Kelly M. Lintecum

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# RESEARCH EXPERIENCE:

**Research Specialist in Dr. Abhinav Acharya’s and Dr. Sarah Stabenfeldt’s Lab**

8/2021 to Present Arizona State University

School For Biological Health Systems Engineering

Case Western Reserve University

# Project:

Development of a novel vaccine to improve outcomes of traumatic brain injury.

* Managed multi collaborative project involving multiple labs and team members. Collaborated with team to meet project goals and overcome challenges.
* Mentored graduate and undergraduate students.
* Designed in vitro and large-scale in vivo studies.
* Adhered to stringent and non-flexible deadlines during in vivo study.
* Performed grid walk, rotarod, and open field behavioral tests and data analysis.
* Synthesized microparticles with encapsulates to control drug release.
* Analyzed and characterized microparticles by dynamic light scattering, scanning electron microscopy, high performance liquid chromatography, release kinetics, loading capacity, and encapsulation efficiency.
* Analysis of immune response by isolating and processing tissue samples and staining with Abs for flow cytometry.
* Construction of Ab panels for flow cytometry.
* Analysis of flow staining experiments with Attune flow cytometer and Flowjo and Graphpad Prism.

# Project:

Pioneered mouse breeding and genotyping program.

* Designed and implemented protocol to breed transgenic mouse lines.
* Designed and performed genotyping analysis using DNA extraction, gel electrophoresis, and end point PCR.
* Maintained mouse colonies.
* Performed injections in mouse models and isolated and analyzed tissue samples.

# Other responsibilities:

Ordered lab supplies, safety and compliance, assisted other lab members in large scale experiments, performed general lab management duties, trained graduate and undergraduate students.

# Homemaker

1/2015 to 8/2021 Chandler, AZ

# Assistant Research Technologist in Dr. Cody Youngbull’s lab

8/2012 to 12/2014 Arizona State University

Biodesign Institute Center for Environmental Security and Defense Systems Initiative

School of Earth and Space Exploration

# Assistant Research Technologist in Dr. Deirdre Meldrum Lab

5/2012 to 8/2012 Arizona State University

Biodesign Institute Center for Biosignatures Discovery Automation

# Project:

Development of microfluidic real time qPCR and microfluidic droplet digital qPCR analytical modules to perform *in situ* analysis of marine organisms onboard an Autonomous Underwater Vehicle operated by Monterey Bay Aquarium Research Institute

* Designed and executed all biological experiments.
* Cloned inserts into plasmids, performed bacterial transformations, prepared samples for sequencing.
* Maintained bacterial colonies using aseptic technique and prepared buffers, reagents and media.
* Quantified plasmid concentration and created standard curves to compare to unknowns.
* Extracted DNA from plasmids and seawater samples with high levels of contamination.
* Performed qPCR analysis, reverse transcription qPCR, and end point PCR with gel electrophoresis using manual and automated prep.
* Designed primers and/or probes for SYBR Green and Taqman  assays
* Prepared manuscripts and presentations
* Designed, prepared, and analyzed microarrays.

# Other responsibilities:

Established and set up a new laboratory facility on campus, lab safety and compliance, ordering supplies, inventory, maintenance of equipment, served as mentor and direct supervisor for students and volunteers.

# Undergraduate Research Assistant in Dr. Deirdre Meldrum’s Lab

8/2009 to 5/2012 Arizona State University

Biodesign Institute Center for Biosignatures Discovery Automation

# Project:

Single cell analysis of cancerous vs normal human cell lines to characterize physical and spatial differences using a new imaging platform.

* Acquired data with the Cell-CT imaging platform (absorption-mode micro-

optical projection computed tomography)

* Optimized staining protocol for nucleus and cytoplasm of single cells
* Incorporated fixed cells into a gel matrix
* Mentored high school and other undergraduate students.

# Project:

Discovered new species of marine bacteria in samples obtained at various depths between the surface to the bottom of the ocean.

* Characterized unknown bacteria using standard microbial and biochemical techniques.
* Cultured and maintained bacteria collected and prepared specialized media.
* Characterized bacteria using gas chromatography-mass spectrometry, turbidity analysis, DNA GC% content, gram staining, substrate utilization assays, antibiotic susceptibility tests, light microscope, and observing growth under varying conditions.
* Prepared samples and sent for sequencing of 16s rRNA then analyzed sequence data using NCBI blast.

# PROFESSIONAL EXPERIENCE:

**Laboratory Coordinator at Central Arizona College Superstition Mountain Campus**

1/2009 to 8/2009 Central Arizona College

# Responsibilities:

Supervised laboratory operations and student workers. Responsible for ensuring labs on campus were ready for instructors. Oversaw labs in Microbiology, Anatomy and Physiology, General Biology, and General Chemistry. Developed laboratory experiments and protocols. Bacterial transformations, DNA fingerprinting, gel electrophoresis, and urinalysis. Cultured bacteria, prepared media, sterilized biohazard waste, prepared reagents, chemical storage, maintained laboratory equipment, ordered supplies, MSDS and inventory, trained instructors to use lab equipment as needed, ensured labs ran efficiently.

# EDUCATION:

* + 2012 Bachelor of Science in Molecular Biosciences and Biotechnology from Arizona State University. Graduated with academic recognition (Cum Laude

3.58 GPA) and from Barrett Honors College.

* + 2008 Associate of Science from Central Arizona College. (4.0 GPA). Graduated from Honors Program and was a graduation speaker.

# PUBLICATIONS:

* Inamdar, S., Suresh, A.P., Mangal, J., Ng, N.D. Sundem, A., Wu, C., Lintecum, K., Curtis, M., Acharya, A.P. **“**Rescue from glycolysis inhibition of dendritic cells generates robust cancer immunotherapy in mice,” *Nature Communications*.
* Esrafili, A., Thumsi, A., Jaggarapu, MMCS, Nile, G., Kupfer, J., Suresh, A.P., Khodaei, T., Swaminathan, S., Lintecum, K., Jin, K., Acharya, A.P. “Crystallinity of Covalent Organic Frameworks Controls Immune Response,” Submitted to *Nature Materials.*
* Inamdar, S., Tylek,T., Suresh, A.P., Ng, N.D., Schmitzer, E., Lintecum, K., Ávila, C., Fryer, J.D., Xu, Y., Spiller, K.L., Acharya,A.P. “Biomaterial mediated simultaneous delivery of spermine and alpha ketoglutarate modulate metabolism and innate immune cell phenotype in mice,” *Biomaterials.*
* Hatch, A. C., Ray, T., Lintecum, K., and Youngbull, C. “Continuous flow real-time PCR device using multi-channel fluorescence excitation and detection,” *Lab on a chip*.
* Ray, T., Hatch, A., Lintecum, K., Chao, S. H., & Youngbull, C. “Autonomous high throughput real time PCR platform for large scale environmental monitoring,” *Technical Proceedings of the 2013 NSTI Nanotechnology Conference and Expo, NSTI- Nanotech 2013* (Vol. 3, pp. 85-88)
* Nandakumar, V., Kelbauskas, L., Hernandez, K. F., Lintecum, K. M., Senechal, P., Bussey, K. J., Davies, P. C. W., Johnson, R. H., and Meldrum, D. R. “Isotropic 3D Nuclear Morphometry of Normal, Fibrocystic and Malignant Breast Epithelial Cells Reveals New Structural Alterations,” *PLoS ONE 7*, e29230.

# HONORS:

* + 2009 ALL USA Academic team scholarship
  + 2009-2012 All Arizona Academic Team scholarship
  + 2009 Guistwhite Scholarship, Phi Theta Kappa Honors Society
  + 2009 New Century Scholar
  + 2009 Speaker at 2009 American Association of Community College Convention
  + 2010-2012 Parents Association Scholar
  + 2010-2012 Assistance League of Phoenix Scholar
  + 2009-2012 Osher Re-entry Scholar
  + 2011-2012 Lee Bowman AWARE Scholar
  + 2011-2012 ASU Student Foundation Scholar,
  + 2010, 2011, 2012 Dean’s List, Arizona State University