



## Diversity in a Dish: Pluripotent Stem Cells in Genetic Analysis and Modeling

Bar Harbor, Maine  
May 23-25, 2023

### Schedule of Activities

#### Monday, May 22<sup>nd</sup>

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3:00pm	<b>Registration</b> <i>Participants may not enter Highseas prior to 3:00pm</i>	Highseas 1 <sup>st</sup> Floor
5:00 pm	<b>Social Hour</b>	Highseas 1 <sup>st</sup> Floor
6:00 pm	<b>Dinner</b>	Highseas 1 <sup>st</sup> Floor
7:00 pm	<b>Course Welcome &amp; Introductions</b> Chris Baker, Ph.D., The Jackson Laboratory	Highseas 1 <sup>st</sup> Floor

#### Tuesday, May 23<sup>rd</sup>

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7:00 am	<i>Breakfast</i>	Highseas, 1 <sup>st</sup> Floor
8:00 am	<b>Welcome &amp; Announcements</b> Chris Baker, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
<b><u>GENETIC IMPACT ON PLURIPOTENCY AND CELL IDENTITY</u></b>		
8:00 – 8:30 am	<b>No cell left behind: dynamic studies of gene regulation in humans</b> Yoav Gilad, Ph.D., University of Chicago	Highseas, 3 <sup>rd</sup> Floor
8:30 – 9:00 am	<b>Talk Title TBD</b> Steve Munger, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
9:00 – 9:30 am	<b>Harnessing natural genetic variation to determine epigenomic mechanisms of cellular identity and function</b> Chris Baker, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor

9:30 – 10:00 am	<b>From genotype to phenotype with single-cell resolution</b> Oliver Stegle, Ph.D., European Molecular Biology Laboratory	Highseas, 3 <sup>rd</sup> Floor
10:00 – 10:30 am	<b>Moderated Panel Discussion</b> Moderator: Ralda Nehme, Ph.D., The Broad Institute	Highseas, 3 <sup>rd</sup> Floor
10:30 – 10:45 am	<i>Break</i>	
<b><u>PRECISION MODELING HUMAN VARIANTS IN STEM CELLS</u></b>		
10:45 – 11:15 am	<b>Unsupervised Machine Learning Identifies Chromatin Accessibility Regulatory Networks that Define Cell State Transitions in Pluripotency</b> Kelly Frazer, Ph.D., University of California, San Diego	Highseas, 3 <sup>rd</sup> Floor
11:15 – 11:45 am	<b>An in vitro neurogenetics platform for precision disease modeling</b> Martin Pera, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
11:45 – 1:00 pm	<i>Lunch</i>	Highseas, 1 <sup>st</sup> Floor
1:00 – 1:30 pm	<b>Precise, high-efficiency editing of stem cells to probe human biology and model disease</b> Bill Skarnes, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
1:30 – 2:00 pm	<b>A stem cell approach to human development, from reconstitution to deconstruction using CRISPR screens</b> Danwei Huangfu, Ph.D., Sloan Kettering Institute	Highseas, 3 <sup>rd</sup> Floor
2:00 – 2:30pm	<b>Moderated Panel Discussion</b> Chris Baker, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
2:30 – 3:00 pm	<i>Break</i>	
3:00 – 5:00 pm	<b>Workshop – Concepts in quantitative trait locus analysis</b> Daniel Gatti, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
5:00 – 6:00 pm	<i>Social Hour</i>	Highseas, 1 <sup>st</sup> Floor
6:00 - 7:00 pm	<i>Lobster Dinner</i>	Highseas, 1 <sup>st</sup> Floor
7:00 - 8:30 pm	<b>Evening Session - Grantsmanship Workshop</b> Iiro Taneli Helenius, M.Sc., PhD, The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor

## Wednesday, May 24<sup>th</sup>

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7:00 am	<i>Breakfast</i>	Highseas, 1 <sup>st</sup> Floor
	<b><u>INCORPORATING DIVERSE HUMAN GENETIC BACKGROUNDS IN HUMAN STEM CELL-BASED STUDIES</u></b>	
8:00 – 8:30 am	<b>How does the genetic variation implicated in psychiatric disorders act upon cellular phenotypes?</b> Ralda Nehme, Ph.D., The Broad Institute	Highseas, 3 <sup>rd</sup> Floor
8:30 – 9:00 am	<b>Multiscale mapping of transcriptomic signatures for cardiotoxic drugs using cardiomyocytes from healthy human subject iPSCs</b> Ravi Iyengar, Ph.D., Mount Sinai	Highseas, 3 <sup>rd</sup> Floor
9:00 – 9:30 am	<b>Modeling human brain development and disease at single cell resolution with brain organoids</b> Giorgia Quadrato, Ph.D., University of Southern California	Highseas, 3 <sup>rd</sup> Floor
9:30 – 10:00 am	<b>Investigating human synaptic development using iPSC-derived neural models</b> Lindy Barrett, Ph.D., The Broad Institute	Highseas, 3 <sup>rd</sup> Floor
10:00 – 10:30 am	<b>Moderated Panel Discussion</b> Moderator: Martin Pera, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
10:30 – 11:00 am	<i>Break</i>	
11:00 – 12:00 pm	<b>Short Talks</b> Featured short talks by trainees selected based on abstract submission	Highseas, 3 <sup>rd</sup> Floor
12:00 – 1:30 pm	<i>Group Photo</i> <i>Lunch</i>	Highseas, 1 <sup>st</sup> Floor
1:30 – 3:30 pm	<b>Workshop – GeneWeaver: Integrating mouse and human functional genomics data</b> Elissa Chesler, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
3:30 – 3:45 pm	<i>Shuttle to JAX</i>	

3:45 – 4:45 pm	<b>Keynote Speaker: Genotype-phenotype correlations in human iPSCs cells</b> Fiona Watt, Ph.D., Kings College	BH 1010 Auditorium
4:45 – 6:00 pm	<b>Poster Session</b>	BH 1010 Auditorium Lobby
6:00 – 6:15 pm	<i>Shuttle to Highseas</i>	
6:15 - 7:00 pm	<i>Dinner</i>	Highseas, 1 <sup>st</sup> Floor
7:00 - 8:30 pm	<b>Evening Discussion - Rigor and Ethics in the Use of PSCs</b>  Charles Lee, Ph.D., The Jackson Laboratory Ivana Barbaric, Ph.D., University of Sheffield Ralda Nehme, Ph.D., The Broad Institute Lindy Barrett, Ph.D., The Broad Institute	Highseas, 1 <sup>st</sup> Floor

## Thursday, May 25<sup>th</sup>

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7:00 am	<i>Breakfast</i>	Highseas, 1 <sup>st</sup> Floor
<b><u>IMPACT OF GENETIC DIVERSITY ON REGULATORY/NON-CODING VARIATION</u></b>		
8:00 – 8:30 am	<b>Genetic determinants of epigenetic stability in pluripotent stem cells</b> Matthias Stadtfeld, Ph.D., Weill Medical College of Cornell University	Highseas, 3 <sup>rd</sup> Floor
8:30 – 9:00 am	<b>The battle of stem cells: emergence of clonal populations in human PSC cultures</b> Ivana Barbaric, Ph.D., University of Sheffield	Highseas, 3 <sup>rd</sup> Floor
9:00 – 9:30 am	<b>Genetically diverse mouse stem cell models to parse the impact of genetic variation on brain development</b> Thomas Vierbuchen, Ph.D., Sloan Kettering Institute	Highseas, 3 <sup>rd</sup> Floor
9:30 – 10:00 am	<b>Moderated Panel Discussion</b> Moderator: Laura Reinholdt, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
10:00 – 10:30 am	<i>Break</i>	

## **APPLICATIONS IN HIGH-CONTENT SCREENING FOR MAPPING CELLULAR TRAITS**

10:30 – 11:00 am	<b>Using genetically diverse mouse cell populations to interrogate cellular dose response phenotypes</b> Laura Reinholdt, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
11:00 – 11:30 am	<b>The essentialome of human development and disease</b> Nissim Benvenisty, Ph.D., Hebrew University of Jerusalem	Highseas, 3 <sup>rd</sup> Floor
11:30 – 12:30 pm	<i>Lunch</i>	Highseas, 1 <sup>st</sup> Floor
12:30 – 1:00 pm	<b>Making the most of your microscopy with high-content imaging analysis</b> Beth Cimini, Ph.D., The Broad Institute	Highseas, 3 <sup>rd</sup> Floor
1:00 – 1:30 pm	<b>Evolutionary Diversity Within the Trophoblast Lineage</b> Paul Robson, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
1:30 – 2:00 pm	<b>Moderated Panel Discussion</b> Moderator: Steve Munger, Ph.D., The Jackson Laboratory	Highseas, 3 <sup>rd</sup> Floor
2:00 – 2:30 pm	<b>Break</b>	
2:30 – 4:30 pm	<b>Workshop – How to scale up: high content screening</b> Beth Cimini, Ph.D., The Broad Institute	Highseas, 3 <sup>rd</sup> Floor
4:30 pm	Adjourn <i>Dinner on your own</i>	

## **Friday, May 26<sup>th</sup>**

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7:00 am - 9:00 am *Grab-n-Go Breakfast & Departures*  
Participants may remain on the 1<sup>st</sup> floor until noon if needed.

*Please note: Sessions highlighted in blue will be streamed to the virtual audience.*