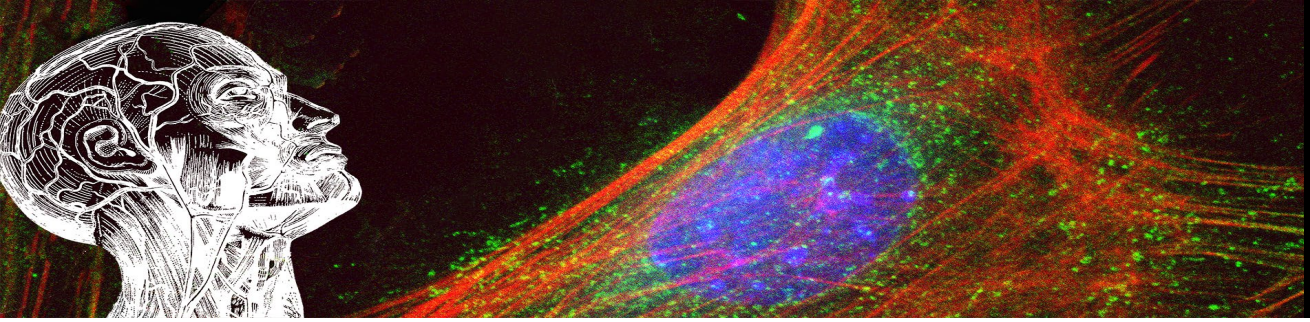

POINTS OF INTEREST

October-December 2024

HONORS AND AWARDS

Darasimi Atanda (Engelhardt Lab)

Darasimi was awarded $10,000 in funding as part of the Climate Change and Health Solutions Challenge in December. Her project addresses the intersection of climate change and public health by utilizing algae's natural air-purifying properties to combat poor indoor air quality.

Darasimi was awarded first place at the Central States and Midwest Regional Chapters of the Society of Toxicology Conference for her poster titled, "Selenium Rescued Behavioral Derangement Induced by Arsenic in Male Wistar Rats."

Jianing Li (Young Lab)

Jianing successfully defended her thesis titled "Elucidating the Molecular Mechanisms Controlling Synaptic Strength in Mammalian Central Nervous System."

Ji Lie (Tootle Lab)

Ji was awarded a Post-Comprehensive Research Fellowship for the Spring 2025 semester.

Denise Seabold (Ryan Lab)

Denise was recognized for 25 years of service at the University of Iowa.

APPOINTMENTS & SPECIAL RECOGNITION

Dr. Martine Dunnwald

Dr. Dunnwald has been selected to be a mentee participant in the FASEB LEAD (Leadership Engagement and Appreciation of Differences) program, an innovative reverse-mentoring program that pairs senior-level professionals with early-career mentors to gain different perspectives of individual, group, and cultural views within the workplace and scientific research communities.

Israel Wipf (Tootle Lab)

Israel won the Graduate College Three Minute Thesis Competition for his presentation titled “Fueling the Fire: Fruit Flies and the Obesity-Cancer Connection.”

The following MCA2 students have completed their program and graduated.

- Mia Battani
- Nicolle Chang
- Nicholas Deppe
- Arturo Espinoza
- Kelsey Kannenberg
- Samuel Pek
- Madelyn Mayeski
- Leon McGill

CEC Committee

Fall Potluck

We had a lot of fun at the Potluck with many varieties of dishes. Thank you all for coming and building our ACB community.

This is Us

Thank you to Marc Pizzimenti and Fang Lin for participating in the last “This is Us.” We are looking for volunteers to participate in the Spring. If you are interested, email Martine Dunnwald (martine-dunnwald@uiowa.edu) or Madison O’Leary.

ACB Activity Tool Kit

Are you interested in developing scientific activities that could be executed in local community events to promote anatomy and cell biology? If so, contact Martine Dunnwald or any member of the CEC.

Kids-Go-Stem

Pedro Samaha Franca (MCA), Madelyn Mayeski (MCA), Juan Rodriguez (CDB), and Ethan Breyfogle (ACB) participated in Kids-Go-Stem, an outreach event organized by the CCOM. They demonstrated cells in culture, histology of organs, and anatomical models to middle schoolers.

Other

Dr. Darren Hoffmann

“Gross Anatomy: More than Meets the Eye for Students.” Guest Commentator on *The Short Coat Podcast*, November 21. Available now wherever you get your podcasts!

Dr. Nathan Swailes

Dr. Swailes was nominated for an ICON All-Star Award. The ICON All-Star Award is Issued by the Office of Teaching, Learning, and Technology (OTLT). A panel of experts from Student Disability Services; Distance and Online Education; Diversity, Equity, and Inclusion; OTLT, and students from the Student Instructional Technology Assistant (SITA) program reviewed the ICON sites. The reviewers look for specific criteria including site organization, user-friendliness, accessibility, opportunities for interaction and communication that promote student engagement and learning.

SPECIAL PRESENTATIONS

Dr. John Engelhardt

“Assessing Lung Injury and Repair Using Transgenic Ferret Models,” presented at the 3rd Annual Epithelial Mesenchymal Interactions in Lung Development and Fibrosis Conference, St. Julians, Malta, October 2024.

“Non-rodent Mammal Models to Address Gene Function, Cell Biology and Disease Processes, Airway Injury and Cell Engraftment,” presented at the National Heart, Lung, and Blood Institute (NHLBI) virtual workshop entitled “Progenitor Resilience and Early Onset of Chronic Lung Diseases,” November 2024.

Invited Meeting Participation at CFF PROTECT Workshop (PRenatal MOdulator Treatment to PrEvent CF ComplicaTions), Bethesda, MD, November 2024.

Invited Meeting Participation at Cystic Fibrosis Trust/Cystic Fibrosis Foundation Virtual Workshop Series entitled “Advancing CFRD Research Virtual Workshop Series,” November 2024.

Dr. Lalit Gautam (Ryan Lab)

“Inhibition of Notch and Multicilin Induction Regulate Airway Cell Fate Decisions and Multiciliogenesis Through Activation of the AKT Pathway,” presented at the Iowa Physiology Society Meeting, Iowa City, IA, November 2024.

Dr. Darren Hoffmann

“Evaluation and Asynchronous Programs.” Conference workshop presented at the Fall 2024 Center for Integration of Research, Teaching, and Learning Virtual Meeting, October 2024.

“Exploring the Life and Career Experiences of MSTP Alumni from the University of Iowa (1982-2022),” presented at the AAMC Biomedical Research Conference hosted by the Group on Research Education and Training (GREAT), Addison, TX, October 2024.

National Academies of Science, Engineering and Medicine. *Equitable and Effective Teaching in Undergraduate STEM Education: A Framework for Institutions, Educators, and Disciplines*, Panel Presentation (Invited Panelists: Shandy Hauk, Darren Hoffmann, Hironao Okahana, C. Edward Watson).

Scholarship of Teaching and Learning Institute. *The Potential of SoTL at Iowa.* Panel Presentation (Invited panelists: Peter Felten, Johan Geertsema, Darren Hoffmann, Sara Nasrollahian)

Emily Liu (Ryan Lab)

“3D Spheroid Modeling of Lymphangioleiomyomatosis,” presented at the Iowa Physiology Society Meeting, Iowa City, IA, November 2024.

Emma Lowery and Yu Sun (Ryan Lab)

Understanding the Role of CFTR in Pancreatic Progenitor Development to Target Exocrine Pancreatic Insufficiency,” presented at the Iowa Physiology Society Meeting, Iowa City, IA, November 2024.

Dr. Amy Ryan

“Application of Emulate S1 Chips to Study Mucociliary Dynamics and Inflammatory Cell Interactions in the Airway Epithelium,” presented at the San Francisco Organ Chip Innovation Day, Virtually, October 2024.

"Application of Emulate S1 Chips to Study Mucociliary Dynamics and Inflammatory Cell Interactions in the Airway Epithelium," presented at the Texas Micro Physiological Systems Day, Houston, TX, November 2024.

"CFTR Function Directly Impacts Early Cell Fate Decisions in Pancreatic Development," presented at the UI FOE Diabetes Center Retreat, Iowa City, IA, November 2024.

Yu Sun (Ryan Lab)

"Understanding the Role of CFTR in Pancreatic Progenitor Development to Target Exocrine Pancreatic Insufficiency," presented at the UI FOE Diabetes Center Retreat, Iowa City, IA, November 2024.

Jillian Williquett (Hua Sun Lab)

"Targeting Dynein Activator, Dctn1, Ameliorates Podocytopathy in Streptozotocin-induced Diabetic Mice," presented at the American Society of Nephrology Kidney Week Conference, San Diego, CA, November 2024. Jillian was awarded a Graduate Student Senate Award to attend this conference.

Brett Wineinger, Beck Fitzpatrick, and Jason Babcock (Ryan Lab)

"Quantifying CCDC40 Genotype to Phenotype through Structural and Functional Parameters of in vitro Ciliated Airway Models," presented at the Iowa Physiology Society Meeting, Iowa City, IA, November 2024 and the Fall Undergraduate Research Festival, Iowa City, IA, November 2024.

NEW GRANT AWARDS

Aparna Pathmanathan (Ryan Lab)

Title: CFF Student Traineeship Award
Sponsor: CFF
Role: PI
Total Award: $4,000 direct costs

SUBMITTED GRANTS

Dr. Brad Amendt

Title: The Role of Irx1 in Oral Tissue Repair, Regeneration and Maintenance
Sponsor: NIH
Role: PI
Total Award: $1,949,725 direct costs, $1,052,273 indirect costs

Title: New Mouse Models for Craniofacial Anomalies
Sponsor: NIH
Role: PI
Total Award: $1,973,807 direct costs, $1,095,463 indirect costs

Dr. Adam Dupuy

Title: Development of a Flexible and Accessible Functional Genomic Screening Tool for In Vivo Applications
Sponsor: NIH
Role: PI
Total Award: $900,000 direct costs, $499,500 indirect costs

Elizabeth Hannan (Dupuy Lab)

Title: Investigating the Impacts of MHC-I Loss on Immune Cell Function in Cutaneous Melanoma
Sponsor: NIH Fellowship
Role: PI
Total Award: $75,124 direct costs

Emily Liu (Ryan Lab)

Title: The Role of TGF-β Signaling in cell-cell Interactions in the Pathogenesis of Lymphangioleiomyomatosis
Sponsor: NIH Fellowship
Role: PI
Total Award: $112,686 direct costs

Dr. Amy Ryan

Title: Identifying “Inflamm-aging” in Multi-organ Tissue Chips Through iPSC Stemness and Function
Sponsor: NIH
Role: PI
Total Award: $5,723, 263 direct costs, $4,250,317 indirect costs

Title: Stem Cells, Cell Therapies and Bioengineering in Lung Biology and Diseases
Sponsor: NIH Conference, UVM Subaward
Role: PI
Total Award: $9,178 direct costs

Title: Stem Cells, Cell Therapies and Bioengineering in Lung Biology and Diseases
Sponsor: NSF
Role: PI
Total Award: $17,399 direct costs, $14,999 indirect costs

Title: CFTR Function in Early Pancreatic Development
Sponsor: Boomer Esiason
Role: PI
Total Award: $92,850 direct costs

Title: CFTR Class-Specific Mutations and Their Impact on Pancreatic Development in Cystic Fibrosis
Sponsor: Emily’s Entourage
Role: PI
Total Award: $220,000 direct costs, $200,000 indirect costs

Title: Establishing the Role of Caludin-18 in Mucociliary Differentiation, Airway Regeneration and Development of Chronic Respiratory Diseases
Sponsor: University of California, San Diego
Role: PI
Total Award: $160,281 direct costs, $87,353 indirect costs

Title: 1347665 TGF Signaling in the Pathogenesis of Lymphangioleiomyomatosis
Sponsor: LAM Foundation
Role: PI
Total Award: $150,000 direct costs

Title: Health Effects Assessment of Airborne and Aged Micro-/Nano-Plastics with PCB Contamination
Sponsor: NIH
Role: Co-I
Total Award: $2,499,995 direct costs, $1,306,455 indirect costs

Dr. Ling Yang

Title: Shaping Cardiac Immuno-Metabolic Homeostasis by the Lysosome
Sponsor: NIH
Role: PI
Total Award: $3,061,944 direct costs, $2,082,009 indirect costs

NEW PUBLICATIONS

Dr. Martine Dunnwald

Rhea, L., Reeb, T., **Adelizzi, E.,** Garnica, B., Stein, A., Kollash, A., Dunnwald, E., & **Dunnwald, M**. (2024). ARHGAP29 promotes keratinocyte proliferation and migration in vitro and is dispensable for in vivo wound healing. *Developmental dynamics : an official publication of the American Association of Anatomists*, 10.1002/dvdy.759. Advance online publication. https://doi.org/10.1002/dvdy.759

Dr. John Engelhardt

Rotti, P. G., Yi, Y., Gasser, G., Yuan, F., Sun, X., Apak-Evans, I., Wu, P., Liu, G., Choi, S., Reeves, R., **Scioneaux, A. E., Zhang, Y., Winter, M., Liang, B**., Cunicelli, N., Uc, A., Norris, A. W., Sussel, L., Wells, K. L., & **Engelhardt, J. F**. (2024). CFTR represses a PDX1 axis to govern pancreatic ductal cell fate. *iScience*, *27*(12), 111393. https://doi.org/10.1016/j.isci.2024.111393

Witten, J., Raji, I., Manan, R. S., Beyer, E., Bartlett, S., **Tang, Y., Ebadi, M., Lei, J**., Nguyen, D., Oladimeji, F., Jiang, A. Y., MacDonald, E., Hu, Y., Mughal, H., Self, A., Collins, E., **Yan, Z., Engelhardt, J. F.,** Langer, R., & Anderson, D. G. (2024). Artificial intelligence-guided design of lipid nanoparticles for pulmonary gene therapy. *Nature biotechnology*, 10.1038/s41587-024-02490-y. Advance online publication. https://doi.org/10.1038/s41587-024-02490-y

Amelia Hurley-Novatny (Ken Li Lab)

Hurley-Novatny, A., Chang, D., Murakami, K., Wang, L., & **Li, H**. (2024). Poor bone health in Duchenne muscular dystrophy: a multifactorial problem beyond corticosteroids and loss of ambulation. *Frontiers in endocrinology*, *15*, 1398050. https://doi.org/10.3389/fendo.2024.1398050

Dr. Amy Ryan

St Pierre, L., Berhan, A., Sung, E. K., Alvarez, J. R., Wang, H., Ji, Y., Liu, Y., Yu, H., Meier, A., Afshar, K., Golts, E. M., Lin, G. Y., Castaldi, A., Calvert, B. A., **Ryan, A**., Zhou, B., Offringa, I. A., Marconett, C. N., & Borok, Z. (2024). Integrated multiomic analysis identifies TRIP13 as a mediator of alveolar epithelial type II cell dysfunction in idiopathic pulmonary fibrosis. *Biochimica et biophysica acta. Molecular basis of disease*, 167572. Advance online publication. https://doi.org/10.1016/j.bbadis.2024.167572

Koc-Gunel, S., **Liu, E. C., Gautam, L. K**., Calvert, B. A., **Murthy, S**., Harriott, N. C., Nawroth, J. C., Zhou, B., Krymskaya, V. P., & **Ryan, A. L.** (2024). Targeting Fibroblast-Endothelial Interactions in LAM Pathogenesis: 3D Spheroid and Spatial Transcriptomic Insights for Therapeutic Innovation. *bioRxiv : the preprint server for biology*, 2023.06.12.544372. https://doi.org/10.1101/2023.06.12.544372

Murthy, S., Seabold, D. A., Gautam, L. K., Caceres, A. M., Sease, R., Calvert, B. A., Busch, S., Neely, A., Marconett, C. N., & **Ryan, A. L**. (2024). Culture Conditions Differentially Regulate the Inflammatory Niche and Cellular Phenotype of Tracheo-Bronchial Basal Stem Cells. *bioRxiv : the preprint server for biology*, 2024.09.04.611264. https://doi.org/10.1101/2024.09.04.611264

Roth, D., Şahin, A. T., Ling, F., Senger, C. N., Quiroz, E. J., Calvert, B. A., van der Does, A. M., Güney, T. G., Tepho, N., Glasl, S., van Schadewijk, A., von Schledorn, L., Olmer, R., Kanso, E., Nawroth, J. C., & **Ryan, A. L**. (2024). STRUCTURE-FUNCTION RELATIONSHIPS OF MUCOCILIARY CLEARANCE IN HUMAN AIRWAYS. *Research square*, rs.3.rs-4164522. https://doi.org/10.21203/rs.3.rs-4164522/v1. Accepted at Natural Communications

Tanneberger, A. E., Blomberg, R., Bilousova, G., **Ryan, A. L**., & Magin, C. M. (2024), “Engineered hydrogel biomaterials facilitate lung progenitor cell differentiation from induced pluripotent stem cells”, Mendeley Data, V1, doi: 10.17632/cxwk4s76wd.1

Koc-Hunel, S., Ryan, A. L., Winter, M., & Wagner, T.O.F. (2024). FGFR4 p.Gly388Arg polymorphism in PBMCs of LAM Patients: A Potential Systemic Driver of Disease. *medRxiv: the preprint survey for health sciences*. https://doi.org/10.1101/2024.11.05.24316663

Jillian Williquett (Hua Sun Lab)

Williquett, J., Perez-Gill, C., Allamargot, C., Rooney, F., Pollak, M., & **Sun, H.** (2024). Dynll1-PI31 Interaction Enhances Proteolysis via the Proteasome, Representing a Novel Therapeutic Target for INF2-Related FSGS. *Kidney360*,

10.34067/KID.0000000659. Advance online publication. https://doi.org/10.34067/KID.0000000659

Israel Wipf (Tootle Lab)

Wipf, I., Anastas, A., Daulton, T., Nelson, L. L., Maity, S., Malone, K., Nguyen, E., Ramos, R., Wright, K., Xiong, J., & Leatherman, J. (2024). Expression of ABC transporters in the Drosophila testis stem cell niche: Comparison of two approaches. *Gene expression patterns : GEP*, *54*, 119386. Advance online publication. https://doi.org/10.1016/j.gep.2024.119386

Liu, S., **Wipf, I**., Joglekar, A., Freshly, A., Bovee, C. E., Kim, L., Richtsmeier, S. L., Peachee, S., Kopriva, S., Vikram, A., Ladiki, D. E., Ilerisoy, F., Ilerisoy, B., Sagona, G., Jun, C., Giedt, M., Tootle, T. L., Ankrum, J., & Imai, Y. (2024). Lipid droplet protein Perilipin 2 is critical for the regulation of insulin secretion through beta cell lipophagy and glucagon expression in pancreatic islets. *bioRxiv : the preprint server for biology*, 2024.11.17.624030. https://doi.org/10.1101/2024.11.17.624030

Please share news of your activities with Madison O'Leary for publication in the quarterly Points of Interest Newsletter. This information is circulated throughout the Department, as well as published on the ACB Department website.