



POINTS OF INTEREST

April – June 2022

HONORS AND AWARDS

Anatomy and Cell Biology Spring Awards Ceremony

The following students were honored at the ACB Annual Spring Awards Ceremony/Reception held on May 2. Congratulations!

Kelsey Wood - *Superior Achievement in Human Anatomy for Advanced Practice Nursing*

Chance Baburek - *Superior Achievement in Advanced Human Anatomy for Athletic Trainers*

Julia Hansen - *Superior Achievement in Human Anatomy for Physical Therapists*

Kyle Kato - *Henry J. Prentiss Award for Superior Achievement in Medical Gross Anatomy*

Nathanael Seaberg - *W. R. Ingram Award for Superior Achievement in Functional Neuroanatomy*

Colton Curtis - *Superior Achievement in Dental Gross Anatomy*

Sydney Weber - *Michael W. Finkelstein Award for Superior Achievement in Dental Histology*

Vitaly levlev - *Mary J. C. Hendrix Graduate Leadership Award*

Mark Li - *Tung-Yang Wing Award for Superior Achievement in Anatomy Graduate Education*

Samuel Mellentine - *Superior Achievement in Student Teaching in Anatomy & Cell Biology*

Bhagaban Mallik - *Superior Achievement in Postdoctoral Research*

Jared Hill - *Superior Academic Achievement in the Anatomical Sciences, MCA Program*

Kevin Gubner - *Excellence in Research/Teaching/Capstone, MCA Program*

Graduate Student Training Grant Awards

Emily Adelizzi (Dunnwald Lab) and **Rebekah Peplinski** (Dupuy Lab) were awarded a predoctoral fellowship on the Genetics T32 training grant for the academic year 2022-2023. These awards are for \$26,353 towards their stipend, covers tuition and fees along with a travel allowance.

Tate Neff (Yang Lab) and **Israel Wipf** (Tootle Lab) were awarded a predoctoral fellowship on the Pharmacological Sciences T32 Training Grant for the academic year 2022-2023. These awards are for \$26,353 towards their stipend, covers tuition and fees along with a travel allowance.

Undergraduate Student Awards

Amanda Dougherty (Young Lab) and **Lydia Guo** (Engelhardt Lab) each received the Iowa Center for Research by Undergraduates (ICRU) Research Fellowship award for Summer 2022.

Martine Dunnwald Lab

Lindsey Rhea, **Sarah Lowenberg**, **Emily Adelizzi**, and **Angelo Antiguas** each received a travel award (\$300-\$400) from the American Association for Anatomy for their participation at the Experimental Biology Annual Meeting in Philadelphia (April 2022).

Dr. Darren Hoffmann

Darren was awarded the Carver College of Medicine “Best Educational Research Paper Award” of 2021. Papers were nominated by leaders across campus and recognizes innovative, high-impact, original research in the areas of basic, clinical, and educational research.

Hoffmann, Darren S., Katherine Kearns, Karen M. Bovenmyer, W. F. Preston Cumming, Leslie E. Drane, Madeleine Gonin, Lisa Kelly, Lisa Rohde, Shawana Tabassum, and Riley Blay. 2021. “Benefits of a Multi-Institutional, Hybrid Approach to Teaching Course Design for Graduate Students, Postdoctoral Scholars, and Leaders”. Teaching and Learning Inquiry 9 (1):218-40.
<https://doi.org/10.20343/teachlearningqu.9.1.15>

Dr. Justin Sipla

Dr. Sipla received the M1/P1 Milleman Teacher of the Year award for 2022. He previously received this award in 2021, 2019, and 2017.

Morgan Sturgeon (Rob Cornell's Lab)

Morgan was awarded the Epilepsia Open Prize 2022 Basic Science prize for her research, "The opioid antagonist naltrexone decreases seizure-like activity in genetic and chemically induced epilepsy models." <https://www.ilae.org/about-ilae/awards/epilepsia-openandreg-prize/morgan-sturgeon-2022>. This work was carried out while a postdoc in the Cornell Lab.

Sturgeon ML, Langton R, Sharma S, Cornell RA, Glykys J, Bassuk AG. The opioid antagonist naltrexone decreases seizure-like activity in genetic and chemically induced epilepsy models. Epilepsia Open. 2021;6(3):528-538. doi:10.1002/epi4.12512

APPOINTMENTS & SPECIAL RECOGNITION

ACB Promotions

Congratulations to the recently promoted ACB Faculty Members:

Darren Hoffmann, Associate Professor with tenure

Tina Tootle, full tenured Professor

Ziying Yan, Research Professor

Samuel Young, full tenured Professor

New CDB Graduate Students

The following graduate students will be joining the CDB program this summer:

Madhuri Bendale (Young Lab), Tate Neff (Yang Lab), Uchechi Okoroafor (Young Lab), Juan Rodriguez Centeno (Yang Lab), Sahebgowda Sidramagowda Patil (Yang Lab), and Israel Wipf (Tootle Lab).

Erica Gansemer (Rutkowski Lab), Cell and Developmental Biology Graduate Student

Erica successfully defended her thesis in April, entitled "How Nutrients Affect Endoplasmic Reticulum Homeostasis: An Interorganellar Redox Journey."

Dr. Darren Hoffmann

Dr. Hoffmann was elected as Chair of the Cross Network Operations Group for the CIRTL Network (Center for Integration of Research Teaching and Learning). The CNOG oversees CIRTL's online courses and training workshops for graduate students and post-docs across the US and Canada.

Dr. Masataka Kawai

Dr. Kawai is on the Advisory Board and Scientific Committee Member of the 49th European Muscle Conference (EMC) <https://www.emc2022prague.eu/committees.htm>, which will take place September 22-26 in Prague, Czech Republic. EMC attracts 200-300 scientists from all parts of Europe, ~30 from USA/Canada, and some from Japan, Australia, China, Africa, South America, etc.

Dr. Marc Pizzimenti

Dr. Pizzimenti was a Visiting Scholar, University of Cambridge, UK. Working with faculty and staff in the [Department of Physiology, Development and Neuroscience](#), Marc had the pleasure of being part of the instructional teams for human anatomy and neuroanatomy courses. He was also involved in education-based and clinical research. The visit was made possible with funding from: University of Iowa, Stanley Trust, International Travel Award; Department of Anatomy and Cell Biology; and American Association for Anatomy, Visiting Scholar Award

Dr. Ling Yang

Dr. Yang has been selected as an inaugural investigator in the Stead Family Scholars Program. This honor comes with \$125,000 per year for three years to support her research program, which was recognized by the selection committee as being "innovative, impactful on an international scale, and poised to delivery consequential discoveries."

Dr. Robert Tomanek

Dr. Tomanek has been appointed Associate Editor of *Frontiers in Physiology – Vascular Physiology*.

Dr. Sam Young

- Dr. Young has been elected to Faculty Senate.
- Dr. Young has been invited to serve as a Grant Reviewer for the Austrian Science Fund.
- The Medicine Innovates selection committee identified the following paper as a key scientific article contributing to research excellence. They will write a feature about this paper and highlight it in the next edition of Medicine Innovates news series.
Phillips S, Valino-Ramos P, Veeraraghavan P, Young SM Jr. VikAD, a Vika site-specific recombinase-based system for efficient and scalable helper dependent adenovirus production. Molecular Therapy Methods and Clinical Development. 2022, 24:117-126. DOI: 10.32604/biocell.2022.015390.

SPECIAL PRESENTATIONS

Ben Calvert, Ph.D., (Ryan Laboratory)

Ben had his abstract accepted for Poster Presentation at the Cystic Fibrosis Foundation's Research Conference, June 26-30, 2022.

Calvert BA and Ryan AL. Cellular interactions between macrophages and epithelial cells in CF airways results in impaired immune function and delayed multiciliogenesis.

Dr. Martine Dunnwald Laboratory

Dr. Dunnwald presented "Functional validation of Cleft-Associated Genes," as a guest speaker for the Departmental of Oral Health and Sciences, University of Washington, Seattle, May 2022.

Dunnwald Lab members participated in the 2022 Experimental Biology Annual Meeting, Philadelphia:

- **Lindsey Rhea** presented a poster "Arhgap29 regulates keratinocyte migration through the RhoA/ROCK pathway (poster finalist).
- **Emily Adelizzi** presented a poster "Arhgap29 is required for proper palatogenesis and its loss in ectodermal-derived cells results in a kinked tail phenotype"
- **Sarah Lowenberg** presented a poster "Investigating the effects of IRF6 on focal adhesions in keratinocytes"
- **Angelo Antiguas** was selected to present an oral presentation at the 2022 Experimental Biology Annual meeting: "Rab11A forms a complex with Interferon Regulatory Factor 6 in recycling endosomes"
- **Martine Dunnwald** organized and chaired a session: Racial Disparities in Health and Disease

Dr. John Engelhardt

“Defining Cellular Targets for Gene Therapy of Cystic Fibrosis Lung Disease Using Genetic Ferret Models,” presented at the Excellence in Respiratory and Critical Care Medicine Seminar, Denver, CO, April 2022.

“Early Pathogenesis of Cystic Fibrosis Relates Diabetes,” presented at the Annual Anatomy and Cell Biology Retreat,” University of Iowa, May 2022.

“CF Ferret Models for Developing Genetic-Based Therapies and Delineating Cellular Functions in the Pathogenesis of CF Lung Disease,” presented at the CF Research Conference, Seattle, WA, June 2022.

Dr. Darren Hoffmann

Dr. Hoffmann presented a program for faculty, graduate students, and post-docs entitled “How to Choose Service Opportunities” at the American Association for Anatomists spring 2002 meeting.

Bill Milanick, Interdisciplinary Graduate Student (Genetics, Young Lab)

Bill was selected to give a talk at the GRC Synaptic Transmission, June 19-24, Il Ciocco, Italy.

Dr. Marc Pizzimenti

“Paraffin Fixed Human Trabecular Bone Specimens for Study of Osteoporosis.” Conference oral presentation, Experimental Biology: American Association for Anatomy., FASEB, Philadelphia, PA, April 2022.

Workshop Presentation: “Anatomic Relationships for Local Anesthesia.” Regional Anesthesia Study Center of Iowa (RASCI), UIHC, Iowa City, June 4, 2022.

Dr. Sam Young

“Presynaptic Cav2 Calcium Channel Subtype Abundance, Organization, and the Regulation of Neurotransmitter Release,” European Calcium Channel Meeting, May 24-28, Alpbach, Austria.

“Presynaptic Rac1 Controls Synaptic Strength Through Regulation of Synaptic Vesicle Priming,” GRC Synaptic Transmission, June 19-24, Il Ciocco, Italy.

NEW GRANT AWARDS

Dr. Botond Banfi

Title: "Anti-AAV Nab Therapies"
Sponsor: Genentech, Inc.
Role: Principal Investigator
Total Award: \$1,250,000 Direct Costs, \$681,250 Indirect Costs 7/04/2022-6/30/2027

Dr. John Engelhardt

Title: "Biology of submucosal gland stem cells in the airway"
Sponsor: NIHGenentech, Inc.
Role: Principal Investigator
Total Award: \$2,983,687 Direct Costs/\$1,052,499 Indirect Costs, 6/20/2022-5/30/2023

Dr. Ling Yang

Title: AHA - Liver-Heart Crosstalk in Sepsis-induced Cardiac Dysfunction
Sponsor: AHA
Role: Principal Investigator
Total Award: \$750,000

Dr. Sam Young

Title: "Elucidating the Roles of CACNA2D2 and CACNA2DS in Presynaptic Regulation of Mammalian Synaptic Function"
Sponsor: NIH R03TR004151-01
Role: Principal Investigator
Total Award: \$100,000 Direct Costs/\$54,000 Indirect Costs, 6/1/2022-5/31/2023

SUBMITTED GRANTS

Dr. Brad Amendt

Title: miR-200 Regulation of Dental Epithelial Stem Cell Differentiation
Sponsor: NIH
Role: PI
Proposed Total: \$3,772,109

Dr. Martine Dunnwald

Title: Determining the functional significance of ectodermal orofacial cleft variants.

Sponsor: NIH

Role: PI (MPI with Eric VanOtterloo, Azeez Butali)

Proposed Amount: \$3,772,109

Title: IRF6 signaling in keratinocyte adhesion and migration.

Sponsor: NIH

Role: PI

Proposed Total: \$3,058,375

Dr. Adam Dupuy

Title: A novel method combining transposon-tagging to perform protein interaction screens in living cells.

Sponsor: NIH

Role: PI

Proposed Total: \$426,474

Dr. Andy Frank

Title: How mitochondrial dysfunction triggers homeostatic plasticity

Sponsor: NIH

Role: Principal Investigator

Proposed Total: \$ 424,875

Dr. Amy Ryan

Title: RECODE: Defining Environmental Design Criteria for Directed Differentiation of Type 1 from Type 2 Lung Alveolar Epithelial

Sponsor: NSF (Reproducible Cells and Organoids via Directed-Differentiation Encoding – RECODE)

Role: Multiple: Daniel Weiss (Vermont), **Amy Ryan (Iowa)**, Chelsea Magin (Colorado)

Proposed Total: UI - \$159,000 total/annual 7/1/22-6/30/25

Dr. Amy Ryan/Kathleen Andersen

Title: Anatomical Sciences Mentorship and Diversity Program

Sponsor: NIH

Role: Principal Investigator(s)

Proposed Total: \$696,615 Direct Costs, \$52,612 Indirect Costs

Dr. Ling Yang

Title: The Impact of Maladaptive Pituitary UPR in Obesity.
Sponsor: NIH
Role: Principal Investigator
Proposed Total: \$3,428,461

NEW PUBLICATIONS

Dr. John Engelhardt Lab

Basil, MC, Cardenas-Diaz FL, Kathiriya JJ, Morley MP, Carl J, Brumwell AN, Katzen J, Slovik KJ, Babu A, Zhou S, Kremp MM, McCauley KB, Li S, Planer JD, Hussain SS, **Liu X**, Windmueller R, Ying Y, Stewart KM, Oyster M, Christie JD, Diamond JM, **Engelhardt JF**, Cantu E, Rowe SM, Kotton DN, Chapman HA, Morrissey. Human distal airways contain a multipotent secretory cell that can regenerate alveoli. *Nature*, 2022, 604:120-126 doi.org/10.1038/s41586-022-04552-0

Kadur Lakshminarasimha Murty P, Sontake V, Tata A, Kobayashi Y, Macadlo L, Okuda K, Conchola AS, Nakano S, Gregory S, Miller LA, Spence JR, **Engelhardt JF**, Boucher RC, Rock JR, Randell SH, Tata P. Human distal lung maps and lineage hierarchies reveal a bipotent progenitor. *Nature*, 2022, 604:111-119 DOI: 10.1038/s41586-022-04541-3

Dr. C. Andrew Frank Lab

Mallik B, Frank CA. Roles for mitochondrial complex I subunits in regulating synaptic transmission and growth. *Front Neurosci*, 2022, 16, doi.org/10.3389/fnins.2022.846425

Dr. Fang Lin Lab

Gao Y, Hu B, Flores R, Xie H, Lin F. Fibronectin and Integrin $\alpha 5$ play overlapping and independent roles in regulating the development of pharyngeal endoderm and cartilage. *Dev Biol*, 2022, 489:122-133, Online ahead of print. doi: 10.1016/j.ydbio.2022.06.010

Dr. Xiaoming Liu Lab

Yang J, Wu S, Hu W, Yang D, Ma J, Cai Q, Xue J, Chen J, Li F, Zeng J, **Liu X.** Bmi1 signaling maintains the plasticity of airway epithelial progenitors in response to persistent silica exposures. *Toxicology*, 2022, 470. DOI:10.1016/j.tox.2022.153152

Basil, MC, Cardenas-Diaz FL, Kathiriya JJ, Morley MP, Carl J, Brumwell AN, Katzen J, Slovik KJ, Babu A, Zhou S, Kremp MM, McCauley KB, Li S, Planer JD, Hussain SS, **Liu X**, Windmueller R, Ying Y, Stewart KM, Oyster M, Christie JD, Diamond JM, **Engelhardt JF**, Cantu E, Rowe SM, Kotton DN, Chapman HA, Morrisey. *Nature*, 2022, 604:120-126 doi.org/10.1038/s41586-022-04552-0

Dr. Amy Ryan Lab

Vaidyanathan S and **Ryan AL**. Editorial: Genome Editing to Treat Cystic Fibrosis and Other Pulmonary Diseases. *Frontiers in Genome Editing* 2022:4. DOI:10.3389/fgeed.2022.917916

Ikonomou L, Magnusson M, Dries R, Herzog E, Hynds R, Borok Z, Park J-A, Skolasinski S, Burgess J, Turner L, Mojarad S, Mahoney JE, Lynch T, Lehmann M, Thannickal V, Hook J, Vaughan A, Hoffman ET, Weiss DJ, and **Ryan AL**. Stem Cells, Cell Therapies, and Bioengineering in Lung Biology and Disease 2021. 2022, *AJP Lung, Cellular and Molecular Biology*, in press

Calvert BA, Quiroz EQ, Lorenzana Z, Doan N, Kim S, Senger CN, Wallace WD, Salomon MP, Henley J and **Ryan AL**. Neutrophilic inflammation promotes SARS-CoV-2 infectivity and augments the inflammatory responses in airway epithelial cells. *European Respiratory Journal*, under review.

Harriott NC and **Ryan AL**. Proteomic profiling identifies age-related biomarkers protective against progression to severe COVID-19, *JCI-Insight*, submitted.

Nawroth JC, Roth D, van Schadewijk A, Ravi A, Maulana TI, Senger CN, van Riet S, Ninaber DK, de Waal AM, Kraft D, Hiemstra PS, **Ryan AL** and Van der Does A. Breathing on Chip: Dynamic flow and stretch tune cellular composition and accelerate mucociliary maturation of airway epithelium *in vitro*, *Nature Methods*, submitted.

Dr. Tom Rutkowski Lab

Gansemer ER, Rutkowski DT. Pathways Linking Nicotinamide-Adenine Dinucleotide Phosphate Production in Endoplasmic Reticulum Protein Oxidation and Stress. *Front Mol Biosci*, 2022 May 4;9:858142. DOI: 10.3389/fmolb.2022.858142

Dr. Robert Tomanek

Tomanek, R.J. The coronary capillary bed and its role in blood flow and oxygen delivery: A Review. *The Anatomical Record*, 2022:1-13. doi:10.1002/ar.24951.

Dr. Eric Van Otterloo Lab

Kenny C, Dilshat R, **Seberg H**, **Van Otterloo E**, **Bonde G**, **Helverson A**, Franke CM, Steingrimsson E, **Cornell RA**. TFAP2 paralogs facilitate chromatin access for MITF at pigmentation and cell proliferation genes. *PLoS Genetics*, 18(5) DOI: 10.1371/journal.pgen.1010207

Dr. Ziyang Yan Lab

Ning K, Wang Z, Cheng F, **Yan Z**, Qui J. The small nonstructural protein NP1 of human bocavirus 1 directly interacts with Ku70 and RPA70 and facilitates viral DNA replication. *PLoS Pathogens*, 18(6) DOI: 10.1371/journal.ppat.1010578

Please share news of your activities with Mary Beckler 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