



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

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 Ghajar, 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

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 Gaborilovich, 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

Thursday, August 19

Live Sessions

- 11:00 am – 12:00 pm **Panel Discussion: Inflammation**
Presented By: Marco Colonna, Mark Davis, Stephanie Eisenbarth, Dmitry Gabrilovich, Darrell Irvine, Alberto Mantovani, Virginia Pascual

Moderated By: Jan Martinek and Alberto Mantovani
- 12:00 pm – 1:00 pm **Faculty Q&A**
- 2:00 pm – 4:00 pm **Short Talks | JAX Pre- and Post-doctoral Fellows**
Presented By: Brittany Angarola, Diana Cadena, Nathan Leclair, Monique Mills, and Patience Mukashyaka

Recommended On-Demand Content

Speakers are featured in the following live session

Molecular Biomarkers of Response and Resistance to Checkpoint Blockade in Clinical Settings
Romain Banchereau, Ph.D., Genentech

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

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

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

Case Studies in Oncology Translational Drug Development
Elaine Pinheiro, Ph.D., Merck

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

Clinical Cancer Immunotherapy: An Introduction
Mario Sznol, M.D., Yale School of Medicine

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 Kabeche, 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, Ph.D., 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

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

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

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 Banchemereau, Marco Colonna, Darrell Irvine, Alberto Mantovani, Mario Sznol, Arne Akbar, Elaine Mardis, Pam Ohashi, Dmitry Gabilovich, 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

	10:00 am - 11:00 am	11:00 am - 12:00 pm	6:00 pm - 7:00 pm
August 16			Matthew Krummel
			Eric Rosenthal & Skip Trump
August 17	Tak Mak	Skip Trump	Lisa Coussens
August 18		Soledad Sosa	
		Fiona Watt	
August 19	Darrell Irvine	Rakesh Jain	David Van Valen
	Alberto Mantovani	Anna Lisa Lucido	
August 20			Mario Sznol

Week 2

	10:00 am - 11:00 am	11:00 am - 12:00 pm	6:00 pm - 7:00 pm
August 23			Robert Bradley
			Christine Mayr
August 24	Jennifer Trowbridge		
August 25	Cheng-Zhong Zhang	Edison Liu	Jeffrey Chuang
			Irving Weissman
August 26	Alana Welm	Lilian Kabeche	David DeNardo
August 27	Katerina Politi	Amanda Lund	
	Pamela Ohashi		
	Tom Look		

Schedule is subject to change

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