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Scientist Profile

Detail-oriented and highly methodical professional with more than 14 years of experience in utilizing innovative scientific research techniques to drive successful cancer drug discoveries and preclinical development. Equipped with solid cell-based in vitro and in vivo skills; known for facilitating characterization of test articles, fulfilling pharmacology assay needs, and assessing in vivo animal models/assays. History of conducting in-depth studies, executing experiments, generating, and collecting useful data, and liaising with internal teams to communicate results clearly. Skilled at fostering a culture of innovation, determining impacts of tumor models, and coordinating biomarker discoveries.

Areas of Expertise

- Scientific Research
- Tumor and fibrosis In Vivo Models
- Gene Delivery Modalities
- Immunogenicity
- Histopathological analysis
- Biomarker Discoveries
- Immunomodulatory Peptides
- In Vitro & In Vivo Pharmacology
- Data Collection & Analysis

Education & Professional Development

Postdoctoral Scholar, Ongoing
UCSD, Moores Cancer Center, La Jolla, CA

PhD in Integrative Biosciences, 2019
Tuskegee University, Tuskegee, AL

Master in Cancer Biology, 2016
Tuskegee University, Tuskegee, AL

Bachelor's degree in Clinical Laboratory Sciences, 2010
The University of Asmara, Asmara, Eritrea.

- Workshop and hands-on training on Mouse Bio-methods and mouse colony management at Jackson Laboratory, Bar Harbor, Maine (Full scholarship).
- Workshop on Clinical and Translational research at the National Institute of Health (NIH) Bethesda, MD.
- Internship at MuriGenics and Riptide Biosciences Vallejo, CA.
- Participated in the 26th annual cancer short course at Jackson Lab, Bar Harbor, Maine (Full scholarship awarded and presented a poster).
- Workshop on Surgical Techniques in the Laboratory Mouse at The Scripps Research Institute in La Jolla, CA.

Technical Proficiencies

Software: R, SAS, 10X Loupe Browser, BD FACSDiva, FlowJo, SeqGeq, ImageJ, Aperio ImageScope and QuPath.

Molecular Biology: DNA, RNA, and protein extractions, DNA plasmid isolation and purification, PCR, library preparations for RNA-Seq, CRISPR-Cas9 genome engineering, electrophoresis, and blotting techniques.

Cellular Biology: Mammalian cell culturing, co-culture, and migration assays, MAGPIX, ELISA & MSD, and multicolor Flow Cytometry.

Histology: Tissue processing, various tissue histological staining (H&E, IHC, IF, and other special staining) and quantifications, TMA core preparation, spatial analysis of gene expression in tissues using NanoString GeoMx Digital Spatial Profiler (DSP), CosMx and RNAscope.

Animal Work: Designing PK/PD/TK/TD and efficacy animal studies. Jackson lab certified with in vivo mouse bio methods (IP, IV, Sub-Q, IT modes of administration), surgical techniques, blood collection techniques and colony management.

Professional Experience

Moore's Cancer Center, UCSD – La Jolla, CA   **2019 – Present**
Post-Doctoral Fellow

- Support identification of impact of PI3Kγ inhibition to modulate tumor microenvironment in several tumor models and lessen progression of fibrosis to cancer in animal models of NASH and Pancreatitis through planning and delivery of various projects.

- Utilize exceptional research skills to determine effect of PI3Kγ inhibition in treating for Sars-Cov-2-induced ARDS. Leverage samples from Phase II clinical trial of Eganelisib (PI3Kg inhibitor) to execute biomarker discovery studies in diverse tumor types.
- Identified impact of PI3Kg inhibition in terms of preventing chronic pancreatitis and potential progression to PDAC.
- Played a key role in developing two first author manuscripts, including a Nature News and Views article, and several coauthor manuscripts; one manuscript being published for the Sars-Cov-2-induced ARDS study.

MuriGenics Inc. & Riptide Bioscience Inc. – Vallejo, CA,   2017 – 2019
Internship
- Facilitated preclinical development of multiple CD206 receptor-targeting immunomodulatory peptides by executing various animal studies via utilization of CDX/PDX tumor models in immunocompetent and immunocompromised mouse models of cancer and fibrosis. Coordinated discovery and verification of target, while identifying plan of action for peptides.
- Oversaw peptide sale to a large-scale pharma company, NantWorks, while leading one peptide clinical trial at NCI and John's Hopkins University.

Department of Integrative Biosciences, Tuskegee University – Tuskegee, AL   2014 – 2019
Graduate Teaching & Research Assistant
- Supported creation of immunomodulatory peptides by performing in-depth in vitro and in vivo studies; one peptide set for phase I clinical trial. Enabled graduate and undergraduate students to complete research projects in a timely manner by providing guidance and mentorship as well as creating effective protocols.
- Recognized for acquiring two first author and a coauthor manuscript.
- Uncovered appropriate target of immunomodulatory peptides and MoA of the peptides in vitro.
- Discovered ways peptide inhibited tumor growth in a CT26 and 4T1 models, while preventing and inhibiting fibrosis in lung and liver fibrosis models.

Department of Immunology and Molecular Biology, University of Asmara – Asmara, Eritrea   2009 – 2012
Graduate Teaching & Research Assistant
- Maximized effectiveness of numerous herbal medicines by executing multiple types of research. Improved skills of undergraduate students by providing training in terms of thesis research activities.
- Obtained several first author and coauthor manuscripts.
- Secured Erasmus Mundus ACP II scholarship for Master's degree by showcasing remarkable performance.

Selected Publications

Ghebremedhin A, Ryan Shepard, Courtney Betts, Jingjing Hu, Roman Sasik, Satoshi Uchiyama, Sally Robinson, Xin Sun, Le Xu, David Cheresh, John Morrey, Brenda O'Connell, Sandip Patel, Victor Nizet, Lisa Coussens, Judith Varner & et al., PI3 Kinase gamma inhibition suppresses pathological inflammation and promotes survival from SARS-CoV2 infection. (Manuscript under revision in Nature)

Ghebremedhin, A.; Salam, A.B.; Adu-Addai, B.; Noonan, S.; Stratton, R.; Ahmed, M.S.U.; Khantwal, C.; Martin, G.R.; Lin, H.; Andrews, C.; Karanam, B.; Rudloff, U.; Lopez, H.; Jaynes, J.; Yates, C. A Novel CD206 Targeting Peptide Inhibits Bleomycin-Induced Pulmonary Fibrosis in Mice. Cells 2023, 12, 1254.

Ghebremedhin A & Judith Varner. Enzyme Lights Dual Fires. Nature News and Views

Jesse M. Jaynes, Clayton Yates, Ghebremedhin A, et al., Mannose receptor (CD206) activation in tumor-associated macrophages enhances adaptive and innate antitumor immune responses. Science Translational Medicine, Vol. 12, Issue 530, eaax6337

Schmid MC, Kang SW, Chen H, Paradise M, Ghebremedhin A, Kaneda MM, Chin SM, Do A, Watterson DM, Varner JA et al., PI3Kγ stimulates a high molecular weight form of myosin light chain kinase to promote myeloid cell adhesion and tumor inflammation. Nat Commun. 2022 04 01; 13(1):1768. PMID: 35365657; PMCID: PMC8975949

Md Shakir Uddin Ahmed, Brittany D. Lord, Benjamin Adu Addai, Sandeep K. Singhal, Kevin Gardner, Ahmad Bin Salam, Ghebremedhin A, et al., Immune Profile of Exosomes in African American Breast Cancer Patients Is Mediated by Kaiso/THBS1/CD47 Signaling. Cancers 2023, 15(8), 2282

Abisoye-Ogunniyan A, Lin H, Ghebremedhin A, et al. Role of miRNAs in kaiso expression and in the Epithelial to Mesenchymal Transition of prostate cancers. Cancer Lett. 2018;431:1-10. PMID: 29751044