Mariam Lotfy Khaled, B.Pharm, PhD

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Postdoctoral Research Fellow
Assistant Professor

Education

2014-2019 **Ph.D. in Cellular Biology and Anatomy- Augusta University, Georgia, USA.**

2004-2009 **Bachelor's degree in Pharmaceutical Sciences - Faculty of Pharmacy, Cairo University, Egypt.**

Positions

2020-Present Postdoctoral fellow, Moffitt Cancer Center, USA.
Metabolism & Physiology Department.

2019-Present Assistant Professor, Cairo University, Egypt.
Biochemistry Department, Faculty of Pharmacy.

2016-2017 Teaching Assistant, Augusta University, USA.
Histology for medical students, Cell Biology& Anatomy Department.

2014-2019 Ph.D. Graduate Student, Augusta University, USA.
Yuato Liu's Lab, Cell Biology& Anatomy Department.

2010-2014 Research & Teaching Assistant, Cairo University, Egypt.
Biochemistry for Pharm. D students, Biochemistry Department, Faculty of Pharmacy.

Academic and Professional Awards and Honors

2023-2024 Junior Scientist Research Partnership Grant Award, Moffitt Cancer Center, USA.

2022-2023 Scholar in Trainee Award, AACR Annual Meeting, Orland, USA.

2022-2023 Judge Undergraduate Student Caucus and Poster Competition, AACR Annual Meeting, Orland, USA

2017-2018 Moderator at ARVO Annual meeting, Honolulu, USA.

2017-2018 Mr. and Mrs. Bob Richards Travel Award for ARVO, James & Jean Culver Vision Discovery Institute, Augusta University, USA.

2016-2017 Graduate School Travel Award, Augusta University, USA.

2015-2016 Graduate School Travel Award, Augusta University, USA.

2014-2015 Graduate Research Fellowship, Augusta University, USA.

2008-2009 Excellent degree with Honors, Faculty of Pharmacy, Cairo University, Egypt.

Professional Skills and Experiences

Research Experience

- Experienced in critically evaluating and interpreting research studies.
- Proficient in designing innovative projects.
- Proficient in managing data and resources, including developing/managing budgets.
- Experienced in data analysis and interpretation.
- Experienced in using various analysis Software, including SNP & Variation Suite (SVS) for the Whole genome and exome data analysis, FlowJo for cell Flow cytometry analysis, GraphPad for statistical analysis and generating figures, and Zen blue for fluorescence microscope image analysis.
- Experienced in multiple and significant technical skills related to my research area, including:
  - ⇒ The first was at Moffitt Cancer Center to prepare 10X Visium slides for Spatial transcriptomic (sectioning, staining, optimization, and RNA isolation).
  - ⇒ Perform mice surgeries (e.g., injecting tumor cells in Cisterna Magna under a microscope), subcutaneous tumor injection, and intraperitoneal injection. Assess mice's neurofunction.
  - ⇒ Handling mice, maintaining mice colonies, genotyping, and performing minor procedures
  - ⇒ Single-cell RNA sequencing human and murine samples preparation.
  - ⇒ Flow cytometry analysis for immune and tumor cells.
  - ⇒ Cell culture procedures, preparing media and buffers.
  - ⇒ RNA Isolation & quantification using qPCR, ddPCR, and semi-quantitative PCR (gel electrophoresis).
  - ⇒ Designing primers (qPCR, RT-PCR, and ddPCR).
  - ⇒ Protein quantification using Western blot and ELISA assays.
  - ⇒ Immunohistochemistry, TUNEL assay, Immunofluorescence.
  - ⇒ Imaging using brightfield, fluorescent, and confocal microscopy.
  - ⇒ Exosome isolation using commercial kit and ultracentrifugation.
  - ⇒ Nano-Tracking analysis to measure the size and concentration of exosomes

Writing Experience

- Experienced in Writing, Editing, and Reviewing Scientific Literature, including manuscripts, review articles, book chapters, abstracts, and project summaries.
- Proficient in grant writing and awarded the Junior Scientist Partnership grant.
- Significant contribution to extramural fund applications, including the American Cancer Society.
- Served as a reviewer for research and Reviewed articles for different journals.
- Writing protocols for Clinical and Animal Studies IACUC approval.
- Basic writing and editing, including different audiences.

Mentoring Experience

- Mentored and Trained all Graduate Students and Research Assistants at Dr. Inna Smalley Lab, Moffitt Cancer Center, USA. (2021-2024).
- Served as Judge at the 18th AACR Annual Undergraduate Student Caucus and Poster Competition, Orlando, USA. (April 2023).
- Mentored and Trained two STAR summer program undergraduate students at Dr.Yuao Liu's Lab, Augusta University, USA. (2017 & 2018).
- Mentored undergraduate Pharm D students for graduation projects at the Biochemistry Department, Faculty of Pharmacy, Cairo University, Egypt. (2009- 2014).

Teaching Experience

- Teaching "Reprogramming Energy Metabolism," Hallmarks of Cancer course for undergraduate students (USF) at Moffitt Cancer Center (July 2023).
- Teaching Assistant Medical Histology course for medical students, Cellular Biology & Anatomy Department, Augusta University, Georgia, USA. (2016-2017).
- Teaching Assistant Biochemistry courses for undergraduate and graduate students at Biochemistry Department, Faculty of Pharmacy, Cairo University, Egypt. (2009- 2014).
- Teaching Arabic and Math to illiterate ladies in the Egyptian community. (2012- 2013).

Personnel Experience

- Leading and Motivating others
- Hardworking, Well organized, Self-motivated
- Excellent in Time Management and organizing projects.
- Mentoring and Teaching to kids or adults.

- Excellent presentation and communication skills
- Work independently
- Team player

Selected Talks/Presentations

* Branched-chain keto acids promote an immune-suppressive and neurodegenerative microenvironment in leptomeningeal disease, 2024 Central Florida Triangle Metabolism Meeting, John Hopkins Hospital, Poster Presentation.
* Studying the efficacy of branched-chain keto acid-lowering therapy in managing neurological decline in preclinical leptomeningeal disease models, 2024 Moffitt Scientific Symposium, Poster Presentation.
* Efficacy of sodium phenylbutyrate in managing the neurological decline in leptomeningeal disease model, 2024 Metabolism & Physiology Department Seminar Series, Invited Seminar.
* Branched-chain keto acids promote an immune-suppressive and neurodegenerative microenvironment in leptomeningeal disease, 2024 Metabolism Club, Invited Seminar.
* Reprogramming Energy Metabolism, 2023 Hallmarks of Cancer Course, Invited Lecture.
* Branched-chain keto acids exert an immune-suppressive and neurodegenerative microenvironment in CNS leptomeningeal, 2023 AACR Annual Meeting, Oral Presentation.
* Branched-chain keto acids exert an immune-suppressive and neurodegenerative microenvironment in CNS leptomeningeal, 2023 Competition for the Distinguished Lecture Symposium, Oral Presentation.
* Branched-chain keto acids exert an immune-suppressive and neurodegenerative microenvironment in CNS leptomeningeal lymphoma, 2023 Moffitt Scientific Symposium, Poster Presentation.
* Establishing different approaches to study LMD microenvironments, 2021 Metabolism & Physiology Department Seminar Series, Invited Seminar.
* PPIP5K2 mutations & Keratoconus in Human Patients and Mouse Models, 2019 Cell Biology & Anatomy Seminar Series, Student Seminar.
* Homozygous mutation in the ELMO3 gene with keratoconus, 2018 ARVO Annual Meeting, Oral Presentation.
* Molecular characterization of MIR184 mutation in keratoconus using primary human corneal cells, 2017 ARVO Annual Meeting, Poster Presentation.

Publications

Complete list of publications and citation indices on my Google Scholar/ResearchGate home page: https://scholar.google.com/citations?user=GCG55nwAAAAJ&hl=en

https://www.researchgate.net/profile/Mariam-Khaled-7

Published:

1. Alhaddad, H. et al. Spatial transcriptomics analysis identifies a tumor-promoting function of the meningeal stroma in melanoma leptomeningeal disease. Cell Reports Medicine (2024).
2. Hadvina, R. et al. Exosomes and their miRNA/protein profile in keratoconus-derived corneal stromal cells. Experimental eye research 236, 109642 (2023).
3. Khaled, M. L. et al. Branched-chain keto acids exert an immune-suppressive and neurodegenerative microenvironment in CNS leptomeningeal lymphoma. Cancer Research 83, 1192-1192 (2023).
4. Khaled, M. L. et al. Branched-chain keto acids promote an immune-suppressive and neurodegenerative microenvironment in leptomeningeal disease. bioRxiv (2023).
5. Mariam Lotfy Khaled, A. A. T., Peter A. Forsyth, Inna Smalley & Piña, Y. Leptomeningeal Disease (LMD) in Patients with Melanoma Metastases. Cancers 15, 1884 (2023).
6. Khaled, M. L. et al. PPIP5K2 and PCSK1 are candidate genetic contributors to familial keratoconus. Scientific Reports 9, 19406 (2019).
7. Rabab Sharif, M. L. K., Tina B. McKay, Yutao Liu, & Karamichos, D. Transcriptional profiling of corneal stromal cells derived from patients with keratoconus. Scientific report 9, 12567 (2019).
8. Khaled, M. L. & Liu, Y. in Genetics and Genomics of Eye Disease. 219-235 (Academic Press, 2020).
9. Liu, Y. et al. PPIP5K2 mutations & Keratoconus in Human Patients and Mouse Models. Invest Ophthalmol Vis Sci 60, 4784-4784 (2019).
10. Sharif, R., Khaled, M., She, J.-X., Liu, Y. & Karamichos, D. Exosomes and their miRNA/protein contents in Keratoconus. Invest Ophthalmol Vis Sci 60, 314-314 (2019).
11. Khaled, M. L. et al. Homozygous mutation in the ELMO3 gene with keratoconus. Invest Ophthalmol Vis Sci 59, 743-743 (2018).
12. Liu, Y. et al. Long Non-Coding RNAs in Keratoconus-affected Human Cornea. Invest Ophthalmol Vis Sci 59, 4391-4391 (2018).
13. Khaled, M. L. et al. Differential expression of coding and long noncoding RNAs in keratoconus-affected corneas. Invest Ophthalmol Vis Sci 59, 2717-2728 (2018).
14. Khaled, M. L. et al. Molecular and histopathological changes associated with keratoconus. BioMed research international 2017, 7803029 (2017).
15. Helwa, I. et al. A comparative study of serum exosome isolation using differential ultracentrifugation and three commercial reagents. PloS one 12, e0170628 (2017).
16. Bykhovskaya, Y. et al. TSC1 mutations in keratoconus patients with or without tuberous sclerosis. Invest Ophthalmol Vis Sci 58, 6462-6469 (2017).

Under Preparation:

1. Ronak Kundalia, Ethan Vallebuona, Mariam Khaled, Oscar Ospina, Karl Nyman, Gerald Wallace, Peter Forsyth, Pina Yolanda, Inna Smalley. A retrospective analysis of the incidence, clinical characteristics and outcomes of leptomeningeal disease in patients with metastatic melanoma.
2. Yuan Ren, Mariam Khaled, Ethan Vallebuona, Inna Smalley. Macrophages provide a protective microenvironment for tumor progression in Leptomeningeal Disease.
3. M.Baraa Bozoo, Mariam Khaled, Oscar Ospina, Ethan Vallebuona, Inna Smalley. A retrospective analysis of the incidence, clinical characteristics and outcomes of leptomeningeal disease in patients with Lung Cancer.

Training/Workshops/Courses

Human Subjects Research - Biomedical Research Course (ID 23360).

CITI Good Clinical Practice Course (ID 23364).

CITI Conflicts of Interest Course (ID 61616).

Oxford Global's Spatial Biology US.

Introduction to R Programming Course, Department of Biostatistics and Bioinformatics.

MSACL Connect: Metabolomics 201 (Tim Garrett & Donald Chace).

Genome Data Analysis (Steven Eschrich).

Lab Manager/Safety Liaison Training.

Research Lab Safety Training.

Hazards Waste Generator Training.

Sharp, Autoclave, Formaldehyde, Electrical, Office Safety Trainings.

Personal Protective Equipment Training.