Registered Attendees will receive access to our Canvas LMS approximately two weeks in advance of the course. Pre-Recorded content will be available on initial log in to Canvas. Each day of the course, additional pre-recorded lectures will be uploaded with live afternoon sessions for Q&A Sessions with speakers, Keynote Lectures and Workshops. The times of all live sessions are shown in Eastern Standard Time, and will be available on-demand 48 hours after session. Each pre-recorded lecture will be approximately 60 minutes in length.

Schedule is Subject to Change

Pre-Recorded Content

Course Welcome
Edison Liu, M.D., The Jackson Laboratory

History of Human Genetics
David Valle, M.D., Johns Hopkins University School of Medicine

Mice as Models for Human Diseases
Greg Cox, Ph.D., The Jackson Laboratory

Opportunities and Limits in the 21st Century Mouse Model System
Steve Munger, Ph.D., The Jackson Laboratory

Molecular Genetics
John A. Phillips, III., M.D., Vanderbilt University School of Medicine

Introduction to MGI
David Shaw, M.S., The Jackson Laboratory

OMIM
Ada Hamosh, M.D., The Johns Hopkins University School of Medicine

Skippy Lane Memorial Mouse Genetics Clinic
Greg Cox, Ph.D., The Jackson Laboratory
Monday, July 20th

PRE-RECORDED CONTENT

Chromosome Structure and Function
Jeanne Lawrence, Ph.D., University of Massachusetts Medical School

Using Large-Scale Genomic Databases to Understand Human Gene Function
Anne O’Donnell-Luria, M.D., Ph.D., Broad Institute of MIT & Harvard

CNVs in Human Disease
Charles Lee, Ph.D., The Jackson Laboratory for Genomic Medicine

Sequencing Technology and Application
Elaine Mardis, Ph.D., Nationwide Children’s Hospital

LIVE SESSIONS

11:15 am  Q&A Panel Session
David Valle, Greg Cox & Steve Munger

11:45 am  Q&A Panel Session
John Phillips, Ada Hamosh & David Shaw

1:15 pm    Workshop: Solving Molecular Genetics Problems
John A. Phillips, III., M.D., Vanderbilt University School of Medicine &
Greg Cox, Ph.D., The Jackson Laboratory

3:15 pm    Thomas H. Roderick Memorial Lecture
Title TBD
Rudolf Jaenisch, M.D., Whitehead Institute

6:00 pm    Virtual Happy Hour Meet & Greet
Tuesday, July 21st

PRE-RECORDED CONTENT

Transcriptional Regulation of Gene Expression
Andrew McCallion, Ph.D., Johns Hopkins University School of Medicine

Inborn Errors of the Epigenetic Apparatus: Genetics of Chromatin Readers and Writers
Hans Bjornsson, M.D., Ph.D., Johns Hopkins University School of Medicine

Organizing Principles of the 3D Genome
Jennifer Phillips-Cremins, Ph.D., University of Pennsylvania

Machine Learning for Regulatory Genomics: Basics and Pitfalls
Michael Beer, Ph.D., Johns Hopkins University School of Medicine

LIVE SESSIONS

11:15 am  Q&A Panel Session
Jeanne Lawrence & Charles Lee

11:45 am  Q&A Panel Session
Elaine Mardis & Anne O’Donnell

1:15 pm    Workshop: Mouse Genomic Resources
Carol Bult, Ph.D., The Jackson Laboratory &
Cynthia Smith, Ph.D., The Jackson Laboratory

3:15 pm    The Nature of Mutation
Stylianos Antonarakis, M.D., DSc, University of Geneva Medical School

4:45 pm    Poster Presentations
**Wednesday, July 22**

**PRE-RECORDED CONTENT**

**CRISPR**
Albert Cheng, Ph.D., *The Jackson Laboratory for Genomic Medicine*

**Single Cell Analysis in Normal and Disease Tissue**
Loyal Goff, Ph.D., *Johns Hopkins University School of Medicine*

**A Primer on Quantitative Systems Biology**
Aravinda Chakravarti, Ph.D., *NYU Langone Health*

**Mapping Complex Traits in Mice**
Gary Churchill, Ph.D., *The Jackson Laboratory*

**LIVE SESSIONS**

11:15 am  **Q&A Panel Session**  
*Andy McCallion & Michael Beer*

11:45 am  **Q&A Panel Session**  
*Jennifer Phillips-Cremins & Hans Bjornsson*

1:15 pm  **RNA-seq Analysis Workshop**  
Steve Munger, Ph.D., *The Jackson Laboratory*

3:15 pm  **Victor A. McKusick Lecture**  
*Regulation of Oxygen Homeostasis by Hypoxia-Inducible Factors*  
Gregg Semenza, M.D., Ph.D., *Johns Hopkins University*
Thursday, July 23rd

PRE-RECORDED CONTENT

Complex Disease Genetics and Drug Discovery
Jeffrey Barrett, DPhil, **Wellcome Sanger Institute**

**Lecture Title TBD**
Jose Florez, M.D., Ph.D., **Massachusetts General Hospital, Harvard Medical School, & The Broad Institute**

**Lecture Title TBD**
Eimear Kenny, Ph.D., **Icahn School of Medicine at Mount Sinai**

**Genetic Epidemiology of Breast and Ovarian Cancer**
Larry Brody, Ph.D., **National Human Genome Research Institute**

**Cancer Biology Exposed by Large-Scale Sequencing**
Victor Velculescu, M.D., Ph.D., Johns Hopkins University

LIVE SESSIONS

11:15 am  **Q&A Panel Session**  
Loyal Goff & Albert Cheng

11:45 am  **Q&A Panel Session**  
Aravinda Chakravarti & Gary Churchill

1:15 pm  **Workshop: UCSC Genome Browser in Clinical Medicine**  
Robert Kuhn, Ph.D., **University of California, Santa Cruz**

3:15 pm  **Lecture Title TBD**  
Evan Eichler, Ph.D., **UW Genome Sciences**
Friday, July 24th

PRE-RECORDED CONTENT

**Genetics of Autoimmunity**
David Serreze, Ph.D., *The Jackson Laboratory*

**Inherited Immunodeficiencies: Models for Newborn Screening and Gene Therapy**
Jennifer Puck, M.D., University of California San Francisco

**Immunodeficiency**
Steven Holland, M.D., *National Institutes of Health*

**The Humanized Mouse in Biomedical Research**
Lenny Shultz, Ph.D., *The Jackson Laboratory*

**LIVE SESSIONS**

11:15 am  
**Q&A Panel Session**  
*Jeffrey Barrett, Jose Florez & Eimear Kenny*

11:45 am  
**Q&A Panel Session**  
*Lawrence Brody & Victor Velculescu*

1:15 pm  
**Workshop: ClinGen & ClinVar**  
Heidi Rehm, Ph.D., *Massachusetts General Hospital & Broad Institute*

3:15 pm  
**Chen K. Chai Lecture**  
*Lecture Title TBD*  
David Scadden, M.D., *Harvard Medical School, Massachusetts General Hospital*
Monday, July 27th

PRE-RECORDED CONTENT

**Genomics and the Inference of Human Population History**
Andrew Clark, Ph.D., *Cornell University*

**African Evolutionary Genomics**
Sarah Tishkoff, Ph.D., *University of Pennsylvania*

**Out of Africa, Into Genomics – An Overview of African Genomic Diversity**
Neil Hanchard, M.D., Ph.D., *Baylor College of Medicine*

**Genetic Medicine of the African Population: Promise and Prospects**
Ambroise Wonkam, M.D., D.Med.Sci, Ph.D., *University of Cape Town*

LIVE SESSIONS

11:15 am  Q&A Panel Session
*Steven Holland & Jennifer Puck*

11:45 am  Q&A Panel Session
*David Serreze & Lenny Shultz*

1:15 pm  Workshop: WES/WGS Analysis
*Nara Sobreira, M.D., Ph.D., Johns Hopkins University*

3:15 pm  Inborn Errors of Immunity to Sars-CoV-2
Jean-Laurent Casanova, M.D., Ph.D., *The Rockefeller University*
Tuesday, July 28th

PRE-RECORDED CONTENT

The Genetics and Clinical Phenotypes of Inherited Skeletal Dysplasias
Julie Hoover-Fong, M.D., Ph.D., Johns Hopkins University School of Medicine

Genetic and Pharmacologic Modifiers of Cystic Fibrosis
Garry Cutting, M.D., Johns Hopkins University

Pharmacogenomics: Discovery, Translation and Implementation
Richard Weinshilboum, M.D., Mayo Clinic

Mouse Models for COVID-19
Nadia Rosenthal, Ph.D., The Jackson Laboratory

Biomedical Ethics in Genomics
Debra Mathews, Ph.D., M.A., Johns Hopkins University

LIVE SESSIONS

11:15 am  Q&A Panel Session
Andrew Clark & Neil Hanchard

11:45 am  Q&A Panel Session
Sarah Tishkoff & Ambroise Wonkam

1:15 pm    Poster Presentations

3:15 pm    TGF Beta Signaling and the Marfan Syndrome
Harry “Hal” Dietz, Johns Hopkins University School of Medicine
Wednesday, July 29th

PRE-RECORDED CONTENT

Proteomics as a Biological Assay
Steven Gygi, Ph.D., Harvard Medical School

Metabolomics in the Assessment of Human Diseases
Ralph DeBerardinis, M.D., Ph.D., University of Texas Southwestern

Inborn Errors of Metabolism
Hilary Vernon, M.D., Ph.D., Johns Hopkins University

Treatment of Genetic Disease
David Valle, M.D., Johns Hopkins University School of Medicine

Prenatal Genetic Diagnosis and Screening
Ignatia B. Van den Veyver, M.D., Baylor College of Medicine

LIVE SESSIONS

11:15 am  Q&A Panel Session
Julie Hoover-Fong, Garry Cutting & Richard Weinshilboum

11:45 am  Q&A Panel Session
Nadia Rosenthal & Debra Mathews

1:15 pm  Senior Lecturer
The Genetic Basis of Human Developmental Disorders
David FitzPatrick, M.D., The University of Edinburgh Institute of Genetics
Thursday, July 30th

PRE-RECORDED CONTENT

Gene Therapy
TBA

Remembrance of Things Past: Reactivation of Fetal Hemoglobin for Therapy
Stuart Orkin, M.D., Harvard Medical School

Milasen: An Unexpected Case Study in Hyperindividualized Medicine
Timothy Yu, M.D., Ph.D., Boston Children’s Hospital

LIVE SESSIONS

11:15 am  Q&A Panel Session
            Steven Gygi & Ralph DeBerardinis

11:45 am  Q&A Panel Session
            Hillary Vernon, David Valle & Ignatia Van den Veyver

1:15 pm    Q&A Panel Session
            Stuart Orkin & Timothy Yu

3:15 pm  Course Wrap-Up & Poster Awards

- End -