

2018 NHGRI Research Training and Career Development Annual Meeting

Report from the DACC

The NHGRI Research Training and Career Development 3rd Annual Meeting was held on March 18-20, 2018 at the UCLA Meyer & Renee Luskin Conference Center in Los Angeles, CA. This meeting continues to provide a **venue for trainees** supported by the National Institutes of Health (NIH) National Human Genome Research Institute (NHGRI) in Genomic Sciences, Genomic Medicine, and in Ethical, Legal and Social Implications (ELSI) fields **to present their research and to form collaborations** with other trainees and established investigators from training programs across the United States.

There were 274 Invited Speakers, Program Faculty & Staff, Trainees, Trainee Mentors, and members of NHGRI, NHGRI's Research Training and Advisory Committee, and the DACC registered to attend the meeting (see Roster, **Appendix A**). Of these, 195 were **trainees**, including those from the Diversity Action Plan programs (DAP), the T32 training programs, and individual awardees of fellowship or career-development (F or K awards) or Centers of Excellence in ELSI Research (CEER) awards.

OPENING SESSIONS

- **Welcome and Introduction of Participants:** Heather Colley, program director in the Division of Genomic Medicine, welcomed meeting attendees by highlighting the expanding landscape of NHGRI T32 and DAP programs and emphasizing that this meeting is for the benefit of the trainees. Heather noted that trainees would have opportunities to showcase their genomics research and findings, engage in discussions with panelists across a variety of genomics careers, and network with other trainees, mentors, and NHGRI staff over the course of the meeting. Heather also announced dates for the 2019 NHGRI Research Training and Career Development Annual Meeting and encouraged trainees and staff to participate in discussions for NHGRI's strategic plan using the hashtag #genomics2020 or visiting www.genome.gov/genomics2020.
- **The Keynote Presentation:** The keynote presentation, "Deaf Genetics Projects and Community Engagement," was given by Patrick Boudreault from Gallaudet University and Janet Sinsheimer from the University of California, Los Angeles. Using research within the deaf community, Dr. Boudreault discussed Community Based Participatory Research (CBPR), which emphasizes community and researcher partnerships throughout all phases of the research process. To conduct responsible research, study designs should fit the community, and in turn, the community should be involved in the collaboration, negotiation, culture training, research recruitment, and the dissemination of results to both local and scientific communities. Dr. Boudreault stressed that community engagement with marginalized communities will lead to new understanding and broadening of the perspective on the uniqueness of human diversity.

FEATURED PANEL SESSIONS

- **Careers Outside Academia:** Dr. Deanna Church, from 10XGenomics, moderated a panel session dedicated to exploring careers outside of academia. Panelists included Imilce Rodriguez-

Fernandez, *Genentech*; Nick Furlotte, *23&Me*; Sheena Faherty, *NHGRI Communications and Public Liaison Branch*; and Eggerton Campbell, *NHGRI Technology Transfer Office*. Each panelist shared their educational background and their professional path to their current position. Panelists answered questions from trainees about exploring careers, non-scientific training, industry stability, and identifying professional opportunities. The 50-minute session maintained a lively dialogue between the trainees and the panelists.

- **Mock Genetic Counseling Session:** Dr. Bruce Korf, from University of Alabama – Birmingham, moderated a 60-minute mock genetic counseling session that included participation from three UCLA genetic counselors: Jessica Kianmahd, Judith Fan, and Rachel Shapira. To start the session, Dr. Korf provided background information on classifying variants and primary and secondary findings. Using three vignettes based on real medical cases, UCLA genetic counselors role-played the delivery of genetic testing results to trainee volunteers. Each vignette focused on a different aspect of genetic counseling: the delivery of incidental findings, a variant of certain significance, and an unexpected pathogenic mutation.

FEATURED TALKS

- **Hiding in plain sight — a selfish element masquerading as developmental genes:** Dr. Leonid Kruglyak, faculty at University of California, Los Angeles, used an example from *C. elegans* to demonstrate how unexpected background results can lead to interesting discoveries. A previously accepted model claimed that pha-1 is an essential developmental gene for *C. elegans* that is suppressed by sup-35. However, an unexpected embryonic lethality rate while cross-breeding two *C. elegans* strains prompted further investigation. Now it is recognized that sup-35 is a maternally delivered toxin, that is suppressed by pha-1. This work is the first molecular characterization of a maternal-effect selfish element. Dr. Kruglyak also shared with the trainees how his career path evolved from a trained physicist to an evolutionary and human geneticist and how his NHGRI K Award helped him on this path.
- **ELSI Live! A participatory example of social science research:** Dave Kaufman, Program Director in the Division of Genomics and Society at NHGRI, presented findings from a pre-meeting survey administered to trainees on attitudes towards data sharing. Dr. Kaufman compared trainee survey responses to those collected from human geneticists in a separate 2014 survey. Data gave insight on the biggest perceived challenges in data sharing (scarcity of funding, reluctance of researchers to share samples, low quality of shared data) and the growing importance of data sharing. Session also provided trainees the opportunity to discuss their data sharing experiences and to ask questions about how to ensure ethical data analysis.

CONCURRENT SESSIONS

- **Career Development Sessions:** New for the 2018 Annual Meeting, Career Development Sessions were tailored to trainee career level, offering trainees the opportunity to attend one of three sessions that would best suit their educational and professional needs.

How to Find and Have a Productive Graduate School Experience (DAP trainees): Susan Dutcher and Cherilynn Shadding, both faculty at Washington University in St. Louis, moderated a speed mentoring session between DAP trainees T32 PIs. During this session, PIs were assigned to tables of DAP trainees where time was spent discussing questions related to graduate school, such as, “What does a successful student in grad school look like?” Each table of DAP

trainees/T32 PIs had seven minutes to discuss a topic before the T32 PIs rotated to the next table. The session also allowed time for trainees to ask their own questions. Over thirty DAP Trainees were able to talk with T32 PIs about applying to graduate school, the characteristics of a good graduate student, and how to choose between an MD and PhD program. Trainees were also given advice about getting where they want to go.

#NHGRIscomm: Communicating Genomics to Non-Scientists: (Graduate Students): This session highlighted several aspects of science communication and was moderated by three UCLA PhD students: Malika Kumar Freund, Chantle Edillor, and Catharine Krebs. Malika Kumar Freund began the session by discussing how to communicate genomics to non-scientists. She identified important communication considerations including thinking about the intended audience, message, and medium. Participants practiced communication role-play scenarios. Catherine Krebs presented on communicating science to policy makers, the roles scientists can play in policy-making, and how to transition to a career in science policy. Participants practiced creating “fact-sheets” to breakdown scientific concepts into easy-to-follow bullet points. Chantle Edillor discussed the how scientists can use social media as a communication mode and provided examples of good and bad science communication via social media.

Securing and Starting a Faculty Position: Mildred Cho, faculty at Stanford University, moderated a panel session for post-doctorate and junior faculty trainees about securing faculty positions. Michael Boehnke (University of Michigan), Janet Sinsheimer (University of California, Los Angeles), Maja Bucan (University of Pennsylvania), Steven Joffe (University of Pennsylvania), and Katherine Nathanson (University of Pennsylvania) rounded out the panel. Panelists first discussed what they thought were the most important things for trainees to be doing, such as gaining the skills necessary to succeed in a job, learning what to do to get the first promotion, networking, and securing funding. Trainees were given ample time to ask questions to the panel. Trainee questions addressed things like structural problems for employment opportunities, what to do when first offered a new job, service expectations, and negotiating. The panel also discussed challenges women and minorities might face and what resources are available (and how to use them) to mitigate these challenges.

- **Executive Session:** The executive session was hosted by Tina Gatlin, NHGRI, and Treva Rice and Donna Jeffe, both from the DACC, and was attended by advisors, PIs, training coordinators, NHGRI staff and other DACC members.

CLOSING REMARKS

- UCLA T32 Program faculty, Jeanette Papp and Eric Sobel, closed the meeting by noting that this year’s recurring meeting theme was communication. Networking, sharing research, learning about the groups we want to serve, and hearing from different disciplines all revolve around strong communication. Drs. Papp and Sobel thanked all meeting participants for spending time on UCLA’s campus and acknowledged that the Annual Meeting would not be possible without the participation of the trainees, speakers, the DACC, and NHGRI.

TRAINEE PARTICIPATION

Presenting Research: In addition to the structured sessions listed above, trainees had the opportunity to present their research as an oral presentation during either platform or lightning talks (new for the 2018 Annual Meeting). The majority of trainees also presented their research during one of two poster sessions.

Final number of Abstracts presented at the meeting	175**
Presented as a Platform Talk	15
Presented as a Lightning Talk	9
Presented as Poster	151
**65 of the 175 Abstracts presented at the meeting wished to be considered for the potential of being chosen as a platform talk and another 23 Abstracts presented at the meeting wished to be considered for the potential of being chosen as a lightning talk	

The program committee was extremely impressed with the quality of the trainees' presentations and the potential impact that their work may have on the future of research in the genomic fields. While the program committee would have liked to provide an award to every trainee, the following individuals were singled out as providing noteworthy presentations.

- **Platform Talks:** A panel of NHGRI judges considered 65 abstracts for oral presentations. Consistent with the 2017 Annual Meeting, three platform talk sessions were held, one session for each major field of research supported by NHGRI: genomic sciences, medicine, and ELSI. The following 15 trainees were chosen to give oral platform talks. Congratulations to the following presenters:
 - Genomic Science Trainee Platform Talks (Moderator: Zhipeng Lu, *Stanford University*)
 - Jason Klein:** Functional Characterization of Enhancer Turnover in the Primate Lineage, *University of Washington, Seattle*
 - Emily Alden:** Visualization and Transcriptome Sequencing of Histological Tissues from Multiple Organs while Preserving Spatial Information of the mRNA, *University of New Mexico/Harvard*
 - Sarah Hanks:** Extensive differential gene expression by sex in human skeletal muscle tissue, *University of Michigan*
 - Christopher Robles:** Quantifying the impact of Neanderthal gene flow on human phenotypes, *UCLA*
 - Andrew Taverner:** Clustering of non-synonymous mutations provides evidence of positive selection, epistasis, and convergent evolution in yeast, *Drosophila*, primates, and *Arabidopsis*, *Princeton University*
 - Genomic Medicine Trainee Platform Talks (Moderator: Erin Young, *University of Utah*)
 - **Jacob Keaton:** Geographic genetic ancestry associates with uterine fibroid traits in African Americans from the BioVU resource, *Vanderbilt University*
 - **Zena Lapp:** Regional transmission and antibiotic resistance evolution of the hospital pathogen *Klebsiella pneumoniae*, *University of Michigan*
 - **Cody Ramirez:** Integration of Whole Exome and RNA Sequencing Identifies Neoepitope Vaccine Candidates in >90 Percent of Follicular Lymphoma Patients, *Washington University in St. Louis*
 - **Tsung-Ting Kuo:** Healthcare/Genomics Blockchain: Applications in Privacy-Preserving Predictive Model Development, *University of California, San Diego*
 - **Jennifer Posey:** Understanding the genetic basis of human disease is central to the development of Precision Medicine, *Baylor College of Medicine*

- ELSI Trainee Platform Talks (Moderator: Vanessa Hiratsuka, *Southcentral Foundation*)
 - **Danton Char:** Clinician Perspectives on Implementing Whole Genome Sequencing to the Care of Critically Ill Children with Heart Disease, *Stanford University*
 - **Alexis Walker:** Genomic Triage: Ethical Issues in Drug Pricing and Access To Treatment for Hepatitis C, *Johns Hopkins University*
 - **Ashley Elrick:** Family communication of multi-gene panels: Development of study questionnaires, *University of Utah*
 - **Alison Antes:** The Lab Leadership Practices of Research Exemplars, *Washington University School of Medicine in St. Louis*
 - **Nicole Martinez-Martin:** Ethical and Social Implications for Integrating Digital Phenotyping Data with Whole Genome Sequencing for Predictions of Behavioral Disorders, *Stanford University*
- Lightning Talks: A panel of NHGRI judges considered 23 abstracts for lightning talk presentations. The 60-minute session, moderated by Bettie Graham (NHGRI) allowed for brief, 4-minute presentations in each major field of research supported by NHGRI: genomic sciences, medicine, and ELSI. The following nine trainees were chosen to give lightning talks. Congratulations to the following presenters:
 - **Martine Lappe:** Care in Translation: Ethical Scaffolding and the Social Implications of Epigenetic Research, *Columbia University*
 - **Seth Rhoades:** Genetic and phenotypic associations with electronic health record (EHR)-derived sleep patterns, *Vanderbilt University*
 - **Nadiya Sosonkina:** Novel approaches to improve the diagnosis of rare diseases, *University of Alabama at Birmingham*
 - **Elizabeth Gonzalez:** Genome-wide CRISPR-Cas9 knockout screens in mNSC models of PLGG, *Broad Institute*
 - **Steven Reilly:** Using multiplex non-coding CRISPR deletion libraries to individually perturb CTCF binding site in the human genome, *Broad Institute*
 - **Brandon Saint-John:** Add-seq: a novel method for genome-wide and long-range nucleosome profiling, *UCSC*
 - **Daniel Lee:** Dynamic Organization of Chromatin by Liquid-Liquid Phase Separation, *Princeton University*
 - **Joshua Weinstock:** Large Scale Application of Mendelian Randomization to Electronic Health Records, *University of Michigan*
 - **Apexa Modi:** The landscape of long non-coding RNAs in neuroblastoma, *University of Pennsylvania*
- **Posters:** The *poster presentations* provided an opportunity for trainees to present their research and answer questions from their peers and other scientists. This year's sessions included posters in Genetic Sciences (126 posters), Genomic Medicine (15 posters) and ELSI (10 posters) across two sessions, morning and afternoon. Sessions were paired with snacks to promote a networking atmosphere among all meeting attendees. All meeting attendees (trainees, Program Faculty and Staff, Trainee Mentors, NHGRI, and the DACC) were encouraged to score posters. Congratulations go to the following trainees for their noteworthy posters:
 - **Undergraduate**

- 1st Place: **Maneesha Thaker**, Identifying combination therapy targets in KRAS mutant cancers using pooled CRISPR-Cas9 screening, *Broad Institute*
- 2nd Place: **Sierra Louis-Gene**, Understanding a Single Nucleotide Polymorphism in an Epidermal-Specific Enhancer in Human Evolution, *Washington University in St. Louis*
- 3rd Place: **Cassandra Alvarado**, Evaluation of concordance of variant to phenotype associations in mouse and human, *Jackson Laboratories*
- **Graduate**
 - 1st Place: **Gregory Way**, Compressing cancer transcriptomes with variational autoencoders permits latent space arithmetic to reveal biological patterns, *University of Pennsylvania*
 - 2nd Place: **Sandra Hui**, Inference of Tumor Evolution through Single Cell Whole Genome Sequencing, *University of California, Berkeley*
 - 3rd Place: **Zack Chiang**, Computational Tools for In Situ Sequencing, *Harvard University*
 - 4th Place: **Bryan Thornlow**, Transfer RNA genes experience exceptionally elevated mutation rates, *University of California, Santa Cruz*
 - 5th Place: **Aaron Neiman**, Providing Care in the After-Math: Clinical Translation of Machine Learning in Genomic Medicine, *Stanford University (ELSI)*
- **Post -Graduate**
 - 1st Place: **Carolyn Baloh**, A novel approach to develop a genetic model of common variable immune deficiency (CVID), *Duke University*
 - 2nd Place: **Andreana Holowatyj**, Crosstalk between visceral adipose and tumor tissue in colorectal cancer patients: Molecular signals driving host-tumor interaction, *University of Utah*
 - 3rd Place: **Evgeny Kvon**, Large-Scale Functional Assessment of Human Enhancer Variants In Vivo, *Lawrence Berkeley National Laboratory*
- **Networking:** In addition to formal presentations (posters and talks), other opportunities were provided throughout the meeting to encourage trainees to network. Networking activities included both structured and informal opportunities to talk about research and to interact with other investigators (peers and program PIs, mentors and coordinators) interested in similar research questions, opening the door for developing collaborations among participants.
 - **Opening Reception:** A casual 90-minute reception was held on the Centennial Terrace. Passed appetizers and a cash bar were provided in the early evening at the end of Sunday's sessions.
 - **Networking Lunch:** This session was held on the first full day. Program PIs and Mentors who provided bios in advance of the meeting were assigned at a table for lunch. Meeting attendees received access to the bio directory posted to the Annual Meeting website in advance of the meeting. Trainees were asked to sit and talk with other trainees and Investigators at tables whose research was of interest to the trainee.
 - **Happy Hour:** An informal and well-attended networking happy-hour was held at Barney's Beanery, within walking distance from the hotel, at the end of the first full day of sessions.

LIST OF APPENDICES

Appendix A: Attendance Roster

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First Name	Last Name	Affiliation
Mai	Abdusamad	Broad Institute
Jon	Akutagawa	University of California, Santa Cruz
Alan	Alcantar	Washington University in St. Louis
Emily	Alden	University of New Mexico / Harvard
Diego	Almanza	Broad Institute
Cassandra	Alvarado	Jackson Laboratories
Sandra	Alvarez	University of New Mexico / Harvard
Marcus	Alvarez	University of California, Los Angeles
Tiffany	Amariuta	Harvard University
Alison	Antes	Washington University School of Medicine in St. Louis
Philip	Baker	University of New Mexico / Harvard
David	Balderas	University of California, Santa Cruz
Brunilda	Balliu	Stanford University
Carolyn	Baloh	Duke University
Antonio	Banuelos	University of New Mexico / Harvard
Gregory	Barsh	University of Alabama at Birmingham
Eric	Bartell	Harvard University
Alison	Barton	Harvard University
Andrew	Bass	Princeton University
Jason	Batten	Stanford University ELSI
Selina	Bauernfeind	University of New Mexico / Harvard
Claire	Baumer	Stanford University
Eyal	Ben-David	University of California, Los Angeles
Bruce	Birren	Broad Institute
Michael	Boehnke	University of Michigan
Craig	Bohrson	Harvard University
Patrick	Boudreault	Gallaudet University
Joy	Boyer	NHGRI
Dain	Brademan	University of Wisconsin, Madison
Stefanie	Brizuela	University of California, Santa Cruz
Lawrence	Brody	NHGRI
Maja	Bucan	University of Pennsylvania
Carol	Bult	Jackson Laboratories
David	Burke	University of Michigan
Miranda	Burnette	University of Alabama at Birmingham
Jean	Cadigan	CEER- Center for Genomics and Society at UNC- Chapel Hill
Eggerton	Campbell	NHGRI
Alejandra	Canales	University of Wisconsin, Madison
Sherry	Chao	Harvard University
Danton	Char	Stanford University
Krystal	Charley	University of New Mexico / Harvard
Hannah	Chervitz	University of Pennsylvania
Zachary	Chiang	Harvard University
Sam	Cho	Princeton University

First Name	Last Name	Affiliation
Mildred	Cho	Stanford University ELSI
Kurt	Christensen	Brigham and Women's Hospital
Deanna	Church	10x Genomics
Kaitlin	Clark	Washington University in St. Louis
Jason	Colasanti	Washington University in St. Louis
Heather	Colley	NHGRI
Ryan	Collins	Harvard University
Don	Conrad	Washington University in St. Louis
Jake	Conway	Harvard University
Emily	Coonrod	University of Utah
Robert	Coukos	Stanford University
Nancy	Cox	Vanderbilt University
Richard	Cripps	University of New Mexico / Harvard
Alexandre	Daly	University of Michigan
Amy	Dapper	University of Wisconsin, Madison
Katherine	Darling	Stanford University ELSI
Petar	Datsov	DACC
Emma	De Neef	University of Washington, Seattle
Ben	DeMeo	Harvard University
Brittany	Demmitt	Stanford University
Joshua	Denny	Vanderbilt University
Will	DeWitt	University of Washington, Seattle
Gregory	Diggs-Yang	University of Washington, Seattle
Philip	Dishuck	University of Washington, Seattle
Mariana	DoCarmo	Broad Institute
Kara	Dolinski	Princeton University
Max	Dougherty	University of Washington
Judy	Du	Princeton University
Kate	Dusenbury	University of Washington, Seattle
Susan	Dutcher	Washington University in St. Louis
Chantle	Edillor	University of California, Los Angeles
Ashley	Elrick	University of Utah Center for Excellence in ELSI Research
Benjamin	Emert	University of Pennsylvania
Michael	Engstrom	University of Wisconsin, Madison
Nicholas	Everetts	University of California, Berkeley
Sheena	Faherty	NHGRI
Judith	Fan	University of California, Los Angeles
Kyle	Feeley	University of Alabama at Birmingham
Katherine	Flannery	Harvard University
Micah	Fletcher	Princeton University
Harmony	Folse	Stanford University
Nick	Furlotte	23andMe
Tina	Gatlin	NHGRI
Nicole	Gay	Stanford University
Sierra	Gene Louis	Washington University in St. Louis

First Name	Last Name	Affiliation
David	Gennert	Stanford University
Maggie	Ginoza	NHGRI
Geoffrey	Ginsburg	Duke University
Elizabeth	Gonzalez	Broad Institute
Sarah	Gould	NHGRI
Bettie	Graham	NHGRI
Christi	Guerrini	Baylor College of Medicine
Susanne	Haga	Duke University
Haley	Halasz	University of California, Santa Cruz
Sarah	Hanks	University of Michigan
Wei	Hao	Princeton University
Akeena	Harper	Jackson Laboratories
Catherine	Haskell	Harvard University
David	Haussler	University of California, Santa Cruz
Kyle	Hess	University of Washington, Seattle
Stephanie	Hicks	Dana-Farber Cancer Institute / Johns Hopkins Bloomberg School of Public Health
Vanessa	Hiratsuka	CEER- Southcentral Foundation
Andreana	Holowatyj	University of Utah
Nicholas	Hughes	Stanford University
Sandra	Hui	University of California, Berkeley
Abhay	Hukku	University of Michigan
Kyomi	Igarashi	Stanford University
Zia	Isola	University of California, Santa Cruz
Sidharth	Jain	Broad Institute
Gail	Jarvik	University of Washington, Seattle
Donna	Jeffe	DACC
Gejae	Jeffers	Washington University in St. Louis
Jamie	Jeffries	Stanford University
Steve	Joffe	University of Pennsylvania (ELSI)
Lynn	Jorde	University of Utah
Stephanie	Kabeche	Stanford University
Dave	Kaufman	NHGRI
Jacob	Keaton	Vanderbilt University
Dawn	Keene	University of Michigan
Kristen	Kelly	University of Michigan
Alex	Kerns	Stanford University
Jessica	Kianmahd	University of California, Los Angeles
Sid	Kiblawi	University of Wisconsin, Madison
Madison	Kilbride	University of Pennsylvania (ELSI)
Junhyong	Kim	University of Pennsylvania
Holly	Kinser	Washington University in St. Louis
Jason	Klein	University of Washington, Seattle
Sandy	Klemm	Stanford University
Bruce	Korf	University of Alabama at Birmingham

First Name	Last Name	Affiliation
Catharine	Krebs	University of California, Los Angeles
Leonid	Kruglyak	UCLA
Malika	Kumar Freund	University of California, Los Angeles
Tsung-Ting	Kuo	University of California, San Diego
Cynthia	Kusters	University of California, Los Angeles
Evgeny	Kvon	Lawrence Berkeley National Laboratory
Katherine	Lachance	Harvard University
Nicholas	Lammers	University of California, Berkeley
Alfonso	Landeros	University of California, Los Angeles
Zena	Lapp	University of Michigan
Martine	Lappe	Columbia University
Meiyee	Law	Jackson Laboratories
Ryan	Layer	University of Utah
Rob	Layne	University of Utah Center for Excellence in ELSI Research
Daniel	Lee	Princeton University
Patricia	Lessard	
Mike	Levine	Princeton University
Yatong	Li	University of Michigan
Jesse	Liang	University of California, Los Angeles
Mochi	Liu	Princeton University
Christopher	Lo	Broad Institute
Zhipeng	Lu	Stanford University
Jacob	Luber	Harvard University
Gaurav	Luthria	Harvard University
Juan	Macias	Washington University in St. Louis
Dat	Mai	University of California, Berkeley
Nicole	Martinez-Martin	Stanford University ELSI
Christian	Mason	University of California, Los Angeles
Christopher	McAllester	University of Wisconsin, Madison
Sheryl	McCurdy	Baylor College of Medicine
Michael	McKernan	Jackson Laboratories
Katelyn	McKown	Stanford University
Michelle	McNulty	University of Michigan
Karen	Meagher	CEER- Center for Genomics and Society at UNC- Chapel Hill
Paloma	Medina	University of California, Santa Cruz
Robin	Meyers	Stanford University
Tyne	Miller-Fleming	Vanderbilt University
Robert	Millikin	University of Wisconsin, Madison
Robert	Minneker	University of Washington, Seattle
Bikash	Mishra	Washington University in St. Louis
Apexa	Modi	University of Pennsylvania
Emma	Monte	Stanford University
Lenore	Monterroza	Washington University in St. Louis
Jason	Moore	University of Pennsylvania

First Name	Last Name	Affiliation
Taylor	Mouton	Jackson Laboratories
Austin	Mudd	University of California, Berkeley
Sedona	Murphy	Stanford University
Aparna	Nathan	Harvard University
Katherine	Nathanson	University of Pennsylvania
Aaron	Neiman	Stanford University ELSI
Sierra	Nishizaki	University of Michigan
Lucila	Ohno-Machado	University of California San Diego
Miracle	Okoli	University of Washington, Seattle
Anja	Olloart	University of Washington, Seattle
Sydney	O'Neal	Washington University in St. Louis
Peter	Orchard	University of Michigan
Kellie	Owens	University of Pennsylvania (ELSI)
Louise	Pape	University of Wisconsin, Madison
Jeanette	Papp	University of California, Los Angeles
Peter	Park	Harvard University
Maria	Pérez	DACC
Jennifer	Posey	Baylor College of Medicine
Armin	Pourshafeie	Stanford University
Hugh	Purdy	University of Wisconsin, Madison
Eddie	Ramirez	Washington University in St. Louis
Cody	Ramirez	Washington University in St. Louis
Steven	Reilly	Broad Institute
Nosheen	Reza	University of Pennsylvania
Seth	Rhoades	Vanderbilt University
Treva	Rice	DACC
Harnet	Rishi	University of California, Berkeley
Alberto	Rivera	University of Washington, Seattle
DeElegant	Robinson	University of Wisconsin, Madison
Emily	Robitschek	Broad Institute
Christopher	Robles	University of California, Los Angeles
Nicole	Rockweiler	Washington University in St. Louis
Dan	Roden	Vanderbilt University
Imilce	Rodriguez-Fernandez	Genentech
Alejandra	Rosales	University of New Mexico / Harvard
Jean	Rosario	University of Pennsylvania
Susan	Russo Gelbart	University of New Mexico / Harvard
Christine	Rygiel	University of Michigan
Brandon	Saint-John	University of California, Santa Cruz
Lauren	Sanders	University of California, Santa Cruz
Akshay	Sanghi	Stanford University
Pamela	Sankar	University of Pennsylvania (ELSI)
Sisi	Sarkizova	Harvard University
Alex	Schmitz	Washington University in St. Louis
Kelly	Schwartz	University of Wisconsin, Madison
David	Schwartz	University of Wisconsin, Madison

First Name	Last Name	Affiliation
Guadalupe	Sepulveda	University of California, Berkeley
Sagar	Setru	Princeton University
Cherilynn	Shadding	Washington University in St. Louis
Rachel	Shapira	University of California, Los Angeles
Emily	Shields	University of Pennsylvania
Arend	Sidow	Stanford University
Jordi	Silvestre-Ryan	University of California, Berkeley
Janet	Sinsheimer	UCLA
Benjamin	Siranosian	Stanford University
Ian	Smith	University of Washington, Seattle
Michael	Snyder	Stanford University
Eric	Sobel	University of California, Los Angeles
Nadiya	Sosonkina	University of Alabama at Birmingham
Charles	Starr	Stanford University
Cory	Stingl	Duke University
Arvis	Sulovari	University of Washington, Seattle
Willie	Swanson	University of Washington, Seattle
Kieran	Sweeney	University of Wisconsin, Madison
James	Tabery	University of Utah Center for Excellence in ELSI Research
Alison	Tang	University of California, Santa Cruz
Andrew	Taverner	Princeton University
Nicole	Teran	Stanford University
Maneesha	Thaker	Broad Institute
Bryan	Thornlow	University of California, Santa Cruz
Susanne	Tilk	Stanford University
Liezel	Tiples	Washington University in St. Louis
Anji	Trujillo	University of Wisconsin, Madison
Lisa	Truong	University of California, Los Angeles
Eric	Van Nostrand	University of California, San Diego
Dan	Veltri	
Vinayak	Viswanadham	Harvard University
Nicole	Wakim	University of Michigan
Alexis	Walker	Johns Hopkins CEER
Margaret	Waltz	CEER- Center for Genomics and Society at UNC- Chapel Hill
Taylor	Ward	University of Washington, Seattle
Rory	Wasiolek	UCLA
Colin	Waters	Harvard University
Elizabeth	Waters	University of Wisconsin, Madison
Greg	Way	University of Pennsylvania
Alexandra	Weber	University of Michigan
Liota	Weinbaum	University of New Mexico / Harvard
Joshua	Weinstock	University of Michigan
Steven	Wilson	Stanford University
Eamon	Winden	University of Wisconsin, Madison

