



# POINTS OF INTEREST

October – December 2021

## HONORS AND AWARDS

### Sam Young Lab

**Jianing Li** received the Graduate College Post-Comprehensive Research Fellowship for the Spring 2022 semester in the amount of \$10,500.

## APPOINTMENTS & SPECIAL RECOGNITION

### Nicole Recka (VanOtterloo Lab), Interdisciplinary Graduate Program in Genetics

Nicole passed her comprehensive exam on December 16, 2021.

### Dr. Martine Dunnwald

Dr. Dunnwald received the Research Mentor Training Certificate from the Iowa Mentoring Academy

### Master's of Clinical Anatomy

Three members of the MCA program completed the program: Kevin Gubner, Jared Hill, and Sarah Lowenberg.

This fall semester was the first time that potential grads produced a Capstone Project rather than a thesis of any kind. The Capstone Project is a culmination of and practical application of all parts of the MCA student's experience in the program: learning, research, teaching, personal interests, and professional development that allows them to demonstrate the skills that were developed throughout the MCA program.

- Tartil Ali – *Diversity in Medical Education*
- Kevin Gubner – *EMS at your Phalanges*
- Jared Hill – *MCA-MCAT Review Course*
- Sarah Lowenberg – *STEM Outreach – Anatomy for Beginners*

## **SPECIAL PRESENTATIONS**

### **Kalynn Culver (Cornell Lab) and Bailey Garnica (Dunnwald Lab)**

Kalynn and Bailey presented their research work at the annual Fall Undergraduate Research Festival hosted by the Iowa Center for Research by Undergraduates on November 10. Kalynn's poster was entitled "TRPM7 and TYRP1 Detoxify Melanin-Synthesis: A Shared Pathway involving Zinc?" and Bailey's poster was entitled "The Role of ARHGAP29 in Keratinocyte Migration"

### **Emily Adelizzi (Dunnwald Lab)**

Emily, Graduate Student in Genetics, was selected to present her work at the Structural Birth Defect Trainee Symposium (November, virtual). The title of her presentation was "The loss of ARHGAP29 in ectodermal-derived cells results in palatal shelf defects and a kinked tail phenotype."

### **Dr. John Engelhardt**

"Utility of Genetic Ferret Models for Developing Cystic Fibrosis Gene and Cell Therapies." (Session entitled: Cardiovascular and Lung Diseases), presented at the European Society of Gene and Cell Therapy (Virtual). October 2021.

"Developmental Aspects of CFRD: How Early are CFTR Modulators Needed?" Presented at the North American Cystic Fibrosis Conference (Virtual). November 2021.

## **NEW GRANT AWARDS**

### **Erica Gansemer (Tom Rutkowski Laboratory)**

Title: "The Role of NADPH Production in Regulating Endoplasmic Reticulum Function and the Progression of Non-Alcoholic Steatohepatitis"

Sponsor: NIDDK F31 Award

Role: Principal Investigator

Total Award: \$63,580, 2 years

### **Dr. Fang Lin**

Title: "Dissecting Mechanisms Underlying the Wnt/PCP Signaling in Endoderm Morphogenesis"  
Sponsor: NSF  
Role: Principal Investigator  
Total Award: \$600,000; 1/1/2022 – 12/31/2025

### **Dr. Amy Ryan**

Title: "Interaction of Lymphatic Endothelial and LAM Cell Driving Lymphangiogenesis Pathogenesis"  
Sponsor: LAM Foundation  
Role: Principal Investigator  
Total Award: \$51,000 seed grant

### **Dr. Tina Tootle**

Title: "Prostaglandins and Actin Remodeling"  
Sponsor: NIH 5 R01 NS110742-03  
Role: Principal Investigator  
Total Award: \$2,071,936 Total; 1/1/2022 – 12/31/2026

## **SUBMITTED GRANT AWARDS**

### **Dr. Martine Dunnwald**

Title: Deciphering the functional and mechanistic impact of orofacial cleft variants.  
Sponsor: NIH-NIDCR - R01  
Role: Multiple PI (with Butali and Van Otterloo)  
Proposed Amount: \$3,593,961

Title: IRF6 signaling in keratinocyte adhesion and migration.  
Sponsor: NIH-NIAMS - R01  
Role: PI  
Proposed Amount: \$2,818,056

## Dr. John Engelhardt

Title: Biology of Submucosal Gland Stem Cells in the Airway  
Sponsor: NIDDK R01 DK047967-31 (competitive renewal)  
Role: PI  
Start and End Date: 05/01/1993-06/30/2026  
Total Award Amount: \$2,983,690

## Dr. Tom Rutkowski

Title: Unfolded Protein Response-Induced Dedifferentiation: Mechanisms and Pathophysiological Consequences.  
Sponsor: NIH R01GM147335  
Role: PI  
Proposed Amount: \$310,221 direct/year

Title: Delineating MPZ-opathies in Charcot-Marie-Tooth Disease.  
Sponsor: R01  
Role: MPI  
Proposed Amount: \$491,294 direct/year

## NEW PATENTS

## Dr. Sam Young

UIRF has filed a patent application for Phillips S, **Young SM Jr.** Novel Site-Specific Recombinase-Based Production System for Efficient and Scalable Production of Helper-Dependent Adenovirus.

## NEW PUBLICATIONS

## Dr. John Engelhardt Lab

Joo NS, Cho H-J, Shinbashi M, Choi JY, Milla CE, **Engelhardt JF**, Wine JJ. Combined agonists act synergistically to increase mucociliary clearance in a cystic fibrosis airway model. *Scientific Reports* 11(1), 12/1/2021.

## Dr. Fang Lin Lab

**Kakkerla Balaraju A, Hu B, Rodriguez JJ, Murray M, Lin F** Glypican 4 regulates planar cell polarity of endoderm cells by controlling the localization of Cadherin 2. *Development* 148(14), dev199421

Stark BC, **Gao Y**, Sepich DS, **Belk L, Culver MA, Hu B**, Mekel M, Ferris W, Shin J, Solnica-Krezel L, **Lin F**, Cooper JA (Lin/Cooper co-corresponding authors). CARMIL<sub>3</sub> is important for cell migration and morphogenesis during early development in zebrafish. *Dev Biol* 2021, Sep 29;S0012-1606(21)00215-3. Online ahead of print.

**Hu B, Rodriguez JJ, Kakkerla Balaraju A, Gao Y, Nguyen NT, Steen H, Suhaib S**, Chen S, **Lin F**. Glypican 4 mediates Wnt transport between germ layers via signaling filopodia. *J Cell Biol* 2021. Dec 6;220(12):e202009082.

## Dr. Tina Tootle Lab

**Lamb MC**, Kaluarachchi CP, Lansakara TI, **Mellentine SQ**, Lan Y, Tivanski AV, **Tootle TL**. Fascin limits Myosin activity within *Drosophila* border cells to control substrate stiffness and promote migration. *eLIFE*, 2021, 10:e69836, DOI:10.7554/eLife.69836

*Press Releases:*

<https://elifesciences.org/for-the-press/7184ad23/cells-move-by-controlling-the-stiffness-of-their-neighbours>

<https://medicine.uiowa.edu/content/cells-move-controlling-stiffness-their-neighbors>

<https://dailyiowan.com/2021/11/09/university-of-iowa-researchers-findings-on-cell-movement-may-inform-new-cancer-treatments/>

## Dr. Eric Van Otterloo Lab

Vanugopalan SR, **Van Otterloo E**. The Skull's Girder: A Brief Review of the Cranial Base. *J Dev Biol*. 2021 9(1):3 doi: 10.3390/jdb9010003

Schotanus MD, **Van Otterloo E**. Finding MEMO-Emerging Evidence for MEMO1's Function in Development and Disease. *Genes* 2020 11(11):1316 doi: 10.3390/genes11111316

## Dr. Ling Yang Lab

Qian H, Chao X, Williams J, Sulte S, Li T, **Yang L**, Ding W-X. Autophagy in liver disease: A review. *Mol Aspects Med* 2021 Online ahead of print  
DOI:10.1016/j.mam.2021.100973.

**Li M, Shao F, Qian Q**, Yu W, **Zhang Z**, Chen B, **Su D**, Guo Y, Phan A-V, Song L-S, Stephens SB, Sebag J, Imai Y, **Yang L, Cao H (Yang/Cao co-corresponding authors)**. A putative long noncoding RNA-encoded micropeptide maintains cellular homeostasis in pancreatic  $\beta$  cells. *Mol Ther Nucleic Acids* 2021, Jul, 16;26:307-320.

Chao X, Wang S, **Yang L**, Ni H-M, Ding W-X. Trehalose activates hepatic transcription factor EB (TFEB) but fails to ameliorate alcohol-impaired TFEB and liver injury in mice. *Alcohol Clin Exp Res* 2021, Sept 5 doi: 10.1111/acer.14695. Online ahead of print

**Sebag SC, Zhang Z, Qian Q, Li M**, Zhu Z, Harata M, Li W, Zingman L, Liu L, Lira VA, Potthoff MJ, Bartelt A, **Yang L**. ADH5-mediated NO bioactivity maintains metabolic homeostasis in brown adipose tissue. *Cell Reports* 2021, 37(7):110003.

## Dr. Sam Young Lab

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*. Accepted, published online.

**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**