor of Pediatrics, Nationwide Children's Hospital
Supervised post-doctoral training following pediatric gastroenterology fellowship.

2010 - 2012 Rebecca Riba, MD, Assistant Professor of Pediatrics, University of Connecticut
Supervised post-doctoral training during pediatric endocrinology fellowship; received NIH Loan Repayment Program Award.

2011 - 2013 Petra Bukovac Kempna, PhD
Published paper in *Developmental Cell* during post-doctoral training.

2012 - 2013 Devora Cohen-Karni, PhD, Assistant Dean of Problem Based Learning Seton Hill, Lake Erie College of Osteopathic Medicine.
Supervised post-doctoral training.

2012 - 2023 Manasvi Shah, PhD, Principal Scientist at Regeneron Pharmaceuticals
Supervising post-doctoral training. Supervised Scholars in Medicine Research Project.
Published paper in *Cell Reports*
Received National Research Service Award (F32)

2013 - 2019 Sining Leng, PhD
Supervising PhD training.

2013 - 2014 Horatio Thomas, Scholars in Medicine, MD Candidate, Harvard Medical School
Supervised Scholars in Medicine Research Project. Published paper in *Cell Reports*

2014 - 2019 Emanuele Pignatti, PhD, Post-Doctoral Researcher, Department of Biomedical Research, Faculty of Medicine, University of Bern, Bern, Switzerland
Supervising post-doctoral training.

2016 - 2017 Kleiton Borges, PhD, Instructor in Pediatrics, Harvard Medical School
2019 - Supervising post-doctoral training.
Received DOD Junior Investigator Award

2017 - Daniel Zeve, MD, PhD, Instructor in Pediatrics, Harvard Medical School
Supervising post-doctoral training.
Received Juvenile Diabetes Research Foundation Career Development Award, HDDC P&S Award, NORCH P&F Award, Joslin Diabetes Center P&F Award, K08

2017 - 2020 Erin Syverson, MD, Instructor in Pediatrics, Harvard Medical School
Supervising post-doctoral training.

2017 - 2019 Dulanjalee Kariyawasam, MD, PhD, Associate Professor, Service de Pédiatrie Endocrinologie, Gynécologie et Diabète, Hôpital Necker-Enfants Malades, Paris, France
Supervising post-doctoral training.

2016 - 2023 Gerard Ruiz Babot, PhD, Research Fellow · Technische Universität Dresden
Supervising post-doctoral training.
Received Global Marie Curie Fellowship, IFCAH Career Development Award

2016 - Margaret Stefator-Richards, MD, PhD, Instructor in Pediatrics, Harvard Medical School
Co-Mentor of post-doctoral training.
Received K08

2019 - 2021 Yixing Yuchi, PhD, Research Scientist, Vertex Pharmaceuticals
Supervising post-doctoral training.

2020 - Amy O'Connell, MD, PhD, Assistant Professor, Harvard Medical School
Supervising post-doctoral training.
Received K08

2021 - Vasileios Chortis, MD, PhD, Research Fellow in Pediatrics, Division of Endocrinology
Supervising post-doctoral training.

2022 - Guilherme (Gui) Piovezani Ramos, MD, Research Fellow in Pediatrics, Division of Endocrinology. Supervising post-doctoral training.

2022 - Mesut Berber, PhD, Research Fellow in Pediatrics, Division of Endocrinology.
Supervising post-doctoral training.

2023 - Betul Haykir, PhD, Research Fellow in Pediatrics, Division of Endocrinology. Supervising post-doctoral training.

Local Invited Presentations

Basic Science Presentations

No presentations below were sponsored by outside entities

2005 Identification Adult Stem Cells using *mTert*-GFP Mice/ Platform Presentation
Boston Children's Hospital Annual Research Day

2007 Identification and Functional Characterization of Tissue Stem Cells/ Grand Rounds
Brigham and Women's Hospital/CHB Joint Endocrine Grand Rounds

2007 Identification and Functional Characterization of Tissue Stem Cells using *mTert*-GFP Mice/
Joslin Diabetes Center Metabolism Research Seminar Series

2007 Characterization of Intestinal Stem Cells Using Telomerase Transgenic Mice/ Invited Talk
Harvard Stem Cell Institute Inter-Lab Meeting

2009 Characterization of Tissue Stem Cells from Intestine / Invited Talk
Massachusetts General Hospital, Basic GI Research Conference

2009 Characterization of Tissue Stem Cells using Telomerase Reporter Mice / Invited Talk
Boston Children's Hospital, Basic Orthopedics Research Conference

2010 Characterization of Intestinal Stem Cells / Invited Talk
Harvard Digestive Diseases Center, Seminar Series

2011 Regulation of Slowly Cycling Stem Cells/ Endocrine Grand Rounds
Beth Israel Deaconess Medical Center

2012 Role of Slowly Cycling Stem Intestinal Stem Cells in Repair/ GI Seminar Series
Beth Israel Deaconess Medical Center

2013 Dormant Intestinal Stem Cells are Nutrient Sensing and Regulated by PTEN/PI3K/AKT Signal
Harvard Stem Cell Institute/Kidney Inter-lab Meeting

2013 Role of Dormant Stem Cells in Intestinal Homeostasis/ Faculty Talk
Harvard Digestive Diseases Center, NIH Director's Meeting/NIH Site Visit

2013 Role of Dormant Stem Cells in Intestinal Homeostasis
Developmental and Regenerative Biology (DRB), Student Data Club - Faculty Seminar Series

2014 The Intestinal Stem Cell Niche: Regulation and Translation/ Invited Talk
Harvard Stem Cell Institute

2014 Role of Dormant Stem Cells in Intestinal Homeostasis /Research Seminar Series
Gastrointestinal Unit, Massachusetts General Hospital

2014 Intestinal Stem Cells are Regulated by Nutrient Status and PTEN
Center for Regenerative Medicine, Massachusetts General Hospital

2014 Hormonal Regulation of Adrenal Lineage Development
Boston Children's Hospital, Stem Cell Day

2015 Hormonal Regulation of Stem Cells and Lineage Development
Boston Children's Hospital, Epigenetics Lunch Conference

2017 Reprogramming of Gastrointestinal Stem Cells into Beta Cells
Mini-Retreat, Division of Endocrinology, Boston Children's Hospital

2018 Hormonal Regulation of Stem Cells and Lineage Development
Endocrine Grand Rounds, Beth Israel Deaconess Medical Center

2019 Hormonal Regulation of Stem Cells and Lineage Development
Joslin Diabetes Center, Basic Science Seminar Series

2020 Application of Intestine-on-Chip Technology
Boston Children's Hospital, Department of Pediatrics, Division Chief's Conference

2020 Regulation of Intestinal Stem Cells and Lineage Development
Boston Children's Hospital, Newborn Medicine Research Seminar Series

2024 A Tale of Two Tissues: How disease modeling informs novel therapies in the Adrenal and Intestine, Boston Children's Hospital, 28th Annual John F. Crigler, Jr., M.D., Memorial Lectureship in Endocrinology

Clinical Presentations

No presentations below were sponsored by outside entities

2007 Adrenal Insufficiency and Asthma
Boston Children's Hospital, Allergy and Immunology Conference Series

2008 Adrenal Insufficiency and Bone Marrow Transplantation
Boston Children's Hospital, Bone Marrow Transplant Conference Series

2008 Adrenal Insufficiency and Asthma
Boston Children's Hospital, Pulmonary Medicine Conference Series

2009 Adrenal Insufficiency and Asthma
Boston Children's Hospital, Ambulatory Asthma Case Conference

2009 Congenital Adrenal Hyperplasia
Combined Longwood Medical Area Endocrine Fellowship Didactic Lecture Series

2015 Steroid-Induced Adrenal Insufficiency
Boston Children's Hospital, Allergy and Immunology Conference Series

2015 Steroid-Induced Adrenal Insufficiency
Boston Children's Hospital, Rheumatology Grand Rounds

2017 Steroid Side Effects
Boston, Children's Hospital, Inflammatory Bowel Disease Conference

2019 Adrenal Insufficiency and Asthma
Boston Children's Hospital, Fellows Conference, Pulmonary Medicine

2020 Steroid Side Effects
Boston Children's Hospital, Allergy and Immunology Conference Series

2021 Steroid Side Effects
Boston Children's Hospital, Allergy and Immunology Conference Series

2020-2023 Adrenal Physiology, Insufficiency and Excess/Medical School Lecture
HST060 (Endocrinology), Harvard Medical School

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

Regional

No presentations below were sponsored by outside entities

1997 Regulation of Type 1 Collagen in Bone and Vascular Smooth Muscle/ Plenary Talk
Boston, MA (17th Annual Meeting of the East Coast Connective Tissue Society)

2005 Identification Adult Stem Cells using *mTert*-GFP Mice/ Visiting Professor
Hartford, CT (HHMI-Trinity College Summer Student Research Seminar Series)

2009 Tissue Progenitor/Stem Cells from Intestine and Pancreas/ Endocrine Scholars Lecture
Farmington, CT (University of Connecticut School of Medicine)

2010 Intestinal Stem Cells/ Guest Lecturer
Storrs, CT (PNB 3260, Dept. of Physiology & Neurobiology, University of Connecticut)

2012 Biomedical Science Careers Program Conference/ Student Advisor
Boston, MA

2014 Child Health Research Center K12 Annual Meeting, Discussion Group Leader
Boston, MA

2015 Hormonal Regulation of Stem Cells and Lineage Development/ Keynote Address
Beta Beta Beta National Biological Honor Society, Trinity College, Hartford, CT

2015 Hormonal Regulation of Stem Cells and Lineage Development/ Pediatric Grand Rounds
University of Massachusetts School of Medicine, Worcester, MA

2015 Hormonal Regulation of Stem Cells and Lineage Development/ Pediatric Grand Rounds
Hasbro Children's Hospital, Warren Alpert School of Medicine of Brown University, Providence, RI

2015 Dormant Intestinal Stem Cells are Regulated by Nutritional Status and PTEN/ MCB
Seminar Series, Warren Alpert School of Medicine of Brown University, Providence, RI

2016 Steroid Side Effects/Plenary Lecture
New England Society of Allergy Annual Meeting, Westford, MA

National

No presentations below were sponsored by outside entities

2003 Models of Adrenal Regeneration/ Platform Presentation
Seattle, WA (Lawson Wilkins Pediatric Endocrinology Society Annual Meeting)

2006 Identification Adult Stem Cells using *mTert*-GFP Mice/ Grand Rounds
Ann Arbor, MI (Cancer Center and Endocrinology, University of Michigan School of Med.)

2006 Identification of Pancreatic Progenitors using *mTert*-GFP Mice/ Platform Presentation
San Francisco, CA (Pediatric Academic Society Annual Meeting)

2006 Adrenal Stem Cells and Lineage Development/ Platform Presentation
San Francisco, CA (Lawson Wilkins Pediatric Endocrine Society Annual Meeting)

2006 Identification and Characterization of Intestinal Progenitor/Stem Cells/ Invited Talk
Poughkeepsie, NY (Vassar College, Biology Seminar Series)

2009 Tissue Progenitor/Stem Cells from Intestine and Pancreas

Pittsburgh, PA (University of Pittsburgh School of Medicine, Endocrine Seminar Series)

2009 Tissue Progenitor/Stem Cells from Intestine and Pancreas
Philadelphia, PA (Children's Hospital of Philadelphia, Endocrine Seminar Series)

2011 Regulation of Slowly Cycling Intestinal Stem Cells
Steam Boat Springs, CO (FASEB Meeting, Stem Cells, Adaptation, Inflammation and Cancer)

2012 Zona Fasciculata cells arise from the Zona Glomerulosa during postnatal development
Houston, TX (The 15th International Adrenal Cortex Conference, Platform Presentation)

2012 Regulation of Slowly Cycling Tissue Stem Cells
Pittsburgh, PA (Molecular Medicine Research Seminar, Children Hospital of Pittsburgh)

2012 Role of Slowly Cycling Stem Cells in Intestinal Regeneration
Chicago, IL (Freston Conference on GI Stem Cells and Cancer, The AGA Institute)

2013 Activation of Slowly Cycling Intestinal Stem Cells
Ipswich, MA (New England Biolabs, Visiting Professor)

2013 Dormant Intestinal Stem Cells are Nutrient Sensing
College Station, TX (Texas A&M University, Visiting Professor)

2014 Dormant Intestinal Stem Cells are Nutrient Sensing
Nashville, TN (Vanderbilt University School of Medicine, Visiting Professor)

2014 Epithelial Pathobiology; CBIO-GS 324, Graduate Course on Critical Review of Literature
Nashville, TN (Vanderbilt University School of Medicine, Guest Lecture)

2014 Role of Dormant Stem Cells in Intestinal Homeostasis
Cincinnati, OH (Cincinnati Children's Hospital Research Foundation, Visiting Professor)

2014 Stem Cells 2.0; Intestinal Stem Cells are Regulated by Nutritional Status and PTEN
Boston, MA (Harvard-California Stem Cell Biology Meeting)

2015 Hormonal Regulation of Intestinal Stem Cells and Lineage Development
Ann Arbor, MI (University of Michigan School of Medicine, Visiting Professor)

2015 Hormonal Regulation of Adrenal Lineage Development/ Pediatric Grand Rounds
Ann Arbor, MI (University of Michigan School of Medicine, Visiting Professor)

2016 Adrenal Lineage Development
Boston, MA (The 17th International Adrenal Cortex Conference, Platform Presentation)

2017 Role of Dormant Stem Cells in Intestinal Homeostasis
Boston, MA (Harvard Digestive Disease Center's Annual Meeting, Platform Presentation)

2017 Mechanisms of Lineage Development/ Basic Science Seminar
Baltimore, MD (Johns Hopkins School of Medicine, Visiting Professor)

2018 Mechanisms of Lineage Development/ Basic Science Seminar
New York, NY (Columbia University Medical Center, Visiting Professor)

2018 Mechanisms of Lineage Development/ Basic Science Seminar
Chicago, IL (Lurie Children's Hospital, Feinberg School of Medicine, Visiting Professor)

2019 Adrenal Development/ Plenary Session
Pediatric Endocrine Society/Pediatric Academic Society, Baltimore MD

2020 Mechanism of Adrenal Lineage Development / Pediatric Grand Round (University of Texas Southwest Medical Center, Visiting Professor)--Deferred due to COVID-19

2020 Regulation of Intestinal Stem Cells and Lineage Development/ Frontiers in Pediatric Research Seminar Series (University of Iowa Carver College of Medicine, Visiting Professor)

2022 Regulation of Lineage Development, Stem Cell Program Seminar Series (Cornell University, Visiting Professor)

2023 Regulation of Adrenal Lineage Development, Department of Pharmacology (University of Virginia, Visiting Professor)

2023 Regulation of Adrenal Lineage Development, Division of Endocrinology, (University of Texas Southwestern, Visiting Professor)

2023 Adrenocortical Lineage Development, Homeostasis and Carcinoma, Section of Endocrinology, (Yale University School of Medicine, Visiting Professor)

2023 Adrenocortical Lineage Development, Homeostasis and Carcinoma, Division of Endocrinology, (University of Michigan, Visiting Professor)

International

No presentations below were sponsored by outside entities

2005 Identification Adult Stem Cells using *mTert*-GFP Mice/ Platform Presentation
San Francisco, CA (International Society for Stem Cell Research Annual Meeting)

2005 Identification of Adult Stem Cells using *mTert*-GFP Transgenic Mice/ Visiting Professor
Durham University, England

2005 Adrenal Regeneration and Stem Cells/ Visiting Professor
Edinburgh, UK

2006 Tissue-Specific Engraftment of Intestinal Stem Cells/ Plenary Talk

Toronto, Canada (International Society for Stem Cell Research Annual Meeting)

2006 Identification of Putative Intestinal Stem Cells Using *mTert*-GFP Transgenic Mice/ Plenary
Newcastle, UK (Northeast Regional Stem Cell Meeting)

2007 Characterization of Intestinal Stem Cells Using Telomerase Transgenic Mice/ Invited Talk
Turino, Italy (4th IRCC International Cancer Conference)

2012 Radiation Effects on Mutation in Somatic and Germline Stem Cells
Hiroshima, Japan, International Workshop, Radiation Effects Research Foundation (RERF)

2013 Activation of Slowly Cycling Intestinal Stem Cells/ Visiting Professor
Newcastle, UK (Center for Life)

2016 Mechanisms of Adrenal Lineage Development/ Visiting Professor
Carney's Complex Annual Meeting (Paris)

2017 Role of Dormant Stem Cells in Intestinal Homeostasis/ Keynote Address
Canadian Digestive Disease Week (Banff)

2018 Mechanisms of Adrenal Lineage Development/ Visiting Professor
Carney's Complex Annual Meeting (Paris)

2018 Regulation of Zonation and Homeostasis in the Adrenal Cortex/Plenary
The 18th Adrenal Cortex Conference (Munich)

2024 Role of Wnt2b in zG Homeostasis and Primary Aldosteronism/Plenary
The 19th International Adrenal Meeting (Boston)

2024 Role of Enteroendocrine Cells in Cystic Fibrosis Related Diabetes
European Cystic Fibrosis Society Basic Science Conference (Valletta, Malta) Declined

2024 Adrenocortical Lineage Development, Homeostasis and Carcinoma, Institute for
Developmental Research, Nagoya University (Nagoya, Japan) / Visiting Professor

2024 The Role of Enteroendocrine Cells in the Pathogenesis of CFRD
Cystic Fibrosis Foundation Research Conference (Stowe, VT)

Report of Clinical Activities and Innovations

Current Licensure and Certification

07/2003 - Massachusetts Medical License

Practice Activities

07/2003 -	Ambulatory Care	Pediatric Endocrinology, Boston Children's Hospital	Three Sessions per month (Including one

			Fellows Teaching Clinic)
07/2003 - 06/2005	Ambulatory Care	Pediatric Endocrinology, Joslin Diabetes Center	Two Sessions per month
07/2003 - present	Inpatient Care	Pediatric Endocrinology, Boston Children's Hospital	Two-Three weeks per year

Report of Education of Patients and Service to the Community

2015	Understanding Diseases of the Adrenal Gland	Lecture to Clinical Staff, Division of Endocrinology, Boston Children's Hospital
2015	Field Training of Midwives and Physicians in the use of Solar Suitcases in a Rural Maternal-Fetal Clinic	Project Medishare; Marmont, Haiti
2015	All Star Mentoring Event	Boston Children's Post-Doctoral Association
2021-2024	VRIP Medical Student Mentoring Luncheon	Harvard Catalyst
2024	Commentator, Faculty Fellows Research Presentations	Leadership and Faculty Development Program Conference, Office for Diversity, Inclusion and Community Partnership, Harvard Medical School

Educational Material for Patients and the Lay Community

Educational material or curricula developed for non-professional students

1995	General Endocrinology (Biology 352)	Course Syllabus (Trinity College)	

Patient educational material

2006	In Search of a Cure for CAH: Cell-Based Therapy and the Role of Stem Cells	Lead Article (CARES Foundation Newsletter)	Volume 5(1) 2006
2015	Adrenal Research at Boston Children's	National Adrenal Diseases Foundation	Newsletter

Hospital

Report of Scholarship

Publications

Peer reviewed publications in print or other media

Research Investigations

1. Bedalov, **Breault DT**, B.P. Sokolov, A.C. Lichtler, I. Bedalov, S.H. Clark, K. Mack, J.S. Khillan, C.O. Woody, B.E. Kream, D.W. Rowe: Regulation of the alpha1(I) collagen promoter in vascular smooth muscle cells. Comparison with other alpha1(1) collagen-producing cells in transgenic animals and cultured cells. ***The Journal of Biological Chemistry*** 269(7):4903-09, 1994.

2. P. Fall, **Breault DT**, L. Raisz: Inhibition of collagen synthesis by prosteglandins in the immortalized rat osteoblastic cell line, Py1a; Structure activity relations and signal transduction mechanisms. ***Journal of the American Society of Bone and Mineral Research*** 9(12):1935-43, 1994.

3. **Breault DT**, M.L. Stover, M. Li, A.C. Lichtler and D.W. Rowe: A novel use for Bal 31 nuclease generated nested deletions: Sequencing from the inside out. ***Biotechniques*** 18:614-17, 1995.

4. **Breault DT**, A.C. Lichtler and D.W. Rowe: COL1A1 transgene expression in stably transfected osteoblastic cells. Relative contributions of first intron, 3'-flanking sequences, and sequences derived from the body of the human COL1A1 minigene. ***The Journal of Biological Chemistry*** 272(50):31241-50, 1997.

5. Silverman ES*, **Breault DT***, Vallone J Subramanian S, Yilmaz AD, Mathew S, Subramaniam V Tantisira K, Pacák K, Weiss ST, Majzoub JA. Corticotropin-releasing hormone deficiency increases allergen-induced airway inflammation in a mouse model of asthma. ***J Allergy Clin Immunol*** 114(4):747-54, 2004.
****Contributed equally***

6. Stadtfeld M, Maherali N, **Breault DT**, Hochedlinger C. Defining molecular cornerstones during fibroblast to iPS cell reprogramming in mouse. ***Cell Stem Cell*** 2: 1–11, 2008.

7. **Breault DT***, Min IM, Carlone DL, Henderson DE, Algra S, Montgomery RK, Wagers AJ, Hole N. Generation of *mTert*-GFP Mice as a Model to Identify and Study Tissue Stem Cells. ***Proc Natl Acad Sci USA.*** 105(30):10420-10425, 2008.
****Corresponding Author***

8. Montgomery RK, Carlone DL, Richmond CA, Farilla L, Kranendonk MEG, Henderson DE, Baffour-Awuah NY, Ambruzs DM, Fogli LK, Algra S, **Breault DT**. Mouse telomerase reverse transcriptase (mTert) expression marks slowly cycling intestinal stem cells. ***Proc Natl Acad Sci USA***. 108(1):179-84, 2011. Epub 2010 Dec 20.

9. Song J, Czerniak S, Wang T, Ying W, Carlone DL, **Breault DT*,** Humphreys BD*. Characterization and Fate of Telomerase Expressing Epithelia During Kidney Repair. ***Journal of the American Society of Nephrology***. 22(12): 2256-65, 2011
Co-Senior Author

10. Richardson GD, **Breault D**, Horrocks G, Cormack S, Hole N, Owens WA. Telomerase expression in the mammalian heart. ***FASEB J***. 26, 000-000, 2012.

11. Meeson A, Fuller A, **Breault DT**, Owens WA, Richardson GD. Optimised protocols for the identification of the murine cardiac side population. ***Stem Cell Rev and Rep***. 2013 Apr 26.

12. Freedman BD, Bukovac-Kempna P, Carlone DL, Shah M, Guagliardo NA, Barrett PQ, Gomez-Sanchez CE, Majzoub JA, **Breault DT.** Adrenocortical zonation results from lineage conversion of differentiated zona glomerulosa cells. ***Developmental Cell*** 2013 Sep 30;26(6):666-73.

13. Bennaceur K, Atwill M, Al Zhrany N, Hoffmann J, Keavney B, **Breault D**, Richardson G, von Zglinicki T, Saretzki G, Spyridopoulos I. Atorvastatin induces T cell proliferation by a telomerase reverse transcriptase (TERT) mediated mechanism. ***Atherosclerosis***. 2014 Oct;236(2):312-20.

14. Gierut JJ, Lyons J, Shah MS, Genetti C, **Breault DT** Haigis KM. Oncogenic K-Ras Promotes Proliferation in Quiescent Intestinal Stem Cells. ***Stem Cell Research*** 2015 Jun 10;15(1):165-171.

15. San Roman AK, Tovagliero A, **Breault DT**, Shivdasani RA. Distinct processes and transcriptional targets underlie CDX2 requirements in intestinal stem and differentiated villus cells. ***Stem Cell Reports*** 2015 Nov 5(5):673-81.

16. D'Addio F, La Rosa S, Maestroni A, Orsenigo E, Ben Nasr M, Tezza S, Bassi R, Finzi G, Marando A, Vergani A, Frego R, Albarello L, Andolfo A, Manuguerra R, Viale E, Staudacher C, Corradi D, Batlle E, **Breault DT**, Jung P, Secchi A, Folli F, Fiorina P. Circulating IGF-I and IGFBP3 Levels Control Human Colonic Stem Cell Function and Are Disrupted in Diabetic Enteropathy. ***Cell Stem Cell*** 17(4):486-98. 2015

17. Richmond CA, Shah MS, Deary LT, Trotier DC, Thomas H, Ambruzs DM, Jiang L, Brandt BN, Rickner HD, Montgomery RK, Tovaglieri A, Carlone DL, **Breault DT**. Dormant Intestinal Stem Cells are Regulated by PTEN and Nutritional Status. ***Cell Reports***. 2015 Dec 22;13(11):2403-11.

18. Deane JA, Ong YR, Cain JE, Jayasekara WSN, Tiwari A, Carlone DL, Watkins DN, **Breault DT** and Gargett CE. The mouse endometrium contains epithelial, endothelial and leukocyte populations expressing the stem cell marker telomerase reverse transcriptase. ***Molecular Human Reproduction***. 2016 Apr;22(4):272-84. doi: 10.1093/molehr/gav076. Epub 2016 Jan 5.PMID: 26740067

19. Ariyachet C, Tovaglieri A, Xiang G, Lu J, Shah MS, Richmond CA, Verbeke C, Melton DA, Stanger BZ, Mooney D, Shivdasani RA, Mahony S, Xia Q, **Breault DT**, Zhou Q. Reprogrammed

Stomach Tissue as a Renewable Source of Functional β Cells for Blood Glucose Regulation. ***Cell Stem Cell***. 2016 Mar 3;18(3):410-21.

20. Nelms BD, Waldron L, Barrera LA, Weflen AW, Goettel JA, Guo G, Montgomery RK, Neutra MR, **Breault DT**, Snapper SB, Orkin SH, Bulyk ML, Huttenhower C, Lencer WI. CellMapper: rapid and accurate inference of gene expression in difficult-to-isolate cell types. ***Genome Biol***. 2016 Sep 29;17(1):201.

21. Tao L, Zhang J, Meraner P, Tovaglieri A, Wu X, Gerhard R, Zhang X, Stallcup WB, Miao J, He X, Hurdle JG, **Breault DT**, Brass AL, Dong M. Frizzled are colonic epithelial receptors for *Clostridium difficile* toxin B. ***Nature***. 2016 Sep 28;538(7625):350-355.

22. Stokes K, Cooke A, Chang H, Weaver DR, **Breault DT***, Karpowicz P. The Circadian Clock Gene BMAL1 Coordinates Intestinal Regeneration. ***Cell Mol Gastroenterol Hepatol***. 2017 Apr 5;4(1):95-114.
Co-Senior Author

23. Yan KS, Gevaert O, Zheng GXY, Anchang B, Probert CS, Larkin KA, Davies PS, Cheng ZF, Kaddis JS, Han A, Roelf K, Calderon RI, Cynn E, Hu X, Mandleywala K, Wilhelmy J, Grimes SM, Corney DC, Boutet SC, Terry JM, Belgrader P, Ziraldo SB, Mikkelsen TS, Wang F, von Furstenberg RJ, Smith NR, Chandrakesan P, May R, Chrissy MAS, Jain R, Cartwright CA, Niland JC, Hong YK, Carrington J, **Breault DT**, Epstein J, Houchen CW, Lynch JP, Martin MG, Plevritis SK, Curtis C, Ji HP, Li L, Henning SJ, Wong MH, Kuo CJ. Intestinal Enteroendocrine Lineage Cells Possess Homeostatic and Injury-Inducible Stem Cell Activity. ***Cell Stem Cell***. 2017 Jul 6;21(1):78-90.

24. Dumontet T, Sahut-Barnola I, Septier A, Montanier N, Plotton I, Roucher-Boulez F, Ducros V, Lefrançois-Martinez AM, Pointud JC, Zubair M, Morohashi KI, **Breault DT**, Val P, Martinez A. PKA signaling drives reticularis differentiation and sexually dimorphic adrenal cortex renewal. ***JCI insight***. 2018; 3(2).

25. Richmond CA, Rickner H, Shah MS, Ediger T, Deary L, Zhou F, Tovaglieri A, Carlone DL, **Breault DT**. JAK/STAT-1 Signaling Is Required for Reserve Intestinal Stem Cell Activation during Intestinal Regeneration Following Acute Inflammation. ***Stem cell reports***. 2018; 10(1):17-26.

26. Ong YR, Cousins FL, Yang X, Mushafi AAAA, **Breault DT**, Gargett CE, Deane JA.Bone Marrow Stem Cells Do Not Contribute to Endometrial Cell Lineages in Chimeric Mouse Models. ***Stem cells***. 2018; 36(1):91-102.

27. Konnikova L, Boschetti G, Rahman A, Lord J, Richmond CA, Tomov V, Gordon W, Jelinsky S, Canavan J, Wall S, Field M, Zhou F, Goldsmith J, Bewtra M, **Breault DT**, Merad M, Snapper DB. High Dimensional Immune Phenotyping and Transcriptional Analyses Reveal Robust Recovery of Viable Human Immune and Epithelial Cells from Frozen Gastrointestinal Tissue.

Mucosal Immunology. 2018 Aug 15.

28. O'Connell AE, Zhou F, Shah MS, Murphy Q, Rickner H, Kelsen J, Boyle J, Doyle JJ, Gangwani B, Thiagarajah JR, Kamin DS, Goldsmith JD, Richmond C, **Breault DT**, Agrawal PB. Neonatal-Onset Chronic Diarrhea Caused by Homozygous Nonsense WNT2B Mutations. ***Am J Hum Genet***. 2018 Jul 5;103(1):131-137.

29. Richardson GD, Sage A, Bennaceur K, Al Zhrany N, Coelho-Lima J, Dookun E, Draganova L, Saretzki G, **Breault DT**, Mallat Z, Spyridopoulos I. Telomerase Mediates Lymphocyte Proliferation but Not the Atherosclerosis-Suppressive Potential of Regulatory T-Cells. ***Arterioscler Thromb Vasc Biol***. 2018 Jun;38(6):1283-1296

30. Lyons J, Ghazi PC, Starchenko A, Tovaglieri A, Baldwin KR, Poulin EJ, Gierut JJ, Genetti C, Yajnik V, **Breault DT**, Lauffenburger DA, Haigis KM. The colonic epithelium plays an active role in promoting colitis by shaping the tissue cytokine profile. ***PLoS Biol***. 2018 Mar 29;16(3):e2002417

31. Kasendra M, Tovaglieri A, Sontheimer-Phelps A, Jalili-Firoozinezhad S, Bein A, Chalkiadaki A, Scholl W, Zhang C, Rickner H, Richmond CA, Li H, **Breault DT***, Ingber DE. Development of a primary human Small Intestine-on-a-Chip using biopsy-derived organoids. ***Sci Rep***. 2018 Feb 13;8(1):2871.
Co-Senior Author

32. Tovaglieri A, Sontheimer-Phelps A, Geirnaert A, Prantil-Baun R, Camacho DM, Chou DB, Jalili-Firoozinezhad S, de Wouters T, Kasendra M, Super M, Cartwright MJ, Richmond CA, **Breault DT**, Lacroix C, Ingber DE. Species-specific enhancement of enterohemorrhagic E. coli pathogenesis mediated by microbiome metabolites. ***Microbiome***. 2019 Mar 20;7(1):43

33. Basham KJ, Rodriguez S, Turcu AF, Lerario AM, Logan CY, Rysztak MR, Gomez-Sanchez CE, **Breault DT**, Koo BK, Clevers H, Nusse R, Val P, Hammer GD. A ZNRF3-dependent Wnt/β-catenin signaling gradient is required for adrenal homeostasis. ***Genes Dev***. 2019 Feb 1;33(3-4):209-220

34. Guagliardo NA, Yao J, Stipes EJ, Cechova S, Le TH, Bayliss DA, **Breault DT**, Barrett PQ. Adrenal Tissue-Specific Deletion of TASK Channels Causes Aldosterone-Driven Angiotensin II-Independent Hypertension. ***Hypertension***. 2019 Feb;73(2):407-414

35. Cousins FL, O DF, Ong YR, **Breault DT**, Deane JA, Gargett CE. Telomerase Reverse Transcriptase Expression in Mouse Endometrium During Reepithelialization and Regeneration in a Menses-Like Model. ***Stem Cells*** *Dev*. 2019 Jan 1;28(1):1-12

36. Engeland WC, Massman L, Mishra S, Yoder JM, Leng S, Pignatti E, Piper ME, Carlone DL, **Breault DT***, Kofuji P. The Adrenal Clock Prevents Aberrant Light-Induced Alterations in Circadian Glucocorticoid Rhythms. ***Endocrinology***. 2018 Dec 1;159(12):3950-3964

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37. Tao L, Tian S, Zhang J, Liu Z, Robinson-McCarthy L, Miyashita SI, **Breault DT**, Gerhard R, Oottamasathien S, Whelan SPJ, Dong M. Sulfated glycosaminoglycans and low-density lipoprotein receptor contribute to Clostridium difficile toxin A entry into cells. ***Nat Microbiol***. 2019 Oct;4(10):1760-1769.

38. Jalili-Firoozinezhad S, Gazzaniga FS, Calamari EL, Camacho DM, Fadel CW, Bein A, Swenor B, Nestor B, Cronce MJ, Tovaglieri A, Levy O, Gregory KE, **Breault DT**, Cabral JMS, Kasper DL, Novak R, Ingber DE. A complex human gut microbiome cultured in an anaerobic intestine-on-a-chip. ***Nat Biomed Eng***. 2019 Jul;3(7):583.

39. Engeland WC, Massman L, Miller L, Leng S, Pignatti E, Pantano L, Carlone DL, Kofuji P, **Breault DT**. Sex Differences in Adrenal Bmal1 Deletion-Induced Augmentation of Glucocorticoid Responses to Stress and ACTH in Mice. ***Endocrinology***. 2019 Oct 1;160(10):2215-2229.

40. Taylor MJ, Ullenbruch MR, Frucci EC, Rege J, Ansorge MS, Gomez-Sanchez CE, Begum S, Laufer E, **Breault DT**, Rainey WE. Chemogenetic activation of adrenocortical Gq signaling causes hyperaldosteronism and disrupts functional zonation. ***J Clin Invest***. 2020 Jan 2;130(1):83-93.

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Narrative Report

As a pediatric endocrinologist caring for children with diabetes and other endocrine disorders, I am acutely aware of the burden caused by these conditions and the need for improved therapeutic treatment options. My primacy career goal has been to lead a basic research program in the area of regenerative medicine. This program is designed to functionally characterize newly identified stem cell populations, which might ultimately serve as the foundation for novel therapeutics (55% effort). My administrative responsibilities involve being the Associate Chief of the Division of Endocrinology (30% effort) and my clinical responsibilities include outpatient and inpatient care of patients with pediatric endocrine disorders (10% effort). I am also engaged in teaching undergraduates, medical students, residents, clinical and research post-doctoral fellows.

In my laboratory, we develop transgenic mouse and human organoid models to address key hypotheses important for understanding tissue homeostasis and regeneration, with a particular emphasis on the intestine and the adrenal cortex. We have pursued the hypothesis that telomerase (mTert) expression serves as a biomarker for self-renewing stem cells. Our initial studies involved the generation mTert-GFP mice, which have been used to validate that mTert expression marks stem cells in a variety of self-renewing tissues. This work was initially funded through an Innovative Award from the Juvenile Diabetes Research Foundation (JDRF) as well as Seed Grants from the Harvard Stem Cell Institute (HSCI) and the Harvard Digestive Disease Center (HDDC). Subsequent work involved the generation of mTert-CreER mice, allowing functional lineage-tracing studies, which led to the discovery of a new population of intestinal stem cells. This discovery led to the funding of a JDRF Regular Research Grant, an HSCI Junior Faculty Award, two R21s and an R01 as well as a Presidential Early Career Award for Scientists and Engineers. I founded and direct the NIH-funded HDDC human and mouse gastrointestinal organoid core, which provides consultation and training services and has led to the awarding of 9 R01s (or R01 equivalents) with Dr. Breault as PI, Co-PI or Co-I. We received a major grant from the Adolph

Coors Foundation which has led to the development of robust protocols to induce directed differentiation of human intestinal stem cells into hormone-producing enteroendocrine cells. We have recently received two additional R01s to investigate the mechanisms underlying (1) intestinal stem cell homeostasis and (2) adrenal lineage development, which is poised to provide important new insight into adrenocortical development, neoplasia, mechanisms leading to immune checkpoint resistance and the development of a new model of endocrine hypertension. We have also recently identified a new human disorder resulting from WNT2B deficiency, Hyperreninemic Hypoaldosteronism, Type 4. In 2014, I was awarded a Boston Children's Hospital Endowed Chair in Endocrinology. In 2018 I was elected to the American Society of Clinical Investigation. In 2024, I chaired the 19th International Adrenal Meeting. Additional ongoing efforts include overseeing local, national and international collaborations.

To date, I have trained 19 post-doctoral fellows, of whom nine have joined medical school faculties, two medical students, one PhD student and 20 undergraduate students, of whom eight have gone on to obtain MDs and/or PhDs. I have served as the Course Director of HST-060 (Endocrinology) for six years and previously as co-Director for two years and have served as co-Director of Stem Cell and Regenerative Biology (SCRB) 167 at Harvard College for eight years.

As Associate Chief of the Division of Endocrinology, my primary responsibilities include 1) overseeing annual Career Counseling Conferences for ~30 faculty; 2) collaborating with the Chief on clinical and academic strategy; 3) serving on the Fellowship Selection and Oversight Committees; 4) working with the Chief to recruit new faculty and 5) overseeing the Division’s 12 basic research laboratories.

In summary, my major career objective is to contribute fundamental mechanistic insight into tissue homeostasis and regeneration that may ultimately give rise to novel therapies. I am also deeply committed to training and mentoring the next generation of physicians and scientists and in my leadership role promoting an environment that supports equity, diversity and inclusion, that ensures all can thrive.