

Updated April 23, 2018

Current Positions

Investigator, Howard Hughes Medical Institute
Professor, Genome Sciences, University of Washington
Director, Allen Discovery Center for Cell Lineage
Director, Brotman-Baty Institute for Precision Medicine

University of Washington
School of Medicine
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Seattle WA 98195-5065

Contact Information

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Education

- 2007 M.D., Harvard Medical School (Boston, Massachusetts)
- 2005 Ph.D. in Genetics, Harvard University (Cambridge, Massachusetts)
Research Advisor: George M. Church
Thesis entitled “*Multiplex Genome Sequencing and Analysis*”
- 1996 A.B., *summa cum laude* in Molecular Biology, Princeton University (Princeton, NJ)
Research Advisor: Lee M. Silver

Professional Experience

- 2017 – present Director
Brotman-Baty Institute for Precision Medicine
- 2017 – present Director
Allen Discovery Center for Cell Lineage
- 2015 – present Investigator
Howard Hughes Medical Institute
- 2015 – present Full Professor (with tenure)
Department of Genome Sciences, University of Washington, Seattle, WA
- 2010 – present Affiliate Professor
Division of Human Biology, Fred Hutchinson Cancer Research Center, Seattle, WA
- 2011 – 2015 Associate Professor (with tenure)
Department of Genome Sciences, University of Washington, Seattle, WA
- 2007 – 2011 Assistant Professor
Department of Genome Sciences, University of Washington, Seattle, WA
- 1998 – 2007 Medical Scientist Training Program (MSTP) Candidate
Department of Genetics, Harvard Medical School, Boston, WA
- 1997 – 1998 Research Scientist
Vaccine Division, Merck Research Laboratories, Rahway, NJ

Jay Shendure, MD, PhD

- 1996 – 1997 Fulbright Scholar to India
Department of Pediatrics, Sassoon General Hospital, Pune, India

Honors, Awards, Named Lectures

- 2018 Richard and Carol Hertzberg Prize for Technology Innovation
University of California, San Diego
- 2018 Dr. Nancy C. Andrews Physician-Scientist Lectureship
Duke University
- 2017 British Society of Genetic Medicine Lectureship
British Society of Genetic Medicine
- 2015 HHMI Investigator
Howard Hughes Medical Institute
- 2014 Cell “40 under 40”
Cell 40th Anniversary, Cell Press
- 2014 7th Annual Scripps Genomic Medicine Award
Scripps Health
- 2014 HudsonAlpha Prize for Life Sciences
HudsonAlpha Institute for Biotechnology
- 2013 FEDERAprijs
Federation of Dutch Medical Scientific Societies
- 2013 NIH Director’s Pioneer Award
National Institutes of Health
- 2012 Curt Stern Award
American Society of Human Genetics
- 2010 Lowell Milken Young Investigator (2010-2013)
Prostate Cancer Foundation
- 2008 Science in Medicine New Investigator Lecture
University of Washington
- 2008 3rd Annual Tomorrow’s Pls
Genome Technology Magazine
- 2007 James Tolbert Shipley Prize
Harvard Medical School
- 2006 TR35 Young Innovator Award
M.I.T. Technology Review
- 1998 Medical Science Training Program Fellowship
National Institutes of Health
- 1996 Fulbright Scholarship
U.S. State Department
- 1996 *summa cum laude*
Princeton University
- 1996 Honorary Major in Anthropology
Princeton University
- 1996 Sigma Chi Book Award for Molecular Biology Senior Thesis (“*The Genetics of Alcohol Consumption: QTLs Affecting Ethanol Consumption in Inbred Mice*”)
Princeton University
- 1996 Senior Prize for Best Thesis in Anthropology (“*Homunculi, Polyps and the Generation of Beings: Interpreting Theory Change in Biology*”)
Princeton University

- 1996 Phi Beta Kappa
 Princeton University
- 1992 National Merit Scholar
 Solon High School

Academic Consortium Leadership & Scientific Advisory Roles

- 2017 – present Advisory Committee to NIH Director (ACD), National Institutes of Health
- 2014 – present NIH/NHGRI National Advisory Council for Human Genome Research
- 2015 Advisory Committee to NIH Director: Working Group on US Precision Medicine Initiative
- 2017 – present Stem Cells and Gene Editing Advisory Council, Allen Institute for Cell Science
- 2015 – present NIH/OD 4D Nucleome Network (Steering Committee)
- 2015 – present NIH/NHGRI Center of Excellence in Genomic Science (Stanford University; PI: Howard Chang) (Scientific Advisory Board)
- 2014 – present NIH/NIAID Center of Excellence in Translational Research (Harvard School of Public Health; PI: Megan Murray) (Scientific Advisory Board)
- 2012 – 2014 Joint Genome Institute, Department of Energy (Scientific Advisory Board)
- 2012 – 2015 NIH/NHGRI Centers for Mendelian Genomics (Steering Committee)
- 2009 – 2012 NIH/NHLBI Exome Sequencing Project (Steering Committee)

Journal Editorial Boards

- 2017 – present Science (Board of Reviewing Editors)
- 2015 – present Genome Medicine (Editorial Board)
- 2015 – present Molecular Case Studies (Editorial Board)
- 2014 – present Genetics (Associate Editor)
- 2014 – present Human Molecular Genetics (Editorial Board)
- 2011 – present Human Genetics (Editorial Board)
- 2010 – present Genome Biology (Editorial Advisory Board)
- 2009 – present Genome Research (Editorial Board)
- 2011 – 2018 Biotechniques (Editorial Board)
- 2009 – 2012 American Journal of Human Genetics (Associate Editor)

Other Activities

- 2015 – present Co-organizer, Genomics of Rare Diseases meeting, Sanger Institute (Hinxton, UK)
- 2009 – present Member, Fred Hutchinson / University of Washington Cancer Consortium
- 2012 – 2016 Faculty of 1000 (F1000), Medical Genetics
- 2011 Guest Editor, *Genome Biology* (special issue on exome sequencing)

Commercial Scientific Advisory Board and Consulting Roles

- 2016 – present Bellwether Bio (Founder; Scientific Consultant)
- 2016 – present Nanostring (Scientific Advisory Board)
- 2016 – present Cambridge Epigenetix (Scientific Advisory Board)
- 2015 – present Phase Genomics (Founder; Scientific Advisory Board)
- 2013 – present GenePeeks (Scientific Advisory Board)
- 2010 – present Adaptive Biotechnologies (Scientific Advisory Board)
- 2009 – present Stratos Genomics (Scientific Advisory Board)

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- 2009 – 2017 Good Start Genetics (Scientific Advisory Board)
- 2013 – 2017 Gen9 (Scientific Advisory Board)
- 2010 – 2015 Ariosa Diagnostics (Scientific Consultant)
- 2013 – 2015 Ingenuity Systems (Scientific Advisory Board)
- 2013 – 2015 Rubicon Genomics (Scientific Advisory Board)
- 2012 Merck Research Laboratories (Scientific Consultant)
- 2010 – 2011 Halo Genomics (Scientific Advisory Board)
- 2008 – 2009 Complete Genomics (Scientific Consultant)
- 2006 Highland Capital Partners (Scientific Consultant)
- 2004 – 2005 Agencourt Biosciences (Scientific Consultant)

Faculty Administrative Responsibilities (University of Washington)

- 2014 Organizer, 12th Annual Genome Sciences Symposium – “Genetic Networks - From Model Organisms to Human Disease” (Genome Sciences)
- 2010 Co-organizer, Symposium & Panel Discussion – “New Discoveries in Medicine: Implications for the Cost and Quality of American Healthcare” (Genome Sciences)

- 2014 – 2015 Member, Seminar Series Committee (Genome Sciences)
- 2013 – 2014 Chair, Seminar Series Committee (Genome Sciences)
- 2008 – 2009 Member, Seminar Series Committee (Genome Sciences)

- 2017 – 2018 Member, Faculty Search Committee (Genome Sciences)
- 2016 – 2017 Member, Faculty Search Committee (Biology)
- 2013 – 2017 Member, Faculty Search Committee (Institute for Protein Design)
- 2008 – 2013 Member, Faculty Search Committee (Medical Genetics)
- 2010 – 2012 Member, Faculty Search Committee (Genome Sciences)
- 2008 – 2009 Member, Faculty Search Committee (Genome Sciences)

- 2009 Organizer, Departmental Retreat (Genome Sciences)

- 2012 – 2013 Co-chair, Scientific Discovery Subcommittee for Curriculum Renewal
- 2009 Member, U.W. “Two Years to Two Decades” (2y2d) initiative, Discovery focus group

Reviewer (ad hoc)

Nature	Analytical Chemistry
Science	Bioinformatics
Cell	Biotechniques
New England Journal of Medicine	BMC Genomics
Nature Genetics	Cell Stem Cell
Nature Biotechnology	Cellular & Molecular Biology Letters
Nature Medicine	Genomics
Nature Methods	Human Mutation
Nature Reviews Genetics	Mammalian Genome
Science Translational Medicine	Nature Protocols
Proceedings of the National Academy of Sciences	Neuron
PLoS Genetics	Nucleic Acids Research
Genome Research	PLoS Computational Biology

American Journal of Human Genetics
Genome Biology

Trends in Genetics
Genetics in Medicine

Grant Review & Related Service

- 2017 GGG-L(50) Advanced Genomic Technology Development Study Section, NIH
- 2014 Grant reviewer, Paul G. Allen Family Foundation ADI 2014 Life Science Focus
- 2014 Grant reviewer, TEDDY Whole Genome Sequencing Lab RFP
- 2014 Grant reviewer, National Institute of Diabetes and Digestive and Kidney Diseases Special Emphasis Panel
- 2013 Grant reviewer, National Institute of Child Health and Human Development Special Emphasis Panel
- 2013 Abstract reviewer, 63th Annual Meeting of American Society of Human Genetics
- 2013 Grant reviewer, The Wellcome Trust
- 2011 Grant reviewer, W. M. Keck Foundation
- 2011 Grant reviewer, Lasker Clinical Research Scholars Program
- 2010 Grant reviewer, UK Medical Research Council, Molecular and Cellular Medicine Board
- 2009 Grant reviewer, National Science Foundation
- 2009 Grant reviewer, NIH ARRA Challenge Grants (Genes, Genomes and Genetics IRG)
- 2009 Grant reviewer, Ontario Research Fund (GL2 Competition)
- 2008 Grant reviewer, Genome BritishColumbia

Postdoctoral Fellows Trained (University of Washington)

- 2018 – Present Jacob Tome, Ph.D.
- 2018 – Present Silvia Domcke Ph.D.
- 2016 – Present Yi Yin, Ph.D.
- 2015 – Present Vikram Agarwal, Ph.D.
- 2014 – Present Jesse Alexander, Ph.D.
- 2014 – Present Bridget Kulasekara, Ph.D.
- 2014 – Present Darren Cusanovich, Ph.D.
- 2012 – 2017 Martin Kircher, Ph.D. (current position: Junior Group Leader in Bioinformatics, Berlin Institute of Health)
- 2014 – 2016 Ron Hause, Ph.D. (current position: Senior Data Scientist, Team Lead, Receptor Discovery, Juno Therapeutics)
- 2011 – 2015 Stephen Salipante, M.D., Ph.D. (current position: Assistant Professor, Department of Laboratory Medicine, University of Washington)
- 2009 – 2013 Jerrod Schwartz, Ph.D. (current position: Head of Genomics, Verily Life Sciences)
- 2009 – 2013 Brian O’Roak, Ph.D. (joint trainee with Evan Eichler; current position: Assistant Professor, Department of Molecular & Medical Genetics, Oregon Health & Science University)
- 2007 – 2009 Emily Turner, Ph.D. (current position: Program Officer, Bill & Melinda Gates Foundation)

Graduate Students Trained (University of Washington)

- 2018 – Present Xingfang Huang (Computer Science & Engineering)
- 2017 – Present Anna Minkina (Genome Sciences)
- 2016 – Present Junyue Cao (Molecular & Cellular Biology)
- 2016 – Present Wei Chen (Molecular Engineering)
- 2015 – Present Molly Gasperini (Genome Sciences)

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- 2015 – Present Hannah Pliner (Genome Sciences; joint trainee with Cole Trapnell)
- 2015 – Present Andrew Hill (Genome Sciences)
- 2015 – Present Jason Klein (Medical Scientist Training Program, Genome Sciences)
- 2014 – Present Seungsoo Kim (Genome Sciences)
- 2015 – 2018 Greg Findlay (Medical Scientist Training Program, Genome Sciences; dissertation entitled “High-throughput interrogation of genome function and cellular lineage”)
- 2014 – 2017 Vijay Ramani (Genome Sciences; dissertation entitled “Massively parallel analysis of nucleic acid structure”)
- 2013 – 2017 Aaron McKenna (Genome Sciences; dissertation entitled “Whole-organism lineage tracing by combinatorial and cumulative genome editing”)
- 2012 – 2016 Matthew Snyder (Genome Sciences; dissertation entitled “Expanding the accuracy, resolution, and breadth of cell-free DNA investigation”; current position: CTO of Haverhill Genetics)
- 2011 – 2014 Joshua Burton (Genome Sciences; dissertation entitled “New methods for de novo assembly of genomes and metagenomes”; current position: computational biologist at Adaptive Biotechnologies)
- 2010 – 2014 Akash Kumar (Medical Scientist Training Program, Genome Sciences; dissertation entitled “Mutational Heterogeneity in Cancer: Lessons from the Brain and Prostate”; current position: Pediatrics Resident at Stanford University)
- 2010 – 2014 Andrew Adey (Molecular & Cellular Biology; dissertation entitled “Comprehensive, precision genomics”; current position: Assistant Professor, Department of Molecular & Medical Genetics, Oregon Health & Science University)
- 2009 – 2013 Jacob Kitzman (Genome Sciences; dissertation entitled “New technologies for sequencing and interpreting genomes”; current position: Assistant Professor, Department of Genetics, University of Michigan)
- 2009 – 2012 Joseph Hiatt (Medical Scientist Training Program, Genome Sciences; dissertation entitled “Molecular tagging to overcome limitations of massively parallel sequencing”; current position: Hematology-Oncology Fellow, University of Washington)
- 2007 – 2012 Sarah Ng (Genome Sciences; dissertation entitled “Next Generation Mendelian Genetics”; current position: Research Fellow, Institute of Molecular and Cell Biology, Singapore)
- 2007 – 2012 Rupali Patwardhan (Genome Sciences; dissertation entitled “Massively parallel functional dissection of regulatory elements”; current position: Software Engineer, Facebook)

Rotation Students Supervised (University of Washington)

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|--------------------|--------------------------------|-------------|
| • Michael Goldberg | Genome Sciences | Spring 2018 |
| • Florence Chardon | Genome Sciences | Spring 2018 |
| • Phillip Dishuck | Genome Sciences | Winter 2018 |
| • William DeWitt | Genome Sciences | Fall 2017 |
| • Xingfang Huang | Computer Science & Engineering | Fall 2017 |
| • Ian Smith | Genome Sciences | Spring 2017 |
| • April Lo | Genome Sciences | Spring 2017 |
| • Anna Minkina | Genome Sciences | Fall 2016 |
| • Wei Chen | Molecular Engineering | Spring 2016 |
| • Elish Overbey | Genome Sciences | Spring 2016 |
| • Junyue Cao | Molecular & Cellular Biology | Summer 2015 |
| • Molly Gasperini | Genome Sciences | Spring 2015 |
| • Serena Liu | Genome Sciences | Spring 2015 |
| • Hannah Pliner | Genome Sciences | Winter 2015 |

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• Damon May	Genome Sciences	Winter 2015
• Andrew Hill	Genome Sciences	Fall 2014
• Vijay Ramani	Genome Sciences	Winter 2014
• Seungsoo Kim	Genome Sciences	Winter 2014
• Jason Klein	MSTP program	Summer 2013
• Hugh Haddox	Molecular & Cellular Biology	Spring 2013
• Aaron McKenna	Genome Sciences	Winter 2013
• Greg Findlay	MSTP program	Summer 2012
• Matthew Snyder	Genome Sciences	Spring 2012
• Jorgen Nelson	Genome Sciences	Winter 2012
• Elyse Hope	Genome Sciences	Winter 2012
• Meara Davies	Molecular & Cellular Biology	Fall 2011
• Josh Burton	Genome Sciences	Winter 2011
• Jenny Wagner	Genome Sciences	Winter 2011
• Andrew Adey	Molecular & Cellular Biology	Fall 2009
• David Young	MSTP program	Summer 2009
• Akash Kumar	MSTP program	Summer 2009
• Jacob Kitzman	Genome Sciences	Spring 2009
• Keisha Carlson	Genome Sciences	Winter 2009
• Jarrett Egerston	Genome Sciences	Winter 2009
• Matthew Maurano	Genome Sciences	Fall 2008
• Joseph Hiatt	MSTP program	Summer 2008
• Sayer Herrin	Genome Sciences	Winter 2008
• Rupali Patwardhan	Genome Sciences	Winter 2008
• Sarah Ng	Genome Sciences	Fall 2007

Graduate Student Committees (in addition to own trainees)

• 2016 – Present	Rebecca Zaunbrecher	U.W. Bioengineering	Advisor: Mike Regnier
• 2016 – Present	Wei Zhou	U.W. Molecular & Cellular Biology	Advisor: Stan Fields
• 2016 – Present	Aaron Wolf	U.W. Genome Sciences	Advisor: Josh Akey
• 2016 – Present	Clara Amorosi	U.W. Genome Sciences	Advisor: Maitreya Dunham
• 2016 – Present	Nuttada Panpradist	U.W. Bioengineering	Advisor: Barry Lutz
• 2015 – Present	Ian Nova	U.W. Molecular Engineering	Advisor: Jens Gundlach
• 2015 – Present	Melissa Chaisson	U.W. Genome Sciences	Advisor: Doug Fowler
• 2014 – Present	Piero Lamelza	U.W. Molecular & Cellular Biology	Advisor: Michael Ailion
• 2013 – Present	Jorgen Nelson	U.W. Genome Sciences	Advisor: David Baker
• 2015 – 2018	John Crowl	U.W. Immunology	Advisor: Dan Stetson
• 2015 – 2017	Jocelynn Pearl	U.W. Molecular & Cellular Biology	Advisor: Lee Hood
• 2014 – 2017	Hugh Haddox	U.W. Molecular & Cellular Biology	Advisor: Jesse Bloom
• 2011 – 2017	Jennifer Andrie	U.W. Genome Sciences	Advisor: Josh Akey
• 2015 – 2016	Alexander Rosenberg	U.W. Electrical Engineering	Advisor: Georg Seelig
• 2013 – 2016	David Young	U.W. Genome Sciences	Advisor: Stan Fields
• 2011 – 2015	Vaughn Iverson	U.W. Oceanography	Advisor: Virginia Armbrust
• 2012 – 2015	Benjamin Vernot	U.W. Genome Sciences	Advisor: Josh Akey
• 2012 – 2014	Andrew Laszlo	U.W. Physics	Advisor: Jens Gundlach
• 2012 – 2014	Niklas Krumm	U.W. Genome Sciences	Advisor: Evan Eichler
• 2010 – 2014	Russell Berg	U.W. Molecular & Cellular Biology	Advisor: Lalita Ramakrishnan

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• 2010 – 2014	Keisha Carlson	U.W. Genome Sciences	Advisor: Christine Queitsch
• 2010 – 2014	Leslie Emery	U.W. Genome Sciences	Advisor: Josh Akey
• 2010 – 2013	Peter Sudmant	U.W. Genome Sciences	Advisor: Evan Eichler
• 2010 – 2013	Thomas White	U.W. Molecular & Cellular Biology	Advisor: Peter Nelson
• 2010 – 2013	Benjamin Whiddon	U.W. Genome Sciences	Advisor: Richard Palmiter
• 2009 – 2013	Cailyn Spurrell	U.W. Genome Sciences	Advisor: Mary-Claire King
• 2008 – 2013	Alan Rubin	U.W. Genome Sciences	Advisor: Phil Green
• 2011 – 2012	Lucas Gray	U.W. Biochemistry	Advisor: Alan Weiner
• 2009 – 2012	Joshua Bishop	U.W. Electrical Engineering	Advisor: Eric Klavins
• 2009 – 2012	Kyle Minch	U.W. Molecular & Cellular Biology	Advisor: David Sherman
• 2011	Sung Hang	U.W. Neurobiology and Behavior	Advisor: William Catterall
• 2010	Carlos Araya	U.W. Genome Sciences	Advisor: Stanley Fields
• 2008 – 2010	Steven Josefowicz	U.W. Immunology	Advisor: Sasha Rudensky
• 2008 – 2010	Kevin Schutz	U.W. Genome Sciences	Advisor: Stan Fields
• 2008 – 2010	Marcia Paddock	U.W. Immunology	Advisor: Andy Scharenberg

Courses Taught

- 2017 GENOME 373 – “Genomics & Proteomics” (University of Washington)
Undergraduate lecture course; co-taught with Jim Bruce
- 2008 – 2017 GENOME 550 – “Methods and Logic in Genetics” (University of Washington)
Graduate seminar course; co-taught with Bob Waterston or Alejandro Wolf-Yadlin
- 2012 – 2016 HUBIO 554 – “Genetics” (University of Washington)
Medical school 2nd year pre-clinical curriculum; co-chaired with Heather Mefford
- 2012 – 2015 CONJOINT 511 – “Genetic Anatomy” (University of Washington)
Medical school 1st year elective; co-taught w/ Marshall Horwitz and John Clark
- 2010 – 2012 GENOME 373 – “Genome Informatics” (University of Washington)
Undergraduate lecture course; co-taught with Jim Thomas or Elhanan Borenstein
- 2001 – 2003 “Principles of Pharmacology” (Harvard Medical School)
Teaching assistant, 1st year medical school course

Other Teaching or Outreach Activities

- Dec 2016 Panelist for National Academy of Medicine (NAM) Rosenthal Symposium: “Precision Population Health” (UW)
- Nov 2016 Lecturer for Medical Genetics “Introduction to Human & Medical Genetics” course (UW)
- May 2016 Guest session leader for BIOEN 498/599 “Genomics Era Sequencing Technologies and Analysis” (UW)
- Oct 2015 Guest session leader for MCB 517 “The Developmental Basis of Human Disease” (UW)
- Apr 2015 Guest session leader for CSE 590C “Readings and Research in Computational Biology” (UW)
- Nov 2014 Guest session leader for EE 423 “Introduction to Synthetic Biology” (UW)
- Sep 2014 Lecturer for Medical Genetics “Introduction to Human & Medical Genetics” course (UW)
- Aug 2014 Co-organizer, UW Center for Mendelian Genomics (CMG) Data Analysis Workshop
- Jan 2014 Panelist for Edmonds Community College Brown Bag Lecture Series: “The Life and Cells of Henrietta Lacks: Science, Society, and Individual Perspectives”
- Dec 2013 Guest session leader for BIOL 485 “Senior Seminar in Cellular, Molecular and Developmental Biology” (UW)
- Nov 2013 Keynote speaker, UW Postdoc Association Symposium

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- Nov 2013 Speaker, Pacific Science Center "Science Café" series
- Oct 2013 Guest session leader for MCB 517 "The Developmental Basis of Human Disease" (UW)
- Aug 2013 Co-organizer, UW Center for Mendelian Genomics (CMG) Data Analysis Workshop
- Jul 2013 Speaker, UW Genome Sciences summer research internship program
- Jun 2013 Guest session leader for MEBI 590 "Biomedical and Health Informatics Lecture Series" (UW)
- Apr 2013 Guest speaker, UW MSTP Dinner/Recruitment meeting
- Apr 2013 Guest session leader for EPI 590 "Introduction to Laboratory Methods in Population Research" (UW)
- Oct 2012 Speaker, Seattle Sequencing Interest Group
- Oct 2012 Lecturer for Medical Genetics "Introduction to Human & Medical Genetics" course (UW)
- Jul 2012 Speaker, "Science on Tap" series
- Jul 2012 Speaker, UW Genome Sciences summer research internship program
- Apr 2012 Guest session leader for GENOME 580 "Ethics in Biomedical Research and Teaching" (UW)
- Apr 2011 Guest session leader for GENOME 580 "Ethics in Biomedical Research and Teaching" (UW)
- Apr 2011 Guest session leader for EPI 590 "Introduction to Laboratory Methods in Population Research" (UW)
- Oct 2010 Lecturer for Medical Genetics "Introduction to Human & Medical Genetics" course (UW)
- Apr 2010 Moderator for UW Genome Sciences 2010 Panel Discussion on "New Discoveries in Medicine: Implications for the Cost and Quality of American Healthcare"
- Nov 2009 Panelist for Lasker Foundation / UW Dept. of Genome Sciences Round Table: "Personal Genomes: Promise or Hype?"
- Sep 2009 Panelist for "The Two Body Question and Faculty with children" at HHMI Future Faculty Workshop
- Apr 2009 Guest session leader for GENOME 580 "Ethics in Biomedical Research and Teaching" (UW)
- Apr 2009 Guest speaker, UW MSTP Dinner/Recruitment meeting
- Apr 2009 Guest session leader for EPI 590 "Introduction to Laboratory Methods in Population Research" (UW)
- Feb 2009 Guest speaker, Rainier Scholars program (UW)
- Jul 2008 Talk at StarNet 2008 Summer Workshop, UW Genome Sciences Education Outreach
- Jul 2008 Talk at "Wednesdays at the Genome" UW Genome Sciences Public Lecture Series
- Oct 2008 Chalk Talk Workshop, UW Women in Genome Sciences (WiGS)
- May 2008 Guest session leader for GENOME 580 "Ethics in Biomedical Research and Teaching" (UW)

Active Patents & Published Patent Applications

- Polony fluorescent in situ sequencing beads (issued; 7,425,431)
- Error detection in sequence tag directed subassemblies of short sequencing reads (issued; 8,865,410)
- Sequence tag directed subassembly of short sequencing reads into long sequencing reads (issued; 8,846,347; 8,383,345)
- Nanogrid rolling circle DNA sequencing (issued: 9,624,538)
- Methods for retrieval of sequence-verified DNA constructs (issued: 9,809,904)
- Methods of determining tissues and/or cell types giving rise to cell-free dna, and methods of identifying a disease or disorder using same (application; PCT/US2015/042310)
- Methods and systems for large scale scaffolding of genome assemblies (application; PCT/US2014/057930)

- A framework for determining the relative effects of genetic mutations (application; 20160357903)
- Methods and systems for large scale scaffolding of genome assemblies (application; 20160239602)
- Multiplex homology-directed repair (application; 20160076093)
- Systems, Algorithms, and Software for Molecular Inversion Probe (MIP) Design (application; 20160055293)
- Highly multiplex single amino acid mutagenesis for massively parallel functional analysis (application; 20160017410)
- Whole genome sequencing of a human fetus (application; 20150105267)
- Massively parallel contiguity mapping (application; 20130203605)
- Multiplex decoding of sequence tags in barcodes (application; 20080269068)
- Wobble sequencing (application; 20070207482)
- Nucleic acid memory device (application; 20100099080)

Publications (* denotes equal contributors; # denotes corresponding/senior author(s); grey numbers denote primary publications, defined as those on which I and/or a member of my lab are a corresponding and/or a first author)

258. Bonora G*, Deng X*, Fang H, Ramani V, Qiu R, Berletch JB, Filippova GN, Duan Z, **Shendure J**, Noble WS#, Disteche CM#. Orientation-dependent Dlx4 contacts shape the 3D structure of the inactive X chromosome. *Nature Communications* 2018 Apr 13;9(1):1445.
257. Mulqueen RM, Pokholok D, Norberg SJ, Torkenczy KA, Fields AJ, Sun D, Sinnamon JR, **Shendure J**, Trapnell C, O'Roak BJ, Xia Z, Steemers FJ, Adey AC#. Highly scalable generation of DNA methylation profiles in single cells. *Nature Biotechnology* 2018 Apr 9.
256. Raj B, Wagner DE*, McKenna A*, Pandey S, Klein AM, **Shendure J**, Gagnon JA#, Schier AF#. Simultaneous single-cell profiling of lineages and cell types in the vertebrate brain. *Nature Biotechnology* 2018 Mar 28. doi: 10.1038/nbt.4103. [Epub ahead of print]
255. Cusanovich DA*, Reddington JP*, Garfield DA*, Daza RM, Aghamirzaie D, Marco-Ferrerres R, Pliner HA, Christiansen L, Qiu X, Steemers FJ, Trapnell C, **Shendure J**#, Furlong EEM#. The cis-regulatory dynamics of embryonic development at single-cell resolution. *Nature* 2018 Mar 22;555(7697):538-542.
254. Hill AJ*, McFaline-Figueroa JL*, Starita LM, Gasperini MJ, Matreyek KA, Packer J, Jackson D, **Shendure J**#, Trapnell C#. On the design of CRISPR-based single-cell molecular screens. *Nature Methods* 2018 Apr;15(4):271-274.
253. Ma W, Ay F, Lee C, Gulsoy G, Deng X, Cook S, Hesson J, Cavanaugh C, Ware CB, Krumm A, **Shendure J**, Blau CA, Disteche CM, Noble WS#, Duan Z#. Using DNase Hi-C techniques to map global and local three-dimensional genome architecture at high resolution. *Methods* 2018 Jan 31. pii: S1046-2023(17)30240-2.
252. Klein JC#, Chen W, Gasperini M, **Shendure J**#. Identifying Novel Enhancer Elements with CRISPR-Based Screens. *ACS Chemical Biology* 2018 Feb 16;13(2):326-332.
251. Johnsen JM, Fletcher SN, Huston H, Roberge S, Martin BK, Kircher M, Josephson NC, **Shendure J**, Ruuska S, Koerper MA, Morales J, Pierce GF, Aschman DJ, Konkle BA#. Novel approach to genetic analysis and results in 3000 hemophilia patients enrolled in the My Life, Our Future initiative. *Blood Advances* 2017 May 18;1(13):824-834.
250. Gray VE, Hause RJ, Luebeck J, **Shendure J**, Fowler DM#. Quantitative Missense Variant Effect Prediction Using Large-Scale Mutagenesis Data. *Cell Systems* 2018 Jan 24;6(1):116-124.e3.
249. Weichenhan D#, Wang Q, Adey A, Wolf S, **Shendure J**, Eils R, Plass C. Tagmentation-Based Library Preparation for Low DNA Input Whole Genome Bisulfite Sequencing. *Methods Molecular Biology* 2018;1708:105122.
248. Liu J, Halloran JT, Bilmes JA, Daza RM, Lee C, Mahen EM, Prunkard D, Song C, Blau S, Dorschner MO, Gadi VK, **Shendure J**, Blau CA#, Noble WS#. Comprehensive statistical inference of the clonal structure of cancer from multiple biopsies. *Science Reports* 2017 Dec 5;7(1):16943.

247. Küry S[#], van Woerden GM^{*}, Besnard T^{*}, Proietti Onori M, Latypova X, Towne MC, Cho MT, Prescott TE, Ploeg MA, Sanders S, Stessman HAF, Pujol A, Distel B, Robak LA, Bernstein JA, Denommé-Pichon AS, Lesca G, Sellars EA, Berg J, Carré W, Busk ØL, van Bon BWM, Waugh JL, Deardorff M, Hoganson GE, Bosanko KB, Johnson DS, Dabir T, Holla ØL, Sarkar A, Tveten K, de Bellescize J, Braathen GJ, Terhal PA, Grange DK, van Haeringen A, Lam C, Mirzaa G, Burton J, Bhoj EJ, Douglas J, Santani AB, Nesbitt AI, Helbig KL, Andrews MV, Begtrup A, Tang S, van Gassen KLI, Juusola J, Foss K, Enns GM, Moog U, Hinderhofer K, Paramasivam N, Lincoln S, Kusako BH, Lindenbaum P, Charpentier E, Nowak CB, Cherot E, Simonet T, Ruivenkamp CAL, Hahn S, Brownstein CA, Xia F, Schmitt S, Deb W, Bonneau D, Nizon M, Quinquis D, Chelly J, Rudolf G, Sanlaville D, Parent P, Gilbert-Dussardier B, Toutain A, Sutton VR, Thies J, Peart-Vissers LELM, Boisseau P, Vincent M, Grabrucker AM, Dubourg C; Undiagnosed Diseases Network, Tan WH, Verbeek NE, Granzow M, Santen GWE, **Shendure J**, Isidor B, Pasquier L, Redon R, Yang Y, State MW, Kleefstra T, Cogné B; GEM HUGO; Deciphering Developmental Disorders Study, Petrovski S, Retterer K, Eichler EE, Rosenfeld JA, Agrawal PB, Bézieau S^{*}, Odent S^{*}, Elgersma Y[#], Mercier S^{*}. De Novo Mutations in Protein Kinase Genes CAMK2A and CAMK2B Cause Intellectual Disability. *American Journal of Human Genetics* 2017 Nov 2;101(5):768-788.
246. **Shendure J**[#], Balasubramanian S, Church GM, Gilbert W, Rogers J, Schloss JA, Waterston RH. DNA sequencing at 40: past, present and future. *Nature* 2017 Oct 19;550(7676):345-353.
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Active Research Support

Howard Hughes Medical Institute

09/01/15 – 08/31/20

Investigator Award

No specific projects are associated with this funding. However, Dr. Shendure receives 100% of his salary and fringe benefit (FB) compensation from the Howard Hughes Medical Institute (HHMI). HHMI support is being used to develop new genomic technologies, including for single cell analysis.

Role: PI

Allen Frontiers Foundation

09/01/17 – 08/31/21

Allen Discovery Center for Cell Lineage (MPI: Shendure, Elowitz, Schier *et al.*)

The goal of this project is to develop and implement novel technologies for whole organism lineage tracing to zebrafish and mouse.

Role: PI, Director

1R01GH009136 (NIH/NHGRI)

04/01/17 – 01/31/21

Predictive Modeling of Alternative Splicing and Polyadenylation from Millions of Random Sequences (MPI: Seelig, Shendure)

This project aims to develop predictive models of alternative splicing and polyadenylation by learning from millions of synthetic constructs. These models will be applied for understanding the consequences of genetic variation in humans and how this variation can lead to disease.

Role: PI (MPI award)

1UM1HG009408 (NIH/NHGRI) 02/01/17 – 01/31/21

Massively parallel reporter assays and genome editing of ENCODE predicted regulatory elements (MPI: Ahituv, Shendure)

This project will implement 'in genome' massively parallel functional assays to characterize over 100,000 ENCODE-based candidate regulatory elements, to confirm and quantify their activities as well as to link many of them to their target genes.

Role: PI (MPI award)

1U54DK107979 (NIH/NIDDK) 09/30/15 – 07/31/20

University of Washington Center for Nuclear Organization and Function (MPI: Noble, Shendure)

This project will develop novel experimental and computational methods to characterize genome 3D architecture, validate the methods using mouse and human cells, and demonstrate the utility of the resulting data for improving our understanding of fundamental biology and human disease.

Role: PI (MPI award)

1DP1HG007811 (NIH/OD) 09/23/13 – 07/31/18

Interpreting genetic variants of uncertain significance (Shendure)

This project aims to develop novel experimental and computational paradigms for predicting the functional consequences of all possible single residue variants in clinically significant genes, thereby informing the interpretation of variants newly observed in patients.

Role: PI

5R01CA197139 (NIH/NHGRI) 03/01/15 – 02/28/18

Integrative interpretation of the organismal consequences of non-coding variation (MPI: Cooper, Shendure)

The goals are to further develop the CADD framework, to apply it in the context of ongoing genetic studies of both rare and common human diseases, and to experimentally evaluate its predictions.

Role: PI (MPI award)

1R01HD089679 (NIH/NICHHD) 09/20/16 – 07/31/17

Placentomics using a novel method to isolate circulating placental derivatives (MPI: Stayton, Chiu, Seglin Gammil)

We propose to use a novel methodology to isolate placental material from maternal circulation (in previously biobanked samples) and evaluate its transcriptome and epigenome, with the ultimate goal of establishing foundational information about normal pregnancy upon which future studies can be based.

Role: Co-Investigator

SOW#4 11/05/13 – 12/31/17

Puget Sound Blood Center (Shendure)

Next-generation sequencing on DNA samples from the My Life Our Future project.

Role: PI

16-837-04 (NIH/NIDDK) 05/01/17 – 04/30/19

Tethered nuclease strategies for in situ mapping of 3D nuclear organization (MPI: Henikoff, Shendure, Noble)

We propose to describe 3D organization, the predominant 'chromosome conformation capture' technologies capitalize on proximity-dependent ligation of introduced DNA breaks in formaldehyde cross linked material.

Role: PI (MPI award)

Completed Research Support

Jay Shendure, MD, PhD

1R01HG006283 (NIH/NHGRI) 08/15/11 – 05/31/17
Massively parallel contiguity mapping (Shendure)

The aim of this grant is to develop massively parallel methods that facilitate the recovery of contiguity information in genomic DNA at various scales, thereby facilitating high-quality de novo genome assembly and haplotype-resolved human genome sequencing.

Role: PI

Paul G. Allen Family Foundation 04/01/14 – 04/01/18
Cell lineage defined by mitotic recombination (MPI: Horwitz, Shendure)

The goal of this project is to develop and implement novel technologies for lineage tracing that are potentially applicable for whole organism fate mapping.

Role: PI (MPI award)

1R01HL130996-01A (NIH/NHLBI) 02/08/16 – 01/31/20
Mosaic: post-zygotic mutations in vascular and related developmental disorders (Dobyns)

The goals are to better understand the nature of post-zygotic mosaicism as a cause of human developmental disorders and to develop optimal means to test for mosaicism.

Role: Co-Investigator

1R01DK103667 (NIH/NIDDK) 08/01/15 – 06/30/20
Functional assessment of distal regulatory SNPs associated with type 1 diabetes (Hawkins)

The goal is to functionally validate T1D-associated rSNPs through a series of high-throughput assays and systematic evaluation to winnow the list of the most functionally relevant rSNPs.

Role: Co-Investigator

1R01MH101221-01 (NIH/NIMH) 08/01/13 – 06/30/17
Sporadic Mutations and Autism Spectrum Disorders (Eichler)

The major goal of this project is to identify genes responsible for autism spectrum disorder (ASD) and developmental delay.

Role: Co-Investigator

1R01CA160674-01A1 (NIH/NCI) 06/06/12 – 03/31/17
Clonally Expanded Mutations Identify Cancer Precursors in Chronic Inflammation (MPI: Loeb, Brentnall)

The major goal of this project is to develop better methods for identifying early cancers with greater ease and at less cost using state-of-the-art DNA sequencing technology that can be rapidly commercialized for translation to patient care settings.

Role: Co-Investigator

1U54HG006493 (NIH/NHGRI) 12/05/11 – 11/30/15
UW Center for Mendelian Genomics (MPI: Bamshad, Nickerson, Shendure)

The goal of the proposed research is to establish the UW Center for Mendelian Genomics (UW-CMG) that will apply exome sequencing and analysis to discover the candidate genes and sequence variants underlying rare Mendelian disorders and other human health-related Mendelian phenotypes.

Role: PI (MPI award)

ETOP2013 (DOE/JGI) 10/01/13 – 09/30/15
Accurate gene synthesis with tag-directed retrieval of sequence-verified DNA molecules (Shendure)

The goals of this project include the implementation and further development of dial-out PCR and other technologies for synthetic biology at the DOE's Joint Genome Institute.

Role: PI

Jay Shendure, MD, PhD

1R01HG006768 (NIH/NHGRI) 04/01/12 – 03/31/15
Massively parallel, in vivo functional testing of regulatory elements (Ahituv, Shendure)

The major goal of this project is to develop novel, multiplexed assays that can easily be adopted by other researchers to clone and simultaneously test tens-of-thousands of candidate regulatory elements for their in vivo functional potential.

Role: PI (MPI award)

1R21CA160080 (NCI/NIH) 07/01/11 – 08/31/14
Ultrasensitive identification and precise quantitation of low frequency somatic mutations by molecular counting (Shendure)

The goal of the proposed research will be to develop novel, robust molecular technologies for sensitively and specifically identifying low frequency mutations in the context of genetically heterogeneous, stromally contaminated cancer samples.

Role: PI

SFARI 191889EE (Simons Foundation) 01/01/12 – 12/31/13
Whole Exome Sequencing of Simons Simplex Collection Quads (Eichler)

The goal of this project is to complete exome sequencing of the Simons Simplex Collection.

Role: Co-investigator

5U54AI057141-08REV (NIH/NIAID) 03/01/11 – 02/28/14
NW Research Center for Excellence in Biodefense and Emerging Infectious Diseases (Miller)

The major goal is to develop and implement methods for the whole genome sequencing and epidemiological analysis of clinical isolates of gram-negative bacteria at unprecedented speed and low cost.

Role: PI of Developmental Project

University of Washington Cystic Fibrosis Foundation 10/01/11 – 09/30/13
Studying Cystic Fibrosis Infections Using Massively Parallel Sequencing Technology (Shendure)

We test the hypotheses that CF *P. aeruginosa* populations are highly diverse, and that population composition is stable in the absence of overt changes in symptoms. We will measure diversity using whole genome sequencing of isolate pools to measure allelic variation. We will also test the hypothesis that the abundance of variant alleles changes at the onset of exacerbations, during antibiotic treatment, and upon restoration of the "well" state.

Role: PI

1R011AG039700 (NIH/NIMH) 05/01/11 – 04/30/16
Next Generation Mendelian Genetics in Familial Alzheimer Disease (Brkanac)

The goal of this proposal is to apply novel analytic approaches to identify families in which Alzheimer disease (AD) is likely to have a single gene etiology and to utilize next generation sequencing technologies to find these genes.

Role: Co-investigator

1R01HL110879-01 (NIH/NHLBI) 09/01/11 – 05/31/15
Investigating bacterial-host interactions driving CF Pulmonary Exacerbations (MPI: Bruce, Singh)

The major goal is to test the hypothesis that at the onset of exacerbations, changes in the composition of infecting *P. aeruginosa* populations elicit host responses leading to lung inflammation and injury.

Role: Co-investigator

5R01NS069719 (NIH/NINDS) 04/01/10 – 03/31/14
Next Generation Gene Discovery in Neurogenetics (Raskind)

This proposal seeks to perform massively parallel whole exome sequencing and array comparative genomic

hybridization to identify candidate genes for Mendelian neurogenetics disorders.

Role: Co-investigator

W81XWH-10-1-0589 (Department of Defense)

07/01/10 – 08/14/13

Global Characterization of Protein Altering Mutations in Prostate Cancer (Shendure)

The goal of this proposal is to perform comprehensive identification of protein-coding alterations in both primary and metastatic prostate tumors.

Role: PI (synergy award with Nelson at FHCRC)

5P01CA078902 (NIH/NCI)

02/01/09 – 01/31/14

Identification of Canine Minor Histocompatibility Antigens (Storb)

The major goal of this subproject is to develop a novel genomics-driven approach for identifying minor histocompatibility antigens in a canine transplantation model.

Role: PI of Project 1

5RC2HG005608 (NIH/NHGRI)

09/30/09 – 08/31/12

Next Generation Mendelian Genetics (MPI: Bamshad, Nickerson, Raskind, Shendure)

The goal of this proposal is to sequence and identify the candidate genes responsible for more than 20 Mendelian diseases/disorders.

Role: PI (MPI award)

5UC2HL102926 (NIH/NHLBI)

09/30/09 – 06/30/12

Northwest Genomics Center (MPI: Green, Nickerson, Rieder, Shendure)

The goal of the Northwest Genomics Center is to apply next-generation exome sequencing to medically relevant DNA sample cohorts selected by the NHLBI.

Role: PI (MPI award)

5R01HL094976 (NIH/NHLBI)

09/30/08 – 06/30/12

SeattleSeq (MPI: Eichler, Green, Nickerson, Shendure)

The major goal of this project is to develop a high-throughput pipeline for the comprehensive capture and high-throughput sequencing of all protein-coding sequences in individual human genomes.

Role: PI (MPI award)

Young Investigator Award (Prostate Cancer Foundation)

04/01/10 – 03/31/13

Methods & Tools for Next-Generation Analysis of Prostate Cancer Genomes (Shendure)

The aim of this grant is to develop and deploy methods that enable the efficient characterization of primary and metastatic prostate cancer genomes in large numbers of samples.

Role: PI

3U54AI057141-06S1880509 (NIH/NIAID)

09/12/09 – 02/29/12

Massively parallel genome sequencing of antibiotic-resistant emerging pathogens (Shendure)

The goal of this proposal is to sequence the genomes of over 1,000 antibiotic-resistant bacterial strains representing emerging pathogens.

Role: PI

1R21HG004749 (NIH/NHGRI)

07/23/08 – 06/30/10

Molecular Tools for Genome Partitioning (Shendure)

The major goal of this project is to develop and optimize methods for selective capture of gene families or long contiguous genomic regions.

Role: PI

- 5R01NS069605 (NIH/NINDS) 02/15/10 – 02/14/14
A Genomic Approach to Epilepsy (Mefford)
The aim of this grant to identify novel candidate genes and pathways for epilepsy through a combination of genome-wide approaches including array comparative genomic hybridization and exome sequencing.
Role: Co-investigator
- 5R01HG004348 (NIH/NHGRI) 07/01/11 – 06/30/12
Advances in Computational Gene Finding (Korf)
The goal of the proposed research will be to use fosmid-pool-based sequencing to provide contiguity informative validation data for the Assemblathon competition for de novo genome assemblies of the snake, parrot and cichlid genomes.
Role: Co-investigator
- 2P50HG003233 (NIH/NHGRI) 05/01/09 – 04/30/14
Center for the Epigenetics of Common Human Disease (Feinberg)
The major goal of the UW component of this program is to develop and apply technology for large-scale targeted profiling of DNA methylation in epidemiological samples.
Role: Co-investigator
- 5R01HD065285 (NIH/NICHD) 09/30/09 – 08/31/12
Genomic Identification of Autism Loci (Eichler)
The aim of this grant is to explore the hypothesis that autism is caused by highly-penetrant, rare mutations using emerging technologies that screen regions for autism-specific copy-number variation (CNV) mutations and exonic point mutations.
Role: Co-investigator
- 1RC2HG005921 (NIH/NHGRI) 08/20/10 – 01/31/12
A Genome-wide Mutation Resource for C. elegans (Waterston)
The aim of this grant is to construct a community resource of several thousand chemically mutagenized C. elegans strains that have been whole genome sequenced.
Role: Co-investigator
- SFARI 191889 (Simons Foundation) 12/01/10 – 11/30/11
Exome Sequencing of Simons Simplex Collection (SSC) Trios (Eichler)
The goal of this project is to perform exome sequencing of 400 SSC autism trios in collaboration with Matt State at Yale University to discover pathogenic SNPs associated with disease.
Role: Co-investigator
- 1RC2CA148317 (NIH/NCI) 09/30/09 – 09/29/11
An infrastructure for cancer virus discovery from next-generation sequencing data (Meyerson)
The aim of this grant is to develop automated pipelines for identifying virus-derived sequences in next-generation sequencing data from all public sources by computational subtraction.
Role: Co-investigator
- 1RC1AG035681 (NIH/NIA) 09/30/09 – 09/29/11
Mutational Cloning in Familial Dementia and Alzheimer's Disease (Raskind)
The goal of this proposal is to apply whole exome sequencing in well-characterized pedigrees to identify functional mutations leading to familial dementia and/or Alzheimer's disease.
Role: Co-investigator
- 1RC2CA148232 (NIH/NCI) 09/30/09 – 09/29/11

Application of RiboTag-seq to Exploration of Tumor Microenvironments (Morris)

The aim of this grant is to develop and apply methods for tagging of ribosome-associated RNAs to study cell-type specific gene expression in complex tissues.

Role: Co-investigator

1101BX000531 (Department of Veterans Affairs)

10/01/09 – 09/30/13

Genetic Risk Factors for Parkinson's Disease (Zabetian)

The major goal of this project is to validate findings from an ongoing genome-wide association study on PD using next generation sequencing and brain/CSF proteomic analyses.

Role: Consultant

Invited Talks or Workshops

- Apr 2018 *Invited seminar*, Broad Institute, Cell Circuits & Epigenomics Program Seminar Series (Cambridge, MA)
- Apr 2018 *Invited seminar*, Department of Biological Engineering, Massachusetts Institute of Technology (Cambridge, MA)
- Mar 2018 *Keynote speaker*, The Engineering Biology Research Consortium (EBRC) Spring Retreat (Seattle, WA)
- Mar 2018 *Invited seminar*, Stanford University, Frontiers in Biology Seminar Series (Palo Alto, CA)
- Mar 2018 *Invited seminar*, Department of Pharmacology, University of Washington (Seattle, WA)
- Feb 2018 *Plenary speaker*, Advances in Genome Biology and Technology (AGBT) (Marco Island, FL)
- Jan 2018 *Plenary speaker*, PAG XXVI - Plant & Animal Genome Conference (San Diego, CA)
- Jan 2018 *Inaugural Richard and Carol Hertzberg Prize for Technology Innovation*, University of California, San Diego (San Diego, CA)
- Jan 2018 *Inaugural Dr. Nancy C. Andrews Physician-Scientist Lectureship*, Duke Physician-Scientist Symposium (Durham, NC)
- Nov 2017 *Invited speaker*, HHMI Investigators Meeting (Chevy Chase, MD)
- Oct 2017 *Invited speaker*, Allen Frontiers Symposium (San Francisco, CA)
- Oct 2017 *British Society of Genetic Medicine Lectureship*, BSGM Annual Conference, Royal College of Physicians (London, UK)
- Sep 2017 *Invited speaker*, Allen Institute Bioscience and Philanthropy Summit (Seattle, WA)
- Sep 2017 *Keynote speaker*, 4th Human Genetics in NYC Conference (New York City, NY)
- Aug 2017 *Plenary speaker*, 69th American Association for Clinical Chemistry (AACC) Annual Scientific Meeting (San Diego, CA)
- Jul 2017 *Invited speaker*, The CRISPR-Cas9 Revolution, Cold Spring Harbor Laboratory (Cold Spring Harbor, NY)
- May 2017 *Invited speaker*, Biology of Genomes, Cold Spring Harbor Laboratory (Cold Spring Harbor, NY)
- May 2017 *Invited speaker*, Seattle-area HHMI Alumni Dinner (Seattle, WA)
- Apr 2017 *Co-organizer & speaker*, Genomics of Rare Diseases, Wellcome Genome Campus (Hinxton, UK)
- Mar 2017 *Invited speaker*, Future of Genomic Medicine X, Scripps Translational Science Institute (San Diego, CA)
- Feb 2017 *Invited speaker*, Human Cell Atlas meeting, Stanford University (Palo Alto, CA)
- Jan 2017 *Invited speaker*, 2017 Keystone Symposia on Precision Genome Engineering (Breckenridge, CO)
- Dec 2016 *Grand rounds*, Department of Medicine, University of Washington (Seattle, WA)
- Dec 2016 *Invited speaker*, Cardiovascular Center Breakfast Club, University of Washington (Seattle, WA)
- Dec 2016 *Invited speaker*, Cell Science Symposium, Allen Institute for Cell Science (Seattle, WA)
- Dec 2016 *Invited seminar*, Department of Molecular & Cellular Biology, Harvard University (Cambridge, MA)

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- Oct 2016 *Invited speaker*, Allen Frontiers Symposium (New York City, New York)
- Oct 2016 *Invited speaker*, Immune Profiling in Health and Disease 2016 (Seattle, WA)
- Oct 2016 *Invited seminar*, New York Genome Center (New York City, New York)
- Sep 2016 *Keynote speaker*, Division of Human Biology Annual Retreat, Fred Hutchinson Cancer Research Center (Seattle, WA)
- Sep 2016 *Keynote speaker*, Department of Pathology Annual Retreat, University of Washington (Bainbridge Island, WA)
- May 2016 *Keynote panel*, The Association for Research in Vision and Ophthalmology (ARVO), 2016 Annual Meeting (Seattle, WA)
- Feb 2016 *Invited speaker*, "Epigenomics 2016", Cold Spring Harbor Laboratories (San Juan, PR)
- Jan 2016 *Invited seminar*, Donnelly Centre, University of Toronto (Toronto, ON)
- Jan 2016 *Invited seminar*, University of Michigan Genome Science Training Program (Ann Arbor, MI)
- Dec 2015 *Invited seminar*, UCSF Biomedical Sciences Seminar Series (San Francisco, CA)
- Dec 2015 *Invited seminar*, UCLA Clinical and Translational Science Institute (Los Angeles, CA)
- Oct 2015 *Invited seminar*, Single-Cell Genomics Interest Group, National Institutes of Health (Bethesda, MD)
- Oct 2015 *Invited session moderator & speaker*, 65th Annual Meeting of American Society of Human Genetics, "Multiplexed and Multimodal Experimental Dissection of Genetic Variants" (Baltimore, MD)
- Sep 2015 *Keynote Speaker*, Biological and Biomedical Sciences (BBS) graduate program, Harvard Medical School (Provincetown, MA)
- Jul 2015 *Keynote speaker*, The Human Genetics & Genomics Gordon Research Conference, Regina Salve University (Newport, RI)
- Jul 2015 *Invited speaker*, "The Evolution of Sequencing Technology: A Half-Century of Progress", Cold Spring Harbor Laboratories (Cold Spring Harbor, NY)
- May 2015 *Invited speaker*, Cardiovascular Center Breakfast Club, University of Washington (Seattle, WA)
- Apr 2015 *Co-organizer & speaker*, Genomics of Rare Disease: Beyond the Exome, Wellcome Trust Scientific Conferences (Hinxton, UK)
- Mar 2015 *Invited speaker*, Third Annual Frontiers in Genomics Lecture, Institute for Genome Sciences, University of Maryland (Baltimore, MD)
- Mar 2015 *Workshop participant*, NHGRI: From Genome Function to Biomedical Insight: ENCODE and Beyond (Bethesda, MD)
- Jan 2015 *Invited speaker*, Public Health Genomics Symposium, Department of Biostatistics, University of Washington (Seattle, WA)
- Jan 2015 *Invited seminar*, Five Point Lecture Series, New York Genome Center (New York, NY)
- Jan 2015 *Invited seminar*, Department of Systems Biology, Columbia University (New York, NY)
- Nov 2014 *Invited speaker*, 2014 PQG Conference, "Integrative Approaches to Understand Allelic Function", Harvard School of Public Health (Boston, MA)
- Nov 2014 *Invited seminar*, Program in Medical & Population Genetics, Broad Institute of M.I.T. and Harvard (Cambridge, MA)
- Oct 2014 *Keynote speaker*, RECOMB/ISCB Conference on Regulatory and Systems Genomics (San Diego, CA)
- Oct 2014 *Invited session moderator & speaker*, 64th Annual Meeting of American Society of Human Genetics, "Viruses, Genomic Instability, and the Pathogenesis of Human Cancers" (San Diego, CA)
- Sep 2014 *Invited speaker*, Nobel Forum Minisymposium: "Renaissance on the Diagnosis of Monogenic Diseases" (Stockholm, Sweden)
- Aug 2014 *Invited Speaker*, Systems Biology of Infectious Disease: Pathogenesis to Personalized Medicine (Seattle, WA)
- Jul 2014 *Workshop participant & speaker*, Future Opportunities for Genome Sequencing and Beyond: A Planning Workshop for the National Human Genome Research Institute (Washington DC)

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- Jul 2014 *Invited seminar*, HudsonAlpha Institute for Biotechnology (Huntsville, AL)
- May 2014 *Invited seminar*, Quantitative Biology Seminar Series, Cold Spring Harbor Laboratories (Cold Spring Harbor, NY)
- May 2014 *Workshop participant & speaker*, NIH Workshop on Scientific and Ethical Issues Related to Open Access HeLa Genomic Data (Bethesda, MD)
- Apr 2014 *Invited speaker*, Institute for Systems Biology Annual Symposium: Systems Biology & Cancer (Seattle, WA)
- Apr 2014 *Keynote speaker*, Stanford University Annual Genomics and Personalized Medicine 2014 (Palo Alto, CA)
- Mar 2014 *Invited speaker*, The Future of Genomic Medicine VII, Scripps Health (La Jolla, CA)
- Jan 2014 *Keynote speaker*, UCLA Center for Neurobehavioral Genetics Annual Retreat (Los Angeles, CA)
- Dec 2013 *Participant*, NIH/NCI Center for Cancer Genomics Think Tank (Bethesda, MD)
- Nov 2013 *Speaker*, NIH/NCI Innovative Molecular Analysis Technologies (IMAT) Grantee Meeting (Bethesda, MD)
- Oct 2013 *Invited speaker*, FederaDAG: Next Generation DNA Sequencing: impact on clinical care and society (Utrecht, Netherlands)
- Oct 2013 *Invited seminar*, Nijmegen Centre for Molecular Life Sciences (Nijmegen, Netherlands)
- Oct 2013 *Participant & speaker*, NIH/NHGRI Sequencing Network Meeting (Washington DC)
- July 2013 *Invited seminar*, Fred Hutchinson Cancer Research Center, Computational Biology Seminar Series (Seattle, WA)
- July 2013 *Invited speaker*, The Human Genetics & Genomics Gordon Research Conference, Bryant University (Smithfield, RI)
- Jun 2013 *Keynote speaker*, Functional Genomics Data Society (FGED) 15th International Conference (Seattle, WA)
- May 2013 *Invited seminar*, Department of Cellular and Molecular Medicine, University of California, San Diego (San Diego, CA)
- May 2013 *Invited seminar*, McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University School of Medicine (Baltimore, MD)
- Apr 2013 *Invited seminar*, Institute for Genomics & Systems Biology, University of Chicago (Chicago, IL)
- Apr 2013 *Speaker*, NIH / NHGRI Advanced Sequencing Technology Grantee Meeting (San Diego, CA)
- Mar 2013 *Invited seminar*, HudsonAlpha Institute for Biotechnology (Huntsville, AL)
- Mar 2013 *Invited seminar*, Seminars in Integrative Genomics, Vanderbilt University (Nashville, TN)
- Mar 2013 *Plenary speaker*, 2013 Annual Meeting of the Association of Biomolecular Resource Facilities (Palm Springs, CA)
- Feb 2013 *Plenary speaker*, Advances in Genome Biology and Technology (AGBT) (Marco Island, FL)
- Jan 2013 *Keynote speaker*, The Eleventh Asia Pacific Bioinformatics Conference (Vancouver, BC)
- Dec 2012 *Invited seminar*, Dept. of Molecular and Medical Genetics, Oregon Health & Science University (Portland, OR)
- Nov 2012 *Invited speaker*, CSHL Personal Genomes meeting (Cold Spring Harbor, NY)
- Nov 2012 *Invited participant in closing symposium*, 62th Annual Meeting of American Society of Human Genetics, "Human Genetics 2012 and Beyond: Present Progress and Future Frontiers" (San Francisco, CA)
- Nov 2012 *Invited session moderator & speaker*, 62th Annual Meeting of American Society of Human Genetics, "Genomic Approaches to Mendelian Disorders" (San Francisco, CA)
- Nov 2012 *Curt Stern Award: Presentation and Lecture*, 62th Annual Meeting of American Society of Human Genetics (San Francisco, CA)
- Nov 2012 *Invited speaker*, Institute of Translational Health Sciences 'Omics Workshop - "Lessons Learned and the Path Forward" University of Washington, South Lake Union (Seattle, WA)
- Oct 2012 *Participant & speaker*, NHGRI Sequencing Network Meeting (Houston, TX)
- Sep 2012 *Invited speaker*, Nature Genetics "Genomics of Common Disease" meeting (Washington DC)

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- Sep 2012 *Workshop co-organizer & attendee,* "Implicating Sequence Variants in Human Disease" (Washington DC)
- Aug 2012 *Invited speaker,* 43rd Annual Meeting of the Environmental Mutagen Society (Seattle, WA)
- Jul 2012 *Invited speaker,* 1000 Genomes Community Meeting (Ann Arbor, MI)
- Jun 2012 *Invited seminar,* Department of Pathology, University of Washington (Seattle, WA)
- Jun 2012 *Invited speaker,* ESHG European Human Genetics Conference 2012 (Nürnberg, Germany)
- Jun 2012 *Invited seminar,* UCLA Molecular Biology Institute (Los Angeles, CA)
- May 2012 *Grand rounds,* Division of Hematology, University of Washington (Seattle, WA)
- May 2012 *Invited seminar,* Institute for Systems Biology (Seattle, WA)
- Apr 2012 *Invited speaker,* Chemical & Engineering News Webinar
- Apr 2012 *Invited seminar,* NIH / NHGRI Division of Intramural Research (Bethesda, MD)
- Apr 2012 *Speaker,* NIH / NHGRI Advanced Sequencing Technology Grantee Meeting (San Diego, CA)
- Mar 2012 *Distinguished Lecture Series,* Duke University Program in Genetics and Genomics (Chapel Hill, NC)
- Mar 2012 *Co-organizer & speaker,* NIH / NIDDK "Workshop on Rare Syndromic Body Fat Disorders-What Can They Teach Us?" (Bethesda, MD)
- Feb 2012 *Invited seminar,* Program in Medical & Population Genetics, Broad Institute of M.I.T. and Harvard (Cambridge, MA)
- Feb 2012 *Invited seminar,* Division of Genetics, Brigham and Women's Hospital, Harvard Medical School (Boston, MA)
- Jan 2012 *Invited seminar,* Cystic Fibrosis Seminar Series, Seattle Children's Research Institute / University of Washington (Seattle, WA)
- Jan 2012 *Grand rounds,* Department of Pathology, Brigham and Women's Hospital, Harvard Medical School (Boston, MA)
- Dec 2011 *Invited seminar,* Department of Biology, University of Pennsylvania (Philadelphia, PA)
- Oct 2011 *Guest speaker,* Fred Hutchinson Cancer Research Center, 8th Human Biology Division Retreat (Seattle, WA)
- Oct 2011 *Keynote address,* "The Genome and Beyond", BioTechniques Virtual Symposium
- Oct 2011 *Chair & organizer,* IPAM (Institute for Pure & Applied Mathematics): Mathematical and Computational Approaches in High-Throughput Genomics; Workshop I: Next-generation Sequencing Technology and Algorithms for Primary Data Analysis (Los Angeles, CA)
- Sep 2011 *Invited speaker & session chair,* Beyond the Genome 2011 (Rockville, MD)
- Sep 2011 *Invited speaker,* NHLBI Symposium: Genomics: Gene Discovery and Clinical Applications for Cardiovascular, Lung, and Blood Diseases (Bethesda, MD)
- Jul 2011 *Workshop speaker,* Illumina Sequencing Expert Panel 2011 (Woodinville, WA)
- Jul 2011 *Invited speaker,* "Revolution of Genome Science", 9th International Workshop on Advanced Genomics (Tokyo, Japan)
- Jul 2011 *Invited speaker,* University of Tokyo, "Cutting Edge of Human Genome Science", 4th Symposium of the IMSUT & RCAST Global COE (Tokyo, Japan)
- Apr 2011 *Invited seminar,* Princeton University and Lewis-Sigler Institute, Quantitative and Computational Biology seminar series (Princeton, NJ)
- Mar 2011 *Invited speaker,* Genome 10K Workshop (Santa Cruz, CA)
- Feb 2011 *Invited seminar,* Stanford University, Frontiers in Biology Seminar Series (Palo Alto, CA)
- Jan 2011 *Invited seminar,* Institute for Molecular Medicine, UT Houston (Houston, TX)
- Dec 2010 *Invited speaker,* Illumina Webinar
- Dec 2010 *Invited seminar,* UCSF Biomedical Sciences Seminar Series (San Francisco, CA)
- Dec 2010 *Invited seminar,* Amgen, Molecular and Computational Toxicology Seminar Series (Seattle, WA)
- Nov 2010 *Invited speaker,* American Heart Association, Scientific Sessions 2010, "Whole Genome Sequencing and Integrative Genomics" session (Chicago, IL)
- Nov 2010 *Invited speaker,* American Heart Association, Scientific Sessions 2010, "Whole Exome Resequencing: Methods and Early Findings" session (Chicago, IL)

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- Nov 2010 *Invited session moderator & speaker*, 60th Annual Meeting of American Society of Human Genetics, “Exome Sequencing and Human Genetics” (Washington DC)
- Oct 2010 *Invited seminar*, Department of Global Health, University of Washington, Pathobiology Seminar Series (Seattle, WA)
- Oct 2010 *Invited speaker*, Beyond the Genome 2010 (Boston, MA)
- Sep 2010 *Invited speaker*, Prostate Cancer Foundation, 17th Annual Scientific Retreat (Washington DC)
- Jul 2010 *Invited speaker*, Illumina PNW User Group Meeting (Seattle, WA)
- Jul 2010 *Invited speaker*, BioC 2010 (Seattle, WA)
- Jul 2010 *Workshop participant*, Planning the Future of Genomics: Foundational Research and Applications in Genomic Medicine, NHGRI (Warrenton, VA)
- Jul 2010 *Invited speaker*, 13th International MGED Meeting (Boston, MA)
- Jul 2010 *Invited speaker*, Merck (Boston, MA)
- Jul 2010 *Evening lecture*, 51st Annual Short Course on Medical and Experimental Mammalian Genetics, The Jackson Laboratory (Bar Harbor, ME)
- Jun 2010 *Invited seminar*, PNW Prostate Cancer SPORE Seminar Series (Seattle, WA)
- May 2010 *Colloquium co-convener & speaker*, American Society for Microbiology 110th General Meeting, “Ultra-Deep Sequencing in Infectious Diseases” (San Diego, CA)
- May 2010 *Invited speaker*, University of Washington, Computational Molecular Biology Spring Symposium (Seattle, WA)
- May 2010 *Invited seminar*, University of Washington, Department of Medical Genetics Seminar Series (Seattle, WA)
- May 2010 *Session co-chair & speaker*, The Biology of Genomes, Cold Spring Harbor Laboratories, “High Throughput Genomics & Genetics” (Cold Spring Harbor, NY)
- May 2010 *Workshop participant*, NIH Director’s “Big Think” Meeting (Bethesda, MD)
- Apr 2010 *Invited speaker*, 4th International Conference on Primate Genomics (Seattle, WA)
- Jan 2010 *Invited seminar*, Washington University in St. Louis, Department of Genetics (St. Louis, MO)
- Jan 2010 *Invited seminar*, University of Chicago, Department of Human Genetics (Chicago, IL)
- Dec 2009 *Invited speaker*, Simons Foundation, workshop on sequencing (New York City, NY)
- Dec 2009 *Invited speaker*, Cardiovascular Center Breakfast Club, University of Washington (Seattle, WA)
- Oct 2009 *Plenary speaker*, 59th Annual Meeting of American Society of Human Genetics (Honolulu, HI)
- Sep 2009 *Grand rounds*, Department of Laboratory Medicine, University of Washington (Seattle, WA)
- Sep 2009 *Invited speaker*, CSHL Personal Genomes meeting (Cold Spring Harbor, NY)
- Aug 2009 *Invited speaker*, eMERGE Network Steering Committee meeting (Seattle, WA)
- Aug 2009 *Invited seminar*, McDermott Center, Excellence in Human Genetics Lecture Series, UT Southwestern (Dallas, TX)
- Jun 2009 *Invited speaker*, Genomic Tools and Technologies Summit, Cambridge Healthtech Institute (San Francisco, CA)
- May 2009 *Invited speaker*, Northwest Institute of Genetic Medicine, 2009 Retreat (Seattle, WA)
- Mar 2009 *Invited seminar*, University of Michigan, Center for Translational Pathology (Ann Arbor, MI)
- Mar 2009 *Invited speaker*, Next-Generation Sequencing meeting, Cambridge Healthtech Institute (San Diego, CA)
- Feb 2009 *Invited speaker*, Advances in Genome Biology and Technology (AGBT) (Marco Island, FL)
- Feb 2009 *Invited speaker*, Advances in Genome Biology and Technology (AGBT), pre-meeting workshop (Marco Island, FL)
- Dec 2008 *Invited seminar*, Puget Sound Blood Center Research (Seattle, WA)
- Oct 2008 *Invited speaker*, Discovery2Diagnostics conference (San Diego, CA)
- Sep 2008 *New Investigator Science in Medicine Lecture*, University of Washington (Seattle, WA)
- Sep 2008 *Keynote address*, Institute for Systems Biology, Annual Retreat (Seabeck, WA)
- Sep 2008 *Invited speaker*, Nature Genetics “Genomics of Common Disease” meeting (Cambridge, MA)
- Aug 2008 *Invited seminar*, BC Cancer Agency, Genome Sciences Centre (Vancouver, BC)
- Mar 2008 *Invited seminar*, Fred Hutchinson Cancer Research Center, Computational Biology Working

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- Group Seminar Series (Seattle, WA)
- Mar 2008 *Invited seminar*, University of Washington, Department of Medical Genetics Seminar Series (Seattle, WA)
- Mar 2008 *Invited speaker*, Joint Genome Institute (JGI) User 3rd Annual Meeting (Walnut Creek, CA)
- Feb 2008 *Invited speaker*, Association of Biomolecular Resource Facilities (ABRF) Annual Meeting (Salt Lake City, UT)
- Feb 2008 *Plenary speaker*, Advances in Genome Biology and Technology (AGBT) (Marco Island, FL)
- Nov 2007 *Invited seminar*, Stanford University, Frontiers in Biology Seminar Series (Palo Alto, CA)
- Nov 2007 *Invited speaker*, 1st Annual Parallel Sequencing Genomics Meeting, Stanford Genome Technology Center, Stanford University (Palo Alto, CA)
- Sep 2007 *Invited seminar*, Fred Hutchinson Cancer Research Center, Program in Prostate Cancer Research Seminar Series, (Seattle, WA)
- May 2007 *Invited speaker*, Stanford Genome Technology Center, Stanford University (Palo Alto, CA)
- Mar 2007 *Invited seminar*, Institute for Molecular Pediatric Sciences, University of Chicago (Chicago, IL)
- Mar 2007 *Invited speaker*, Next Generation Sequencing: Applications and Case Studies, Cambridge Healthtech Institute (San Diego, CA)
- Feb 2007 *Invited seminar*, Department of Genetics, University of Pennsylvania (Philadelphia, PA)
- Feb 2007 *Invited seminar*, Department of Bioengineering, University of California, Berkeley (Berkeley, CA)
- Feb 2007 *Invited seminar*, Division of Genetics, Brigham and Women's Hospital, Harvard Medical School (Boston, MA)
- Feb 2007 *Invited seminar*, Department of Pathology, Massachusetts General Hospital, Harvard Medical School (Boston, MA)
- Feb 2007 *Invited seminar*, Department of Genome Sciences, University of Washington (Seattle, WA)
- Feb 2007 *Invited seminar*, Broad Institute of M.I.T. and Harvard (Cambridge, MA)
- Jan 2007 *Invited seminar*, Department of Molecular & Cell Biology, University of California, Berkeley (Berkeley, CA)
- Jan 2007 *Invited seminar*, National Human Genome Research Institute, National Institutes of Health (Bethesda, MD)
- Jan 2007 *Workshop speaker*, Workshop on Systems Biology and Information Medicine in a Global Society, Princeton University (Princeton, NJ)
- Jan 2007 *Invited seminar*, Institute for Systems Biology (Seattle, WA)
- Mar 2006 *Invited seminar*, Biological Physics & Biophysical Chemistry Seminar, State University of New York, Stony Brook (Stony Brook, NY)