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# **VIRTUAL | Systems Immunology in Aging and Complex Diseases**

## ***Single Cell Biology in Immune Aging and Immune Disease***

### **September 2 - 3, 2020**

*Sessions will be presented live via Zoom. With speaker permission, recordings of sessions will be made available to registered attendees on our Canvas LMS and made available to watch on-demand until October 31, 2020. All times listed are Eastern Daylight Time (UTC-4)*

### **Wednesday, September 2<sup>nd</sup>**

- 9:45 am      **Opening Remarks**  
George Kuchel, M.D., *UConn Health* & Duygu Ucar, Ph.D., *The Jackson Laboratory for Genomic Medicine*
- Session 1: Computational Methods in Single Cell Data Analyses**  
**Session Moderator:** Duygu Ucar, Ph.D., *The Jackson Laboratory for Genomic Medicine*
- 10:00 am      **Flexible Statistical Analysis of Multi-Sample Multi-Condition Replicated Single-Cell RNA-seq Datasets**  
Mark Robinson, Ph.D., *The University of Zurich*
- 10:40 am      **Deep Representations for Uncovering Immune Response and Dynamics**  
Smita Krishnaswamy, Ph.D., *Yale University*
- 11:20 am      Break
- 11:40 am      **Single Cell Dropout Imputation with the Help of Transcriptional Regulatory Networks**  
Andreas Beyer, Ph.D., *University of Cologne*
- 12:20 pm      **Attendee Short Talk - Age and Life Expectancy Clocks Based on Machine Learning Analysis of Mouse Frailty**  
Alice Kane, Ph.D., *Harvard Medical School*
- 12:40 pm      Lunch Break

## Session 2: -Omics Approaches to Aging

**Session Moderator:** Kenneth Hoehn, DPhil, *Yale University*

- 1:30 pm **Sex-Dimorphism in the Aging Immune System: Are We Missing Half of the Picture?**  
Berenice Benayoun, Ph.D., *USC Leonard Davis, School of Gerontology*
- 2:10 pm **Inflammaging in the Era of Big Data**  
David Furman, Ph.D., *Buck Institute for Research on Aging*
- 2:50 pm **Attendee Short Talk - An Aged Immune System Drives Senescence and Aging of Solid Organs**  
Matt Yousefzadeh, Ph.D., *University of Minnesota*
- 3:10 pm Break
- 3:30 pm **NAD+ Metabolism as a Link Between Senescence and Metabolic Impairment During Aging**  
Eric Verdin, M.D., *Buck Institute for Research on Aging*
- 4:30 pm **Panel/Open Discussion with the Day's Speakers**  
**Session Moderators:** Duygu Ucar and Kenneth Hoehn

## Thursday, September 3<sup>rd</sup>

### Session 3: Epigenomics of Immune Cells

**Session Moderator:** Djamel Nehar-Belaid, Ph.D., *The Jackson Laboratory for Genomic Medicine*

- 10:00 am **Sexual Dimorphism in Human Immune System Aging**  
Duygu Ucar, Ph.D., *The Jackson Laboratory for Genomic Medicine*
- 10:40 am **Resiliency and Sensitivity of the 3D Genome Organization in T Cells**  
Golnaz Vahedi, Ph.D., *University of Pennsylvania*
- 11:20 am **Attendee Short Talk - Phylogenetic Analysis of B Cell Repertoires**  
Kenneth Hoehn, DPhil, *Yale University*
- 11:40 am **Lecture** – Steven Josefowicz, Ph.D., *Weill Cornell Medicine*
- 12:20 pm Lunch Break

### Session 4: Single Cells in Immune Responses and Immune Disorders

**Session Moderator:** Berenice Benayoun, Ph.D., *USC Leonard Davis School of Gerontology*

- 1:00 pm **Lecture** - John Tsang, Ph.D., *National Institute of Allergy and Infectious Diseases*
- 1:40 pm **Single Cells in SLE**  
Jacques Banchereau, Ph.D., *The Jackson Laboratory for Genomic Medicine*
- 2:20 pm **Attendee Short Talk - Human Immune System Heterogeneity Across the Lifespan at the Single-Cell Resolution**  
Djamel Nehar-Belaid, Ph.D., *The Jackson Laboratory*

- 2:40 pm **Attendee Short Talk - Granzyme B: A Proposed Model for its Role in the Serious Complications of COVID-19**  
Janet McElhaney, M.D., *Health Sciences North Research Institute*
- 3:00 pm **Panel/Open Discussion with the Day's Speakers**  
**Session Moderators:** Berenice Benayoun and Djamel Nehar-Belaid
- 4:00 pm **Closing Remarks**  
Jacques Banchereau, Ph.D., *The Jackson Laboratory* & Berenice Benayoun, Ph.D., *USC Leonard Davis, School of Gerontology*