My Website

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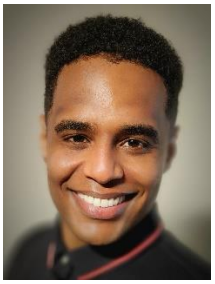

CAREER SUMMARY

Wet-lab & Dry-lab Research • Health/Medicine • Design/Optimization • Regulatory/Protocols

- ***A passionate biologist with an engineering perspective*** that was developed through 6+ years of wet lab and dry lab research experience and a lifetime of asking how things work on the inside.
- ***A proactive contributor that views every problem as a personal problem*** and finds creative solutions that reduce effort, cost and increase efficiency.
- ***An enthusiastic student with endless energy for new challenges;*** instinctively weaving new lessons into a preexisting tapestry of foundational concepts.

AREAS OF EXPERTISE

METHODS
- Oligos | Plasmids
- PCR | qPCR | RTqPCR
- Spectroscopy
- Chromatography
- Protein Assays
- Western Blot
- ELISA | ELISpot
- Cell Assays
- Confocal Microscopy
- Flow Cytometry

MODELS
- Transgenic Mice
- Mammalian Cell Cultures
- 3D Cell Cultures

DATA ANALYSIS
- R | Python
- Power BI
- Statistical Modeling
- Cytometry
- RNA Sequencing
- Spatial Sequencing

LAB MANAGEMENT
- Safety Regulations
- IACUC Protocol
- Experimental Protocol Design
- Optimization
- Inventory Management
- Cost Reduction
- Trainer | Instructor

DESIGN
- 3D Printing
- Arduino

PROFESSIONAL EXPERIENCE

Benaroya Research Institute, Ziegler Lab, Seattle, WA **Aug 2019 – Present**

A nonprofit biomedical research institute focused on advancing science to predict, prevent, reverse and cure diseases of the immune system.

Research Technician

Served standard and investigative laboratory support roles in aid of scientific research. Acted as safety representative. Maintained 60+/- transgenic mouse models. Performed independent research projects.

- ***Performed risk assessment of lab spaces*** per CDC recommendations and updated Institutional Biosafety Committee protocols and Biosafety level ratings to maintain regulatory compliance.
- ***Validated and characterized three novel humanized mouse models to study Rhinoviruses,*** conducting In Vitro and In Vivo infections with 7 different species of Rhinovirus as proof of concept.
- ***Reverse engineered and optimized chromatographic extraction of DNA, RNA, and/or Protein*** to reduce costs by more than 80% per sample and increase flexibility.
- ***Prepared and maintained skin and lung, fibroblast, and epithelial primary cell cultures,*** to confirm infective capability of mouse models in Vitro.
- ***Streamlined inventory management methods*** resulting in ~20% reduction in wasted resources.
- ***Designed and optimized various multiplexed oligonucleotides,*** allowing for the interrogation of DNA and mRNA products at tissue or single cell resolution.

Bloodwork's Northwest, North Seattle, WA **June 2017 – Aug 2019**

Nonprofit organization that provides health care services to over 90 hospitals in the Northwest by collecting, testing, and distributing lifesaving blood.

Phlebotomist | Medical Assistant

Perform health and history assessment for volunteer and medically prescribed blood donors, Following strict SOP and HIPPA regulations. Collect Whole Blood, Plasma, Platelets, and/or Red Blood Cells.

- ***Collected over 3500 units of blood components*** | 98% percentile success rate.
- ***Trained 18 Phlebotomists*** on proper venipuncture techniques and SOP/HIPPA regulations.
- ***Suggested and proved the benefit of syncope preventative measures*** that were not included in introductory training | Increased confidence in various donors with tendencies for adverse reactions.

UW Human Photonics Lab, Seattle, WA **Sept 2011 – March 2013**

UW Mechanical Engineering research laboratory focused on medical devices and optical technologies in the areas of enhancing human performance, detecting diseases, and guiding their treatments.

Undergraduate Researcher

Read relevant research articles,. Propose and lead novel experiments with Cancerous and Non-Cancerous cells, collect data, analyze results, present & publish findings.

- ***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.
- ***Published Paper*** M. H. Woldetensae et al., "Fluorescence image-guided photodynamic therapy of cancer cells using a scanning fiber endoscope," Proc. SPIE 8576, 85760L (March 20, 2013).

EDUCATION

Bachelor of Science, Molecular, Cellular & Developmental Biology **2011- 2016**
University of Washington, Seattle, WA
*Minor in **Mathematics***
Bachelor of Art, Psychology **2011- 2016**
University of Washington, Seattle, WA

TEACHING EXPERIANCE

Bioethics Instructor **June-Aug 2016**
University of Washington, ALVA & Clean Energy, GenOM Summer Program
First-Year Interest Group Instructor **Sept-Dec 2015**
University of Washington, First Year Programs

SERVICE EXPERIENCE

Safety Committee Member **Nov 2021 – Nov 2022**
Benaroya Research Institute, Seattle WA

COMMUNICATION

Tigrinya: Native language
Dutch: 1999 – 2004
English: 2004 – present