

SYSTEMS IMMUNOLOGY

April 22 - April 26, 2025

ORGANIZERS

Menna Clatworthy, University of Cambridge, UK

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Iname	fname	Title	Presentation	Talk Length
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TUESDAY, 7:30 PM EST Session 1: IMMUNOLOGY POWER

Chair: John Tsang / Armita Nourmohammad

Pulendran	Bali	KEYNOTE: Systems vaccinology	keynote	20+5
Chen	Guangbo	A natural adjuvant underlies vaccine response variability in humans	talk	12+3
Chatterjee	Budha	Kinetic patterns of single cell gene expression discriminate between cellular responses to formulations of Yellow Fever vaccines in a pre-exposed mouse model	talk	12+3
DiLillo	Katarina	Network analysis of pediatric immune responses to RTS,S/AS01 malaria vaccination	talk	12+3
Break				
Kleinstein	Steven	Analysis of B cell antibody repertoires to identify immune signatures of vaccination and infection responses	talk	20+5
Sen	Pritha	High dimensional phenotyping of the peripheral immune response to human clade IIb mpox infection	talk	12+3
Tomalka	Jeff	Using systems immunology to define baseline and post-immunization innate immune signatures of protection in HIV vaccination	talk	12+3

WEDNESDAY, 9:00 AM EST Session 2: CIRCUITS AND DYNAMICS

Chair: Alexander Hoffmann / Stacey Finley

Gottschalk	Rachel	Modeling signaling networks to decode macrophage function	talk	20+5
Cheronis	Katerina	A molecular voicemail records the history of diffusible cell-cell communications	talk	12+3
Arazi	Arnon	Towards data-driven dynamical models of kidney inflammation in lupus nephritis	talk	12+3
Basak	Soumen	The non-canonical RelB NF- κ B pathway instructs immunoregulatory dendritic cell functions in the intestine	talk	12+3
Break				
Davis	Mark	Human Immunity in vitro	talk	20+5
Scheibner	Colin	Self-regulation of germinal centers	talk	12+3
Vaidehi Narayanan	Haripriya	Topological measures on phylogenetic trees of the antibody repertoire reveal the underlying kinetics of B cell fate decisions	talk	12+3

WEDNESDAY, 2:00 PM EST Session 3: SPECIFICITY AND DISCRIMINATION

Chair: Derk Amsen / Harinder Singh

Nourmohammad	Armita	Learning the TCR-MHC specificity landscape through de-novo protein design	talk	20+5
Elledge	Stephen	Immunodominance in antibody-epitope recognition is driven by germline encoded elements (GRAB motifs) specific for distinct structural elements of proteins	talk	12+3
Dolatshahi	Sepideh	MHC-I and MHC-II shape immune response and survival in NSCLC	talk	12+3
Zahid	Jabran	T cell receptor diversity, cancer incidence and their dependence on sex—Insights from 30,000 TCR β repertoires	talk	12+3
Break				
Kueh	Hao Yuan	A signaling response atlas from multiplexed cell barcoding reveals principles of T cell programming	talk	20+5
Navlakha	Saket	Negative selection—A computer science perspective	talk	12+3
Miller-Jensen	Kathryn	Modeling how the TNF-IL10 motif regulates the macrophage inflammatory response	talk	12+3
Bourassa	Francois	Engineering TCR control of CAR T cell specificity—Theoretical modelling	talk	12+3

WEDNESDAY, 7:30 PM: POSTER SESSION I

THURSDAY, 9:00 AM EST Session 4: GENETIC AND EPIGENETIC MEMORY

Chair: Rafael Medina, Yang Li

Mhlanga	Musa	A single cell epigenomic atlas of adjuvant-mediated innate immune responses	talk	20+5
Koh	Andrew	Chromatin accessibility noise is amplified via p53 repression to promote thymic epithelial cell plasticity for immune tolerance induction	talk	12+3
Weng	Zhiping	Expanding the regulatory genome—A resource for immune gene expression and signaling	talk	12+3
Fairfax	Keke	<i>Schistosoma mansoni</i> antigen induced innate immune memory features mitochondrial biogenesis and is inhibited by ovarian hormones	talk	20+5
Break				
Tsang	John	NO title	talk	20+5
Miraldi	Emily	Genome-scale gene regulatory network modeling of intestinal CD4+ T cells in pediatric inflammatory bowel disease	talk	12+3
Wingreen	Ned	Not just gatekeepers—How T cells can accelerate B cell affinity maturation	talk	12+3

THURSDAY, 2:00 PM EST Session 5: CELL DECISIONS AND HEMATOPOIESIS

Chair: Shai Shen-Orr, Andrés Munoz-Rojas

de Boer	Rob	Which memory T cells mount subsequent immune responses?	talk	20+5
Matte	Julie	Single-cell multiplexed high-content imaging uncovers heterogenous morphology changes associated with states of CD4+ T cell activation	talk	12+3
Grassmann	Simon	STAT3 operates as a rheostat regulating sensitivity of antiviral NK cells to inflammatory cytokines	talk	12+3
Prisco	Antonella	Agent-based simulation of antibody response durability—Linking antibody-secreting cell dynamics to vaccine-induced serological memory	talk	12+3
Break				
Hoffmann	Alexander	Hematopoietic decline during inflammaging: Models expose multiple mechanisms	talk	20+5
Das	Jishnu	Uncovering novel cellular programs and regulatory circuits underlying bifurcating human B cell states	talk	12+3
Shmeleva	Evgeniya	Between order and chaos—Rewiring biological systems at the brink of homeostasis	talk	12+3

THURSDAY, 7:30 PM: POSTER SESSION II

FRIDAY, 9:00 AM EST Session 6: MULTI-CELL IMMUNE COORDINATION

Chair: Laura Santambrogio, Menna Clatworthy

Marson	Alexander	Decoding and reprogramming T cell circuits with CRISPR	talk	20+5
Gustafson	Claire	Multi-omic profiling reveals the dynamics of age-related immune cell responses in healthy adults	talk	12+3
Bartelle	Benjamin	Spatial transcriptomic representations of correlated gene networks offer a molecularly defined view of microglial function	talk	12+3
McKinney	Eoin	Non-linear trajectories of human immune ageing associate with long term survival	talk	20+5
Break				
Finley	Stacey	A systems approach to improve response to immunotherapy in HER2+ breast cancer	talk	20+5
Lebel	Yael	Excitable dynamics as unifying design motif in the immune system	talk	12+3
Garber	Manuel	Comparative multi-omics reveals inflammatory monocyte-derived dendritic cells as key drivers of UVB photosensitivity	talk	12+3

FRIDAY, 2:00 PM EST Session 7: DYSREGULATION IN DISEASE**Chair: Kathryn Miller-Jensen, Joel Babdor**

Li	Yang	No title	talk	20+5
Lopez Zapana	Paola	Markov field network model of BMI-driven protein networks and preterm birth subtypes in 2 nd trimester cohorts	talk	12+3
Plaster	Madison	Mapping the colitis-body axis uncovers an interorgan mechanism protecting against liver injury	talk	12+3
Mitchell	Simon	Systems immunology models as a platform for predicting response to treatments in lymphoma	talk	12+3
Break				
Clatworthy	Menna	Dynamic profiling of human kidney cell responses to circulating immune stimuli	talk	20+5
Vance	Natalie	Characterizing immune cell heterogeneity and CD4+ T cell dynamics in pediatric allergy	talk	12+3
Warren	Matthew	Dissecting the functional heterogeneity of tissue-resident memory T cells in human tissues	talk	12+3

SATURDAY, 9:00 AM EST Session 8: NEXT GEN APPROACHES**Chair: Elizabeth Jerison**

Meissner	Felix	Awesome activities out there—Proteomics discovery of intercellular signaling circuits regulating inflammation	talk	20+5
Joglekar	Alok	Engineered regulatory T cells engage autoreactive T cells and prevent autoimmune diabetes	talk	12+3
Fei	Panyu	Plot the stoichiometric atlas of TCR signalosome for single-molecule resolution T-cell engineering	talk	12+3
Cordes	Stefan	Towards a better CAR through <i>in vitro</i> and <i>in silico</i> perturbations	virtual talk	12+3
Break				
Shen-Orr	Shai	Evolution and conservation of immune	talk	12+3
Binder	Patrick	Sequential resource-sharing speeds <i>P. Falciparum</i> proliferation	talk	12+3
Liu	Candace	Spatial proteomics reveals distinct immune cell networks and CD8+ T cell signatures associated with HIV reservoirs in lymph nodes	talk	12+3