MIKIAS H. WOLDETENSAE

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EDUCATION

BS University of Washington, Seattle — 2011 – 2016
Molecular, Cellular & Developmental Biology
Minor in Mathematics

BA University of Washington, Seattle — 2011 – 2016
Psychology

RESEARCH EXPERIENCE

Ziegler Lab — Aug 2019 – Present
Benaroya Research Institute
Research Technician

- Validated & characterized 3 novel humanized mouse models for the study of Rhinoviruses. Performed In Vitro and In Vivo infections as proof of concept. Currently collecting data to publish.
- Characterized variability in various tissue-specific gene recombination mouse models. Developed PCR & qPCR protocols for discrimination and quantification of the gene products. Presented findings to lab and proposed solutions for a more informed selection of experimental & breeding mice. Thereby providing a corelative metric between outcome variables and gene knockout quantity and allowing for increased rigor and reproducibility of ongoing research.
- Maintained 50-70 mouse lines. Utilized primer design, PCR protocol optimization, 3D printing, and R scripts to increase efficiency.
- Reverse engineered & optimized silica column-based extraction of DNA, RNA and/or Protein to reduce cost and increase flexibility.
- As the lab Safety representative; Trained members on safety measures; ensured chemical, biological, and radioactive hazards were handled, stored, and discarded according to regulation; optimized lab guidelines for increased safety; Readjusted biosafety level rating of lab spaces in accordance with CDC recommendations; Updated & maintained lab's Institutional Biosafety Committee protocols.

Human Photonics Lab — Sept 2011 – March 2013
UW Department of Mechanical Engineering
Undergraduate Researcher

- Optimized power conditions of a proprietary Scanning Fiber Endoscope for the fluorescence induced apoptosis and necrosis of cancer cells treated with a cancer biomarker 5-aminolevulinic acid and its photosensitive metabolite, Protoporphyrin IX.
- Correlated movement patterns of endoscope to total area and distribution of cancer cell death, helping to identify non optimal functioning in certain mechanical components.

Ed Kelly Lab June – Sept 2011
UW Department of Pharmaceutics
Research Intern

- Collected genotype and phenotype data on 4-Ipomeanol exposed, Cytochrome P450-4B1 knockout mice to determine the gene's involvement in the metabolism of 4-Ipomeanol into a pulmonary toxin.

TEACHING EXPERIENCE

University of Washington, Seattle June – Aug 2016
Bioethics Instructor, ALVA & Clean Energy, GenOM Summer Program

- Taught Bioethics to a group of incoming UW Freshmen students; covering a previously curated series topics to prepare them for laboratory and clinical research.
- Oversaw the certification of students for rodent handling at UW. Facilitated discussion about historical and/or theoretical bioethical concerns.
- Assigned and graded classwork, homework, and quizzes.
- Facilitated an official debate among the student groups about a bioethical event in recent news. Assessed and graded student performances as final exam.

University of Washington, Seattle Sept – Dec 2015
First-Year Interest Group Instructor, UW First Year Programs

- Advised 17 Freshmen students on college life and resources.
- Created lesson plans and facilitated 1 class per week for 10 weeks.
- Assigned and graded classwork and projects.

PUBLICATIONS

Conference Papers

(Abstract-Reviewed)

Mikias H. Woldetensae, Mark R. Kirshenbaum, Greg M. Kramer, Liang Zhang, Eric J. Seibel, "Fluorescence image-guided photodynamic therapy of cancer cells using a scanning fiber endoscope," Proc. SPIE 8576, Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XIII, 85760L (20 March 2013);

HONORS AND AWARDS

Best First-Time Presenter (Poster) 2012

- Louis Stokes Alliance for Minority Participation (LSAMP) conference at Oregon State University. "Comparison of 4-ipomeanol pneumotoxicity in Wild Type and Cyp4b1 KnockOut mice."

Best Oral Presentation 2011

- UW Genomics Outreach for Minorities (GenOM) end of summer internal symposium. "Comparison of 4-ipomeanol pneumotoxicity in Wild Type and Cyp4b1 KnockOut mice."

Second Place; Molecular Modeling 2011

- Northwest Association for Biomedical Research (NWABR) Student BioExpo; Molecular Modeling Category. "The Duo That Painted Tumors."

PRESENTATIONS

Oral Presentation, "Fluorescence image-guided photodynamic therapy of cancer cells using a scanning fiber endoscope," SPIE Photonics West; San Francisco, 2013.

Poster Presentation, "Fluorescence image-guided photodynamic therapy of cancer cells using a scanning fiber endoscope," UW Undergraduate Symposium, 2013.

Poster Presentation, "Comparison of 4-ipomeanol pneumotoxicity in Wild Type and Cyp4b1 KnockOut mice," UW Undergraduate Symposium, 2012.

Poster Presentation, "Comparison of 4-ipomeanol pneumotoxicity in Wild Type and Cyp4b1 KnockOut mice," LSAMP Conference; Oregon State University, 2012.

Oral Presentation, "Comparison of 4-ipomeanol pneumotoxicity in Wild Type and Cyp4b1 KnockOut mice," GenOM Symposium, 2011.

Presentation of Molecular Model, "The Duo That Painted Tumors," NWABR Student BioExpo; Bellevue, 2011.

SCIENTIFIC METHODOLOGIES

Spectrophotometry, DNA/RNA & Protein Extraction, Mouse & Rat Handling, Primer Design, Sequencing, PCR/qPCR/RT-qPCR Design & Optimization, Single Cell Suspension, Primary Cell Cultures, Western Blot, ELISA, ELISpot, Cryosections, Immunocytochemistry, Immunohistochemistry, Immunofluorescence, Widefield Microscopy, Confocal Microscopy, Conventional Flow Cytometry, Spectral Flow Cytometry, Image Analysis, Basic Protein Folding & Modeling, Data Analysis, Clustering & Dimensionality Reduction.

EXPERIENTIAL LEARNING PROGRAMS

Summer Medical and Dental Education Program (SMDEP)
[Duke University School of Medicine], June – July 2012
Courses in Math, Organic Chemistry, Biology and Physics. Workshops on study skills, admissions process, interviews, financial planning, health policy. Weekly shadowing experiences through medical departments.

Summer Study Abroad; Tahiti (OMAD)
[University of Washington], Aug – Sept 2012
Courses on the history of Tahiti. Broad exposure to Tahitian culture. Exploration of various Islands.

Genomics Outreach for Minorities (GenOM)
[University of Washington], June – Sept 2011
Courses in Math, Biology, Wetlab Skills and Bioethics. Workshops on study skills, college life and resources. Attained UW Rodent handling certification. Daily time spent helping with and developing a project in Ed Kelly Lab.

SERVICE

Benaroya Research Institute
Safety committee member
Nov 2021 – Nov 2022

Harborview Medical Center
ER Volunteer
[4 hours/week]
Jan 2018 – Nov 2019

Neighborehood House
6th-12th grade homework tutor.
[2 hours/week]
Sept 2016 – Dec 2016

Neighborehood House
Immigration exam prep tutor
[2 hours/week]
Sept 2016 – Dec 2016

GenOM/ALVA & Clean Energy Summer Program
[Homework Tutor; 2x week], [Seattle], June – Sept 2014

GenOM & ALVA Summer Program
[Homework Tutor; 2x week], [Seattle], June – Sept 2013

PROFESSIONAL TRAINING

Phlebotomy & Medical Assistant Certification, [WA State Dept. of Health]
June 2017 – October 2019

LANGUAGES

Tigrinya: Native language.

Dutch: Primary language 1999 – 2004. Fluent by 2003. (Fluency lost by 2010)

English: Primary language 2004 – present. (Fluent by 2006)

French: 2+ years of classes since high school. (Novice listener)

SKILLS

Programming:	R (Data Wrangling, Visualization, Statistical Modeling), Python, HTML, XML
Applications:	FlowJo, SnapGene, Genious, ImageJ/Fiji, RStudio, Anaconda, Spyder, PyCharm, ChimeraX, Blender, ColabFold, GraphPad Prism, ImageLab, Fusion360, Ultimaker, FACSDiva, SpectroFlo, MatLab, CellProfiler
Platforms:	Windows, Macintosh, Android, Linux
Miscellaneous:	3D printing, Phone & Computer Repair, Soldering, Bicycles/Motorcycles/Car Parts Replacement & Maintenance, Car Engine Disassembly & Reassembly, Garage Door Opener Repair, Lawnmower Repair, Basic Plumbing, Carpentry, Metal Work & Pottery

COMPLETE EMPLOYMENT HISTORY

Ziegler Lab, Benaroya Research Institute — Aug 2019 – Present
Research Technician

Bloodworks Northwest, North Seattle — June 2017 – Aug 2019
Phlebotomy Technician

Jiffy Lube, Everett — Oct 2016 – May 2017
Lube Technician

York Building Services Inc., Everett — Nov 2016 – March 2017
Sanitation Technician

Point S Tire & Auto, Everett — Sept – Oct 2016
Tire Technician

UW GenOM ALVA & Clean Energy, UW Seattle — June – Aug 2016
Bioethics Instructor

First-Year Programs, UW Seattle — Sept – Dec 2015
First-Year Interest Group Instructor

UW GenOM ALVA & Clean Energy, UW Seattle — June – Aug 2015
Resident Advisor/Counselor

Radioshack, Northgate — April 2013 – Nov 2014
Sales & Phone Repair Technician

Human Photonics Lab, UW Seattle — Sept 2011 – March 2013
Undergraduate Researcher

Ed Kelly Lab, UW Seattle — June – Sept 2011
Research Intern

Albertsons, North Seattle — Oct 2010 – June 2011
Butcher Clerk

Albertsons, North Seattle — May 2008 – Oct 2010
Courtesy Clerk