Welcome to the Harvard/MIT MD-PhD Program’s Annual Spring Dinner in honor of the MD-PhD Class of 2018! We are especially delighted to welcome the family members and significant others who are joining the graduates, faculty, students and staff to recognize our graduates tonight.

This year, twenty-three students will graduate from our program with both M.D. and Ph.D. degrees. This book showcases the accomplishments of these individuals. Together, they collectively completed 23 graduate and 23 medical degrees, spending over 196 years, since their matriculation into Harvard Medical School. This year’s class of ten women and thirteen men reflects the diversity of graduate training available to MD-PhD trainees at Harvard Medical School. In all, they carried out their graduate studies in 7 different programs located within Harvard University and 1 within Massachusetts Institute of Technology. Students pursued their dissertations in a wide range of fields including ancient history, anthropology, bioengineering, biology, biophysics, cancer, genetics, health policy, immunology, and neuroscience.

Please spend a moment to read the individual biographies written by each of the students. Many spent their early years in cities and towns across the United States (Arizona, California, District of Columbia, Maryland, Michigan, New York, Ohio, Oregon, Pennsylvania, Puerto Rico, South Carolina, Washington and Wisconsin), as well as across the world (China, Japan, and Taiwan). They completed their undergraduate degrees at 15 different colleges and universities including Brown University, Case Western Reserve University, Duke University, Harvard University, Princeton University, Stanford University, University of California-Los Angeles, University of Maryland-College Park, University of Michigan-Ann Arbor, University of Pennsylvania, Williams College, and Yale University. While at HMS, 15 enrolled in the London Health Sciences and Technology (HST) curriculum, while 8 joined New Pathway, representing all four societies (1 Cannon, 2 Castle, 1 Holmes, and 4 Peabody).

While these students are meeting the joint challenges of graduate and medical study, the MD-PhD Program endeavors to create a nurturing and cohesive environment for them. The program is fortunate to be able to provide financial support for the majority of the graduates under the sponsorship of the NIH-Medical Scientist Training Program (MSTP) Grant and other sources, and strives to provide full funding for all. Program offerings, including special courses, advising sessions, retreats, dinners, symposia, lunches and poster sessions, help us to bring diverse groups of training together in fulfilling our mission to “educate and inspire the leading physician-scientists of the future.”

We congratulate the 2018 graduates on their numerous achievements and accomplishments towards the completion of the M.D. and Ph.D. degrees and send our most heartfelt wishes for continued discovery, success and happiness into the future.

Best wishes,
The Faculty and Staff of the MD-PhD Program
ANNUAL SPRING DINNER IN HONOR OF THE
MD-PhD
Class of 2018
May 22, 2018
The Joseph B. Martin Conference Center

6:00 PM
Cocktail Reception
Classic Jazz by Tal Shalom-Kobi Trio

7:00 PM
Seating for Dinner in the Rotunda

Welcome and Introduction of Graduates and Mentors
Dr. Loren D. Walensky
Director

Dean’s Champagne Toast to the Graduates
Dr. George Q. Daley

Dinner

After Dinner Special Remarks
Dr. Loren D. Walensky
Dr. Anthony Nguyen
Dr. Belinda Wang
Dr. Ryan Dosumu-Johnson

Formal Group Photo of the Graduates
(in dining room at conclusion of remarks)

The MD-PhD Program welcomes the families and friends of the graduates.
GRADUATES CELEBRATE MATCH DAY ON MARCH 16, 2018:

2 V. Nguyen, Pork Chop, A. Nguyen
3 A. D’Gama, A. Melia
4 M. Lee, A. Zi
5 A. Cohen, W. Chen, C. Lossos
6 B. Kinde, A. Zi, M. Lee
7 D. Chi, L. Chi
8 R. Dosumu-Johnson, Friend
10 M. Canver, K. Terry
11 M. Luchtman, W. Ebina
12 B. Wang, L. Walensky
Eric H. Bent
B.S., Brown University (2010)
Ph.D., Massachusetts Institute of Technology in Biology (2016)
DISSERTATION: *Mechanisms of Microenvironment Paracrine Signaling in Cancer Chemoresistance*
M.D., Harvard Medical School (2018)
RESIDENCIES: Medicine-Preliminary at Brigham & Women's Hospital, Boston, MA
Radiation Oncology/BWH-Harvard at Massachusetts General Hospital, Boston, MA
Page 6

Matthew C. Canver
B.S.E., University of Pennsylvania (2010)
Ph.D., Harvard University in BBS (2016)
DISSERTATION: *Elucidation of Mechanisms of Fetal Hemoglobin Regulation by CRISPR/Cas9*
M.D., Harvard Medical School (2018)
RESIDENCY: Pathology at New York Presbyterian Hospital - Weill Cornell Medical Center, New York, NY
Page 7

Walter W. Chen
B.A., Princeton University (2009)
Ph.D., Massachusetts Institute of Technology in Biology (2016)
DISSERTATION: *Examining the Consequences of Mitochondrial Dysfunction via Genetic Screening and Profiling of Mitochondrial Metabolites*
M.D., Harvard Medical School (2018)
RESIDENCY: Pediatrics at Boston Children's Hospital, Boston, MA
Page 8

Allen Y. Chen
Ph.D., Harvard University in Biophysics (MEMP) (2016)
DISSERTATION: *Engineered Biofilms for Materials Production and Patterning*
M.D., Harvard Medical School (2018)
RESIDENCY: Pediatrics at Boston Children's Hospital, Boston, MA
Page 9

David Chi
B.S., Duke University (2009)
Ph.D., Harvard University in BBS (2016)
DISSERTATION: *Estrogen signaling in breast tumorigenesis*
M.D., Harvard Medical School (2018)
RESIDENCY: Plastic Surgery (Integrated) at Washington University/Barnes-Jewish Hospital, St. Louis, MO
Page 10

Michael E. Coulter
Ph.D., Harvard University in Neuroscience (2017)
DISSERTATION: *Two stories of neurodevelopment: Exosome-mediated secretion of sonic hedgehog and somatic mutation in disorders of DNA damage repair*
M.D., Harvard Medical School (2018)
PGY 1: Post Doctoral Fellow at UCSF Center for Integrative Neuroscience, San Francisco, CA
Page 11

Wataru Ebina
B.S., Stanford University (2006)
Ph.D., Harvard University in BBS-Genetics (2016)
DISSERTATION: *Combinatorial Pathway Modulation toward Ex Vivo Maintenance and Propagation of Hematopoietic Stem Cells*
M.D., Harvard Medical School (2018)
RESIDENCY: Internal Medicine/Research Pathway at New York University School of Medicine, New York, NY
Page 12

Morgan E. Coulter
Ph.D., Harvard University in Neuroscience (2017)
DISSERTATION: *Molecular and functional characterization of diverse Pet1 lineage-defined neuron subtypes of the brainstem raphe system*
M.D., Harvard Medical School (2018)
RESIDENCY: Radiation Oncology
Page 13

Ryan T. Dosumu-Johnson
B.S., University of California, Los Angeles (2009)
Ph.D., Harvard University in Neuroscience (2016)
DISSERTATION: *An anatomical and functional dissection of the role Pet1 raphe neurons play in neonatal cardiorespiratory homeostasis*
M.D., Harvard Medical School (2018)
RESIDENCY: Psychiatry/Research at New York Presbyterian Hospital - Columbia University Medical Center, New York, NY
Page 14

John I. Heintz
B.A., M.A., Case Western (2009)
Ph.D., Harvard University in Anthropology (2016)
DISSERTATION: *Caged: Intimate Violence and the Search for Sovereignty on the Margins of the City*
M.D., Harvard Medical School (2018)
RESIDENCY: Medicine-Clinical at Massachusetts General Hospital, Boston, MA
Page 15
Xinli Hu
B.S., University of Washington (2007)
Ph.D., Harvard University in BBS (2015)
DISSERTATION: Discovery and Functional Interpretation of Genetic Risk in Autoimmune Diseases
M.D., Harvard Medical School (2018)
PGY 1: Human Genetics Research Manager, Pfizer Inc., Cambridge, MA

Benyam Z. Kinde
B.S., University of Maryland-Baltimore County (2010)
Ph.D., Harvard University in Neuroscience (2016)
DISSERTATION: Biochemical and genomic analysis of MeCP2 and brain-enriched DNA methylation
M.D., Harvard Medical School (2018)
RESIDENCIES: Surgery-Preliminary/General/Specialty at University of California, San Francisco, San Francisco, CA
Ophthalmology at University of California, San Francisco, San Francisco, CA

Kristin A. Knouse
B.S., Duke University (2010)
Ph.D., Massachusetts Institute of Technology in Biology (2016)
DISSERTATION: Prevalence and Prevention of Large-Scale Somatic Copy Number Alterations
M.D., Harvard Medical School (2018)
PGY1: Fellow at Whitehead Institute, Cambridge, MA

Mihan R. Lee
B.A., Yale University (2010)
Ph.D., Harvard University in Health Policy (Medical Sociology) (2016)
DISSERTATION: Investigating Socioeconomic Disparities in Patient Experiences of Infertility in the US
M.D., Harvard Medical School (2018)
RESIDENCIES: Transitional at Cambridge Health Alliance, Cambridge, MA
Radiology-Diagnostic at New York Presbyterian Hospital - Weill Cornell Medical Center, New York, NY

Jennifer A. Lo
A.B., Harvard College (2010)
Ph.D., Harvard University in BBS (2016)
DISSERTATION: Regulation of the inflamed tumor phenotype in melanoma immunotherapy
M.D., Harvard Medical School (2018)
RESIDENCIES: Medicine-Preliminary at Beth Israel Deaconess Medical Center, Boston, MA
Dermatology/Harvard Combined at Massachusetts General Hospital, Boston, MA

Key
BBS: Biological and Biomedical Sciences
HST: Health Sciences and Technology

Anthony T. Nguyen
B.S., Stanford University (2010)
Ph.D., Harvard University in BBS (2016)
DISSERTATION: A novel program of ubiquitination remodels the erythroid proteome during terminal differentiation
M.D., Harvard Medical School (2018)
RESIDENCY: Medicine-Preliminary at Cedars-Sinai Medical Center, Los Angeles, CA
Radiation Oncology at Cedars-Sinai Medical Center, Los Angeles, CA

Derek T. Peters
B.S., University of Michigan-Ann Arbor (2007)
Ph.D., Harvard University in BBS (2016)
DISSERTATION: Isogenic Human Pluripotent Stem Cell Models of Cardiovascular Disease-Associated Genetic Variation
M.D., Harvard Medical School (2018)
RESIDENCY: Surgery-Preliminary at Duke University Medical Center, Durham, NC

Belinda Wang
A.B., Harvard College (2010)
Ph.D., Harvard University in BBS (2016)
DISSERTATION: Studies of amino acid sensing by the mTORC1 pathway
M.D., Harvard Medical School (2018)
RESIDENCY: Psychiatry at University of California, San Francisco, San Francisco, CA

Erika K. Williams
B.A., Williams College (2008)
Ph.D., Harvard University in Neuroscience (2016)
DISSERTATION: Coding of internal senses: vagal gut-to-brain circuits
M.D., Harvard Medical School (2018)
RESIDENCIES: Medicine-Preliminary/Neurology at Brigham and Women's Hospital, Boston, MA
Neurology/BWH-MGH at Brigham and Women's Hospital, Boston, MA

Key
BBS: Biological and Biomedical Sciences
HST: Health Sciences and Technology
I owe an enormous amount of gratitude to my family, especially my parents, who always created a fun and intellectually stimulating environment for me and my younger brother, and who have continued to be immensely supportive and close while giving me the space to chart my own path. Born in Boston, at Brigham and Women’s Hospital, I moved away at the age of 1, ultimately growing up in Madison, WI. I came back east to attend college at Brown University, studying Chemical Biology. During my undergraduate years, I was lucky to do summer research in the lab of Margaret McFall-Ngai, studying host-bacterial symbiosis. That work got me hooked on research and the iterative process of biomedical discovery and I will be forever grateful for that early exposure to an intellectually rich scientific environment. At Brown, I also met my future wife, Katherine. We started dating after a semester of studying organic chemistry together (it might have been her as much as the material that so piqued my interest in chemistry) and married in April 2016.

I feel incredibly lucky to have been able to spend the last 8 years in a wonderfully rich scientific and clinical community surrounded by so many smart, interesting, and fun classmates, many of whom have become close friends. I completed my PhD research in the lab of Michael Hemann at MIT, studying the tumor microenvironment and mechanisms of resistance to chemotherapy and immunotherapy. The current and past members of the Hemann lab made my PhD years scientifically enriching and a real joy, especially Mike, who gave me the freedom to do science I found exciting and who has been immensely supportive and created an enormously fun and creative training environment. Thank you also to the outstanding clinical mentors, too many to name, at the Harvard hospitals who have showed me what it is to be a compassionate and excellent physician.

To my parents, brother, grandparents, aunts and uncles, thank you for serving as stimulating role models, keeping me intellectually curious and being an enormously fun group to spend holidays and vacations with. To my wife Katherine, thank you for being such an intelligent, talented and supportive partner to share these past years with. I am excited to continue to share adventures yet to come with them and my MD-PhD friends and colleagues, and am looking forward to returning to Brigham and Women’s hospital for my medicine internship next year.
Matthew Canver

I was born in Buffalo, NY to my two loving parents and grew up with three siblings: Bethany, Adam, and John. After moving around a few times, I spent most of my childhood in Albany, NY, where I graduated from high school. I subsequently attended the University of Pennsylvania, where I majored in Bioengineering. I chose Bioengineering to maximize the number of math/science classes I could take and minimize my chances of having to read a novel. During my time at Penn, I worked in the lab of Dr. Jean Bennett, which focused on gene therapy for retinal diseases. While this experience did not inspire an interest in ophthalmology, it did spark an interest in performing translational research.

I subsequently matriculated into the MD-PhD program at Harvard Medical School. I decided to switch to Biology for graduate school and entered the Biological and Biomedical Sciences PhD program. My PhD work was in the lab of Dr. Stuart Orkin at Boston Children’s Hospital and the Dana Farber Cancer Institute. I focused on applying CRISPR/Cas9 genome editing tools to examine the regulation of fetal hemoglobin expression. Stu and former post-doc Dan Bauer taught me everything I know about science and I owe them a great deal for investing in me.

I spent nearly my entire 20s in Boston during my time in the MD-PhD program. Many life milestones occurred – most importantly, I met and later got engaged to my fiancée, Kaitlin Terry. She was an unofficial MD-PhD student, as she went through the entire program with me. We are excited to get married in September 2018 and start our next chapter in New York. I will be entering the Physician-Scientist Training Program in Clinical Pathology at New York-Presbyterian Hospital/Weill Cornell Medical Center next year.
I was born and raised in New York City on a healthy diet of Chinese food and the constant World Series titles won by the New York Yankees. I first became enamored with biology and medicine in elementary school and received immeasurable support from my parents. My father, an employee of the city government, and my mother, an accountant for a small photography company, worked tirelessly to provide me with the resources needed to pursue my interests. Eventually, I was accepted into a research program at The Rockefeller University, where I worked with Sonoko Ogawa, an incredible mentor who taught me everything from the basics of pipetting to the design of experiments. After high school, I attended Princeton University and majored in Biochemistry, while working in the laboratory of Jeffry Stock, another wonderful mentor.

Starting medical school, I was fortunate to have amazing classmates that were always there for me when I needed help and I also benefitted greatly from working in the laboratory of Xandra Breakefield, who has remained a beacon of support in the years since. For my PhD, I studied mitochondrial biology and developed a method for performing organellar metabolomics in the laboratory of David Sabatini, an incredible mentor who provided me with a wealth of support and independence. Most importantly, it was during my graduate studies that I met my amazing wife, Hoi See Tsao, who has been so supportive of my efforts every step of the way.

In the coming years, I will be doing a residency at Boston Children’s Hospital in Pediatrics, a field in which I hope to conduct research in organellar biology and also care for children afflicted by metabolic disorders, particularly those caused by organellar dysfunction. I am so grateful as I think back to all the people who helped get me here. As such, I wish to thank my parents, Hoi See and the whole Tsao clan, my amazing PhD advisor David, all my other scientific mentors (Kivanc Birsoy, Xandra Breakefield, Jeffry Stock, Sonoko Ogawa), the amazing MD-PhD office (Loren, Amy, Robin, Yi, Jennifer, Linda, Steve) and HST program (Rick, Patty), and all my wonderful classmates, family, and friends (especially Joyce Hwang, David Huie)! I look forward to what the future may bring!
Allen Y. Chen

I grew up in suburban Detroit with my parents HuiHui and Jingke and my sister Anna. I became hooked on mathematics as a teenager and went on to study chemistry and physics at Harvard College. A chance meeting during a summer internship at Bell Labs got me interested in molecular self-assembly and DNA nanotechnology, which eventually lead me to molecular biology. I joined William Shih’s DNA nanotechnology lab, which has lab space at Dana Farber. As I rode the elevators with patients undergoing chemotherapy, I found myself wondering about their experiences. Immersed in this environment, I increasingly felt that the ideal career would be one in which I could both pursue scientific understanding and engage closely with people, and decided to undertake MD-PhD training.

In the course of MD-PhD training I have been fortunate to encounter inspiring teachers, mentors, and peers. My HST pre-clinical teachers provided me with a strong foundation in human biology. I pursued PhD thesis work with Tim Lu at MIT, who taught me an engineer’s approach of measurement plus quantitative modeling as a way to understand biological systems. I also pursued additional training with Chris Walsh at Boston Children’s, who showed me how to make discoveries in basic biology starting from the study of patients with genetically defined diseases. On the wards, astute clinicians taught me about disease while patients taught me about the experience of illness. Discussions with peers whose backgrounds differ from mine expanded my horizons and helped to shape my professional commitments.

Through it all, I have been most fortunate to have the steadfast support of my joyful and brilliant wife Siting, my parents, my sister, and my friends. I look forward to the next stage of physician-scientist training at Cornell, where I will immerse myself in internal medicine, rheumatology, and immunology.
David Chi

I am incredibly blessed by my time at Harvard Medical School in the MD-PhD program. Blessings are by definition undeserved, and it is still hard to believe we are here with graduation just around the corner. My parents, Bobby and Jessica Chi, emigrated from Taiwan to Pittsburgh, PA for their graduate studies where I was born, and I eventually grew up in Bethlehem, PA, a town best known for its former steel industry. Coming up through its public school system, the idea of academic research was alien to me until I spent a summer at the Pennsylvania Governor's School for the Sciences, a tuition-free program supported by the PA Department of Education.

My parents have supported me unconditionally, and they have sacrificed themselves to challenge me with opportunities in all my pursuits. Their values of service and sacrifice were thus inculcated within me, and I pursued my undergraduate education first at West Point and received my first taste of medicine and reconstructive surgery at Walter Reed Army Medical Center. Having ultimately decided to pursue medicine first, I graduated from Duke University before arriving at Harvard Medical School.

The friends I made during the first two years of medical school are some of the most interesting, talented, and kind people I have ever met, which was sure fortunate when they were my residents on the wards! After rotating through several labs, I joined Myles Brown's lab at DFCI where we worked to uncover the mechanisms of breast cancer tumorigenesis using primary human breast tissue from plastic surgery and surgical oncology procedures.

Combining my interests in trauma reconstruction and oncologic reconstruction, I am excited for the next phase of life as a resident in plastic and reconstructive surgery and Captain in the U.S. Army Medical Corps. I am greatly indebted to my mentor Bernard Lee at BIDMC, who has been a terrific role model of a surgeon-scientist, and I will always seek to pay this mentorship forward. My wife, Lisa, and I just couples-matched to our residencies in plastic surgery and pediatrics at Washington University in St. Louis, and we are so excited for what God has planned for us in the Midwest. Thank you so much to our family and friends for their support throughout this long journey!
Michael Coulter

When I graduate this spring, I will have spent 14 years as a student in Cambridge and Boston. It's been a long journey... and I've had a great time! I was born and grew up in Portland, Oregon for 18 years, spent one summer during high school at MIT and then came here, to Harvard, for college. Now, it's been almost 15 years and its time to move again. This fall, I will begin my post-doctoral research training in systems neuroscience in California, with a long-term goal of understanding how neurologic disease disrupts neuronal circuits in the brain. During my time in the Harvard-MIT HST and MD-PhD programs, I've made many close friends and wonderful memories and I'm grateful for both!

There are several people I would like to thank for their continual support and encouragement during my MD-PhD training. My mom, Anne, showed me by her example how enriching and rewarding is it to pursue a PhD. My dad, John, fueled my early interest in science and engineering. My sister, Deborah, has been a close friend and constant supporter since we were both young. My Uncle Bob, sparked my interest in brain developmental at the beginning of medical school. My uncles, aunts, grandparents, and cousins have given my support and encouragement. I would also like to thank Chris A. Walsh, my PhD adviser, for his incredible scientific support and guidance throughout my training.
Alissa D’Gama

I was born in Glendale, CA and grew up in North White Plains, NY and Tucson, AZ. My parents, Malti and David, instilled in me a joy for learning and the importance of hard work, kindness, humility and trust in God’s plan. I came to Boston (technically, Cambridge) in 2007 to attend Harvard College, where I fell in love with the brain in the lab of Dr. Josh Sanes and with the NICU through the mentorship of Dr. Steven Ringer. After graduating from Harvard College in 2011 with a degree in Molecular and Cellular Biology, I crossed the Charles River to begin my MD-PhD training in the HST Program at HMS-MIT.

Over the past seven years, I have grown in my love of neuroscience and genetics during graduate school, and of pediatrics during medical school. I completed my PhD studying the genetics of neurodevelopmental diseases in the lab of my wonderful thesis advisor Dr. Chris A. Walsh. Most importantly, I married my husband, Adrian, who can always make me laugh. And I can’t forget our dog, Cooper, who we adopted during my first year of medical school and has been a constant furry source of encouragement.

I am excited to begin pediatrics residency this summer, and after residency I hope to continue my physician scientist training with neonatology fellowship. Thank you so much to my husband, my parents, my brother Jonathan (also an HMS MD-PhD student), my mentors, my friends, and the staff of HST, BBS, and the MD-PhD Program for supporting and believing in me!
Ryan Dosumu-Johnson

I was born and raised in San Diego, California. Perhaps early signs of my innate curiosity came through my love of taking apart, and according to my mother, not putting back together various household appliances. It wasn’t until my second semester at Orange Coast College that I found my passion in biology. At UCLA I further refined my interest in biology to the brain working in the laboratory of Dr. Stephanie White studying vocal learning. I then spent a summer at Rockefeller University working with Dr. Cori Bargmann. In addition to being fantastic scientific mentors, Drs. White and Bargmann gave me the confidence to follow my dream of pursuing a career as a physician-scientist, for that I am eternally grateful.

At Harvard, I have felt incredibly lucky to have been surrounded by brilliant classmates whose intelligence was only matched by their kindness. I spent my PhD studying serotonergic neurons and their role in neonatal homeostasis as a means to better understand Sudden Infant Death Syndrome (SIDS) with Dr. Susan Dymecki. I feel extraordinarily lucky to have found and worked with Susan. Not only has she been an incredible mentor she also created an incredibly supportive environment in our lab which fostered creativity and my enthusiasm for answering these fascinating questions about how the brain works.

In addition to the tremendous scientific mentors, I would like to thank all the people that have helped me along the way: my parents and sisters who were my first mentors and endured my sometimes painfully inquisitive nature over the years; the many friends I’ve made while in Boston who have become new family members; without forgetting the fantastic MD-PhD staff, with a special shout out to Amy Cohen. I am looking forward to continuing my study of the developing brain by starting a child psychiatry residency program this summer.
Wataru Ebina

Growing up in Tokyo, Japan, I was, perhaps still am, a child who would rather keep chasing bugs or work on his cardboard construction than eat his dinner. These inclinations eventually led me overseas to Stanford University where I sought to learn 'how to make lots of anything,' aka Chemical Engineering, while satisfying my passion for building through synthetic chemistry research. As I learned more about the principles governing material transformations, I became fascinated by the ways the human body manipulates its constituents and energy to sustain itself. In parallel, I became deeply involved in residential advising, an experience that galvanized my desire to pursue a career providing direct support for those in need. I was ecstatic when I discovered there existed a path that integrated my growing interests in biomedical science and service: MD-PhD!

At Harvard Medical School, I was blessed to have great teachers and mentors. I am indebted to the MD-PhD program for the enduring support and HST program for providing me with incredible education, guidance, and wonderfully nerdy camaraderie. I performed my doctorate work studying in vitro propagation of hematopoietic stem cells under mentorship of Derrick Rossi, who gave me the liberty to explore my interests while instilling me with rigor, persistence, and the courage to take initiatives. Alongside academics, I continued to be involved in dormitory life as a resident advisor for Vanderbilt Hall. I am especially thankful for Ann Ogletree, resident counselor, for her caring support throughout my time in Vandy and helping make the dorm my second home.

Boston is second to none with respect to the amazing talent and personality it attracts. The opportunity to grow amidst an eclectic cohort of passionate and thoughtful colleagues has been a true treasure. I could not have gained the perspectives and insights I now have without the countless conversations over far greater quantities of sushi rolls, beers, and coffee. To my friends, I owe so much more than I can ever give back, and it excites me to think that we will continue to join forces in building the future as we imagine it to be.

Before excitement pulls me away to the next phase of my career, that is internal medicine residency at NYU Langone Medical Center, I want to express how grateful I am for my parents for their relentless support throughout my unusual journey as well as for my brother, the kindest soul I know. While I expect challenges ahead, I shall come through with the indomitable idealism and humanity they nurtured in me.
Wilfredo Garcia Beltran

I was born and raised in the “Isla del Encanto,” otherwise known as Puerto Rico. I majored in Chemistry in the University of Puerto Rico-Río Piedras Campus, after which I came to Boston to pursue an MD-PhD dual degree under the HST curriculum. I obtained a PhD from the Harvard Immunology Program and performed my dissertation work in the laboratory of Dr. Marcus Altfeld at the Ragon Institute of MGH, MIT, and Harvard, where I studied the role of natural killer cells in HIV-1 control. I also worked on improving humanized mouse models to study HIV-1 pathogenesis and engineering novel anti-HIV-1 therapies, which I have continued developing. My future career goals are to become a physician-scientist, pursuing my passion for basic, translational, and clinical immunology. After many years of training and soul searching, I have fallen in love with the field of clinical pathology, a residency track that I will soon be commencing and unites all my different passions for microbiology, immunology, molecular biology, and chemistry while still maintaining a component of patient contact and care. On my free time, I enjoy spending time with friends and family, exercise training, salsa dancing, playing piano, singing, eating “comida criolla,” catching the latest movie... and learning everything there is to know about science and medicine!
John Heintz

I grew up in Columbus, OH, nurtured along the way by my mom, dad, and older sister, as well as my grandparents who lived just two doors down the road. Much of the rest of my family was thousands of miles away in Colombia, where my parents met and my mom is originally from, and where we would visit whenever we could find the time. And while most of my early memories from Colombia involve café con leche and climbing around my abuelito’s 1960’s Land Rover (aka ‘Moon Rover’), they also include seeing Colombian soldiers carrying US-made assault rifles and wondering how that came to pass. Somewhere in there grew a curiosity, nurtured eagerly by my family, and before long I found myself asking things like why violence exists in our world and how it grows out of our global connections (just like I myself had through my parents meeting each other in Bogotá).

Admittedly it took me a long time to find my way back to questions like this, and from high school through after college (at Case Western Reserve University), I jumped around quite a bit. Picking up along the way B.A.’s in Biology and Anthropology, and an M.A. in Medical Anthropology, I went from studying gene therapy vectors for astrocytes to the emergence of antimalarial drug resistance in Papua New Guinea to the dynamics of heroin and methamphetamine drug markets in the Greater Cleveland Area. More importantly, I met my partner Nia, and have basically been following her lead ever since.

Joining the MD-PhD community here at Harvard, I came under the wings of Arthur Kleinman and Anne Becker, and pursued a Ph.D. in Social Anthropology studying the perpetration of intimate partner violence on the outskirts of Bogotá. Working with abusive men, the survivors of violence, and community responders, this research became a way of not only sketching out the processes that shape this violence, but a way of exploring vulnerabilities in those systems as well. In so many ways though this has been more than an intellectual journey for me, it has been a way to start to bring together all of the disparate pieces that I have picked up along the way, be it Boston or Bogotá it has been a way for me to finally come back home. So while I hope to still have many years ahead of me, for however many there actually may be, they have all been indelibly imprinted by the previous eight. To everyone who has supported me, I owe you everything. You have not only taught me how to ask better questions, you have offered me the strength and insight to answer them with greater care. Thank you. Ahí vamos.
I never know what to answer when asked about where I’m from. I have so far spent seven years in Chengdu, China, where I started learning to play the piano; seven years in Nanjing, where I began to love math and science; nine in Washington State, where I first learned to be a world citizen; and ten in Massachusetts, where I got to appreciate the inner workings of medicine and learned a lot about GWAS. It’s been a continuous journey; each day and each person has taught me more about the universe and humanity.

I received an undergraduate degree in bioengineering from the University of Washington. During my years at the MD-PhD program at HMS, I spent a lot of time thinking about the cause of autoimmune diseases, genetic associations, and clustering algorithms, through which I received a PhD degree under the mentorship of my incredible advisor, Dr. Soumya Raychaudhuri. Whenever I had a chance, I tried to relax by cooking, playing the piano, and painting.

There are too many whom I wish to thank individually. I am in awe of my fellow classmates, who are so talented, humble, creative, hardworking, and caring. I want to thank the grumpy 90-year-old veteran who designated his girlfriend of 40 years as his healthcare proxy, and wrote “soul mate” under “Relationship”, for making me simultaneously laugh and cry in that tiny workroom at the VA hospital. I want to thank my friends in Boston, New York, and China, who somehow always know exactly when to listen, to crack jokes, and to speak unapologetically. Finally, I thank my parents, who gave me the most incredible life through two countries and four cities, and granted me both guidance and independence to become me.
Benyam Kinde

I was born and raised in Redlands, California by my caring and passionate parents. My mom, a college mathematics professor, managed to supplement our schoolwork with college-level textbooks and inspired us to dig deeper than required. My dad, a large animal pathologist and microbiologist, introduced my brother and I to the excitement of understanding disease processes in animals.

After high school, I attended the University of Maryland, Baltimore County (UMBC) where I majored in Biology. I was fortunate enough to be part of the Meyerhoff scholar’s program and during my freshman year at UMBC, I began working in Dr. Michael Summers’ structural biology laboratory where my interest in pursing a PhD was cultivated. Dr. Summers’ played a pivotal role in allowing this passion to grow, and I found it increasingly difficult to stay away from the lab.

During my time in the MD-PhD program, I have felt extremely fortunate to make friendships with my inspiring classmates and build relationships with my mentors that have had such a transformative effect on my perspective on medicine and science. I am especially grateful to have had such a wonderful thesis advisor, Michael Greenberg. Mike’s genuine passion to invest in my scientific and personal growth has been inspirational, and I hope that I too find myself similarly prioritizing in the development of my future mentees.

My family, Katie and all of the friends and mentors that I have met along the way have made these years so memorable, and I am very thankful for overwhelming amount of love and support throughout this process. I am excited to start the next chapter at UCSF, where I will begin my training in ophthalmology, with an interest in studying inherited retinal dystrophies in the laboratory.
Kristin Knouse

I was born and raised in Pennsylvania where I began my random walk toward biology. My unfounded childhood dream of becoming a professional soccer player had its reality check by middle school and I spent much of high school inside a television studio with plans of becoming a broadcast journalist. Although my choice of extracurricular activities and career goals did not manifest such, I did always have a fondness for my biology and health classes. I went to Duke for college, initially considering journalism, economics, and biology majors. However, at the end of freshman year I picked up a pipette for the first time and immediately and irreversibly fell in love with research. I ultimately applied to MD-PhD programs out of a sustained interest in the clinical applications of research and an aversion to closing doors on myself.

I moved to Boston in the summer of 2010 not fully aware that the next eight years would be the most enjoyable, exciting, and educational years of my life. The first two years of medical school provided a deep understanding of human physiology and greater context for my research. They also led me to the realization that I had been drawn to medicine largely out of an interest in the mechanisms underlying disease and that my passion lies in the research side of the spectrum. I joined Angelika Amon’s lab at MIT for my PhD, where I solidified my commitment to research and became fascinated by liver regeneration and its power as a model for dissecting the cell cycle. While returning to the wards may not have been the most enjoyable part of this journey, it provided a welcome perspective and a lifetime of research inspiration. I am thrilled to be staying in Boston to start my own lab at the Whitehead Institute, where we will use the mouse liver to understand reversible cell cycle states and develop novel approaches for regenerative medicine.

Science aside, the people I learned from and worked with over the past eight years are much to credit for making this experience as wonderful as it was. My MD and PhD programs have brought me my best friendships and through them an incredible support system and endless lineup of long runs, travel abroad, themed parties, whiskey tastings, and pop country concerts. I could never express enough gratitude to Angelika Amon, my thesis advisor, whose continuous support and guidance and exemplary fearlessness and rigor have made me the scientist and person I am today. Finally, I must thank my parents for raising me with (mostly) one requirement—to find what it is that I loved such that I would never “work” a day in my life. It is that which brought me to Boston for this amazing experience and that which leaves me so excited about the years ahead.
Mihan Lee

I was born in Syracuse, NY, and grew up in Potomac, MD, with my incredibly supportive and loving parents, and a wonderful Shiba Inu named Dusty. My mother is a professor of Women’s Studies, and my father is a medical officer at the FDA; it seems I inherited both of their passions, since as an undergrad at Yale College, I found myself double majoring in Women’s Studies and Biology. I wrote my senior thesis on the provision of social services for immigrant victims of domestic violence, based on fieldwork in New York City.

Continuing my slow migration north, I came to Boston and matriculated into Harvard Medical School in 2010. I decided to enter the MD-PhD program in 2012, and pursued a PhD in Health Policy with a concentration in Medical Sociology. Under the mentorship of Drs. Mary-Jo Good and Anne Becker, I wrote my dissertation on socioeconomic disparities in experiences of infertility in the US.

Finally, returning to medical school after the PhD, I surprised myself by falling in love with Diagnostic Radiology. Seeking to explore ways to combine medical sociology with radiology, my current research examines how radiologists can improve communications with frontline providers in the detection and assessment of elder abuse.

In 2017 I married my brilliant husband, Aleks. We have two ridiculous and amazing dogs: a red Siberian Husky named Mimsy, and a black Labrador Retriever named Eden. We like nothing better than hanging out on a lazy Sunday morning with all four of us on one bed.
I was born and raised in Portland, OR by wonderfully supportive parents who instilled in me an early love of books and curiosity about how the world works. During high school I was fortunate to have a stimulating introduction to lab research in the Mayinger Lab at OHSU with Peter Mayinger and Frank Faulhammer, whose patience, good humor, and encouragement fostered in me a sense of belonging in biology. At Harvard College, I had the opportunity to work with Victoria D’Souza studying the structural biology of retroviral replication, an experience that inspired me to pursue a PhD in biology. Victoria and Sarah Miller are outstanding teachers and I am lucky to have had mentors who care so much about my personal happiness as well as my present and future successes.

After college, I entered the Harvard/MIT MD-PhD program. My PhD thesis adviser was David Fisher at MGH, with whom I studied melanoma immunotherapy and immune tolerance towards melanocytes. David is an exceptional scientist and superb mentor who has always given me generous and thoughtful guidance along with the freedom and independence to explore new fields. I am constantly inspired by his infectious love of science, creativity, optimism, and character. I am also very fortunate to have worked alongside brilliant and collaborative classmates in medical school and colleagues in the Fisher Lab.

During my time in the program, I have grown as a scientist, made incredible friendships, traveled the world, and discovered my niche at the intersection of cancer biology and dermatology. It has been a long journey, and none of it would have been possible without the unconditional love and support of my parents. I am enormously grateful to my wonderful family, friends, and mentors for their support and look forward to starting the next stage of my training!
Anthony Nguyen

Sir Isaac Newton once wrote, “If I have seen further it is by standing on the shoulders [sic] of Giants.” Nearing the end of my journey through the MD-PhD program, I am deeply thankful for the many giants that have influenced me over the past three decades.

First and foremost, I would not be the person I am today without my parents, Tanh and Tuyetmai. While they neither spared time nor expense in raising three future physicians, the most important lessons they taught us were a sense of curiosity and to do good, not just do well. I carried these values with me to Stanford where I shared three years with my sister Catherine. I majored in Biology and completed an Honors Thesis in the laboratory of Judith Frydman, studying protein folding by chaperones. I also volunteered at the Pacific Free Clinic where I met Peter Kao, who opened my eyes to a career in medicine as a physician scientist.

I was fortunate to be accepted by the Harvard/MIT MD-PhD and HST programs. I am deeply thankful for what Matthew Frosch and Stephen Blacklow saw in a young Californian. I completed my doctoral dissertation in the laboratory of Daniel Finley on elucidating the role of the ubiquitin proteasome system during red blood cell differentiation. I am indebted to Dan for his mentorship, guidance, friendship, and an open-door policy that I will sorely miss. Together, our work solved a decades-old scientific mystery, but also opened up myriad avenues of new discovery in protein degradation.

During my PhD, I met Vina, the love of my life and the most positive and supportive person I know. We were married in 2016, surrounded by friends, family, and many MD-PhD classmates – I could not ask for a better life partner. Most recently, I had the privilege of welcoming my brother Andrew to Harvard Medical School. What a gift it has been to share a common passion for medicine with my wife and siblings.

Returning to medical school, I had the good fortune of meeting Anthony D'Amico. I am honored to devote my career to cancer as a physician scientist in radiation oncology. I am excited to begin the next chapter of my clinician training and personal life at Cedars-Sinai Medical Center. Lastly, I would like to thank many supportive mentors, including Larry Zaroff, Loren Walensky, David Cohen, Rick Mitchell, David Golan, Benjamin Ebert, Randy King, David Pellman, Patty Cunningham, and Amy Cohen.
I was born in Rochester, NY and grew up in Pittsford, a picturesque suburb. My mother was a math teacher and my father an engineer and retired Marine Corps pilot. Like me, my sister became interested in healthcare, and is now a nurse practitioner. My first exposure to medicine was through books and a documentary TV series called “Trauma: Life in the ER.” Scenes of doctors and nurses stabilizing trauma patients captivated me; I wanted to follow the surgeons into the OR!

I attended the University of Michigan as an undergraduate, where I majored in Cellular and Molecular Biology. I became interested in genetics and conducted research in the laboratory of Dr. Patrick Hu. Inspired to pursue physician-scientist training, I was thrilled to be accepted into the HST Program at Harvard Medical School, and joined the MD-PhD Program soon after arriving in Boston. I completed my PhD research in the laboratories of Dr. Chad Cowan and Dr. Kiran Musunuru, where I focused on using human pluripotent stem cells to study genetic variation underlying common diseases. In this rapidly advancing field, it was exciting to contribute to the development of methods for genome editing in pluripotent stem cells. An important personal milestone for my wife and me also took place during this time – the birth of our children, Isabelle and Jonathan, who are now 5 and 6 years old, respectively.

Returning to medical school, I completed the principle clinical experience curriculum at Massachusetts General Hospital. This was a meaningful accomplishment for me and I am grateful for the support that I received during this transition. The surgery clerkship and sub-internship at MGH were pivotal experiences that solidified my career aspirations.

I would like to sincerely thank Dr. Loren Walensky, Amy Cohen, Patty Cunningham, and all of the faculty members and administrators who provided me with invaluable help and support during my time as a Harvard MD-PhD student. Thank you to Dr. Cowan, Dr. Musunuru, Dr. Rick Mitchell, and Dr. Keith Lillemoe for your mentorship and guidance. Thank you to my family for a lifetime of support, and to my wife Hannah, who continues to be with me every step of the way. I am excited to continue my training as a general surgery resident at Duke.
Katherine van Schaik

I was born and grew up in Columbia, South Carolina, where I attended a public middle and high school – an environment that, paired with my parents' enthusiastic and unstinting support, enabled me to develop passions for and knowledge of the Classics, and of research in health and medicine. As an undergraduate at Harvard College, I was able to continue pursuit of both fields, graduating with a primary concentration in Classics and a secondary field certificate in Molecular and Cellular Biology, *Summa cum Laude*. When I learned that I was accepted into Harvard Medical School in the spring of 2008, I also received the exciting news that I had been awarded a Harvard Knox Fellowship to pursue a Master’s degree in the UK. Deferring attendance at HMS for one year, I earned a Master’s degree with Distinction at King’s College, University of London, with a thesis focusing on the iconography of healers in Greco-Roman antiquity.

As a student in the MD-PhD Social Sciences Program, I pursued a PhD in Ancient History in the Harvard Department of the Classics, in conjunction with MD coursework and rotations. Research endeavors in bioarchaeology led me to become an affiliate of the Museum of London and the Institute of Evolutionary Medicine at the University of Zürich, where I developed projects that incorporate advanced imaging analysis into standard evaluation protocols in the fields of bioarchaeology and paleopathology. My research in ancient history and in modern medical education investigates changes in definitions of disease over time, medical training and knowledge transmission, and medical decision making in Greco-Roman antiquity and in contemporary settings.

As I look toward the future, I’m filled with profound gratitude for my family, my husband, and my advisors and mentors in Boston, Cambridge, and abroad. I look forward to pursuing a residency in diagnostic radiology and to working toward transforming the PhD dissertation into a book.
Belinda Wang

My trajectory been largely the product of happenstance and piqued interest. I grew up in Boston, Tainan, and Seattle, with parents who boldly navigated two countries to provide my brother and me with a foundation in both cultures. I was instructed to figure out what I enjoy, then do it. Accordingly, I baked, wrote, swam, crafted, read, and travelled. During college at Harvard, I studied biology, French, and health policy, and decided to pursue further studies in medicine. Over the course of my first two years in HST, I recognized the reward of basic science research in conjunction with clinical medicine, and joined the MD-PhD program. My graduate work was in the laboratory of Bill Hahn, studying how cancers become resistant to targeted therapies. Returning to medical school, my first rotation was in psychiatry. Unexpectedly, I was hooked, and decided to transition my focus towards the mind/brain. Upon graduation, I will begin a residency in psychiatry at UCSF.

Without a doubt, the best part of the MD-PhD experience has been the people: the HST and MD-PhD leadership and staff, with their dependable cheer and wisdom. Bill, a unfailingly supportive mentor whom I admire as a person as much as a scientist. My labmates, classmates, and friends, who are among the most engaging, talented, and warm people I’ve known. Stephen, my brother George, and our parents, who are always wholeheartedly on my team. Thank you for making the past 8 years both enriching and fun!
Shuyu Wang

I was born in Guangzhou, China and immigrated at age seven to mid-Michigan with my family. I have faint recollections of seeing gels floating in dark blue liquid in my dad’s plant science lab as well as on-call rooms in their sterile glory at my mom’s hospital. Little did my parents know at the time, they were systematically exposing me, decades in advance, to scenes that would become regular rituals in my own chosen career.

I discovered a fascination with molecules while studying chemistry at Harvard College. In 2009, I crossed the river to start what would become a nine-year journey at HMS. To the friends, colleagues, teachers, mentors, and administrators in the MD-PhD program, HST, and MIT biology who have supported and challenged me along the way – thank you for everything. In particular, I owe a huge debt of gratitude to my PhD adviser, David Sabatini, for welcoming me into his lab; he has, perhaps more than any other individual, shaped the way I approach science and inspired in me a curiosity for asking fundamental questions. I will be going into the field of psychiatry, with hopes of becoming a neuroscientist tackling questions related to psychiatric illness, stress, and sleep. On some days, this choice feels overwhelming given the unfathomable complexities of the brain and mind, but on other days, I can't imagine doing anything else.

I would also like to acknowledge the many friends with whom I have run, hiked, rowed, roomed, traveled, baked, journal-clubbed, debated, and brainstormed over the years – what joy you have brought into my life! And likewise my (baby) brother, who has, with remarkable patience, provided invaluable troubleshooting help in my recent quest to become a half-competent coder. Lastly, to my parents, I pledge that I will continue to strive sanely, and with enough sleep.
Erika Williams

Inger Williams, my mother, immigrated to the United States from Sweden and has dedicated her work to careers of service, improving workplace safety, and later connecting senior citizen volunteers with underserved children in inner city schools. My father, David Williams, came from a small town in Indiana, and has dedicated his work to a career in science, investigating how the eye works and our ability to see. I was born in Rochester, NY, and in my own way seek both service and science in my life. Shortly following my arrival, my younger brother Kristoffer joined us, and has since been a perpetually impeccable nuisance, and also my dearest friend. I owe all I am to my family.

I studied at Williams College, and fell in love with neuroscience and medicine. After graduation, I worked in a one-year position as a field assistant studying white-faced capuchin monkeys in Costa Rica with Dr. Susan Perry from UCLA, both to see more of the world, and also of the varieties of science that inhabit it.

I moved to Boston, where I have lived since, in search of the MD-PhD dual degree and the unity of service and scientific inquiry it embodies. In my doctoral dissertation, I studied internal senses mediated by the vagus nerve under the guidance of Dr. Stephen Liberles and alongside some of the best lab-mates for which a person could hope. I look forward to continuing the journey in Neurology Residency.
Class of 2018 Thesis Advisors

1 Dr. Marcus Altfeld (Wilfredo Garcia Beltran)
2 Dr. Angelika Amon (Kristin Knouse)
3 Dr. Myles Brown (David Chi)
4 Dr. Chad Cowan (Derek Peters)
5 Dr. Susan Dymecki (Ryan Dosumu-Johnson)
6 Dr. Daniel Finley (Anthony Nguyen)
7 Dr. David Fisher (Jennifer Lo)
8 Dr. Mary-Jo DelVecchio Good (Mihan Lee)
9 Dr. Michael Greenberg (Benyam Kinde)
10 Dr. William Hahn (Belinda Wang)
11 Dr. Michael Hemann (Eric Bent)
12 Dr. Arthur Kleinman (John Heintz)
13 Dr. Stephen Liberles (Erika Williams)
14 Dr. Timothy Lu (Allen Chen)
15 Dr. Kiran Musunuru (Derek Peters)
16 Dr. Stuart Orkin (Matthew Canver)
17 Dr. Soumya Raychaudhuri (Xinli Hu)
18 Dr. Derrick Rossi (Wataru Ebina)
19 Dr. David Sabatini (Walter Chen & Shuyu Wang)
20 Dr. Mark Schiefsky (Katherine van Schaik)
21 Dr. Chris A. Walsh (Michael Coulter & Alissa D’Gama)
Thank you to all the alumni, parents, and friends who have generously donated in 2017-2018 to

The Linda Burnley Fund for MD-PhD Education

Dr. Sarah K. Bourne and Dr. Alexander George Bick, ’16
Dr. Patricia L. Blount and Dr. Ilan Zawadzki
Dr. Martin D. Burke, ’05
Dr. Susan Hockfield and Dr. Anthony P. Weiner
Ms. Akiyo Fujii and Dr. Eric J. Rubin
Ms. Jean Higgins and Mr. Michael Higgins
Mrs. Jane Braverman Hirschhorn and Dr. Joel N. Hirschhorn, ’95
Mrs. Mary Lenehan and Mr. Kevin Lenehan
Dr. Elizabeth G. Nabel and Dr. Gary Jan Nabel, ’82
Dr. Hans C. Oettgen, ’87
Dr. Jeremiah M. Scharf, ’01
Dr. Rochelle P. Walensky and Dr. Loren D. Walensky
Mr. Weiguo Zhang

The Linda Burnley Fund for MD-PhD Education at Harvard and MIT was established in 2014 in celebration of our 40th anniversary of MSTP funding. Our purpose in establishing this special donor fund is to honor the fundamental influence Linda has had on the lives and careers of our MD-PhD students and alumni as well as the foundation she was instrumental in creating for our program and for those nationally. All donations support the educational mission of the Harvard/MIT MD-PhD Program, which is squarely focused on providing unparalleled, world-class training to cultivate the next generation of Harvard/MIT physician-scientist leaders.

MD-PhD Institution Fellowship Sponsors

We are very grateful to our local research institutions for their named fellowships awarded to MD-PhD trainees who have contributed to their research missions and communities:

Broad Institute of MIT and Harvard
Dana Farber Cancer Institute
Harvard Stem Cell Institute

MD-PhD Individual Fellowship Sponsors

We are very grateful to our individual sponsors who have helped grow our program and support our students:

Howard Cox
James T. Healy, Jr. and Hsueh-Ming Wang
Congratulations from all of us to the MD-PhD Class of 2018!

www.hms.harvard.edu/md_phd