30th Annual Short Course on Experimental Models of Human Cancer

Virtual Event
August 16 - 27, 2021

Registered Attendees will receive access to our virtual event portal (Canvas LMS) approximately two weeks in advance of the course. All on-demand content will be available in Canvas on Monday, August 9. The course is divided into 10 modules and consists of pre-recorded lectures (approximately 60 minutes in length) and live panel discussions, workshops, faculty Q&A, short talks, and poster presentations. Live sessions are presented via Zoom Webinar and will be recorded and posted to the Canvas portal for on-demand access within 48 hours. Course content will remain accessible to attendees until October 31, 2021. All times are shown in U.S. Eastern Daylight Time.

Course Organizers

Karolina Palucka, M.D., Ph.D.
Professor
The Jackson Laboratory for Genomic Medicine

Brent Berwin, Ph.D.
Director, Courses & Conferences
The Jackson Laboratory

A. Thomas Look, M.D.
Professor of Pediatrics
Dana-Farber Cancer Institute

Matthew Krummel, Ph.D.
Professor
University of California, San Francisco

Carol Bult, Ph.D.
Professor, Knowlton Family Chair
The Jackson Laboratory

Lisa Coussens, Ph.D.
Professor and Chairwoman, Dept of Cell, Developmental, and Cancer Biology
Oregon Health & Science University

Schedule is subject to change
Schedule of Activities

Monday, August 16

**Live Sessions**

11:00 am – 1:00 pm  Centers of The Cancer Universe: A Half Century of Progress in Cancer Research
Eric T. Rosenthal, EvocaTalk Research & Reports
Donald “Skip” Trump, M.D., Inova Schar Cancer Institute

2:00 pm – 3:00 pm  Tumor Exosomes and Exomeres Promote Organotropic Metastasis and Systemic Disease | David Lyden, M.D., Ph.D., Cornell University

**Recommended On-Demand Content**
Speakers are featured in the following live session

**Keynote Lecture:** Inflammation and Cancer - Good Cells Behaving Badly
Lisa Coussens, Ph.D., Oregon Health & Science University

Cancer Metabolism: Back to the Future
Tak Mak, Ph.D., Princess Margaret Cancer Centre at University Health Network

The Mechanistic Basis of Cancer Immunotherapy
Ira Mellman, Ph.D., Genentech

Resident Macrophages in Models of Peritoneal Metastatic Disease
Gwendalyn Randolph, Ph.D., Washington University School of Medicine in St. Louis

Grantwriting for Success
Anna Lisa Lucido, Ph.D., P.M.P., The Jackson Laboratory

Schedule is subject to change
Tuesday, August 17

**Live Sessions**

11:00 am – 12:00 pm  **Panel Discussion: Current Key Questions in Cancer Biology and Therapy**  
Presented By: Lisa Coussens, Tak Mak, Ira Mellman, Gwendalyn Randolph, Matthew Krummel, Elaine Pinheiro, David Lyden  
Moderated By: Ira Mellman and Gwendalyn Randolph

12:00 pm – 1:00 pm  **Faculty Q&A**

2:00 pm – 3:00 pm  **Advanced Dynamic and Static Optical Imaging Methods for Exploration of Tumor-Immune System Interactions**  
Ronald Germain, M.D., Ph.D., National Institutes of Health

**Recommended On-Demand Content**  
Speakers are featured in the following live session

- **Keynote Lecture: Unexpected Functions of BRCA1**  
  David Livingston, M.D., Harvard Medical School

- **APOBEC Mutagenesis in Tumor Progression**  
  James Alvarez, Ph.D., Duke Cancer Institute

- **Disseminated Tumor Cell Dormancy: Lessons on Tissue Specificity**  
  Cyrus Ghajjar, Ph.D., Fred Hutchinson Cancer Research Center

- **Mechanisms of Brain Metastasis**  
  Eva Hernando-Monge, Ph.D., NYU Langone Health

- **Introduction to Cancer**  
  Edison T. Liu, M.D., The Jackson Laboratory

- **Stem Cell Signals in the Origin, Progression and Therapy Resistance of Cancers**  
  Tannishtha Reya, Ph.D., University of California San Diego

- **Biology of Minimal Residual Disease**  
  M. Soledad Sosa, Ph.D., Icahn School of Medicine at Mount Sinai

Schedule is subject to change
Wednesday, August 18

**Live Sessions**

11:00 am – 12:00 pm  
Panel Discussion: Mechanisms of Metastatic Disease  
Presented by: David Livingston, James Alvarez, Cyrus Ghajar, Eva Hernando-Monge, Tannishtha Reya, Soledad Sosa  
Moderated By: Francesca Menghi and Soledad Sosa

12:00 pm – 1:00 pm  
Faculty Q&A

2:00 pm – 4:00 pm  
Single Cell RNA Seq  
Paul Robson, Ph.D., The Jackson Laboratory

**Recommended On-Demand Content**  
Speakers are featured in the following live session

Innate Lymphoid Cells in Biology  
Marco Colonna, Ph.D., Washington University in St. Louis

Tools for T Cells: Infection and Cancer  
Mark Davis, Ph.D., Stanford Medicine

Dendritic Cells, Related Cells and Initiation of Adaptive Immunity  
Stephanie Eisenbarth, M.D., Ph.D., Yale School of Medicine

Regulation of Tumor Progression by Myeloid Cells  
Dmitry Gabrilovich, M.D., Ph.D., The Wistar Institute

How Vaccine Regimens, Adjuvants, and Immunogen Design Impact Antigen Fate in Lymph Nodes  
Darrell Irvine, Ph.D., Massachusetts Institute of Technology

Innate Immunity, Inflammation and Cancer: Double Edged Swords  
Alberto Mantovani, M.D., Humantias

Autoimmunity and Cancer Immunology: Informing Each Other Through Patient-Oriented Studies  
Virginia Pascual, M.D., Weill Cornell Medicine

Schedule is subject to change
Thursday, August 19

**Live Sessions**

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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>11:00 am – 12:00 pm</td>
<td><strong>Panel Discussion: Inflammation</strong>&lt;br&gt;Presented By: Marco Colonna, Mark Davis, Stephanie Eisenbarth, Dmitry Gabrilovich, Darrell Irvine, Alberto Mantovani, Virginia Pascual</td>
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<td>Moderated By: Jan Martin and Alberto Mantovani</td>
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<td>12:00 pm – 1:00 pm</td>
<td><strong>Faculty Q&amp;A</strong></td>
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<tr>
<td>2:00 pm – 4:00 pm</td>
<td>**Short Talks</td>
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**Recommended On-Demand Content**
Speakers are featured in the following live session

- **Molecular Biomarkers of Response and Resistance to Checkpoint Blockade in Clinical Settings**<br>Romain Banchereau, Ph.D., Genentech

- **Normalizing the Tumor Microenvironment to Improve Cancer Immunotherapy: Bench to Bedside**<br>Rakesh Jain, Ph.D., Harvard Medical School and Massachusetts General Hospital

- **How Does the Gut Microbiota Influence Host Immune Functions?**<br>Dan R. Littman, M.D., Ph.D., NYU Langone Health

- **The Immunobiology of the Ovarian Tumor Microenvironment**<br>Pamela Ohashi, Ph.D., F.R.S.C., Princess Margaret Cancer Centre

- **Case Studies in Oncology Translational Drug Development**<br>Elaine Pinheiro, Ph.D., Merck

- **The Molecular Cell Biology of Immune Control and Escape of Cancer**<br>Robert Schreiber, Ph.D., Washington University in St. Louis

- **Clinical Cancer Immunotherapy: An Introduction**<br>Mario Sznol, M.D., Yale School of Medicine

Schedule is subject to change
Friday, August 20

Live Sessions

11:00 am – 12:00 pm  Panel Discussion: Next Generation Immunotherapies  
Presented By: Romain Banchereau, Rakesh Jain, Dan Littman, Pamela Ohashi, Elaine Pinheiro, Robert Schreiber, Mario Sznol

Moderated By: Mario Sznol and Djamel Nehar-Belaid

12:00 pm – 1:00 pm  Faculty Q&A

2:00 pm – 4:00 pm  JAX Associates Short Talks  
Francesca Menghi, Ph.D., Djamel Nehar-Belaid, Ph.D., Santhosh Sivajothi, Ph.D., Jan Martinek, Ph.D., Julie Wells, Ph.D., and Chun Yu, Ph.D.

Recommended On-Demand Content
Speakers are featured in the following live session

Alternative RNA Splicing Defects in Cancer: Molecular and Therapeutic Insights From Model Systems | Olga Anczuków, Ph.D., The Jackson Laboratory

RNA Isoforms in Cancer Diagnosis and Therapy  
Jacques Banchereau, Ph.D., The Jackson Laboratory

Synthetic Introns Enable Mutation-Dependent Targeting of Cancer Cells  
Robert Bradley, Ph.D., Fred Hutchinson Cancer Research Center

Biogenesis and Function of Circular RNA in Development and Disease  
Jørgen Kjems, Ph.D., Aarhus University

Fundamentals of Genomics and Immunogenomics  
Elaine Mardis, Ph.D., The Rasmussen Institute for Genomic Medicine, Nationwide Children’s Hospital

mRNA - Beyond the Genetic Code  
Christine Mayr, Ph.D., Memorial Sloan Kettering Cancer Center

Decoding and Recoding the Opposing Roles of Interferon Signaling in Cancer Immunotherapy  
Andy Minn, M.D., Ph.D., UPenn Perelman School of Medicine

Long Non-Coding RNA in the Immune System  
Adam Williams, Ph.D., The Jackson Laboratory

Schedule is subject to change
Monday, August 23

**Live Sessions**

11:00 am – 12:00 pm  **Panel Discussion: Harnessing Transcriptome for Therapy**  
Presented By: Olga Anczuków, Jacques Banchereau, Robert Bradley, Jørgen Kjems, Elaine Mardis, Christine Mayr, Andy Minn, Adam Williams  
Moderated By: Olga Anczuków and Elaine Mardis

12:00 pm – 1:00 pm  **Faculty Q&A**

2:00 pm – 3:00 pm  **Ethics in Cancer Research**  
Jens Rueter, M.D., Maine Cancer Genomics Initiative, The Jackson Laboratory

3:00 pm – 3:30 pm  **Writing, Improving and Publishing Your Manuscript: Tips for Early Career Scientists**  
Iiro Taneli Helenius, M.S., Ph.D., The Jackson Laboratory

**Recommended On-Demand Content**
Speakers are featured in the following live session

**Repeats and Genomic Instability: From Retrotransposition to Recombination**  
Christine Beck, Ph.D., The Jackson Laboratory

**Chromosome Instability and Cancer**  
Lilian Kabeché, Ph.D., Yale School of Medicine

**Structure and Function of Mammalian SWI/SNF Complexes in Human Cancer**  
Cigall Kadoch, Ph.D., Broad Institute of MIT and Harvard

**Epigenetic Evolution and Heterogeneity in Acute Myeloid Leukemia**  
Sheng Li, Ph.D., The Jackson Laboratory

**Synthetic Lethal Interaction Between BRCA1 and FANCM in Stalled Fork Repair**  
Ralph Scully, M.B.B.S., Ph.D., Harvard Medical School

**The Role of Extrachromosomal DNA in Cancer**  
Roel Verhaak, Ph.D., The Jackson Laboratory

**Relating Patterns of Chromosomal Aberrations in Cancers to Mechanisms of Genome Instability from In Vitro Experiments**  
Cheng-Zhong Zhang, Ph.D., Dana-Farber Cancer Institute

Schedule is subject to change
Tuesday, August 24

Live Sessions

11:00 am – 12:00 pm  Panel Discussion: Genomics of Cancer
Presented By: Christine Beck, Lilian Kabeche, Cigall Kadoch, Sheng Li, Ralph Scully, Roel Verhaak, Cheng-Zhong Zang

Moderated By: Christine Beck and Sheng Li

12:00 pm – 1:00 pm  Faculty Q&A

2:00 pm – 4:00 pm  Workshop: cBio Portal for Cancer Genomics
Carol Bult, Ph.D., The Jackson Laboratory

Recommended On-Demand Content
Speakers are featured in the following live session

Keynote Lecture: Normal and Neoplastic Stem Cells
Irving Weissman, PhD., Stanford University

Somatic Mutations in Normal Epithelia
Phil Jones, Ph.D., Wellcome Sanger Institute

Getting Old Stinks: Age-Related Changes in the Tumor Microenvironment
Sheila Stewart, Ph.D., Washington University in St. Louis

Microenvironmental Regulation of Myeloid Malignancies
Jennifer Trowbridge, Ph.D., The Jackson Laboratory

Sexual Dimorphism in Immune System Aging
Duygu Ucar, Ph.D., The Jackson Laboratory

Schedule is subject to change
Wednesday, August 25

**Live Sessions**

11:00 am – 12:00 pm  **Panel Discussion: Aging and Cancer**  
Presented By: Phil Jones, Sheila Stewart, Jennifer Trowbridge, Duygu Ucar, and Irving Weissman  
Moderated By: Duygu Ucar and Jennifer Trowbridge

12:00 pm – 1:00 pm  **Faculty Q&A**

2:00 pm – 3:00 pm  **Data Analysis & Resources for Patient-Derived Cancer Models**  
Jeff Chuang, Ph.D., The Jackson Laboratory  
Mike Lloyd, Ph.D., The Jackson Laboratory

**Recommended On-Demand Content**  
Speakers are featured in the following live session

**Keynote Lecture: Collagen, Desmoplasia and Fibrosis in Tumor Metabolism and Immunology**  
Michael Karin, Ph.D., University of California, San Diego

**Modeling Anti-Cancer Immune Responses in Mice**  
Marcus Bosenberg, M.D. Ph.D., Yale School of Medicine

**Modeling Immunotherapeutic Resistant Cancers**  
David DeNardo, Ph.D., Washington University in St. Louis

**Archetypes of Immunity in Cancers**  
Matthew Krummel, Ph.D., University of California, San Francisco

**The Dynamics of Intratumoral CD8 T cell Retention, Survival, and Exit**  
Amanda Lund, Ph.D., NYU Langone Health

**Unraveling the Complexity of Drug Resistance in Lung Cancer**  
Katerina Politi, Ph.D., Yale School of Medicine

Schedule is subject to change
Thursday, August 26

**Live Sessions**

11:00 am – 12:00 pm  **Panel Discussion: In Vivo Cancer Models**  
Presented By: Michael Karin, Marcus Bosenberg, David DeNardo, Matthew Krummel, Amanda Lund, Katerina Politi  

Moderated By: Gary Ren and David DeNardo

12:00 pm – 1:00 pm  **Faculty Q&A**

2:00 pm – 3:00 pm  **Sponsor Webinar: Drug Testing, Health and Survival of Mouse Models of Cancer**  
Presented by ClearH2O

**Recommended On-Demand Content**

Speakers are featured in the following live session:

- **Zebrafish Models of Human Cancer: Dissection of Mechanisms of Cancer Cell Dependencies Using Genetic and Chemical Approaches**  
  A. Thomas Look, M.D., Harvard Medical School, Dana-Farber Cancer Institute

- **Stromal Cell-Immune Cell Interactions in Mouse Models of Cancer**  
  Gary Ren, Ph.D., The Jackson Laboratory

- **Human Pancreatic Cancer Insights from Model Systems**  
  David Tuveson, M.D., Ph.D., Cold Spring Harbor Laboratory

- **Modeling Oral Cancer: Genomic Landscape and Tumor Ecosystem**  
  Fiona Watt, Ph.D., King’s College London

- **Patient-Derived Models for Functional Precision Oncology in Advanced Breast Cancer**  
  Alana Welm, Ph.D., University of Utah, Huntsman Cancer Institute

Schedule is subject to change
**Friday, August 27**

**Live Sessions**

**11:00 am – 12:00 pm**  
**Panel Discussion: Cancer Models**  
Presented By: A. Thomas Look, Gary Ren, David Tuveson, Fiona Watt, Alana Welm  
Moderated By: Alana Welm and Lucas Chang

**12:00 pm – 1:00 pm**  
**Faculty Q&A**

**2:00 pm – 3:00 pm**  
**Panel Discussion: Computational Science**  
Presented By: Andrea Califano, Joe Gray, Casey Greene, Guo-Cheng Yuan, David Van Valen, Yinyin Yuan, Jeffrey Chuang (moderator)

**3:00 pm – 4:00 pm**  
**Closing Discussion**  
Presented By: Karolina Palucka (moderator), Jacques Banchereau, Marco Colonna, Darrell Irvine, Alberto Mantovani, Mario Sznol, Arne Akbar, Elaine Mardis, Pam Ohashi, Dmitry Gabrilovich, Joe Gray, Marcus Bosenberg, Ira Mellman, Soledad Sosa, Michael Karin, Dan Littman, Robert Schreiber, Elaine Pinheiro, Mark Davis, Lisa Coussens, Tak Mak

**Recommended On-Demand Content**

**Elucidation and Pharmacologic Targeting of Master Regulators of Tumor Cell State**  
Andrea Califano, Ph.D., Columbia University

**Classifying Cancers from Images and Sequence Data**  
Jeff Chuang, Ph.D., The Jackson Laboratory

**Modeling Breast Cancer: Lessons from the Knight Cancer Institute SMMART Program**  
Joe Gray, Ph.D., Oregon Health and Science University

**Untangling the -omic Consequences of Somatic Variants with Machine Learning**  
Casey Greene, Ph.D., University of Colorado School of Medicine

**Single-Cell Biology in a Software 2.0 World**  
David Van Valen, Ph.D., California Institute of Technology

**Spatial Transcriptomic Analysis**  
Guo-Cheng Yuan, Ph.D., Icahn School of Medicine at Mount Sinai

**Deciphering the Tumor Microenvironment with Computational Pathology**  
Yinyin Yuan, Ph.D., The Institute of Cancer Research

Schedule is subject to change
**Faculty Office Hours**

Course faculty are available during select blocks for one-on-one interaction with participants. These meetings offer informal and open-ended. Participants may bring questions related to speakers’ lectures, cancer genomics in general, networking or career development. Participants are required to sign up in advance for office hours. More information will be made available in the event portal.

### Week 1

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<tr>
<th>Date</th>
<th>10:00 am - 11:00 am</th>
<th>11:00 am - 12:00 pm</th>
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<td>August 16</td>
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<td>Matthew Krummel</td>
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<td>August 17</td>
<td>Tak Mak</td>
<td>Skip Trump</td>
<td>Lisa Coussens</td>
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<td>Soledad Sosa</td>
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<td>Rakesh Jain</td>
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<td>Alberto Mantovani</td>
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<td>August 20</td>
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<td>Mario Sznol</td>
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### Week 2

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<tr>
<td>August 23</td>
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<td>Robert Bradley</td>
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<td>Christine Mayr</td>
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<td>August 24</td>
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Schedule is subject to change
This event is supported by the National Cancer Institute of the National Institutes of Health under Award Number R25CA122819, and by funding to The Jackson Laboratory Cancer Center, Award Number P30CA034196. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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