Systems Approaches to Cancer Biology

February 10–12, 2025

University of Colorado Anschutz Medical Campus. Aurora, CO

Applying systems biology to understand cancer mechanisms and develop therapeutic strategies

Systems Approaches to Cancer Biology – 2025 Meeting

Sponsored by the

Association of Cancer Systems Biologists

Supported by R13 CA291000 from the

National Cancer Institute of the National Institutes of Health

U. S. Department of Health & Human Services

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The Association of Cancer Systems Biologists (ACSB)

The mission of the ACSB is to foster, promote and advocate for cancer systems biology and the needs of the researchers in the field. We do so by sharing information about the field and events, and fostering community and collaboration amongst our members. Our current aim is to host a biennial meeting in Cancer Systems Biology. The long-term goal of the ACSB is the development of a Cancer Systems Biology Society.

Please feel free to attend our "ACSB / future of SACB conversation" on Monday, February 10th, to learn more about the association and join our effort.

Acknowledgements

The ACSB wishes to thank the following organizations for their generous support:

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Funding for this conference was made possible (in part) by R13 CA291000 from the National Cancer Institute. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

Integrated Mathematical Oncology Department, Moffitt Cancer Center (Platinum Sponsor)

Integrate: to combine one thing with another so that they become a whole. That is the definition of integrate and the key word that unifies mathematics with oncology. The power of mathematical modeling is its ability to integrate multiple interacting variables at once and predict in a dynamic manner how these variables change in space and time. Integration is not the antithesis of reductionism but is in fact a means to bridge the perspectives of reductionism and holism, as the component parts are vitally important but how they interact to produce the emergent whole is also critical.

Cancer is a dynamic complex multiscale system that can only truly be understood via the integration of theory and experiments. The mission of the Integrated Mathematical Oncology (IMO) Department is to use such an integrated approach to better understand cancer initiation, progression and treatment and to aid in the clinical utilization of integrated models in precision medicine. The multiscale nature of cancer, in which genetic mutations occurring at a subcellular level manifest themselves as functional changes at the cellular and tissue scale, requires modeling approaches of a similar nature. Within the IMO, we have been developing a suite of mathematical and computational models that allow us to consider each of these scales in detail as well as bridge them. Theoretical models are ideal for studying the complex dialogue between a heterogeneous evolving tumor and its dynamic environment, and has brought a new focus to Moffitt around the theme of evolutionary therapy.

By using a range of mathematical modeling approaches targeted at specific types of cancer IMO is aiding in the development and testing of new treatment strategies as well as facilitating a deeper understanding of why they fail. This multi-model, multi-scale approach has led to a diverse and rich interdisciplinary environment within IMO, one that is creating many novel approaches for the treatment and understanding cancer. IMO is actively involved in 9 different clinical trials both in terms of trial design as well as facilitating decision support.

The IMO is deliberately located in the heart of the Moffitt Cancer Center in Tampa Florida to maximize our collaborations with biologists and clinicians and to facilitate our main goal, which is the integration of theoretical and computational modeling tools into cancer research to aid the core understanding of cancer evolution and its response to treatment. IMO consists of 9 faculty including Alexander Anderson, Noemi Andor, David Basanta, Renee Brady, Joel Brown, Robert Gatenby, Kasia Rejniak, Mark Robertson-Tessi, and Jeffrey West and around 25 postdocs and students. More information on IMO's research activities can be found here: http://imo.moffitt.org. We are actively recruiting a new faculty member, postdocs and PhD students. If you are interested in knowing more please reach out to the department chair, Alexander.Anderson@Moffitt.org.

IMO is one part of a growing field of Mathematical oncology and we have helped develop a suite of community resources that are freely accessible through the mathematical oncology website: mathematical-oncology.org.

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Oral Presentation Abstracts (available online)

sacbmeeting.org/public/OralPresentationAbstracts2025.pdf

Poster Presentation Abstracts (available online)

sacbmeeting.org/public/PosterPresentationAbstracts2025.pdf

Meeting live stream (virtual attendees)

ucdenver.zoom.us/j/8724541763

Social media hashtag: #SACB2025

Conference agenda

Location

All talks and poster sessions will take place in the Elliman Conference Room in the Anschutz Health Science Building.

Social media sharing policy

Please properly cite authorship when sharing anyone's work, and refrain from posting on social media any image of slides or posters labeled "DO NOT POST" by the presenter.

Talk duration

Keynote talks are 60 minutes, including speaker introductions and time for questions. Invited talks will be limited to 30 minutes, plus 5 minutes for questions. Selected talks will be limited to 12 minutes, plus 3 minutes for questions. Poster preview lightning talks will be 2 minutes and are meant to be a preview for posters.

All times are Mountain Standard Time

Sunday, February 9, 2025

4:00 – 8:00 pm **Networking Mixer**
Benson Hotel Lounge
Small plate food items will be provided

Monday, February 10, 2025

7:30 – 8:20 am **Breakfast**

8:20 – 8:30 am **Opening remarks by Melissa Kemp, PhD (Georgia Tech)**

8:30 – 9:30 am **Opening Keynote**

- Christine Iacobuzio-Donahue, MD, PhD (MSKCC)
  Evolutionary Biomarkers of Pancreatic Cancer Progression

9:30 – 11:10 am **Session #1: Tumor Heterogeneity and Metastasis**

Chaired by Edward Evans, Jr., PhD (University of Colorado Anschutz Medical) and Nicholas Graham, PhD (University of Southern California)

- Pamela Becker, MD, PhD (City of Hope)
  Addressing clonal evolution leading to secondary AML from MDS and emergence of AML drug resistance
- Soledad Sosa, PhD (Albert Einstein College of Medicine)
  Contributions of evolutionarily distinct types of disseminated cancer cells to the metastatic disease
- Elizabeth Brunk, PhD (University of North Carolina)
  Distinct Cellular States Arise from Variability in Extrachromosomal DNA Copy Number
- Michelle Barbeau (University of Virginia)
  Single-cell proteogenomic analysis of phenotypic heterogeneity across diverse drivers of epithelial-mesenchymal transition in pancreas cancer

11:10 – 1:00 pm **Lunch + "Meet the PIs" Lunch Tables**

1:00 – 2:40 pm **Session #2: Metabolism at Scale**

Chaired by Nicholas Graham, PhD (University of Southern California) and Edward Evans, Jr., PhD (University of Colorado Anschutz Medical)

- Sriram Chandrasekaran, PhD (University of Michigan)
  Metabolic Heterogeneity, Tradeoffs & Regulation in Single cells
- Cholsoon Jang, PhD (UC Irvine)
  Escaping ferroptosis through metabolic rewiring
- Bethany Veo, PhD (University of Colorado Anschutz Medical Campus)
  Targeting wtIDH1 in radiation resistant medulloblastoma
- Yapeng Su, PhD (Fred Hutch Cancer Center)
  Mannose metabolism reshapes T cell differentiation to enhance anti-tumor immunity

2:40 – 3:10 pm **Coffee Break**

3:10 – 4:50 pm **Session #3: SACB Postdoc Spotlight**

Chaired by Sara Gosline, PhD (Pacific Northwest National Laboratory) and Angela Bowen, PhD (Sage Bionetworks)

- John Metzcar, PhD (University of Minnesota)
  Characterizing the immunosuppressive role of myeloid-derived suppressor cells in glioblastoma under radiotherapy
- Amy E. Pomeroy, PhD (University of North Carolina)
  A mechanistic model of curative combination therapy explains lymphoma clinical trial results
- Christian Meyer, PhD (University of Colorado, Boulder)
  A Translation-Oriented Pipeline for Analyzing Drug Combination Screens
- Raghav Jain, PhD (Pacific Northwest National Lab)
  Altered lipid metabolism across AML cell differentiation states indicates distinct therapeutic vulnerabilities
- Wei He, PhD (Georgetown University)
  Personalized cancer treatment strategies incorporating irreversible and reversible drug resistance mechanisms

4:50 – 5:00 pm **Lightning talks from selected posters**

Chaired by Sara Gosline, PhD (Pacific Northwest National Laboratory)

- Prasanna Vaddi, PhD (University of Colorado Anschutz Medical Campus)
  An evolutionary-conserved molecular signature of cell senescence
- Janani P. Baskaran (Yale University)
  In vitro macrophage-tumor-fibroblast spheroid co-cultures model evolution and heterogeneity of tumor-associated macrophages
- Ryan Schildcrout (University of Michigan)
  Recon8D: A metabolic regulome network from oct-omics and machine learning
- Victor Passanisi (University of Colorado, Boulder)
  High-throughput cross-microscope imaging reveals poor capacity of telomere features to predict senescence induction in single cells
- Adriana Del Pino Herrera (University of Florida)
  Mapping the Ovarian Cancer Tumor Microenvironment: Integrating Multimodal Analysis for Understanding Treatment Resistance

- Angela Bowen, PhD (Sage Bionetworks)
  MC2 Center and Cancer Complexity Knowledge Portal: Expanding Tools for Equitable Data and Tool Reuse

5:00 – 6:30 pm **Poster session A (with refreshments and snacks)**

6:30 – 7:30 pm **ACSB / future of SACB conversation (open to all)**

Dinner on your own

Tuesday, February 11, 2025

8:00 – 9:00 am **Breakfast**

9:00 – 10:40 am **Session #4: Immunology & Host-tumor Interactions**

Chaired by Jorge Gómez Tejeda Zañudo, PhD (Dana-Farber Cancer Institute) and Edward Evans, Jr., PhD (University of Colorado Anschutz Medical)

- Paolo Provenzano, PhD (University of Minnesota)
  Mapping fibrotic and cellular immunosuppression within pancreatic adenocarcinomas in space and time
- Melissa Davis, PhD (Morehouse School of Medicine)
  The DARC side of Cancer Disparities
- Adam MacLean, PhD (University of Southern California)
  Dynamic rewiring of cell-cell interactions in the metastatic tumor microenvironment primes response to checkpoint inhibition
- David E. Sanin, PhD (Johns Hopkins University)
  Myeloid Cell Regulation in Patients with Advanced Prostate Cancer treated with Bipolar Androgen Therapy

10:40 – 10:50 pm **Lightning talks from selected posters**

Chaired by Jorge Gómez Tejeda Zañudo, PhD (Dana-Farber Cancer Institute)

- Rebecca A. Bekker, PhD (University of Southern California)
  Improving Response to Immunotherapy in HER2+ Breast Cancer
- Lucas Gillenwater (University of Colorado Anschutz Medical Campus)
  GRACKLE: Graph Regularization Across Contextual KnowLedgE: An interpretable matrix factorization approach for clinical subtyping
- Anisha Datta (Massachusetts Institute of Technology)
  Investigating the Effects of Axl Inhibition: Reprogramming the Myeloid Compartment of the Tumor Microenvironment
- Shuming Zhang (Johns Hopkins University)
  Fibroblast Dynamics in a Quantitative Systems Pharmacology Model for Combination Therapy in Hepatocellular Carcinoma
- Annie Badenoch (University of Michigan)
  Prediction of Colon Cancer Treatment Based on Microbiome Metabolism

10:50 – 12:00 pm **Poster Session B**

12:00 – 1:30 pm **Lunch + "Meet the PIs" Lunch Tables**

1:30 – 3:10 pm **Session #5: Systems Pharmacology & Translational Systems Biology**

Chaired by Jorge Gómez Tejeda Zañudo, PhD (Dana-Farber Cancer Institute) and Brian Joughin, PhD (Massachusetts Institute of Technology)

- Marc Birtwistle, PhD (Clemson University)
  Mechanistic Modeling of Anti-Cancer Drug Responses in Single Cells
- Andriy Marusyk, PhD (Moffitt Cancer Center)
  Impact of the systemic and microenvironment on the evolutionary dynamics of targeted therapy resistance in lung cancers
- Leonard A. Harris, PhD (University of Arkansas)
  A Mathematical Model of Tumor Cell Interactions with Bone-Resident Cells Predicts Tumor-Type-Specific Responses to Perturbations
- Emily Bozich (UCLA)
  Network topology explains drug synergistic effects

3:10 – 4:40 pm **Coffee Break**

4:40 – 6:20 pm **Session # 6: Health Equity for AI in Cancer Systems Biology**

Chaired by Stacey Finley, PhD (University of Southern California), Angela Bowen, PhD (Sage Bionetworks), and Edward Evans, Jr., PhD (University of Colorado Anschutz Medical)

- Tina Hernandez-Boussard, PhD (Stanford University)
  AI for All: Ensuring Equity Population-Level Impact
- Curtis Henry, PhD, (University of Colorado Anschutz Medical Campus)
  Cancer Health Disparities in Aging and Obesity: Potential AI Applications for Today's and Tomorrow's Challenges
- Panel Discussion

6:30 – 8:30 pm **Conference Dinner**

Wednesday, February 12, 2025

8:00 – 9:00 am **Breakfast**

9:00 – 10:40 am **Session #7: Targeting Signal Transduction**

Chaired by Brian Joughin, PhD (Massachusetts Institute of Technology) and Matthew Lazzara, PhD (University of Virginia)

- Rachel Gottschalk, PhD (University of Pittsburgh)
  Modeling signaling networks to decode macrophage function
- Michael Lee, PhD (UMass Chan Medical School)
  The Pol II Degradation-dependent Apoptotic Response (PDAR)
- Varuna Nangia (University of Colorado, Boulder)
  Rapid non-genetic drug adaptation to MAPK pathway inhibitors in melanoma
- Todd Stukenberg, PhD (University of Virginia)
  Systems modeling of mitotic signaling in triple-negative breast cancer

10:40 – 11:00 am **Coffee Break**

11:00 am – 12:00 pm **Closing Keynote**

- Douglas Lauffenburger, PhD (Massachusetts Institute of Technology)
  Systems Approach to Translating Biology between Pre-clinical and Clinical Studies

12:00 pm **Closing remarks by Paul Macklin, PhD (Indiana University)**

2025 SACB Scholars

The SACB Organizing Committee is pleased to present the 2025 SACB Scholars. This initiative supports travel and registration to bring new scientists and new perspectives to the cancer systems biology community.

Please welcome the 2025 SACB Scholars as they learn more about the research and people in cancer systems biology!

Natalia Quintana Parrilla
Oregon Health Science University

Natalia Quintana Parrilla graduated with a Bachelor's in Science in Biology from the University of Puerto Rico - Mayagüez. Currently, she is a part of Oregon Health and Science University's (OHSU) Postbaccalaureate Research Education Program (PREP) to gain more research experience and prepare for doctoral training in Cancer and Computational Biology research. As a PREP scholar at Dr. Laura Heiser's lab, she works simultaneously building and optimizing an image analysis computational pipeline for data generation and analysis and performing biological experiments treating human and mouse breast cancer cells with various drugs and ligands.

Achyudhan Kutuva
Carnegie Mellon and University of Pittsburgh

Achyudhan Kutuva is a first-year Ph.D. student at the Joint CMU-Pitt Program in Computational Biology. He is originally from Tampa, Florida, and previously attended the University of Florida. There, he achieved Summa cum laude honor distinction with majors in Data Science and Microbiology and Cell Science. His research has previously spanned mathematical oncology and systems medicine. During his Ph.D., he is interested in bridging mechanistic modeling with machine learning to develop more interpretable models within oncology and immunology.

Oliver Cope
University of North Carolina

Oliver Cope graduated with Highest Distinction from the University of North Carolina at Chapel Hill in 2023 with a Bachelor of Science in Biology. Since graduating, Oliver has worked as a research technician in Dr. Elizabeth Brunk's lab, studying cancer cytogenomics and the evolution of ecDNA heterogeneity across different cancer lines. This research explores the dynamic genetic and cellular diversity within tumors and contributes to a deeper understanding of cancer evolution.

Adesuwa Igbinigie
University of North Carolina

Adesuwa Igbinigie is a junior at the University of North Carolina at Chapel Hill, born and raised in Kernersville, North Carolina. She is an avid learner who enjoys gymnastics, language learning, and playing the piano. Adesuwa's academic pursuits revolve around exploring how mathematics can be used to decode the complexities of biology. For the past year, she has worked under the mentorship of Dr. Elizabeth Brunk in the Brunk Lab, where she develops genomic data analysis workflows and investigates genetic heterogeneity of extrachromosomal DNA (ecDNA) in triple-negative breast cancer. Adesuwa aspires to pursue an MD/PhD in systems biology, bioinformatics, or computational biology. Her long-term goal is to bridge patient care and research, addressing health disparities and ensuring that advancements in cancer treatment are accessible to all.

Adriana Del Pino Herrera
University of Florida

Adriana Del Pino Herrera from the Canary Islands, Spain, is a fourth-year PhD Candidate in Biomedical Engineering in the BEAT Cancer Lab at the University of Florida. She previously obtained her bachelor's degree in biomedical engineering from Duquesne University in 2021. She initially started her research career working with microfluidic devices but was interested in studying cancer for her graduate career. Their current research focuses on using mathematical models to develop new treatment schedules to delay the onset of treatment resistance in ovarian cancer. Her project aims to utilize interdisciplinary techniques from bioinformatics, mathematical modeling, and ecology to avoid recurrence in ovarian cancer patients and prolong their life spans. She is also involved in the UF's Cancer Center as an ambassador where she has been able to mentor several students in cancer research and is committed to diversity and inclusion through different on-campus organizations.

Dorothy Beck
University of Virginia

Dorothy (Dori) Beck is a second-year undergraduate student at UVA studying Biomedical Engineering. She initially got involved in biomedical engineering research during her first semester of college, and she currently works on a project under the mentorship of Dr. Shayn Peirce-Cottler and Dr. Chris Highley. Her work focuses on developing agent-based models to inform the design of biomaterials that promote vascularization. She is also applying this coupled approach to engineer *in vitro* models that better recapitulate the tumor microenvironment in pancreatic ductal adenocarcinoma. Her ultimate goal is to become a physician-scientist, combining tissue engineering, biomaterials, and computational models to conduct oncology research.

General information about the conference

Social media sharing policy

Conference attendees may share information from presentations on social media provided that they respect the wishes of presenters and properly cite authorship. Oral presenters may label any or all slides in their presentations with "DO NOT POST." Similarly, poster presenters may label their posters with "DO NOT POST." Attendees must respect the presenters' requests in these instances; while attendees may take photographs of all slides and posters, they must refrain from posting on social media any images from slides or posters labeled "DO NOT POST."

Feel free to use our hashtag: **#SACB2025**

University of Colorado Anschutz Medical Campus

Address

Anschutz Health Science Building

1890 N. Revere Ct.

Aurora, CO 80045

Hotel Information

We are pleased to offer a special University rate for conference attendees at two hotels:

The Benson Hotel
13025 E Montview Blvd
Aurora, CO 80045

Hyatt Regency
13200 E 14th Pl
Aurora, CO 80011

For all travel questions, please do not hesitate to reach out to Ashley Boshoven at Ashley.boshoven@cuanschutz.edu

Map of the University of Colorado Anschutz Medical Campus

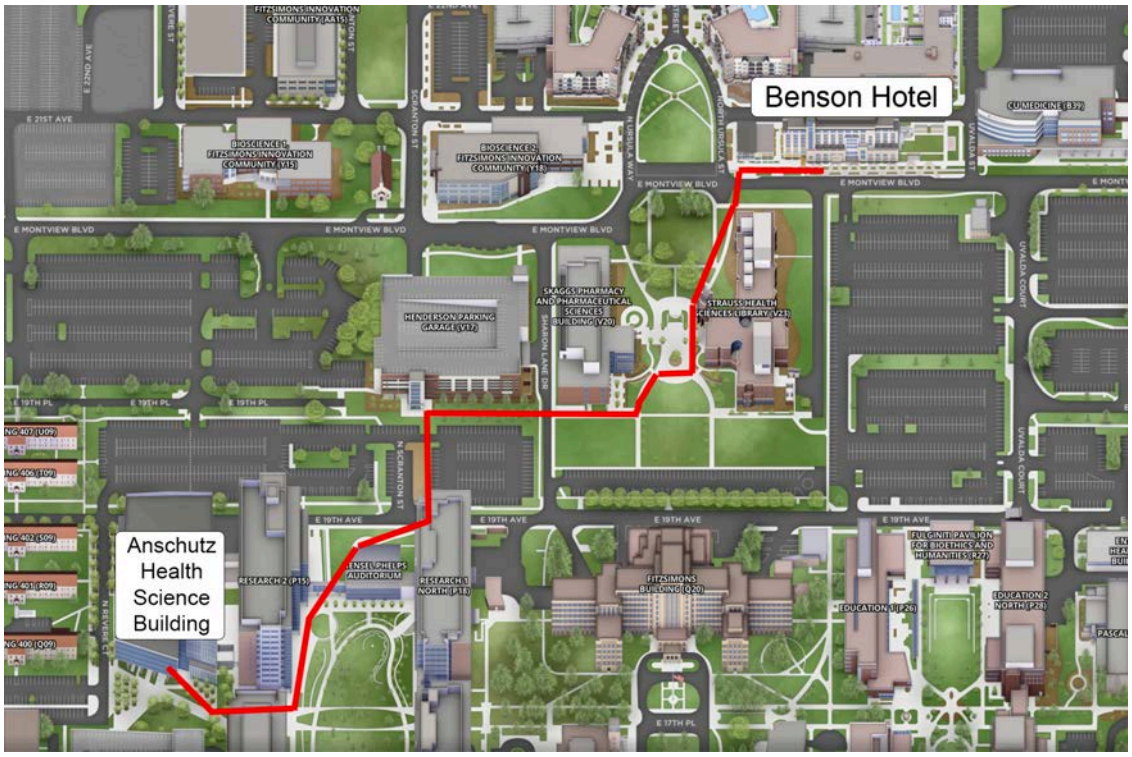
All talks and poster sessions will be held in the Elliman Conference Center in the Anschutz Health Science Building.

University of Colorado Anschutz Campus – Anschutz Health Sciences Building 2nd Floor Elliman Conference Room

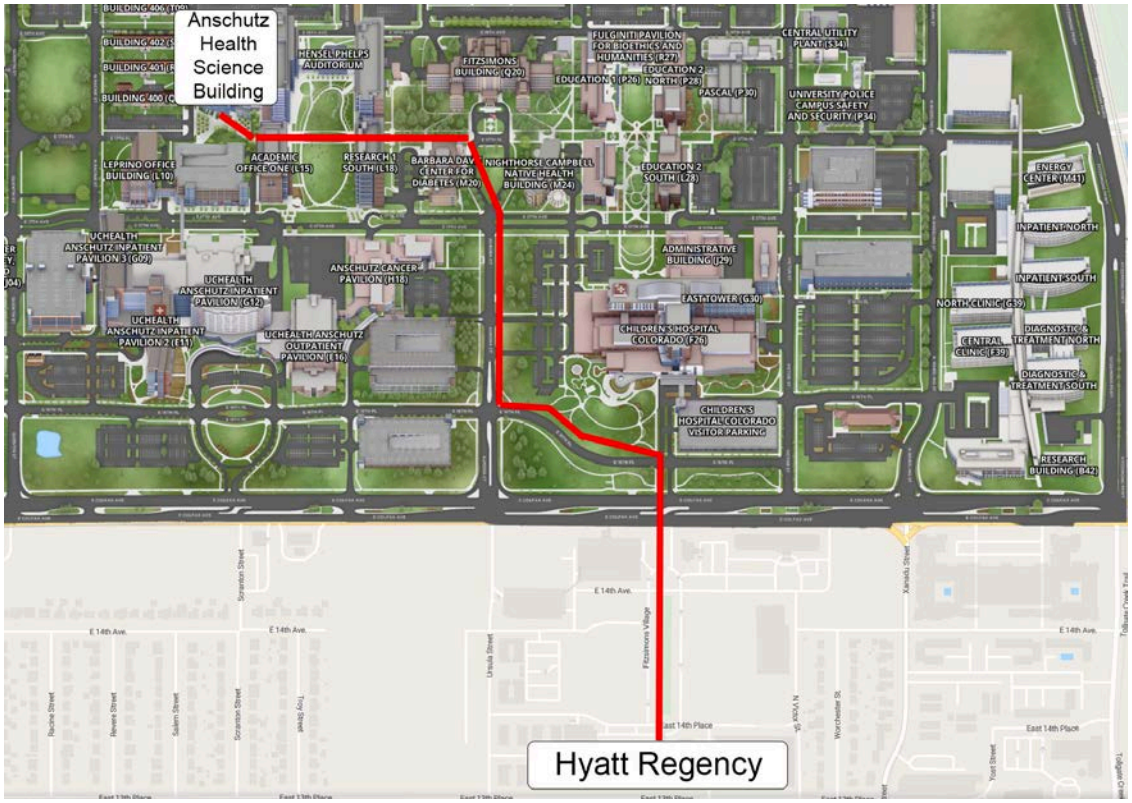
Address: 1890 N. Revere Ct. Aurora, CO 80045

Public Parking in the Vail Parking lot which is located just north of the building.

If you are staying at the Benson Hotel, it is a short walk, less than ¼ mile to the Anschutz Health Science Building. A path to take you to/from the hotel is outlined below.



If you are staying at the Hyatt Regency, you are welcome to follow the path from the hotel to the Anschutz Health Science Building. It is roughly a ½ mile walk.



University of Colorado Anschutz Medical Campus Code of Conduct

The University of Colorado's Anschutz Medical Campus describes in their "Exclusion of Persons" the actions that will be taken if someone violates University Regent Laws and other relevant municipal, state, and federal laws. Link here.

ACSB Code of Conduct

This code of conduct outlines our expectations for participants within the ACSB community, as well as steps for reporting unacceptable behavior. We are committed to providing a welcoming and inspiring community for all and expect our code of conduct to be honored. Anyone who violates this code of conduct may be banned from the community.

Our community strives to:

- Be friendly and patient.
- Be welcoming: We strive to be a community that welcomes and supports people of all backgrounds and identities.
- Be considerate: Your work will be used by other people, and you in turn will depend on the work of others. Any decision you take will affect users and colleagues, and you should take those consequences into account when making decisions. Remember that we're a world-wide community, so you might not be communicating in someone else's primary language.
- Be respectful: Not all of us will agree all the time, but disagreement is no excuse for poor behavior and poor manners. We might all experience some frustration now and then, but we cannot allow that frustration to turn into a personal attack. It's important to remember that a community where people feel uncomfortable or threatened is not a productive one.
- Be careful in the words that we choose: We are a community of professionals, and we conduct ourselves professionally. Be kind to others. Do not insult or put down other participants. Harassment and other exclusionary behavior aren't acceptable.
- Try to understand why we disagree: Disagreements, both social and technical, happen all the time. It is important that we resolve disagreements and differing views constructively. Remember that we're different. The strength of our community comes from our wide range of backgrounds. Different people have different perspectives on issues. Being unable to understand why someone holds a viewpoint doesn't mean that they're wrong. Please keep in mind that it is human to err,

and blaming each other doesn't get us anywhere. Instead, focus on helping to resolve issues and learning from mistakes.

Definitions

Harassment includes, but is not limited to:

- Offensive comments related to gender, sexual orientation, disability, mental illness, neuro(a)typicality, physical appearance, body size, race, age, regional discrimination, political or religious affiliation.
- Unwelcome remarks regarding a person's lifestyle choices and practices, including those related to food, health, parenting, drugs, and employment.
- Physical contact and simulated physical contact (e.g., textual descriptions like "hug" or "backrub") without consent or after a request to stop.
- Threats of violence, both physical and psychological.
- Incitement of violence towards any individual, including encouraging a person to commit suicide or to engage in self-harm.
- Deliberate intimidation.
- Stalking or following.
- Harassing photography or recording, including logging online activity for harassment purposes.
- Sustained disruption of discussion.
- Unwelcome sexual attention, including gratuitous or off-topic sexual images or behavior.
- Pattern of inappropriate social contact, such as requesting/assuming inappropriate levels of intimacy with others.
- Continued one-on-one communication after requests to cease.
- Deliberate "outing" of any aspect of a person's identity without their consent, except as necessary to protect others from intentional abuse.
- Publication of non-harassing private communication.

We encourage everyone to participate and are committed to building a community for all. Although we may fail at times, we seek to treat everyone both as fairly and equally as possible. Whenever a participant has made a mistake, we expect them to take responsibility for it. If someone has been harmed or offended, it is our responsibility to listen carefully and respectfully, and do our best to right the wrong.

Although this list cannot be exhaustive, we explicitly honor diversity in age, gender, gender identity or expression, culture, ethnicity, language, national origin, political beliefs, profession, race, religion, sexual orientation, socioeconomic status, and technical ability. We will not tolerate discrimination based on any of the protected characteristics above, including participants with disabilities.

This statement is meant to cover all meeting-associated events and online spaces associated with the meeting, including Facebook, X, Instagram, and other online social media venues.

Reporting Issues

If there are issues to report in violation of the code of conduct—or have any other concerns—please report it to conduct@sacbmeeting.org or contact any of the members of the organizing committee. All reports will be handled with discretion.

In your report, please include:

- Your contact information.
- Names (real, nicknames, or pseudonyms) of any individuals involved. If there are additional witnesses, please include them as well. Your account of what occurred, and if you believe the incident is ongoing. If there is a publicly available record (e.g., a mailing list archive or a public IRC logger), please include a link.
- Any additional information that may be helpful.

After filing a report, a representative will contact you personally, review the incident, follow up with any additional questions, and decide how to respond. We will respond in a timely manner and if you are not contacted within 12 hours of sending an e-mail, please talk to a member of the SACB organizing committee at the meeting to ensure that the message is received. If you witness or experience behavior that constitutes an immediate and serious threat, please call 911 or the local police first.

If the person who is harassing you is part of the response team, they will recuse themselves from handling your incident. Should the complaint originate from a member of the response team, it will be handled by a different member of the response team. We will respect confidentiality requests for the purpose of protecting victims of abuse.

ACSB takes any breach of professional conduct at the SACB meeting very seriously. In situations for which additional action is warranted, the ACSB will cooperate fully with the appropriate authorities. Those who violate the standards of professional and respectful conduct may be asked to leave the meeting immediately and without refund. They may not be considered for service on ACSB boards and committees, and may be subject to additional legal action or reporting of behavior to their institutions for investigation.

sacbmeeting.org/public/PosterPresentationAbstracts2025.pdf

Poster session A: Monday, Feb. 10, 5:00 pm - 6:30 pm

Poster #	***Presenter***	***Title***
1	Erzsébet Ravasz Regan	*Unlocking Mitochondrial Dysfunction-Associated Senescence (MiDAS) with NAD+ – a Boolean Model of Mitochondrial Dynamics and Cell Cycle Control*
2	Sutanu Nandi	*Predicting Downstaging in Muscle-Invasive Bladder Cancer Using Conditional Autoencoders and SHAP-Based Feature Analysis in SWOG S1314 Data*
3	Janani P. Baskaran	*In vitro macrophage-tumor-fibroblast spheroid co-cultures model evolution and heterogeneity of tumor-associated macrophages*
4	Maegan Cremer	*Computational alternative to cardiac biopsy in multiple myeloma: utilizing the shape of routine laboratory data for the classification of cardiac amyloidosis*
5	Ashlee N. Ford Versypt	*Computational Modeling of Cancer and Immune Cell Migration in Complex Chemokine Microenvironments*
6	Jennifer Eng	*Replication stress, suppressed adaptive immunity and fibroblast neighborhoods distinguish liver and lung organotropism in pancreatic cancer*
7	Mumtaz Shirin	*Glutamine regulates osteoblast differentiation by modulating RUNX2 translation*
8	Lisa Shakachite	*Cell density as a determinant of de novo glutamine synthesis*
9	Ryan Woodall	*Measuring interstitial fluid flow from dynamic contrast-enhanced MRI to model and optimize glioma and CAR-T cell dynamics*
10	Noah Schlachter	*Now or Later? Adding targeted therapies to first-line or second-line treatment produce the same survival benefits in multiple myeloma and HR+/HER2- breast cancer*
11	Nicholas Harper	*Pol II degradation activates cell death independently from the loss of Pol II activity*
12	Melike Sirlanci	*Computational Modeling in Cancer Research: Personalized Treatment Outcome Predictions*
13	Gavin Birdsall	*Mechanism of Histone Deacetylase Inhibitor-Induced Lethality*
14	Laura Heiser	*Multiscale systems approach to target tumor ecosystem responses for therapeutic benefit*
15	Judith Landau	*Drug Repurposing to Address Temozolomide Resistance in Glioblastoma*
16	Natalia Quintana Parrilla	*Phenotypic responses of the MCF10A-BRCA wild type and MCF10A-BRCA-185delAG/+ cell lines to prioritized ligands*

17	Temitope O. Benson	*Agent-Based Modeling of Cancer Cell Phenotypic Transition from Spheroid to Network Phenotype: Investigating the Role of Biophysical and Biochemical Parameters*
18	Luisa Quesada	*Multivariate modeling uncovers differentiation state-associated epigenetic dependencies in melanoma*
19	Kimberly Nguyen	*Identifying the microenvironmental drivers of AP-1-mediated differentiation state heterogeneity in primary melanoma tissues*
20	Yonatan Degefu	*Identifying mechanistic regulators of the AP-1 state heterogeneity via computational modeling and multiplexed single-cell analysis*
21	Afton Widdershins	*Optimal control theory as a method for designing multi-drug adaptive therapy regimens*
22	Audrey Kidd	*Single-cell trajectory analysis reveals AP-1 dependent differentiation state heterogeneity in melanoma responses to MAPK-targeted therapies*
23	Matthew McCoy	*Modeling Subclonal Evolution of Drug Resistance to Optimize Patient Benefit*
24	Belinda B. Garana	*Proteomics of sorted acute myeloid leukemia enables identification of cell type-specific resistance mechanisms*
25	Zeinab Chitforoushzadeh	*Optimizing Iterative Indirect Immunofluorescence Imaging (4i) for High-Resolution Multiplexed Protein Analysis in Chromosome Spreads: Implications for Cancer Research*
26	Adriana Del Pino Herrera	*Mapping the Ovarian Cancer Tumor Microenvironment: Integrating Multimodal Analysis for Understanding Treatment Resistance*
27	Zeynep Dereli	*A spatially resolved single cell proteomic atlas of small bowel adenocarcinoma*
28	Furkan Kurtoglu	*Integrating Intracellular Apoptosis Models with Immune Response: An Agent-Based Multiscale Simulation of Cancer*
31	Yingtong Liu	*Modeling gene-gene and cell-cell interactions mediating tumor microenvironment transitions during combination therapy*
32	Adesuwa Igbinigie	*Unveiling the Role of Extrachromosomal DNA in Cancer Through CytoCellDB: Insights from Triple-Negative Breast Cancer*
34	David E Sanin	*Myeloid Cell Regulation in Patients with Advanced Prostate Cancer treated with Bipolar Androgen Therapy*
35	Matthew Lazzara	*Model-based control of epithelial-mesenchymal transition through signaling regulation in pancreas cancer cells*
36	Junho Lee	*Role of cancer associated fibroblasts in the tumor microenvironment: mathematical modeling*
37	Yue Wang	*scGCA: A single cell global composition analysis of tumor heterogeneity and drug responses in triple-negative breast cancer*
38	Prasanna Vaddi	*An evolutionary-conserved molecular signature of cell senescence*
39	Ryan Schildcrout	*Recon8D: A metabolic regulome network from oct-omics and machine learning*

40	Victor Passanisi	*High-throughput cross-microscope imaging reveals poor capacity of telomere features to predict senescence induction in single cells*
41	Angela Bowen	*MC2 Center and Cancer Complexity Knowledge Portal: Expanding Tools for Equitable Data and Tool Reuse*

Poster session B: Tuesday, Feb. 11, 10:50 am – 12:00 pm

Poster #	***Presenter***	***Title***
42	Aneequa Sundus	*PhysiNN: Deep Neural Networks Add-on for PhysiCell*
43	Michelle Loui	*High-grade serous ovarian cancer autoantibodies interact poorly with cytotoxicity-inducing Fc receptors*
44	Jiyeon Park	*Cell cycle inhibitors (CCI) help promote immunogenicity and T cell cytotoxicity in the addition of Interleukin-15 (IL-15) in Estrogen Receptor Positive (ER+) breast cancer*
45	Dina Hany	*Purine biosynthesis tunes estrogen responses in breast cancer*
46	Ali Basirattalab	*Starving Glioblastoma: Proteomic Characterization of the Response to Arginine Deprivation*
47	Lily Elizabeth Feldman	*Investigating the role of NPEPPS in regulating High-Grade Serous Ovarian Cancer response to platinum chemotherapy*
48	Michael Orman	*ProstaMine: A bioinformatics tool for identifying subtype-specific co-alterations associated with aggressiveness in prostate cancer*
49	Ralf Philipe Dagdag	*Personalizing Care: Leveraging clinical patient data to predict patient responses to frontline pharmacological interventions in metastatic prostate cancer*
50	Gregory P. Way	*High-content microscopy for characterizing and predicting drug response in NF1-/- Schwann cell cultures and NF1 patient-derived tumor organoids*
51	Kelly Ward	*Mechanisms of Parthanatotic Cell Death*
52	Chance Sine	*p16 expression confers sensitivity to CDK2 inhibitors in CCNE1-amplified ovarian cancers*
53	Riley Ill	*Causes and consequences of off-target activation of the GCN2-eIF2α-ATF4 axis in targeted cancer therapy*
54	Walker Mellon	*An Evolutionary Approach to Reproductive Cancers*
55	Jonah R. Huggins	*A Computational Pipeline for Evaluating Agreement Between Large-Scale Models and Diverse Datasets*
56	Melanie Joy	*Histopathology and RNA-sequencing to Inform Immune-Related Adverse Events Following Checkpoint Inhibitor Treatment*
57	Sarah Asby	*Interrogation of Mechanisms of Kidney Injury in HIS-BRGS Mice Treated with Immune Checkpoint Inhibitors*

58	Hatim Sabaawy	*High plex single cell spatial signatures of lung cancer resistance to therapy*
59	Dong Wang	*Transcriptional Regulation of Protein Synthesis by Mediator Kinase Represents a Therapeutic Vulnerability in MYC-driven Medulloblastoma*
60	James Park	*Assessing Drug-Response Dynamics of Glioblastoma Stem-like Cell Populations*
61	Weishan Li	*Stacked, Conditional, Variational Autoencoder to Capture Cancer Type and Subtype Heterogeneity Using TCGA Data*
62	Oliver Cope	*Exploring uneven redistribution of extrachromosomal DNA after population heterogeneity loss*
63	Brianna Fernandez	*Defining the relationship between chemotherapy-induced quiescence and senescence*
64	Gina Bouchard	*The colocatome as a spatial omic: a quantitative framework enabling spatial cell-cell colocalizations comparisons between in vitro patient-derived models and pathological specimens*
65	Dorothy N. Beck	*Towards Digital Twins: Simulating in vitro Experiments to Model the Tumor Microenvironment in Pancreatic Ductal Adenocarcinoma*
66	Kristen Nader	*Single-cell transcriptomes identify patienttailored therapies for selective co-inhibition of cancer clones*
67	Behnaz Bozorgui	*Single cell spatial proteomics analysis and computational evaluation pipeline:*
68	Matthew Poskus	*Fibroblasts modulate targeted therapy response dynamics in HER2+ breast cancer*
69	Ronaldo Francisco	*Single-cell and spatial transcriptomics analysis of clear cell ovarian carcinoma*
70	Annie Badenoch	*Prediction of Colon Cancer Treatment Based on Microbiome Metabolism*
71	Fangyang Wang	*Integrating Language-Vision Models and Spatial Transcriptomics to Study Metastatic Cancer Microenvironments*
72	Christopher A Bristow	*Evolving Data Application and Systems: Supporting Patient Derived Model Research for Over 10 Years.*
73	Kristin Swanson	*Transcriptional trajectory inference of image-localized, multi-regional high-grade glioma biopsies reveals distinct population ecologies and sex-associated enriched pathways*
74	Wei He	*Personalized cancer treatment strategies incorporating irreversible and reversible drug resistance mechanisms*
75	Ifeanyichukwu Nwosu	*A Comprehensive Meta-Analysis of Breast Cancer Gene Expression Data: Understanding the Molecular Complexity of a Silent Epidemic*
76	Christian Meyer	*A Translation-Oriented Pipeline for Analyzing Drug Combination Screens*
77	Michael J. Lippincott	*A morphology and secretome map of pyroptosis*
78	Kate Matlin	*eIF3e and eIF3d selectively regulate the acute hypoxic translational response*
79	Julia Curd	*Characterizing and Targeting Multi-Gene Dependencies in Cancer*

80	Cailin Deiter	*Characterizing interactions between the peripheral nervous system and human bladder tumors*
81	Rebecca A. Bekker	*Improving Response to Immunotherapy in HER2+ Breast Cancer*
82	Lucas Gillenwater	*GRACKLE: Graph Regularization Across Contextual KnowLedgE: An interpretable matrix factorization approach for clinical subtyping*
83	Anisha Datta	*Investigating the Effects of Axl Inhibition: Reprogramming the Myeloid Compartment of the Tumor Microenvironment*
84	Shuming Zhang	*Fibroblast Dynamics in a Quantitative Systems Pharmacology Model for Combination Therapy in Hepatocellular Carcinoma*
85	Harley Richker	*Estrogen Sensitization for Combating Aggressive Phenotypes in Estrogen-Receptor Negative Breast Cancer (ESCAPE)*
86	Ilayda Ilerten	*Discovery of Novel Ecotypes for Immunotherapy Response Prediction in Non-small Cell Lung Cancer*

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