**Kristen Ava Ball**

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EDUCATION

August 2020-Current PhD Toxicology, Aurora, CO, *University of Colorado Anschutz*

April 2018 BS Major Biology & Minor Philosophy, Ann Arbor, MI *University of Michigan*

RESEARCH EXPERIENCE

June 2021-Current Graduate Research Assistant/PhD Student, *University of Colorado Anschutz*

* Lab: David Schwartz, MD
* Research emphasizes identifying the differences in the airway epithelial response to air pollution in those who possess the MUC5B promoter variant rs35705950
* Primary Techniques Involved: Mouse necropsy and tissue analysis, quantitative and qualitative techniques for quantifying fibrosis (hydroxyproline assay, picrosirius red staining, second harmonic generation imaging), protein analysis (dot blot, immunofluorescence microscopy, western blot), genetic expression analysis (RNAseq, qPCR).

Jan 2021-May 2021 Graduate Research Assistant/Rotation Student, *University of Colorado Anschutz*

* Lab: Rebecca McCullough, PhD
* Rotation project was on identifying the impacts of PFAS on lipid mediated inflammatory responses in the liver
* Primary techniques involved: western blotting, primary human hepatocyte culture, bone-marrow derived macrophage isolation and differentiation (mouse), ELISA, and mouse necropsy

Aug 2020-Jan 2021 Graduate Research Assistant/Rotation Student, *University of Colorado Anschutz*

* Lab: James Roede, PhD
* Rotation project was on optimizing a Seahorse XF96 protocol for neuronal embryoid bodies (EBs). This protocol was then utilized to identify the oxidative stress induced by acute maneb exposure on developing iPSCs with trisomy 21
* Primary techniques involved: Seahorse, neuronal EB stem cell culture, western blotting, neuronal stem cell differentiation

June 2018-July 2020 Research Assistant/Laboratory Manager, *Michigan State University*

* Lab: Aitor Aguirre, PhD
* Primary research was emphasized on identifying the impacts of bioactive lipids on cardiac development
* Intralaboratory project collaborations included cardiac organoid protocol development, identifying the role of lactate in cardiac tissue repair, and on 3D-bioprinting of functional heart tissue
* Lab management tasks included: training of personnel, zebrafish facility and colony management, mouse colony management, and compliance with EHS and IACUC
* Primary techniques involved: RT-qPCR, immunofluorescence microscopy, histology, MRI, mouse embryo staging and necropsy, ELISA, LC/MS (sample prep), lentivirus production and transfection, iPSC cell culture and tissue engineering.

Feb 2017-April 2018 Research Assistant/Undergraduate Researcher, *University of Michigan*

* Lab: Craig Harris, PhD
* Research was focused on identifying the toxic effects of valproic acid on first trimester pregnancies, utilizing mouse models (CD1) and whole embryo culture of GD7.5-9.5 mice.
* Primary techniques involved: mouse necropsy, whole embryo culture, HPLC sample prep

July 2017-Aug 2017 Student Researcher, *University of Michigan – Biological Station*

* Lab: Paul Moore, PhD
* Research was focused on two separate field sampling projects
* Paradise Lake Sediment Project: Utilized ArcGIS and mass spectrometry to identify the origin of a nuisance sediment present in Paradise Lake. Personal contributions: selection of sampling sites, sample collection, mass spectrometry, and report writing
* Microplastics in the Great Lakes: Assistant in the sample collection of microplastics in the Great Lakes, a long term study that monitors how microplastics navigate the lake system. Personal contributions: water sample collection along the northern tip of Lake Michigan via a two-masted schooner

HONORS & AWARDS

University Honors, University of Michigan February 2018

Michigan Competitive Scholarship, University of Michigan September 2017

Elzada Clover & Lois Jotter-Cutter Scholarship, UM Biological Station April 2017

Northern Michigan University Honor’s Scholarship August 2013

Peach Corp Scholarship June 2013

PEER REVIEWED PUBLICATIONS

1. Jesús Ordoño, Soledad Pérez-Amodio, **Kristen Ball**, Aitor Aguirre, Elisabeth Engel. “The generation of a lactate-rich environment stimulates cell cycle progression and modulates gene expression on neonatal and hiPSC-derived cardiomyocytes.“ *Biomaterials Advances* (2022): 213035.
2. Yonatan R. Lewis-Israeli, Aaron H. Wasserman, Mitchell A. Gabalski, Brett D. Volmert, Yixuan Ming, **Kristen A. Ball**, Weiyang Yang, Jinyun Zou, Guangming Ni, Natalia Pajares, Xanthippi Chatzistavrou, Wen Li, Chao Zhou & Aitor Aguirre. “Self-assembling human heart organoids for the modeling of cardiac development and congenital heart disease.” *Nature communications* 12.1 (2021): 1-16.
3. **Kristen Ball**, Renee Kinne, and Aitor Aguirre. "Analysis of congenital heart defects in mouse embryos using qualitative and quantitative histological methods." *JoVE (Journal of Visualized Experiments)* 157 (2020): e60926.

PREPRINT

1. Ordoño, J., Pérez-Amodio, S., **Ball, K**., Aguirre, A., & Engel, E. (2020). Lactate promotes cardiomyocyte dedifferentiation through metabolic reprogramming. *bioRxiv*.
2. Israeli, Y., Gabalski, M., **Ball, K**., Wasserman, A., Zou, J., Ni, G., ... & Aguirre, A. (2020). Generation of heart organoids modeling early human cardiac development under defined conditions. *Available at SSRN 3654622.*

GOVERNMENT REPORTS

1. Veverica, T., Moore, P., Pillsbury, R., Schubel, A., Tallant, J., **Ball, K**., Berens, J., Chen, S., Greenwood, M., Simons, G., & Woelmer, E. Report on the Nuisance Sediment Found in Paradise Lake. (2017).
2. **Ball, K**., Berens, J., Chen, S., Greenwood, M., Simons, G., & Woelmer, E. Proposed Paradise Lake management plan. (2017).

TEACHING EXPERIENCE

Feb 2021-May 2021 Graduate Student Teaching Assistant: Pharmaceutics (PHRD 5925), *University of Colorado Anschutz*

* Instructor: Peter Rice, PharmD, PhD, BCPS, FAPhA
* In Person (Lab)

Jan 2021-May 2021 Graduate Student Teaching Assistant: Clinical Problem Solving Skills (PHRD 6965), *University of Colorado Anschutz*

* Instructors: Allison Blackmer, PharmD, BCPS, BCPPS, FCCP, FASPEN & Meghan Jeffres, PharmD
* Online (Lecture)

Sept 2020-Dec 2020 Graduate Student Teaching Assistant: Pharmacokinetics (PHRD 6015), *University of Colorado Anschutz*

* Instructor: Peter Anderson, PharmD
* Online (Lecture)

Aug 2014-May 2015 Undergraduate Teaching Assistant: Human Anatomy and Physiology (BIO 104), *Northern Michigan University*

* Instructor: Jennifer Jezylo, DVM
* In Person (Lecture)

Feb 2014-Sept 2014 Undergraduate Teaching Assistant: CLS 100 Series, *Northern Michigan University*

* Instructor: Paula Genovese
* In Person (Lab)

PRESENTATIONS

*Oral Presentations*

1. “The influence of Muc5b overexpression and aging on the development of lung fibrosis in mice.” 40th Mountain West Society of Toxicology Meeting, Santa Fe, NM. August 2022.
2. “PFAS and Lipid Mediated Inflammatory Response.” Skaggs School of Pharmacy and Pharmaceutical Sciences Spring Graduate Student Research Rotation Seminar, University of Colorado Anschutz, Aurora, CO. June 2021.
3. “Mitochondrial function of neuronal embryoid bodies with trisomy 21 during maneb exposure.” Skaggs School of Pharmacy and Pharmaceutical Sciences Fall Graduate Student Research Rotation Seminar, University of Colorado Anschutz, Aurora, CO. January 2021.
4. “Paradise Lake Sediment Project Research Plans.” Carp Lake Township City Hall, Carp Lake, MI. August 2017.

*Poster Presentations*

1. “Overexpression of MUC5B in the distal regions of the lung sensitize the lung to cigarette smoke.” Skaggs School of Pharmacy and Pharmaceutical Sciences Graduate Student Symposium, University of Colorado Anschutz, Aurora, CO. April 2022

PROFESSIONAL AFFILIATIONS

May 2022-Current Society of Toxicology

 Sub-memberships: Women in Toxicology, Mountain West SoT

Dec 2018-July 2020 College of Engineering Staff Advisory Committee to the Dean, *Michigan State University*

EXTRACURRICULAR ACTIVITIES

Sept 2016-March 2018 College of Literature, Science, and Arts Student Government, *University of Michigan*

* Committee Chair – Public Activities Committee (March 2017-March 2018)
* Elected Representative (November 2016-November 2017)