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Thursday, April 16  
2:00 pm - 6:00 pm

## Mammalian Trainee Symposium

Session Chairs:

**Fernando Pardo-Manuel de Villena**, UNC Chapel Hill

**Linda Siracusa**, Hackensack Meridian School of Medicine at Seton Hall University

**538A** 2:00 pm No more paywalls: cost-benefit analysis across scRNA-seq platforms reveals biological insight is reproducible at low sequenc  
**Kathryn McClelland**, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK/NIH)

**882C** 2:15 pm Control of target gene specificity in Wnt signaling by transcription factor interactions. **Aravindabharathi Ramakrishnan**, Univ  
Michigan, Ann Arbor

**2217C** 2:30 pm Evolutionary genomics of centromeric satellites in House Mice (*Mus*). **Uma Arora**, The Jackson Laboratory

2:45 pm Reference quality mouse genomes reveal complete strain-specific haplotypes and novel functional loci. **Mohab Helmy**, EMBL

**887B** 3:00 pm Divergence in KRAB zinc finger proteins is associated with pluripotency spectrum in mouse embryonic stem cells. **Candice B**  
Jackson Laboratory

**531C** 3:15 pm Replicability and reproducibility of genetic analysis between different studies using identical Collaborative Cross inbred mice.  
UNC CHAPEL HILL

3:30 pm Proteomics reveals the role of translational regulation in ES cells. **Selcan Aydin**, The Jackson Laboratory for Mouse Genetics

**563B** 3:45 pm Super-Mendelian inheritance mediated by CRISPR-Cas9 in the female mouse germline. **Hannah Grunwald**, University of Cal

**2103C** 4:00 pm Gene Editing *ELANE* in Human Hematopoietic Stem and Progenitor Cells Reveals Variant Pathogenicity and Therapeutic Stra  
Congenital Neutropenia. **Shuquan Rao**, Boston Childrens Hospital

4:15 pm Phase separation of YAP reorganizes genome topology for long-term YAP target gene expression. **Danfeng Cai**, Howard Hug  
Institute

4:30 pm Mouse models predict drug combinations to target oncogenes and tumor suppressors. **Tyler Peat**, National Institutes of Heal  
Cancer Institute

**573C** 4:45 pm A GxE QTL on Chromosome 15 underlies susceptibility to air pollution-induced lung injury in mice. **Adelaide Tovar**, The Unive  
Carolina at Chapel Hill

5:00 pm Exploring the Genetic Basis for Atrioventricular Septal Defects in Down Syndrome. **Yicong Li**, Johns Hopkins University Scho

5:15 pm Elevated canonical WNT signalling disrupts heart development and may underlie cases of human Heterotaxy. **Kristen Barratt**  
National University

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Wednesday, April 22

10:45 am - 1:10 pm

## Opening Keynote Session and GSA Award Presentations

Session Chairs:

**Denise Montell**, University of California, Santa Barbara

**Mark Johnston**, University of Colorado and Editor in Chief of GENETICS

Welcome and opening remarks

Cellular Biographies: Reconstructing zebrafish development. **Alex Schier**, Harvard University

Detecting and Correcting Errors in Mitosis. **Sue Biggins**, Fred Hutchinson Cancer Research Center

2019 Elizabeth Jones Award for Excellence in Education. **Bruce Weir**, University of Washington

2019 George Beadle Award. **Michael Snyder**, Stanford University

Haystack to needle: moving from quantitative to developmental genetics of a reproductive trait. **Cassandra Extavour**, Harvard University

How can biology and breeding contribute to improving food systems and climate change? **Ed Buckler**, Cornell University

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Wednesday, April 22

1:30 pm - 3:30 pm

## Development and Cell Biology (*C. elegans*)

Session Chair:

**Jessica Feldman**, Stanford University

- 7 1:30 pm Different paths to the same cell type. **Karolina Mizeracka**, Boston Children's Hospital
- 8 1:45 pm The role of cell cycle in invasive differentiation behavior of the *C. elegans* anchor cell. **Taylor Medwig-Kinney**, Stony Brook U
- 9 2:00 pm Single-zygote analysis of protein quantitation reveals high robustness of cell polarisation and asymmetric division to perturbed protein abundance. **Nelio Rodrigues**, Francis Crick Institute
- 10 2:15 pm PAR polarity proteins direct intracellular tube expansion through apical recruitment of the exocyst complex. **Joshua Abrams**, Medicine
- 11 2:30 pm Multi-tissue patterning drives anterior morphogenesis in the *C. elegans* embryo. **Alisa Piekny**, Concordia University
- 2:45 pm Break
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Wednesday, April 22

1:30 pm - 3:30 pm

## Plenary Session and Larry Sandler Award Lecture (*Drosophila*)

Session Chair:

**Lynn Cooley**, Yale University

- 12 1:30 pm Meiotic drive and satellite DNA in *Drosophila melanogaster*. **Amanda Larracuenta**, University of Rochester
- 13 2:00 pm GCNA preserves genome integrity and fertility across species. **Michael Buszczak**, UT Southwestern Medical Center
- 14 2:30 pm Larry Sandler Award Presentation. **Barbara Mellone**
- 15 2:35 pm Larry Sandler Award Talk. **Balint Kacsóh**, Perelman School of Medicine, University of Pennsylvania
- 16 3:00 pm Active genetics comes alive. **Ethan Bier**, Univ California, San Diego
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Wednesday, April 22

1:30 pm - 3:30 pm

## Disease Models and Aging (Mammal)

Session Chair:

**Emily Davenport**, Pennsylvania State University

- 17 1:30 pm Generation of a robust and clinically-relevant mouse model of Cerebral Cavemous Malformations. **Douglas Marchuk**, Duke U
- 18 1:45 pm *ZNF423* patient variants, truncations, and in-frame deletions in mice define an allele and domain-dependent series of midline abnormalities. **Bruce Hamilton**, UC San Diego
- 19 2:00 pm Mouse models of an undiagnosed pediatric neurodegenerative disorder. **Jay Vivian**, University of Kansas Medical Center
- 20 2:15 pm Analyzing Hematology by Complete Blood Count in a Genetically Diverse Mouse Population: Changes with Age and Impacts **Andrew Deighan**, Jackson Laboratory
- 2:30 pm Break
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Wednesday, April 22

1:30 pm - 3:30 pm

## Demographic Inference (PEQG)

Session Chair:

**Dmitri Petrov**, Stanford University

- 21 1:30 pm The Genomic Landscape of Neanderthal Ancestry in Modern Humans. **Arun Sethuraman**, California State University San Ma
- 22 1:45 pm Fast estimation of effective migration surfaces. **Joseph Marcus**, University of Chicago
- 23 2:00 pm Reconstructing spatio-temporal patterns of admixture in human history using present-day and ancient genomes. **Manjusha C** University of California, Berkeley
- 24 2:15 pm Recurrent Collection of *Drosophila melanogaster* from Wild African Environments and Genomic Insights into Species History. University of Wisconsin - Madison
- 2:30 pm Break
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Wednesday, April 22

1:30 pm - 3:30 pm

## Technologies, Resources and Genomics (*Xenopus*)

Session Chair:

**Jing Yang**, University of Illinois

- 25 1:30 pm GEO Data, Human Disease, and Phenotypes on Xenbase: New Tools and Features. **Malcolm Fisher**, Xenbase (CCHMC)
- 26 1:45 pm A genome editing laboratory course for undergrads using CRISPR in butterflies and frogs. **Arnaud Martin**, George Washington
- 27 2:00 pm Differential embryonic gene activation across the subgenomes of *Xenopus laevis*. **Wesley Phelps**, University of Pittsburgh
- 2:15 pm Break

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Wednesday, April 22

1:30 pm - 3:30 pm

## Yeast Genetics Meeting Lifetime Achievement Award and the Yeast Gimme a Break Chromosome Stability in Stress and Development Session

Session Chairs:

**Helle Ulrich**, IMB, Mainz, Germany

**Michael Polymenis**, Texas A&M University

- 28 1:30 pm Introduction of Nancy Kleckner for the Yeast Genetics Meeting Lifetime Achievement Award. **Eric Alani**, Cornell University
- 29 1:35 pm Meiotic and Mitotic Chromosomes. **Nancy Kleckner**, Harvard University
- 30 2:00 pm GLOE-Seq – a new genomic tool to map replication patterns and DNA lesions with nucleotide resolution. **Helle Ulrich**, Institut Biologie gGmbH (IMB)
- 31 2:15 pm Systemic Aneuploidization of the Yeast Genome. **Lydia Heasley**, Colorado State University
- 32 2:30 pm Multiple origins of large insertions at chromosomal breaks. **Yang Yu**, Baylor College of Medicine
- 33 2:45 pm Translational control of methionine and serine metabolic pathways underpin the paralog-specific phenotypes of Rpl22 ribosom mutants in cell division and replicative longevity. **Michael Polymenis**, Texas A&M Univ
- 3:00 pm Break

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Wednesday, April 22

1:30 pm - 3:30 pm

## Genetic Control of Development and Regeneration (Zebrafish)

Session Chairs:

**Christian Mosimann**, University of Colorado Anschutz Medical Campus

**Mary Mullins**, University of Pennsylvania

- 34 1:30 pm *foxm1* is required for cardiomyocyte proliferation after zebrafish cardiac injury. **Daniel Zuppo**, University of Pittsburgh
- 35 1:45 pm Enhancers and the uneven distribution of regenerative capacities in vertebrates. **Wei Wang**, Stowers Institute for Medical Res
- 36 2:00 pm *Robo2* and Type-IV Collagen function in a common molecular pathway to promote target-specific axon regeneration. **Patti M** of Pennsylvania
- 37 2:15 pm Characterizing mechanisms of conserved skin appendage formation at single-cell resolution. **Lauren Saunders**, University of
- 38 2:30 pm Single-cell transcriptomic analysis of embryonic vasculogenesis identifies the conversion of Etv2-deficient vascular progenito muscle. **Saulius Sumanas**, Cincinnati Children's Hospital Medical Center
- 39 2:45 pm MicroRNA-mediated control of developmental lymphangiogenesis. **Brant Weinstein**, NIC HD, NIH
- 40 3:00 pm Investigating interactions between the actin and microtubule networks in the yolk cell during zebrafish morphogenesis. **Haoyi** of Toronto
- 41 3:15 pm Ectopic *kcnh2a* slows niche-to-mesenchyme transitions to prolong fin outgrowth and disrupt organ scaling of *longfin* zebrafis **Stankunas**, University of Oregon

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Wednesday, April 22

3:45 pm - 5:45 pm

## New Technology and Resources in Development (*C. elegans*)

Session Chair:

**Jordan Ward**, University of California, Santa Cruz

- 42 3:45 pm Lineage-specific analysis of proliferation-differentiation control in *C. elegans*. **Sander van den Heuvel**

- 43 4:15 pm Cultivating relationships: genetics and genomics microbiome form and function. **Buck Samuel**, Baylor College of Medicine
- 44 4:30 pm Bicistronic tagging and severing (BiTS): a new gene editing tool in *C. elegans* using endogenous trans-splicing pathways. **Rya** University of South Alabama
- 45 4:45 pm Dietary serine enhances chemotherapeutic toxicity through altering the metabolism of the microbiota. **Wenfan Ke**, The Univer
- 46 5:00 pm Rapid Self-Selecting and Clone Free Integration of Transgenes into Engineered CRISPR Safe Harbor Locations in *C. elegans*. **Moerdyk-Schauwecker**, University of Oregon
- 47 5:15 pm Driving with caution: lessons learned from TIR1 promoters and TIR1 receptor function. **Michael Martinez**, Stony Brook Unive
- 5:30 pm Break

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Wednesday, April 22

3:45 pm - 5:45 pm

## Gene Regulation (Mammal)

Session Chair:

**Steve Munger**, The Jackson Laboratory

- 48 3:45 pm Genome-wide identification and analysis of single nucleotide variants disrupting RNA structure and function. **Zhengqing Ouy** of Massachusetts Amherst
- 49 4:00 pm Structure and function of SWI/SNF complexes is regulated by RNA interactions. **Jesse Raab**, University of North Carolina at t
- 50 4:15 pm Mechanism of monoallelic expression and allelic rheostat role of DNA methylation. **Alexander Gimelbrant**, Dana-Farber Canc
- 4:30 pm Break
- 4:45 pm Break

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Wednesday, April 22

3:45 pm - 5:45 pm

## The Evolution of Gene Expression (PEQG)

Session Chair:

**Daniel Matute**, UNC Chapel Hill

- 51 3:45 pm Simultaneous Quantification of mRNA and Protein Levels in Single Cells Reveals *Trans*-acting Genetic Variation. **Christian Bri** Minnesota
- 52 4:00 pm A mutagenesis survey of a developmental enhancer using automation and robotics reveals constraints on evolvability. **Timott** Heidelberg
- 53 4:15 pm From Codons to Ecology – Using Codon Optimization as a Proxy for Gene Expression to Identify Ecologically Adapted Metab **Abigail LaBella**, Vanderbilt University
- 54 4:30 pm Massively parallel identification of *cis*-regulatory variants in yeast promoters. **Frank Albert**, University of Minnesota
- 55 4:45 pm Quantifying absolute changes in transcription and translation over 22 years of bacterial adaptation. **Premal Shah**, Rutgers Un
- 56 5:00 pm Changes throughout a Genetic Network Mask the Contribution of Hox Gene Evolution. **Yang Liu**, Johns Hopkins University
- 5:15 pm Break

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Wednesday, April 22

3:45 pm - 5:45 pm

## Disease Models (*Xenopus*)

Session Chair:

**Amy Sater**, University of Houston

- 57 3:45 pm Importance innate-like T cells in tolerance versus resistance to virus and mycobacteria in *Xenopus*. **Jacques Robert**, Universit Medical Center
- 58 4:00 pm *Xenopus tropicalis* mutation in the transcription factor *six3* reveals its key role in controlling the eye gene regulatory network. **I** University of Virginia
- 59 4:15 pm The mechanisms of neural crest defects in DDX3X syndrome and related genetic diseases. **Shuo Wei**, University of Delaware
- 60 4:30 pm Modeling Li-Fraumeni Mutations in *Xenopus laevis*. **Amisheila Kinua**, Rice University
- 61 4:45 pm The CLEAR consortium: elucidating the genetic and cellular basis of trachea-esophageal birth defects. **Nicole Edwards**, Cinc

5:00 pm Break

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Wednesday, April 22

3:45 pm - 5:45 pm

## Gene Regulation (Yeast)

Session Chair:

**Anne Spang**, University of Basel

- 62** 3:45 pm Introduction of Doug Koshland for the Lee Hartwell lecture. **Phil Hieter**, University of British Columbia
- 63** 3:50 pm Lee Hartwell Lecture: Higher order chromosome structure in yeast, an informative oxymoron then and now. **Douglas Koshland**, University of California, San Diego
- 64** 4:15 pm Control of the nucleo-cytoplasmic localization of the yeast mRNA decapping complex. **Anne Spang**, University of Basel
- 65** 4:30 pm A stress response allows highly mutated eukaryotic cells to survive and proliferate. **Rebecca Zabinsky**, Stanford University
- 66** 4:45 pm ER stress sensor Ire1 deploys a divergent transcriptional program in response to lipid bilayer stress. **Guillaume Thibault**, Nanjing University of Aeronautics and Astronautics
- 67** 5:00 pm Generating new orthogonal tRNA and aminoacyl-tRNA synthase pairs in yeast to engineer translation. **Stephanie Zimmermann**, University of Washington

5:15 pm Break

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Wednesday, April 22

3:45 pm - 5:45 pm

## Neurogenetics (Zebrafish)

Session Chairs:

**Adam Miller**, University of Oregon

**Celia Shiau**, University of North Carolina at Chapel Hill

- 68** 3:45 pm Retinoic acid organizes the vagus motor topographic map via spatiotemporal regulation of Hgf/Met signaling. **Adam Isabella**, National Cancer Institute
- 69** 4:00 pm The autism- and epilepsy-associated gene Neurobeachin regulates electrical synapse formation via interactions with an intracellular scaffold. **Anne Martin**, University of Oregon
- 70** 4:15 pm Identifying proteins that bind Hmx3a and testing their roles in spinal cord development. **William Haws**, Syracuse University
- 71** 4:30 pm Inflammatory signaling regulates neurofibromin 1 (*nf1*)-dependent habituation learning in larval zebrafish. **Andrew Miller**, University of Wisconsin-Madison
- 72** 4:45 pm Dolk regulates motor behaviors through the episodic ataxia-associated protein Kv1.1. **Joy Meserve**, University of Pennsylvania
- 73** 5:00 pm Fishing for function in the evolutionary gene pool: a zebrafish model for human-specific duplicated gene *SRGAP2*. **Jose Uribe**, University of California, Davis
- 74** 5:15 pm E4bp4-2b/Nfil3-2b contributes to circadian regulation by repressing *cryptochrome1aa* and *period2* expression via the D-box element. **Wang**, Soochow University
- 370** 5:30 pm Abnormal neuronal positioning affects circuit function in zebrafish. **Emilia Asante**, University of Missouri

Wednesday, April 22

3:45 pm - 5:45 pm

## Genetic Technology in Practice

Sponsored by Calico, Dupont and Zymergen

Session Chair:

**Kailene Simon**, Atalanta Therapeutics

- 75** 3:45 pm Fungal genetics and automated strain engineering at Zymergen. **Kenneth Bruno**, Zymergen Inc
- 76** 4:05 pm Making the most of our molecules - a computational framework for unified germline characterization and inference. **Eli Roca**, Corteva Agriscience
- 77** 4:25 pm High Yield and Robust *Saccharomyces cerevisiae* Strains for Biofuel Industry. **Celia Payen**, DuPont
- 78** 4:45 pm Divalent siRNA Scaffold for Robust Gene Modulation in the Central Nervous System. **Julia Alterman**, University of Massachusetts Lowell

School

**79** 5:05 pm NemaMetrix: cutting-edge genome editing and phenotyping tools in *C. elegans* and zebrafish and how we've targeted parasit **Weeks**, NemaMetrix Inc.

5:25 pm Discussion

This session will highlight some exciting discoveries that advanced from basic research to the marketplace. Attendees will hear how discoverie genetic technologies that originated in academic labs moved through the industry pipeline for product development and practical application. consist of five 20-minute talks from industry professionals, followed by a panel discussion featuring the speakers.

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Thursday, April 23

10:00 am - 10:15 am

## GSA Awards

*Session Chair:*

**Hugo Bellen**, Baylor College of Medicine

**80** 10:00 am 2020 Beadle Award. **Julie Ahringer**, University of Cambridge

**81** 10:05 am 2020 Morgan Medal. **Gerald Fink**, MIT

**82** 10:10 am 2020 GSA Medal. **Bonnie Bassler**, HHMI/Princeton University

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Thursday, April 23

10:15 am - 11:15 am

## COVID - 19 Keynote

*Session Chair:*

**Maitreya Dunham**, University of Washington, Seattle

Tracking SARS-CoV-2 using real-time phylogenetics with nextstrain. **Richard Neher**, Biozentrum, University of Basel

Getting to community surveillance for COVID-19. **Lea Starita**, Brotman Baty Advanced Technology Lab, University of Washington

Discussion

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Thursday, April 23

11:30 am - 1:15 pm

## The Architectures of Complex Traits (PEQG)

*Session Chair:*

**Jeffrey Ross-Ibarra**, University of California, Davis

**107** 11:30 am Negative selection on complex traits limits genetic risk prediction accuracy between populations. **Arun Durvasula**, UCLA

**108** 11:45 am Comprehensive dissection of complex traits using a panel of 250,000 barcoded diploid yeast segregants. **Takeshi Matsui**, St

**109** 12:00 pm Latent phenotypic complexity of adaptation in a single environment. **Grant Kinsler**, Stanford University

**110** 12:15 pm Resolving the genetic basis of simple and complex traits using outbred Hybrid Swarm mapping populations. **Cory Weller**, Na of Health

**111** 12:30 pm Extent and context dependence of pleiotropy revealed by high-throughput single-cell phenotyping. **Kerry Geiler-Samerotte**, University

12:45 pm Break

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Thursday, April 23

11:30 am - 1:15 pm

## Diversity, Equity, and Inclusion Session

*Session Chair:*

**Nadia Singh**, University of Oregon

**96** 11:30 am Inclusive PhD admissions: An evidence-based self-education process for faculty, staff and trainees. **Scott Barolo**, University Medical School

**97** 11:45 am The Diversity Preview Weekend: A graduate student-led initiative to promote diversity, equity and inclusion in higher educatio **Darby**, Cornell University

**98** 12:00 pm Bridging Worlds for Diversity and Inclusion: Social Science with Biology Education Research Through the iEMBER Network. (

Lightoller LLC

**99** 12:15 pm Inclusion of cultural dietary practices in genetics research diversifies the scientific workforce and addresses health disparities  
**Alexander**, Fox Chase Cancer Center

**100** 12:30 pm For Us, By Us, but Not *All of Us*: building our own Indigenous biobank as a better way to ensure research equity. **Krystal Tso**  
BioData Consortium

12:45 pm Break

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Thursday, April 23

11:30 am - 1:15 pm

## Chromatin and Transcription

*Session Chair:*

**Karen Arndt**, University of Pittsburgh

**85** 11:30 am RSC readies the quiescent genome for rapid hypertranscription. **Christine Cucinotta**, Fred Hutchinson Cancer Research Center

**86** 11:45 am How cell size controls genome activation and orchestrates fate decisions. **Hui Chen**, University of Pennsylvania

**87** 12:00 pm Quantitative analysis of transcription factor binding and expression using calling cards reporter arrays. **Jiayue Liu**, Washington University in St. Louis

**88** 12:15 pm Transcription rate modulation by network-level feedback promotes robust patterning outcomes. **Shawn Little**, Univ. of Pennsylvania School of Medicine

**89** 12:30 pm Shadow enhancers can suppress input transcription factor noise through distinct regulatory logic. **Rachel Waymack**, University of California, Irvine

12:45 pm Break

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Thursday, April 23

11:30 am - 1:15 pm

## Developmental Genetics: The Germline

*Session Chairs:*

**Kari Lenhart**, Drexel University

**Kellee Siegfried**, University of Massachusetts

**90** 11:30 am Stem cell niche exit in *C. elegans* via orientation and segregation of daughter cells by a cryptic cell outside the niche. **Kacy Grollman**, UNC Chapel Hill

**91** 11:45 am Sex-specific ecdysone signaling is established by Doublesex to regulate gonad stem cell niche development. **Lydia Grmai**, Johns Hopkins University

**92** 12:00 pm Axon-like projections direct the self-renewal versus differentiation cell fate decision in Follicle Stem Cells of the *Drosophila* ovary. **O'Reilly**, Fox Chase Cancer Center

**93** 12:15 pm Novel LOTUS-domain proteins recruit *C. elegans* Vasa to germ granules and are essential for developmental switches in the germline. **Giselle Cipriani**, New York University

**94** 12:30 pm Courtship is a two-way conversation: Yeast mating as a model of cell-cell communication. **Manuella Clark-Cotton**, Duke University

**95** 12:45 pm GCNA interacts with Spartan and Topoisomerase II to regulate genome stability. **Michelle Carmell**, Wellesley College

1:00 pm Break

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Thursday, April 23

11:30 am - 1:15 pm

## Modeling Human Diseases in Diverse Systems

*Session Chair:*

**Clare Smith**, Duke University

**101** 11:30 am A muscle-to-ovocyte Pvf1 signaling axis protects against obesity. **Arpan Ghosh**, Harvard Medical School

**102** 11:45 am Tell me how to go: The migration mechanisms of cell dissemination in vivo. **Alejandra Cabrera**, University of Washington

**103** 12:00 pm Multidisciplinary Analysis of patient-specific genetic interactions reveal a role for *Megalyn* / *LRP2* in Hypoplastic Left Heart Syndrome. **Vogler**, Sanford Burnham Prebys Medical Discovery Institute

**104** 12:15 pm Investigating stage dependent immune tolerance to heterologous cells for the purpose of creating humanized zebrafish. **Anna**

Georgetown University

**105** 12:30 pm The *C. elegans* model organism screening center for the NIH Undiagnosed Disease Network. **Tim Schedl**, Washington University Medicine

**106** 12:45 pm SCO-spondin defects and neuroinflammation identified as conserved mechanisms driving severe spine deformity across genetic idiopathic scoliosis. **Chloe Rose**, The Hospital for Sick Children

1:00 pm Break

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Thursday, April 23

1:30 pm - 3:30 pm

## Visualizing Intracellular Dynamics

Session Chair:

**Jessica Feldman**, Stanford University

**131** 1:30 pm Visualizing the metazoan proliferation-differentiation decision *in vivo*. **Rebecca Adikes**, Stony Brook University

**132** 1:45 pm NudC phosphorylation silences dynein to promote anterograde cargo transport in axons. **Katie Drerup**, NICHD

**133** 2:00 pm RNA nucleates phase separation of glycolysis enzymes in yeast in hypoxia. **Gregory Fuller**, Johns Hopkins University

**134** 2:15 pm Degron-tagged reporters probe membrane topology and enable the specific labelling of membrane-wrapped structures. **Ann Wuerzburg**

**135** 2:30 pm Cell competition regulates tissue growth and tumorigenesis via non-autonomous induction of autophagy. **Rina Nagata**, Kyoto

2:45 pm Break

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Thursday, April 23

1:30 pm - 3:30 pm

## New Technology and Systems Biology

Session Chair:

**Miler Lee**, University of Pittsburgh

**118** 1:30 pm Systematic humanization of yeast processes to understand human biology and disease. **Aashiq Kachroo**, Concordia University

**119** 1:45 pm MAGIC: Mosaic Analysis by gRNA-Induced Crossing Over. **Sarah Allen**, Cornell University

**120** 2:00 pm A Multiplexed CRISPR Screen for Essential microRNA-Target Interactions in *C. elegans*. **Bing Yang**, NIH/NIDDK

**121** 2:15 pm CRISPR-Cas13d induces efficient mRNA knock-down in animal embryos. **Gopal Kushawah**, Stowers Institute for Medical Research

**122** 2:30 pm A Catalog of Polymorphic SINEC\_Cf Insertions in the Dog Genome. **Jessica Choi**, La Sierra University

2:45 pm Break

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Thursday, April 23

1:30 pm - 3:30 pm

## Undergraduate Session

Session Chairs:

**Rob Ward**, University of Kansas

**Julie Hall**, Lincoln Memorial University

**Nicole Green**, University of Iowa

**126** 1:30 pm Undergraduate Platform Keynote Address. **Elaine Fuchs**, Rockefeller University

**127** 2:00 pm Characterizing protein aggregates in NUAK mutants using the *Drosophila* muscle tissue model. **Marta Stetsiv**, Kansas State University

**128** 2:15 pm Alternative *mec-2* isoforms exhibit neuron type-specific expression and function. **Canyon Calovich-Benne**, Southern Methodist University

**129** 2:30 pm Distinguishing Between Self and Foreign siRNA in the *C. elegans* Germline. **Diljeet Kaur**, Rutgers University

**130** 2:45 pm PRISM-stop targeted integration in *aquaporin1a1* and *1a2* reveals a requirement during vascular morphogenesis. **Jacklyn Lev**, University of Iowa

3:00 pm Break

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Thursday, April 23

1:30 pm - 3:30 pm



## Crow Award Talks (PEQG)

Session Chair:

**Bret Payseur**, University of Wisconsin at Madison

- 112** 1:30 pm Introduction to James Crow. **Bret Payseur**
- 113** 1:45 pm Natural selection on the *Arabidopsis thaliana* genome in present and future climates. **Moises Exposito-Alonso**, Carnegie Inst Science, Stanford University
- 114** 2:00 pm Quantifying selection on heritable variation in human complex traits. **Yuval Simons**, Stanford University
- 115** 2:15 pm Recombination, variance in genetic relatedness, and selection against introgressed DNA. **Carl Veller**, Harvard University
- 116** 2:30 pm Predicted shifts in dominance increase the likelihood of soft selective sweeps. **Pavitra Muralidhar**, Harvard University
- 117** 2:45 pm Adaptive evolution at a meiosis gene mediates species differences in the rate and patterning of recombination. **Cara Brand**, University of Pennsylvania
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Thursday, April 23

1:30 pm - 2:30 pm

### The Ins and Outs of NIH Peer Review

Session Chair:

**Mary Mullins**, University of Pennsylvania

- 123** 1:30 pm Overview. **Mary Mullins**, University of Pennsylvania
- 124** 1:40 pm Institute and Study Section Assignments. **Sharon Gubanich**, NIH/CSR
- 125** 1:55 pm The Ins and Outs of NIH Peer Review. **Lystranne Maynard-Smith**, NIH
- 2:10 pm Discussion
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Thursday, April 23

2:30 pm - 3:30 pm

### COVID - 19 response by the NSF and NIH

Session Chair:

**Matthew Olson**, National Science Foundation

- 137** 2:30 pm NSF BIO's COVID-19 response and funding opportunities. **Joanne Tornow and Joanna Shisler**, NSF
- 139** 2:40 pm Overview of NIH Extramural Response to COVID-19 Pandemic. **Michael Lauer and Jodi Black**, NIH
- 2:50 pm Discussion
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Thursday, April 23

3:45 pm - 5:45 pm

### Genomics, Gene Regulation, and Systems Biology (*C. elegans*)

Session Chair:

**Florian Steiner**, University of Geneva

- 141** 3:45 pm The Argonaut NRDE-3 and MET-2 redundantly target SET-25 to full length transposable elements. **Susan Gasser**
- 142** 4:15 pm Regulation of alternative splicing in tissues and distinct neuronal subtypes in *C. elegans*. **John Calarco**, University of Toronto
- 143** 4:30 pm A temporally regulated switch from non-canonical to canonical Wnt signaling stops QR descendant migration through a Slit/RhoGAP dependent mechanism. **Erik Schild**, Hubrecht Institute
- 144** 4:45 pm Repressive H3K9me2 protects lifespan against the transgenerational burden of germline transcription in *C. elegans*. **Teresa L University**
- 145** 5:00 pm *In vivo* regulation of an X-specific condensin's binding dynamics in *C. elegans*. **Sevinc Ercan**, New York University
- 146** 5:15 pm A neuronal thermostat controls membrane fluidity in *C. elegans*. **Laetitia Chauve**, Babraham Institute
- 5:30 pm Break
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Thursday, April 23

3:45 pm - 5:45 pm

## Disease Models and Aging (*Drosophila*)

### Session Chairs:

**Nancy Bonini**, University of Penn  
**Heinrich Jasper**, Buck Institute/Genentech  
**Lindsey Goodman**, Baylor College of Medicine

- 147** 3:45 pm Epithelial homeostatic mechanisms prevent tumorous overgrowth by causing the extrusion of RasV12 expressing clones. **Jan**  
University of California, Berkeley
- 148** 4:00 pm Polyploidy in the adult *Drosophila* brain. **Shyama Nandakumar**, University of Michigan
- 149** 4:15 pm A *Drosophila* model of Kras/Lkb1 tumorigenesis uncovers oncogenic Kras levels as a key determinate in malignant transform. **Gilbert-Ross**, Emory University School of Medicine
- 150** 4:30 pm Resolving the contribution of the microbiome in aging. **Arvind Shukla**, National Institutes of Health
- 151** 4:45 pm YAP/TAZ transcription co-activators create therapeutic vulnerability in EGFR mutant glioblastoma. **Renee Read**, Emory Unive  
Medicine
- 152** 5:00 pm Tumors kill hosts through inflammatory disruption of the blood-brain barrier in *Drosophila*. **Jung Kim**, University of California,
- 153** 5:15 pm Occluding Junction Modulation in Aging and Disease. **Anna Salazar**, Christopher Newport University
- 154** 5:30 pm The insulin-like peptide Dilp6 is a key factor to inhibit growth in *Drosophila* in response to Toll signaling. **Miyuki Suzawa**, Univ

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Thursday, April 23

3:45 pm - 5:45 pm

## Genomics/Systems Biology and Gene Regulation (*Drosophila*)

### Session Chairs:

**Melissa Harrison**, University of Wisconsin  
**Daniel McKay**, UNC Chapel Hill  
**Brent Graveley**, University of Connecticut  
**Stein Aerts**, VIB

- 155** 3:45 pm OVO-B, but not OVO-A, is required for female germ cell viability and has downstream targets in addition to *otu* in the female g  
**Benner**, National Institutes of Health
- 156** 4:00 pm Genome activation and transcriptome diversity: A dual sex-specific role for the *Drosophila* Clamp protein in splicing and trans  
early embryonic development. **Mukulika Ray**, Brown University
- 157** 4:15 pm Tissue-specific chromatin occupancy by the pioneer factor Zelda in *Drosophila melanogaster*. **Elizabeth Larson**, University o  
Madison
- 158** 4:30 pm Sex-dependent and sex-independent controls of size variation in natural populations. **Hirokazu Okada**, ETH Zurich
- 159** 4:45 pm A functional investigation of conserved cryptic peptides encoded by smORFs identifies two novel mitochondrial components.  
Harvard Medical School
- 160** 5:00 pm Evolutionary conservation and divergence of 3D genome organization in *Drosophila*. **Nicole Torosin**, University
- 161** 5:15 pm Transcribing loci in close proximity do not share a Pol II hub. **Shao-Kuei Huang**, New York University
- 5:30 pm Break

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Thursday, April 23

3:45 pm - 5:45 pm

## Genomics and Systems Biology (Mammal)

### Session Chair:

**Michelle Southard-Smith**, Vanderbilt University Medical Center

- 162** 3:45 pm Modeling gene x treatment effects in the Collaborative Cross and other replicable multiparent populations. **William Valdar**, Ur  
Carolina at Chapel Hill
- 163** 4:00 pm Genetic dissection of initial cocaine sensitivity and behavioral sensitization using the Collaborative Cross and Diversity Outbre  
populations. **Sarah Schoenrock**, University of North Carolina at Chapel Hill
- 164** 4:15 pm the genetic architecture of insulin secretion. **Gary Churchill**, The Jackson Laboratory
- 165** 4:30 pm Controlling phenotypic variability and reproducibility through characterization and stable control of the microbiome in mouse r  
**Amos-Landgraf**, University of Missouri

Thursday, April 23  
3:45 pm - 5:45 pm

## Adaptation in Natural Populations (PEQG)

Session Chair:

**Felicity Jones**, Friedrich Miescher Laboratory of the Max Planck Society

- 166** 3:45 pm A chromosomal inversion underlies forest adaptations in deer mice. **Olivia Meyerson**, Harvard University
- 167** 4:00 pm RNAi pathways repress reprogramming of *C. elegans* germ cells during heat stress. **Alicia Rogers**, University of Southern California
- 168** 4:15 pm The making of the monarch: A constrained adaptive path to toxin resistance. **Marianthi Karageorgi**, UC Berkeley
- 169** 4:30 pm Human isolates of *S. cerevisiae*: colonization, pathogenicity, and in-host microevolution viewed through domestication history **Pfliegler**, University of Debrecen
- 170** 4:45 pm Learning the properties of adaptive regions with functional data analysis. **Mehreen Mughal**, Pennsylvania State University
- 171** 5:00 pm Genome-wide association study (GWAS) of bleaching tolerance in a Great Barrier Reef coral. **Zach Fuller**, Columbia
- 5:15 pm Break
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Thursday, April 23  
3:45 pm - 5:45 pm

## Cell Fate and Patterning (*Xenopus*)

Session Chair:

**Jacques Robert**, University of Rochester

- 172** 3:45 pm Deep cytoplasmic sorting during *Xenopus* oocyte-to-embryo transition. **Jing Yang**, University of Illinois
- 173** 4:00 pm A Spatial Gradient of Cell Size Controls Genome Activation and Contributes to Vertebrate Early Development. **Wenchao Qian**, Pennsylvania
- 174** 4:15 pm Functional analysis of Noggin-like genes. **Prashath Karunraj**, University of Otago
- 4:30 pm Break
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Thursday, April 23  
3:45 pm - 5:45 pm

## New Technologies and their Impact (Yeast)

Session Chairs:

**Brenda Andrews**, University of Toronto

**Benoit Kornmann**, University of Oxford

- 175** 3:45 pm Introduction of Michael Snyder for the Winge-Lindgren Address. **Michael Knop**, University of Heidelberg
- 176** 3:50 pm Winge-Lindgren Address given by Mike Snyder, Stanford University. **Michael Snyder**, Stanford University
- 177** 4:35 pm A high throughput method to assay mutation rate: Determining the pathogenicity of Msh2 variants associated with Lynch syndrome. **Ollodart**, University of Washington
- 178** 4:50 pm Onyx: A benchtop platform for massively parallel editing of the yeast genome. **Nandini Krishnamurthy**, Insiperta
- 5:05 pm Break
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Thursday, April 23  
3:45 pm - 5:45 pm

## New Technologies and Resources (Zebrafish)

Session Chairs:

**David Grunwald**, University of Utah

**Brian Ciruna**, The Hospital for Sick Children, Toronto, ON

- 179** 3:45 pm Optimization of a high-throughput platform for the morphological and behavioral characterization of zebrafish larvae. **Megan I**, University of California Davis
- 180** 4:00 pm NTR 2.0: an improved nitroreductase targeted cell ablation system. **Jeff Mumm**, Johns Hopkins University

- 181** 4:15 pm A Comparison of CRISPR/Cas9-Based Methods for Creating Amino Acid Substitutions in Zebrafish. **Yvonne Rosario**, NIH
- 182** 4:30 pm pGTAG and pPRISM: Two expanded tool sets for using short regions of homology for precise DNA integration at CRISPR/Cas  
**Jeffrey Essner**, Iowa State University
- 183** 4:45 pm Chemoptogenetic Induction of Neuronal Mitochondrial Damage *in vivo*. **Binxuan Jiao**, University of Pittsburgh
- 184** 5:00 pm Defining zebrafish oogonial stem cells and their somatic cell niche at single-cell resolution. **Bruce Draper**, University of Califo
- 185** 5:15 pm scRNAseq developmental trajectories to investigate differentiation. **Jeffrey Farrell**, National Institute of Child and Human Dev
- 186** 5:30 pm Zebrafish CRISPR screening validates and classifies a set of novel candidate genes for human congenital heart defects. **Lisa**  
Children's Research Institute
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Friday, April 24  
10:00 am - 10:15 am

## GSA Award Presentations

Session Chair:

**Denise Montell**, University of California, Santa Barbara

- 187** 10:00 am 2019 Thomas Hunt Morgan Medal. **Dan Hartl**, Harvard University
- 188** 10:05 am 2020 Edward Novitski Prize. **Welcome Bender**, Harvard Medical School
- 189** 10:10 am 2020 Elizabeth Jones Award for Excellence in Education. **Seth Bordenstein**, Vanderbilt University
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Friday, April 24  
10:30 am - 11:15 am

## Gruber Genetics Prize Presentation

Session Chair:

**Denise Montell**, University of California Santa Barbara

- 190** 10:30 am GSA Welcome. **Denise Montell**, University of California Santa Barbara
- 191** 10:31 am Gruber Foundation Welcome. **A. Sarah Hreha**, The Gruber Foundation
- 192** 10:33 am Presentation of 2020 Gruber Foundation Genetics Prize. **Allan Spradling**, Carnegie Institution/HHMI
- 193** 10:36 am Quorum-sensing communication: from viruses to bacteria to eukaryotes. **Bonnie Bassler**, HHMI/Princeton University
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Friday, April 24  
11:30 am - 1:00 pm

## Developmental Genetics: Cell Specification and Competition

Session Chairs:

**Lindsey Barske**, Cincinnati Children's Hospital Medical Center  
**Jing Yang**, University of Illinois

- 194** 11:30 am Dynamic self-generation of FGF morphogen gradients by cytonemes during *Drosophila* tracheal patterning. **Lijuan Du**, Unive
- 195** 11:45 am The BMP signaling gradient is interpreted as concentration thresholds during dorsal-ventral patterning of the embryonic axis.  
**Greenfeld**, University of Pennsylvania
- 196** 12:00 pm Localized and tissue-wide gene expression changes during regeneration of *Drosophila* imaginal discs revealed by single-cell  
**Melanie Worley**, Univ California, Berkeley
- 197** 12:15 pm Epithelial integrity monitoring via ligand-receptor segregation ensures malignant cell elimination. **Geert de Vreede**, Univ Calif
- 198** 12:30 pm Cell competition as a selection against aneuploid cells. **Nicholas Baker**, Albert Einstein Col Med
- 199** 12:45 pm Genetic basis and evolutionary context for structural color shift in the Buckeye butterfly (*Junonia coenia*). **Rachel Thayer**, Un  
California, Berkeley
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Friday, April 24  
11:30 am - 1:00 pm

## Models of Neurological Diseases

Session Chair:

**Kerri Kinghorn**, University College London

- 207** 11:30 am Probing the Mechanism of ROS-induced Lipid Droplet formation and Implications for Alzheimer's disease. **Matthew Moulton** of Medicine
- 208** 11:45 am Single Cell Transcriptomics Reveals Misregulated Cellular and Molecular Networks in a Mouse Model of Fragile X Syndrome. University of Massachusetts Medical School
- 209** 12:00 pm Downregulation of innate immunity suppresses seizures in *prickle* mutants. **Krishna Madhav Nukala**, University of Iowa
- 210** 12:15 pm Creating and Understanding Next-Generation Mouse Models of Alzheimer's Disease. **Gregory Carter**, The Jackson Laboratory
- 211** 12:30 pm Genome-wide discovery of human-gene toxicity modifiers of  $\alpha$ -synuclein. **Ishita Haider**, Wright State University
- 368** 12:45 pm TRPV4 disrupts mitochondrial transport and causes axonal degeneration via a CaMKII-dependent elevation of intracellular Ca<sup>2+</sup>. **Lloyd**, Johns Hopkins School of Medicine
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Friday, April 24  
11:30 am - 1:00 pm

## Through a Population Genetics Lens (PEQG)

Session Chair:

**C. Brandon Ogbunu**, Brown University

- 218** 11:30 am Attacks on genetic privacy via uploads to genealogical databases. **Michael Edge**, UC Davis
- 219** 11:45 am A *Drosophila* telomere protein evolves adaptively to contain telomeric retrotransposons. **Mia Levine**, University of Pennsylvania
- 220** 12:00 pm Identifying sites under positive selection on viral proteins. **Jonathan Mah**, University of Washington
- 221** 12:15 pm Mutualistic interactions shape adaptation in a model yeast-algae community. **Sandeep Venkataram**, University of California, San Diego
- 222** 12:30 pm Most cancers carry a substantial deleterious load due to Hill-Robertson interference. **Susanne Tilk**, Stanford University
- 12:45 pm Break
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Friday, April 24  
11:30 am - 1:00 pm

## New Technology and Resources

Session Chair:

**Aashiq Kachroo**, Concordia University

- 212** 11:30 am Large-scale phenotypic profiling of yeast subcellular compartments using high-content screening at single-cell resolution. **Manoj Usaj**, University of Toronto
- 213** 11:45 am The design and assembly of synthetic yeast chromosome VIII. **Stephanie Lauer**, NYU Langone
- 214** 12:00 pm Quantifying material tissue properties in cellularizing *Drosophila* embryo using soft bendable cantilevers. **Konstantin Doubrovin**, Southwestern University
- 215** 12:15 pm Mapping cell types and gene regulatory networks in the developing *Drosophila* brain using single-cell transcriptomics and epigenetics. **Jasper Janssens**, VIB-KU Leuven Center for Brain & Disease Research
- 216** 12:30 pm Light-dependent spatiotemporal control of gene expression a la carte: from discrete patterns to emoji-like shapes. **Lorena de la Cruz**, University of Florida
- 217** 12:45 pm Defining the Geometry of Life Across Model Organisms as a Unifying Framework for Computational Phenomics. **Keith Chen**, Johns Hopkins University School of Medicine
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Friday, April 24  
11:30 am - 1:15 pm

## Education Session

Session Chairs:

**Justin DiAngelo**, Penn State Berks

**Te-Wen Lo**, Ithaca College

**Jenny Knight**, Univ of Colorado, Boulder

- 200** 11:30 am Bear Hair Snares & DNA: Impact of Collaborative Instruction on Molecular Genetics and Mammalogy Students. **Julie Hall**, Lir University
- 201** 11:45 am Promoting *learning* and learner-centered teaching of genetics and bioinformatics with the Assessment Evaluation Rubric. **Robert Tractenberg**, Georgetown University and the Collaborative for Research on Outcomes and Metrics

**202** 12:00 pm The Genomics Education Alliance: scalable, sustainable Infrastructure for undergraduate course-based research experiences  
**Williams**, Cold Spring Harbor Laboratory

**203** 12:15 pm Crowd-sourcing CRISPR: A course-based research project to investigate the impact of chromatin environment on double-strand break formation while enhancing student learning. **Rebecca Burgess**, Stevenson University

**204** 12:30 pm The Pipeline CURE: an iterative approach to introduce all students to research throughout a biology curriculum. **Teresa Lee**,

**205** 12:45 pm Performance-Enhanced Biology: an interdisciplinary and inter-institutional experiment in science literacy and communication.  
Bemidji State

1:00 pm Break

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Friday, April 24

1:40 pm - 3:30 pm

## Gene Regulation: RNA Features and Functions

*Session Chair:*

**Julie Claycomb**, University of Toronto

**235** 1:40 pm Unraveling the influence of sequence features and position on uORF activity using massively parallel reporter systems and machine learning. **Joel McManus**, Carnegie Mellon University

**236** 1:55 pm Codon usage bias in a complex multicellular organism: one size does not fit all. **Scott Allen**, Duke University

**237** 2:10 pm The splicing factor SFPQ represses the formation of cryptic last exons. **Pat Gordon**, King's College London

**238** 2:25 pm Splicing takes place as RNA polymerase II transcribes past recursive and canonical splice sites in the developing *Drosophila* embryo. **Gonçalo Martinho**, University of Aveiro

**239** 2:40 pm mRNAs targeted by silencing small RNAs accumulate in P granules. **John Paul Ouyang**, Johns Hopkins University School of Medicine

**240** 2:55 pm Functional evolution of noncoding RNA for mammalian dosage compensation. **Sha Sun**, Univ California, Irvine

**241** 3:10 pm RNA abasic sites in yeast and human cells. **Vivian Cheung**, HHMI

3:25 pm Break

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Friday, April 24

1:40 pm - 3:40 pm

## Genome Integrity

*Session Chair:*

**Brian Calvi**, Indiana University, Bloomington

**248** 1:40 pm Evolutionarily conserved pathways prevent mislocalization of CENP-A and chromosomal instability (CIN) in yeast and human cells. **Basrai**, NCI/NIH

**249** 1:55 pm Rif1 functions in a tissue-specific manner to control replication timing through its PP1-binding motif. **Jared Nordman**, Vanderbilt University

**250** 2:10 pm Evidence of pervasive DNA replication mediated class of CNVs. **Pieter Spealman**, New York University

**251** 2:25 pm Polymerase theta protects against detrimental mitotic recombination. **Juan Carvajal-Garcia**, University of North Carolina at Chapel Hill

**252** 2:40 pm Chromatin modifiers alter repair/rejection outcomes during homologous recombination in *S. cerevisiae*. **Beata Mackenroth**, Columbia University

**253** 2:55 pm Regulation of sister chromatid repair maintains genomic integrity during meiosis. **Erik Toraason**, University of Oregon

**254** 3:10 pm The meiosis-specific cohesin subunit Rad211 is required for oogenesis but is dispensable for spermatogenesis in zebrafish. **Sebastian Schmitt**, Univ California, Davis

**255** 3:25 pm Delineation of the SUMO-Modified Proteome Reveals Regulatory Functions Throughout Meiosis. **Neil Hunter**, Univ California, Berkeley

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Friday, April 24

1:40 pm - 3:30 pm

## Genetics of Neuronal Development and Behavior

*Session Chairs:*

**Julie Dallman**, University of Miami

**Max Heiman**, Harvard University

**242** 1:40 pm The primary cilia gene *Ttc21b* modulates forebrain and orofacial development as a crucial ciliopathy gene. **Rolf Stottmann**, Children's Hospital Medical Center

- 243 1:55 pm Unique homeobox codes delineate all neuron classes of the nematode *Caenorhabditis elegans*. **Molly Reilly**, Columbia University
- 244 2:10 pm Axonal initial segment-like regions are localized distal to the intersection of dendrites and axons in active *Drosophila* neurons. **Ravenscroft**, Baylor College of Medicine
- 245 2:25 pm Autophagy-dependent filopodial kinetics restrict synaptic partner choice during *Drosophila* brain wiring. **Ferdi Ridvan Kiral**, Freie Universität Berlin
- 246 2:40 pm Neuropeptide VF Neurons Promote Sleep via the Serotonergic Raphe. **Daniel Lee**, California Institute of Technology
- 247 2:55 pm Feedback between sensorimotor and neuromodulatory circuits enables flexible selection of behavioral states in *C. elegans*. **Sasha Levy**, Massachusetts Institute of Technology
- 3:10 pm Break

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Friday, April 24

1:40 pm - 3:30 pm

## Departures from Additivity: Dominance, Epistasis and GxE (PEQG)

Session Chair:

**Kelley Harris**, University of Washington

- 223 1:40 pm Temperature-dependent phenotypic effects of house fly proto-Y chromosomes explain the maintenance of polygenic sex determination in natural populations. **Kiran Adhikari**, University of Houston
- 224 1:55 pm Gene-by-diet interactions modulate the landscape of transcriptional response of individual fruit flies. **Luisa Pallares**, Princeton University
- 225 2:10 pm Sign inversion in selection on modifier mutations. **Yevgeniy Raynes**, Brown University
- 226 2:25 pm Goldilocks and the Three Genotypes: Characterizing the Prevalence of Overdominance for Adaptive Mutations that Arise in *Drosophila*. **Chen**, Stanford University
- 227 2:40 pm Evolutionary modification of dominance reversal under seasonal antagonism. **Evgeny Brud**, University of Pennsylvania
- 2:55 pm Break

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Friday, April 24

1:40 pm - 3:30 pm

## Direct Collaborations Between Model Organism Researchers and Clinicians

Session Chairs:

**Shinya Yamamoto**, Baylor College of Medicine

**Andy Golden**, NIH

**Koichi Kawakami**, NIG-Japan

- 228 1:40 pm The essential role of model organisms for functional studies of genes and variants linked to human diseases. **Ada Hamosh**, Johns Hopkins University
- 229 1:55 pm Solving difficult to diagnose diseases using flies and zebrafish: the Model Organisms Screening Centers of the Undiagnosed Diseases Network. **Hugo Bellen**, Neurological Research Institute
- 230 2:10 pm The Canadian Rare Diseases Models and Mechanisms (RDMM) Network: Connecting Understudied Genes for Rare Diseases Characterization Research in Model Organisms. **Phil Hieter**, University of British Columbia
- 231 2:25 pm Leveraging the International Mouse Phenotyping Consortium in collaborative research. **Lauryl Nutter**, The Hospital for Sick Children
- 232 2:40 pm Modeling rare monogenic human diseases in *C. elegans*. **Andy Golden**, NIDDK/NIH
- 233 2:55 pm A model organism-based drug discovery pipeline for amyotrophic lateral sclerosis. **Alex Parker**, CRCHUM, University of Montreal
- 234 3:10 pm Strategies and resources to facilitate direct collaborations between clinicians and model organism researchers on a global scale. **Shinya Yamamoto**, Baylor College of Medicine
- 3:25 pm Break

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Friday, April 24

3:45 pm - 5:45 pm

## Genomics and Systems Biology

Session Chair:

**Sasha Levy**, Stanford University

- 270 3:45 pm A distinct class of condensin II sites are required to establish long-range interactions between distal heterochromatic sites following DNA replication. **Sasha Levy**, Stanford University

exit. **Randi Isenhardt**, University of Pennsylvania

**271** 4:00 pm Functional Analysis of the Mysterious Germline-Restricted Chromosome in Zebra Finch (*Taeniopygia guttata*). **Kathryn Asalor**, University

**272** 4:15 pm DeepArk: sequence-based models of cis-regulatory logic for model organisms. **Evan Cofer**, Princeton University

**273** 4:30 pm Biological Robustness: genetic compensation and transcriptional adaptation. **Didier Stainier**, Max Planck Institute for Heart & Lung Research

**274** 4:45 pm The dynamics of global acetylation remodeling during the yeast heat shock response. **Jeff Lewis**, University of Arkansas

**275** 5:00 pm Disome profiling reveals genome-wide targets of ribosome quality control. **Nicholas Guydosh**, NIDDK/NIH

**276** 5:15 pm A large accessory protein interactome is rewired across environments. **Sasha Levy**, Stanford University

5:30 pm Break

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Friday, April 24

3:45 pm - 5:45 pm

## Developmental Genetics: Organ Systems

Session Chair:

**Teresa Gunn**, McLaughlin Research Institute

**262** 3:45 pm Single cell sequencing the lateral plate mesoderm origins of mesothelial membranes. **Christian Mosimann**, University of Colorado Boulder

**263** 4:00 pm Regulation of blood cell transdifferentiation by oxygen sensing neurons through atypical guanylyl cyclases. **Katja Brückner**, University of California San Francisco

**264** 4:15 pm Molecular regulation of vascular smooth muscle cell recruitment to arteries during development. **Amber Stratman**, Washington University School of Medicine

**265** 4:30 pm *The sexy heart*: sex-specific differences during mouse cardiac development. **Nora Engel**, Temple University

**266** 4:45 pm Endocardial cell dynamics, modulated by cardiac function and Acvr1a signaling, shape the cardiac outflow tract. **Pragya Sidani**, University of California, San Diego

**267** 5:00 pm Cholinergic nerve dependent regeneration in the gut. **Afroditi Petsakou**, Harvard Medical School

**268** 5:15 pm A role for PAR polarity proteins in microtubule reorganization as intestinal epithelial cells divide. **Maria Sallee**, Stanford University

**269** 5:30 pm An abundant quiescent stem cell population protects principal cells from kidney stones in adult *Drosophila* Malpighian tubules. **Wang**, Carnegie Institution for Science

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Friday, April 24

3:45 pm - 5:45 pm

## Mechanistic Intracellular Dynamics

Session Chairs:

**Amanda Amodeo**, Princeton University

**Sally Horne-Badovinac**, University of Chicago

**277** 3:45 pm Patched regulates lipid homeostasis by controlling cellular cholesterol levels. **Anne Spang**, University of Basel

**278** 4:00 pm *Pla2g12b* affects serum cholesterol levels via the lipoprotein biogenesis pathway. **James Thierer**, Carnegie Institution for Science

**279** 4:15 pm ERM-1 phosphorylation and NRFL-1 redundantly control lumen formation in the *C. elegans* intestine in concert with the Ste2C GCK-4. **Mike Boxem**, Utrecht University

**280** 4:30 pm Connecting the lamin dots: Lmn3 orchestrates chromosome segregation and replication timing during zebrafish cleavage stages. **Shaw**, Washington University in St. Louis

**281** 4:45 pm Ire1 Phosphorylates Pumilio to protect XBP1 mRNA from RIDD. **Fatima Cairrao**, ITQB-UNL

**282** 5:00 pm Phenomic screen implicates the yeast lysine acetyltransferase NuA4 in regulation of glycogen synthesis and mitochondrial morphology through the PKA inhibitor Bcy1. **Elizabeth Walden**, University of Ottawa

**283** 5:15 pm Translational induction of ATF4 mRNA during Integrated Stress Response requires noncanonical initiation factors eIF2D and DDX1. **Don Ryoo**, New York University SoM

**284** 5:30 pm  $\alpha$ -Arrestins Regulate Autophagy. **Allyson O'Donnell**, University of Pittsburgh

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Friday, April 24



3:45 pm - 5:45 pm

## Complex Trait Adaptation

Session Chair:

**Emily B. Josephs**, Michigan State University

- 256** 3:45 pm Characterizing strong adaptation in an admixed population over 20 generations. **Amy Goldberg**, Duke University
- 257** 4:00 pm Decoding wheat adaptation by genus-level population sequencing. **Fei Lu**, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences
- 258** 4:15 pm The genomic basis of adaptation in a ninety year long barley experiment. **Daniel Koenig**, University of California Riverside
- 259** 4:30 pm The strength and pattern of natural selection on rice gene expression. **Simon Groen**, New York University
- 260** 4:45 pm Fitness and environmental patterns in maize landraces identify beneficial alleles at single gene resolution. **Daniel Gates**, UC Irvine
- 261** 5:00 pm A full-likelihood method to disentangle selection on genetically-correlated traits using whole-genome genealogies. **Aaron Stearns**, UC Berkeley
- 5:15 pm Break
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Friday, April 24

6:00 pm - 7:05 pm

## Keynote Session 2

Session Chair:

**Terry Magnuson**, University of North Carolina, Chapel Hill

Stem Cells In Silence, Action and Cancer. **Elaine Fuchs**, Rockefeller University

2020 Morgan Medal. **David Botstein**, Calico Labs

A liquid-like organelle at the root of motile ciliopathy. **John Wallingford**, University of Texas, Austin

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Saturday, April 25

11:00 am - 1:00 pm

## Germ Line (*C. elegans*)

Session Chair:

**Diana Chu**, San Francisco State University

- 288** 11:00 am Lessons learned from a genetic law-breaker. **Diane Shakes**
- 289** 11:30 am mRNA localization is linked to translation regulation in the *Caenorhabditis elegans* germ lineage. **Dylan Parker**, Colorado State University
- 290** 11:45 am DNA damage repair is altered in aging *C. elegans* oocytes. **Victoria Adler**, University of Oregon
- 291** 12:00 pm SPE-36 is an EGF-motif containing secreted sperm protein required for fertilization in *C. elegans*. **Amber Krauchunas**, Rutgers University
- 292** 12:15 pm DAF-18/PTEN inhibits germline zygotic gene activation during primordial germ cell quiescence. **E Hubbard**, New York University
- 293** 12:30 pm Effects of Polyploidy in *C. elegans*. **Mara Schvarzstein**, City University of New York, Brooklyn College and The Graduate Center, CUNY
- 12:45 pm Break
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Saturday, April 25

11:00 am - 1:00 pm

## Developmental Genetics (*Drosophila*)

Session Chairs:

**Mary Baylies**, MSKCC

**Nic Tapon**, Francis Crick Institute

**Melanie Worley**, UC Berkeley

- 294** 11:00 am Intercellular feedback in the growing *Drosophila* germline cluster. **Caroline Doherty**, Princeton University
- 295** 11:15 am A new conserved modulator of immune cell tissue invasion induces a metabolic program through concerted shifts in transcription. **Daria Siekhaus**, Institute of Science and Technology Austria
- 296** 11:30 am Positioning a stem cell niche during organogenesis. **Lauren Anllo**, University of Pennsylvania
- 297** 11:45 am Ecdysone dependent maturation of the epithelial barrier limits Dilp8 signaling in *Drosophila* wing imaginal discs. **Danielle Dackiw**, University of Virginia

- 298** 12:00 pm The Integrity of the mitotic nuclear lamina is required for stem cell maintenance. **Tingting Duan**, University of Iowa
- 299** 12:15 pm Cells with loss-of-heterozygosity after exposure to ionizing radiation in *Drosophila* are culled by p53-dependent and p53-independent mechanisms. **TinTin Su**, University of Colorado
- 300** 12:30 pm Rescue of a missing heart: The role of ribosomal proteins in congenital heart disease. **Tanja Nielsen**, Sanford Burnham Preby Research Institute
- 12:45 pm Break

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Saturday, April 25  
11:00 am - 1:00 pm

## Neurogenetics/New Technology (*Drosophila*)

Session Chairs:

**Bassem Hassan**, ICM Paris  
**Robin Hiesinger**, Freie U Berlin  
**Kate O'Connor-Giles**, Brown University  
**Giorgio Gilestro**, Imperial College London  
**Leif Benner**, NIH/NIDDK

- 301** 11:00 am Non-autonomous regulation of *Drosophila* neuroblast proliferation via glia lipid mediated hedgehog signalling. **Qian Dong**, The Melbourne
- 302** 11:15 am Walking and Singing: Closed-loop modulation of *Drosophila* song. **Osama Ahmed**, Princeton University
- 303** 11:30 am Proteomics of protein trafficking by *in vivo* tissue-specific labeling. **Ilia Droujinine**, Harvard Medical School
- 304** 11:45 am Microbiome High-throughput Screening System in *Drosophila*: an Opportunity to Understand Colonization. **Maria Jaime**, Car
- 12:00 pm Break

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Saturday, April 25  
11:00 am - 1:00 pm

## Divergence, Hybridization and Reproducible Isolation (PEQG)

Session Chair:

**Molly Schumer**, Stanford University

- 305** 11:00 am Assembly of a young vertebrate Y chromosome reveals convergent signatures of sex chromosome evolution. **Catherine Peic**, Bern
- 306** 11:15 am A supernumerary chromosome produces a 0W/00 sex determination system in a cichlid fish. **Erin Peterson**, NC State University
- 307** 11:30 am Odorant receptor tuning contributes to the evolution of sexual signaling in perfume-collecting orchid bees. **Philipp Brand**, Rice University
- 308** 11:45 am The selective forces and genetic basis of mating interactions that contribute to the rapid evolution of reproductive isolation. **D** University of Utah
- 309** 12:00 pm Repeated evolution of circadian clock dysregulation in cavefish populations. **Katya Mack**, Stanford University
- 310** 12:15 pm The genetics of reproductive isolation through host switching in experimentally evolved pigeon lice (*Columbicola columbae*). **Brown**, University of Utah
- 12:30 pm Break

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Saturday, April 25  
11:00 am - 1:00 pm

## System Biology of Yeast (Yeast)

Session Chair:

**John Pringle**, Stanford University

- 311** 11:00 am Towards a systematic map of the functional role of protein phosphorylation. **Bede Busby**, European Molecular Biology Laboratory
- 312** 11:15 am Species-wide survey of background-dependent phenotype across yeast natural populations. **Jing Hou**, University of Toronto
- 313** 11:30 am Gene regulatory network reconstruction using single-cell RNA sequencing of barcoded genotypes in diverse environments. **D** New York University
- 314** 11:45 am Connecting novel rare disease gene discoveries to functional characterization research in yeast and other model organisms. **I**

**315** 12:00 pm Introduction of Jonathan Weissman for the Ira Herskowitz Presentation. **Orna Cohen-Fix**, NIH/NIDDK

**316** 12:05 pm Ira Herskowitz Award Presentation. **Jonathan Weissman**, University of California, San Francisco

12:30 pm Break

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Saturday, April 25

11:00 am - 1:00 pm

## Insights into Cellular Dynamics and Functions (Zebrafish)

*Session Chairs:*

**Qing Deng**, Purdue University

**George Eisenhoffer**, MD Anderson Cancer Center

**317** 11:00 am The recycling endosome protein Rab25 coordinates actomyosin network maintenance, mitosis and cytokinesis to regulate ep spreading in the zebrafish gastrula. **Morley Willoughby**, University of Toronto

**318** 11:15 am Dynamic actomyosin pulses induce visco-elastic heterogeneity to drive epithelial cell extrusion. **Younna Atieh**, The University of Toronto

**319** 11:30 am Genetic analysis of ileal identity in the zebrafish intestine. **Jia Wen**, Duke University

**320** 11:45 am Regulation of protrusive behavior during collective cell migration. **Hannah Olson**, Oregon Health and Science University

**321** 12:00 pm Studying meningeal development and function using the zebrafish. **Marina Venero Galanternik**, National Institutes of Health

**74** 12:15 pm E4bp4-2b/Nfil3-2b contributes to circadian regulation by repressing *cryptochrome1aa* and *period2* expression via the D-box. **Wang**, Soochow University

12:30 pm Break

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Saturday, April 25

1:30 pm - 3:30 pm

## Neuronal Development (*C. elegans*)

*Session Chair:*

**Richard Poole**, University College London

**322** 1:30 pm Homeobox gene encode neuronal cell type diversity. **Oliver Hobert**

**323** 2:00 pm Embryo to mother signal to clean up molecular garbage-transgenerational proteostasis adjustment via exopher production. **S** Rutgers University

**324** 2:15 pm Retrograde extension as a general mechanism of sensory dendrite development. **Maxwell Heiman**, Boston Children's Hospital

**325** 2:30 pm FKH-7/FOXP regulates sensory neuron function during developmental decision-making. **Cynthia Chai**, California Institute of Technology

**326** 2:45 pm Distinct mechanisms regulate presynaptic release of functionally similar insulin/IGF-like proteins in *C. elegans* sensory neuron. **Drexel University**

**327** 3:00 pm Sensory cilia as the Achilles heel of nematodes when attacked by carnivorous mushrooms. **Yen-Ping Hsueh**, Academia Sinica

3:15 pm Break

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Saturday, April 25

1:30 pm - 3:30 pm

## Gene Regulation/Genome Integrity (*Drosophila*)

*Session Chairs:*

**Melissa Harrison**, U Wisconsin

**Daniel McKay**, UNC Chapel Hill

**Jeff Sekelsky**, UNC Chapel Hill

**Astrid Haase**, NIH/NIDDK

**Evan Dewey**, UNC Chapel Hill

**328** 1:30 pm Ecdysone Signaling Shapes Tissue Regeneration in Wing Discs through Regulation of Wingless Expression. **Faith Karanja**, University of Virginia

**329** 1:45 pm The temporal transcription factor E93 controls enhancer competency during *Drosophila* wing development. **Matthew Niederer**, University of North Carolina

- 330** 2:00 pm The transcription factor M1BP targets CP190 to chromatin to regulate transcription and chromatin insulator activity. **Indira Ba**
- 331** 2:15 pm Coordinate regulation of salivary gland form and function by *ribbon* during tubulogenesis. **Rajprasad Loganathan**, Johns Ho
- 332** 2:30 pm Ribosomal DNA-specific retrotransposons maintain unstable ribosomal DNA repeats in the *Drosophila* male germline. **Jonath**  
University of Michigan
- 333** 2:45 pm Targeted *de novo* centromere formation in *Drosophila* reveals plasticity and maintenance potential of CENP-A chromatin. **Bari**  
University of Connecticut
- 334** 3:00 pm Gazing into the CRISPR crystal ball – experimental and computational analysis of Cas9-induced alternative end-joining in Dro  
**McVey**, Tufts University
- 3:15 pm Break

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Saturday, April 25  
1:30 pm - 3:30 pm

## Intracellular Dynamics (*Drosophila*)

Session Chairs:

**Matt Sieber**, UT Southwestern  
**Savraj Grewal**, University of Calgary  
**Heidi Bretscher**, University of Minnesota

- 335** 1:30 pm Adipose mitochondrial metabolism couples nutrients to systemic insulin signaling and growth. **Shrivani Pirahas**, University of
- 336** 1:45 pm Clu bliss particles respond to nutritional regulation in *Drosophila* germ cells. **Kelsey Sheard**, Uniformed Services University
- 337** 2:00 pm A rapidly evolving actin-related protein monitors sperm quality in *Drosophila*. **Courtney Schroeder**, Fred Hutchinson Cancer I
- 338** 2:15 pm CDK-regulated phase separation seeded by histone genes ensures precise growth and function of Histone Locus Bodies. **Ro**  
University of North Carolina
- 339** 2:30 pm Optogenetic dissection of signaling crosstalk in the early embryo. **Sarah McFann**, Princeton University
- 340** 2:45 pm Regulation of Mitochondrial Network Organization in Muscles. **Prasanna Katti**, National Institutes of Health
- 341** 3:00 pm A CSN-SDR-PLIN2 axis regulates lipid droplet size via affecting Brummer ATGL lipase. **Xun Huang**, IGDB, CAS
- 3:15 pm Break

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Saturday, April 25  
1:30 pm - 3:30 pm

## New Technology and Resources (Mammal)

Session Chair:

**Martin Hrabe de Angelis**, Helmholtz Zentrum Munich GmbH

- 342** 1:30 pm Efficient and effective curriculum development and training for biological sciences. **Sue McClatchy**, The Jackson Laboratory
- 343** 1:45 pm The mouse Gene Expression Database (GXD): fostering insights into the molecular mechanisms of development and disease.  
**Smith**, The Jackson Laboratory
- 344** 2:00 pm Completing the GENCODE gene catalogue for the mouse reference genome. **Jane Loveland**, EMBL-EBI
- 345** 2:15 pm Disease Portals at RGD: Access to Consolidated Disease-Related Data and Tools Across Species. **Jennifer Smith**, Medical C  
Wisconsin
- 369** 2:30 pm Combined transient ablation and single cell RNA sequencing reveals the development of medullary thymic epithelial cells. **Kri**  
Stanford University School of Medicine
- 2:45 pm International Mammalian Genome Society Trainee Awards. **Linda Siracusa**, IMGS President
- 3:00 pm Break

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Saturday, April 25  
1:30 pm - 3:30 pm

## Future Visions of Population, Evolutionary, and Quantitative Genetics (PEQG)

Session Chair:

**Dmitri Petrov**, Stanford University

- 346** 1:30 pm Announcement of the James F Crow Early Career Researcher Award . **Bret Payseur**

- 347 1:45 pm Selection against archaic DNA in human regulatory regions. **Kelley Harris**, University of Washington
- 348 2:00 pm Natural hybridization reveals incompatible alleles causing melanoma in swordtail fish. **Molly Schumer**, Stanford
- 349 2:15 pm The role of local adaptation in shaping GxE. **Emily Josephs**, Michigan State University
- 350 2:30 pm Evolution of the essential gap gene *giant* causes hybrid inviability in *Drosophila*. **Daniel Matute**, University of North Carolina, Chapel Hill
- 351 2:45 pm The epistatic norm of reaction. **Brandon Ogbunu**, Brown University
- 367 3:00 pm Chromatin and epigenomic variation reveals the gene regulatory landscape of adaptive divergence in sticklebacks. **Felicity J. Miescher**, Laboratory of Max Planck Society
- 3:15 pm Break
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Saturday, April 25  
1:30 pm - 3:30 pm

## Dynamics and Regulation of Cellular Organization (Yeast)

*Session Chairs:*

**Kerry Bloom**, University of North Carolina, Chapel Hill  
**Jodi Nunnari**, University of California, Davis

- 352 1:30 pm A non-canonical Hippo pathway regulates spindle disassembly and cytokinesis during meiosis II in *Saccharomyces cerevisiae*.  
University Massachusetts Boston
- 353 1:45 pm Measuring load-bearing interactions between the Dam1 complex and its multiple binding sites in the Ndc80 complex. **Rachel**  
University of Washington
- 354 2:00 pm Spatial segregation of repair pathways within the pericentromere. **Kerry Bloom**, University of North Carolina at Chapel Hill
- 355 2:15 pm Ubiquitin hydrolase regulation of membrane scission by ESCRT-III. **Greg Odorizzi**, University of Colorado
- 356 2:30 pm Comprehensive protein architecture of the yeast epigenome at high resolution. **Frank Pugh**, Penn State University
- 357 2:45 pm SGD Update. **Mike Cherry**, Stanford University
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Saturday, April 25  
1:30 pm - 3:30 pm

## Disease Models (Zebrafish)

*Session Chairs:*

**Charles Kaufman**, Washington University School of Medicine  
**Zhaoxia Sun**, Yale University School of Medicine

- 358 1:30 pm Enteroendocrine cells sense gut bacteria and activate a gut-brain pathway. **Lihua Ye**, Duke University
- 359 1:45 pm A Novel Model of Retinal Ganglion Cell Death and Regeneration in Zebrafish. **Kevin Emmerich**, Johns Hopkins University School of Medicine
- 360 2:00 pm Building the Vertebrate Codex using the Gene Breaking Protein Trap Library. **Noriko Ichino**, Mayo Clinic
- 361 2:15 pm The Reissner Fiber is Highly Dynamic in vivo and Controls Morphogenesis of the Spine. **Ryan Gray**, University of Texas at Austin, School of Medicine
- 362 2:30 pm Analysis of craniosynostosis risk factors in zebrafish. **Xuan He**, Boston University
- 363 2:45 pm NMDA receptor dependent nervous system functions. **Howard Sirotkin**, Stony Brook University
- 3:00 pm Break
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Saturday, April 25  
4:00 pm - 6:00 pm

## Keynote Session 3

*Session Chair:*

**Hugo Bellen**, Baylor College of Medicine

The generation of neural diversity. **Claude Desplan**, New York University

Selective interference and the evolution of sex. **Sarah Otto**, University of British Columbia

Spatial patterning of meiotic recombination. **Abby Dernburg**, University of CA, Berkeley

Break

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Thursday, May 07  
1:00 pm - 3:00 pm

## Science Communication: Challenges and Impact

Science is about generating and sharing new knowledge. In this workshop, we will address the importance of broad communication and outreach of scientific knowledge to society at large. The workshop will begin and end with group discussions led by panelists with diverse backgrounds and experience in engagement in outreach activities with general audiences. In between, participants will use a Speed Dating format to brainstorm scientific communication successes and challenges, getting and giving feedback on issues they have encountered. Overall, participants will develop communication skills and learn about engagement opportunities in outreach initiatives.

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Tuesday, May 19  
1:00 pm - 3:00 pm

## GSA Publishing Q and A

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Tuesday, May 19  
1:00 pm - 3:00 pm

## Career Development Workshop

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Thursday, May 21  
1:00 pm - 3:00 pm

## Chemoreception, Physiology and Social Behavior: A Genetic Perspective

Chemoreception, including taste and smell, plays a critical role in fundamental physiology and behavior. Over the past several years, tremendous progress has been made towards understanding the chemosensory mechanisms underlying complex physiology and behaviors in genetically tractable model organisms such as flies, ants, and worms. In this proposed workshop, the speakers will present their work on the receptors and signaling molecules dedicated to gustatory or olfactory perception in flies, ants, and worms. Moreover, the speakers will discuss the use of genetic model organisms to provide insights into chemosensory regulation of metabolism, aging and social behaviors.

**Hua Yan**, University of Florida - Olfaction and social behavior in Ants

**John Mack**, Monell Chemical Senses Center, University of Pennsylvania - Molecular and cellular basis of taste coding in *Drosophila*

**Shawn Xu**, Life Sciences Institute, University of Michigan - Chemosensation and aging in *C. elegans* Time: 20 min (15 minutes + 5 minutes Q&A)

**Yangkyun Oh**, Skirball Institute of Biomolecular Medicine, New York University - A pair of glucose-sensing neurons regulate glucose homeostasis by coordinating the release of insulin and glucagon in *Drosophila*

### Roundtable discussion

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Tuesday, May 26  
1:00 pm - 3:00 pm

## Education: Raising a woke generation of geneticists: how and why to include eugenics history in genetics classes

### Raising a Woke Generation of Geneticists: How and Why to Include Eugenics History in Genetics Classes

This workshop is for everyone who teaches undergraduate and graduate genetics and is concerned about eugenics in the modern era. Whether you discuss eugenics in class or don't know where to start, bring your ideas and questions to the workshop! We will review the history of eugenics and educational strategies that have worked and failed. We will break out to tackle specific challenges, such as creating safe spaces for students to discuss, assessing student learning outcomes, and how to discuss the ethics of GWAS studies of complex human traits including intelligence and orientation.

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Thursday, May 28  
1:00 pm - 3:00 pm

## Reproducibility for Everybody

Rigor and reproducibility are at the core of modern science and set apart scientific inquiry from pseudoscience. Several new initiatives and tools have been established to address barriers to reproducibility. While very welcome, these projects have led to a proliferation of online tools and resources that are difficult to sift through. This workshop will introduce you to reproducible workflows and a range of tools along the themes of organization, documentation, dissemination. After a brief introduction to the topic of reproducibility, the workshop will provide specific tips and tools useful in improving your workflows. This will include the 101 of all data handling, wet lab protocol sharing platforms, documentation of code using notebooks, workflow version control, best practices for plotting of small data sets and reagent sharing platforms. This will help you to share your work with your future immediate colleagues and the wider scientific community.

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Tuesday, June 02

1:00 pm - 3:00 pm

## Grants and Funding

Just how are decisions made to fund a research proposal? What makes one proposal score well, while another might not meet the bar?

This workshop provides attendees with important and useful information related to applying for research funding. Attendees hear talks from ex-investigators and program officers, and have a chance to ask questions in a friendly, low-stress environment.

Attendees will learn about:

- How, when, and why to reach out to program officers
- Common errors when applying for funding
- How to frame your grant significance and novelty
- Funding for experimental organisms

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Thursday, June 04

1:00 pm - 3:00 pm

## Genetic Puzzles

The dogma of DNA makes RNA makes protein while of course still valid does not begin to describe the complexity of life. Multiple feedback loops at every level of gene and regulation and protein function. This workshop will focus on non-traditional genetic phenomena including transgenerational genetic compensation and transcriptional adaptation.

1:00 p.m. Introduction: **Didier Stainier** and **Julie Claycomb**

1:05 p.m. **Julie Claycomb**, University of Toronto, Untangling the tentacles of the *C. elegans* Argonaute family

1:20 p.m. **Rebecca Moore** (PhD Student, Murphy Lab), Princeton University, *C. elegans* uses bacterial small RNAs and RNA interference to influence the microbiome

1:35 p.m. **Xin Chen** (Rajesh Ranjan, Postdoc), Johns Hopkins University, Investigate how asymmetric epigenetic information is established in mammals

1:50 p.m. **Giovanni Bosco**, Dartmouth Geisel School of Medicine, Neuromodulation and reprogramming of germline cell in *Drosophila*

2:05 p.m. **Jay B. Hollick**, The Ohio State University, Paramutation

2:20 p.m. **Satyaki Rajavasireddy** (Postdoc, Gehring Lab), Whitehead Institute, Massachusetts Institute of Technology, Antagonistic parental roles in zygotic development: a small RNA view from seeds

2:35 p.m. **Didier Stainier**, Max Planck Institute for Heart and Lung Research, Genetic compensation and transcriptional adaptation

2:50 a.m. General discussion

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Thursday, June 04

1:00 pm - 3:00 pm

## Everything You Ever Wanted To Know about Sex

The workshop will cover the molecular genetics, development, neurobiology, genomics, evolution, and population genetics of sexual dimorphism with emphasis on fostering the exchange of knowledge and development of collaborations necessary for building cross-disciplinary and cross-organism communities. Presentations by four invited speakers working in *Drosophila*, nematode, zebrafish, and mammalian models will be followed by talks from early career researchers. The speakers are encouraged to summarize the key ideas behind their research for people working in other fields, outline the main unsolved questions, offer thoughts about future directions, and suggest connections across models and disciplines.

1:00 p.m. Opening Remarks

1:03 p.m. **Douglas Portman**, University of Rochester, Sexual state in *C. elegans*: Binary and static, or flexible and dynamic?

1:21 p.m. **Didem P. Sarikaya**, University of California Davis, Sex-specific traits: from cells to systems.

1:39 p.m. **Kellee Siegfried**, University of Massachusetts Boston, The zebrafish *dmrt* gene family: roles in sex-determination and gonad development

1:57 p.m. **Daniel Wilson Bayless**, Stanford, A sexually dimorphic neural circuit for sex/mate recognition in mice.

2:15 p.m. **Chen Wang**, Columbia University, Expression and functional studies of the DM-domain transcription factors reveal novel sexual dimorphism

2:22 p.m. **Lydia Grmai**, Johns Hopkins University, Sex-specific ecdysone signaling is established by *Dsx* to regulate gonad stem cell niche development

2:29 p.m. **Huangyi He**, Zhejiang University, Evolution and development of *Drosophila* sperm heteromorphism.

2:36 p.m. **Erica Nadolski**, The University of Oklahoma, The genetics of sex-specific reproductive traits in *Drosophila*.

2:43 p.m. **Kiran Adhikari**, University of Houston, Temperature-dependent phenotypic effects of house fly proto-Y chromosomes explain the male polygenic sex determination in natural populations.

2:50 p.m. **Nipun Basrur**, The Rockefeller University, Sexual dimorphism in mosquito behavior.

2:57 p.m. Closing Remarks

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Tuesday, June 16  
2:00 pm - 5:00 pm

## Scientific Writing Workshop

Whether you're writing a manuscript or a thesis, communicating your results effectively is an essential skill. Through this workshop, graduate students and postdocs will explore topics relevant to scientific writing through a series of lectures and interactive sessions. Using their own datasets, participants will create effective figures and tables. Using feedback from senior scientists and peers, attendees will edit and revise their abstracts.

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Thursday, June 18  
1:00 pm - 3:00 pm

## Scientific Writing Workshop

Whether you're writing a manuscript or a thesis, communicating your results effectively is an essential skill. Through this workshop, graduate students and postdocs will explore topics relevant to scientific writing through a series of lectures and interactive sessions. Using their own datasets, participants will create effective figures and tables. Using feedback from senior scientists and peers, attendees will edit and revise their abstracts.

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Monday, July 13  
1:00 pm - 3:00 pm

## BREW: Bridging Research and Education Workshop

The Bridging Research and Education Workshop (BREW) will be held virtually on July 13, from 1-3 PM ET. The workshop will focus on yeast and undergraduate teaching labs and approaches for bridging research and education. It will include ~ 6 talks followed by breakout rooms for interaction of the speakers. We are particularly interested in the following topics:

- - Yeast experiments for undergraduate teaching labs
  - Research projects that can be performed online (e.g. bioinformatics)
  - Education research data addressing diversity and inclusion

If you would like to be considered for a talk, please send a short abstract describing of your topic to [Mary Miller](#) by **May 15<sup>th</sup>, 2020**. Please include the subject line.

To be added to the BREW mailing list email Orna Cohen-Fix at [ornac@nidDK.nih.gov](mailto:ornac@nidDK.nih.gov). Also, if you can think of ways of advertising this workshop, particularly among professors in primarily undergraduate institutions, please let [Orna](#) know.

More details regarding registration (which will be free) and how to connect via Zoom will be available as we get closer to the date.