



# Channels and Transporters in Immunity

Co-located with [Immunoreceptors and Immunotherapy](#)

June 16, 2024 - June 20, 2024

Saint Paul, Minnesota

#CTISRC

## Preliminary Agenda

All times are in Central Time

### Sunday, June 16, 2024

4–9 pm: Name Badge Pick-Up

5–6 pm: Opening Reception

6–7:45 pm: Dinner

7:45–9 pm: Opening Keynote Talk: Michael Cahalan, University of California, Irvine, US - "Ion Channels and Calcium Signaling In T Lymphocytes"

### Monday, June 17, 2024

7:30–9 am: Breakfast

9 am–12 pm: Session 1: Novel methods to study ionic signaling immune cells

Session chair: Heike Wulff, University of California, Davis, US

- Yubin Zhou, Texas A&M University, US - "Engineering switchable calcium channels and immune cells through synthetic biology approaches"

- Wendy Liu, University of California, Irvine, US - "Piezo1 mediates macrophage responses to mechanical cues"
- Nicola Porzberg, Max-Planck Institute for Medical Research, Germany - Early-Career-Investigator Short Talk: "Recording physiological history of cells"
- **Coffee Break**
- Xiaowei Hou, University of Cincinnati, US - "Structural characterization of CRAC channel function"
- Henry Colecraft, Columbia University, US - "Therapeutic modulation of ion channels with nanobodies"
- Li Zhong, New York University, US - Early-Career-Investigator Short talk selected from abstracts: "Essential role of the Zn<sup>2+</sup> transporter ZIP7 in T cell function"
- Poster Flash Presentations

**12–1 pm: Lunch and Meet-the-experts / DEI session**

**1:15–2:45 pm: Career Development Workshop**

**3–6pm: Session 2: Regulation of adaptive immunity by channels and transporters**

**Session chair: William Coetzee, New York University, US**

- Ivan Bogeski, University Goettingen, Germany - "Regulation of mitochondrial calcium by MCU in T cells"
- Henrique Borges da Silva, Mayo Clinic, US - "Regulation of T cell memory by P2RX7 ion channels"
- Lucile Noyer, New York University, US - Early-Career-Investigator Short Talk: "Copper transport and signaling in T cell function"
- **Coffee Break**
- Axel Concepcion, University Chicago, US - "Novel roles of LRRC8 channels in immunity"
- Victor Tybulewicz, The Francis Crick Institute, UK - "Critical Roles for ion and water flux in T cell migration and activation"
- Susanna Zierler, Johannes Kepler University Linz, Austria - "Shaping T cell immunity by targeting TRPM7"

**6–7pm: Dinner**

**7–9pm: [Poster Session I \(Odd #s to present\)](#)**

**Tuesday, June 18, 2024**

**7:30–9 am: Breakfast**

**9 am–12 pm: Session 3: Channels and transporters in innate and adaptive immunity**

**Session chair: Pam Schwartzberg, NIH / NIAID, US**

- Anant Parekh, Oxford University, UK - "CRAC channels in mast cell function"
- Toshiyuki Fukada, Tokushima Bunri University, Japan - "Critical role of zinc transporter ZIP10 in skin barrier and B lymphocyte functions: new tools to investigate ZIP10 and its expressing cells in vivo"
- **Coffee Break**
- Bebhinn Treanor, University of Toronto, Canada - "The ion channel TRPM7 is required for B cell lymphopoiesis"

- Lixia Yue, University of Connecticut, US - "TRPM2 function in macrophages & atherosclerosis"
- Jelena Bezbradica, University of Oxford, UK - "CALHM6 in macrophages and innate immunity to infection"

**12–1 pm: Lunch and Meet-the-experts / DEI session**

**2–4:45 pm: Session 4: Regulation of immune metabolism by channels and transporters**

**Session chair: Stephen Jameson, University of Minnesota, US**

- Pamela Schwartzberg, NIH / NIAID, US - "Nutrient transporters in follicular T cells and antibody responses"
- Bimal Desai, University of Virginia, US - "MCU in macrophage function and metabolism"
- Shivashankar Othy, UC Irvine, US - Early-Career-Investigator Short talk: "Mechanosensing Piezo1 channels selectively limit regulatory immunity during autoimmune encephalitis"
- **Coffee Break**
- Linda Sinclair, University of Dundee, UK - "The amino acid transporter Slc7a5 coordinates the metabolic reprogramming essential for T cell differentiation"
- Regina Clemens, Washington University, US - "CRAC channels in neutrophil mediated immunity"
- Anthony Y. Tao, New York University, US - Early-Career-Investigator Short Talk: "Regulation of intracellular pH by SLC4A7 tunes mTORC1 to promote plasma cell differentiation"

**6–9 pm: [Riverboat Dinner Cruise](#) - Rain or Shine! (optional)** at Padelford Riverboats - 205 Dr. Justus Ohage Blvd, St. Paul, MN 55107. \$25 for students / \$50 speakers & attendees. Tickets are sold out; see registration to be added to the waitlist.

## Wednesday, June 19, 2024

**7:30–9 am: Breakfast**

**9 am–12 pm: Session 5: Channels and transporters in inflammation**

**Session Chair: Susanna Zierler, Johannes Kepler University Linz, Austria**

- Lingyin Li, Stanford University, US - "cGAMP immunotransmitter and its transporters"
- Andreas Guse, University of Hamburg, Germany - "Molecular characterization of Ca<sup>2+</sup> microdomains in T cells"
- Robert Eil, Oregon Health & Science University, Portland, OR, US - Early-Career-Investigator Short Talk: "Endosomal gradients are key determinants of T cell metabolism and function"
- Christine Bowen, Emory University, Atlanta, GA, US - Early-Career-Investigator Short talk selected from abstracts: "Kv1.3 regulation of brain immune function in vitro and in vivo"
- **Coffee Break and Group picture**
- Rosario Rizzuto, University of Padova, Italy - "MCU, mitochondrial Ca<sup>2+</sup> and inflammation"
- Markus Sperandio, Ludwig Maximilian University, Munich, Germany - "The voltage-gated potassium channel Kv1.3 regulates neutrophil recruitment during inflammation"
- Early-Career-Investigator Short Talk: Sophia Maschalidi, University of Ghent, Belgium - Short talk: "Solute carriers in dendritic cells and apoptotic cell clearance"

**12–1 pm: Lunch and Meet-the-experts / DEI session**

**2–4:45 pm: Session 6: Channels and transporters in myeloid phagocytes**

**Session chair: Santiago Partida-Sanchez, Nationwide Children's Hospital, US**

- Christian Grimm, Ludwig Maximilian University, Munich, Germany - "Endolysosomal TRP channels and TPCs in immune cells"
- Asrar B. Malik, University of Illinois College of Medicine, Chicago, US - "Mechanosensitive Control of Innate Immunity"
- Catherine Doyle, University of Virginia, US - Early-Career-Investigator Short Talk selected from abstracts: "Ion channel TRPM7 regulates pH-sensitive enveloped viral infection"
- **Coffee Break**
- Jonathan Soboloff, Temple University, US - "Molecular Mechanisms controlling STIM1 translocation to the Immunological Synapse"
- Khaled Machaca, Cornell University, Qatar - "TRPM4 is required for macrophage migration and immunity to bacterial infection in human patients"
- Manuele Rebsamen, University of Lausanne, Switzerland - Early-Career-Investigator Short Talk: "The SLC15A4-TASL complex in innate immunity and autoimmunity"

**6–7pm: Dinner**

**7–9pm: [Poster Session II \(Even #s to present\)](#)**

**Thursday, June 20, 2024**

**7:30–9 am: Breakfast**

**9 am–12 pm: Session 7: Channels and transporters in neuroinflammation**

**Session chair: Zhaozhu Qiu, Johns Hopkins University, US**

- Murali Prakriya, Northwestern University, US - "Control of astrocyte innate immune functions by Orai1 calcium signaling"
- Srikant Rangaraju, Yale University, New Haven, CT, US - "Microglial Kv1.3 channels and neurodegeneration in Alzheimer's disease"
- Adriana Mantegazza, Thomas Jefferson University, US - Short talk: "The phago-lysosomal nucleoside transporter SLC29A3 regulates inflammatory responses in murine dendritic cells"
- **Coffee Break**
- Heike Wulff, University of California, Davis, US - "Kv1.3 and KCa3.1 as targets for neuroinflammation in stroke"
- Zhaozhu Qiu, Johns Hopkins University, US - "Proton-activated chloride channel in innate immunity against bacterial infection"
- Nicolas Demaurex, University of Geneva, Switzerland - "Electrophysiology of phagocytes: following the flow of electrons, protons, and ions"

**12–12:30 pm: Business Meeting**

12:30–1:30 pm: Lunch and Meet-the-experts / DEI session

3–6 pm: Session 8: Translating basic insights about channels and transporters into therapies

Session chair: Andrea Fleig, University of Hawaii, US

- Avner Schlessinger, Mount Sinai School of Medicine, NY US - "Computational chemistry and bioinformatics approaches for drug discovery to target transporters relevant to immune function"
- Andrea Fleig, University of Hawaii, US - "Cannabinoids suppress proinflammatory cytokine release by blocking SOCE"
- Neal Silverman, University of Massachusetts, US - "From Bugs to Drugs: SLC46s as Critical Components for Innate Immune Recognition and Targets for Antiinflammatory Therapies"
- **Coffee Break**
- Ken Stauderman, CalciMedica Inc., US - "CRAC channel inhibition in inflammatory diseases"
- Enrico Girardi, Solgate Inc., Vienna, Austria - "Unlocking Solute Carrier drug discovery by cell-based technologies"
- Frank Robledo-Avila, Nationwide Children's Hospital, Columbus, OH, US - Early-Career-Investigator Short Talk selected from abstracts: "Mutation DELF508 in the CFTR chloride channel results in neutrophil dysfunction which can be corrected by highly effective modulator treatment (HEMT) in people with cystic fibrosis"
- Poster awards

6–7pm: Dinner

7–8pm: Panel discussion: "What does it take to develop channels and transporters as drug targets for immune disorders?"

8–10pm: Closing reception and networking



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