Ahmed Ghobashi
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Education:

Indiana University-Bloomington — **Indiana, USA**
Fall,2018-present

- Ph.D. Candidate, Genome, Cell and Developmental Biology (GCDB), Department of Biology
  - Thesis Advisor: Heather M. O'Hagan, Ph.D.

Medical Research Institute, Alexandria University — **Alexandria, Egypt**
2014- 2017

- Graduate courses in human genetics
  - Advisor: Lubna Mohammed, Ph.D

Faculty of Pharmacy, Alexandria University — **Alexandria, Egypt**
2007-2012

- Bachelor of Science in Pharmaceutical Science
  - Grade excellent with distinction and class honors

Academic interests:

- Computational biology
- Cancer epigenetics
- Cell signaling pathways.

Computer Skills:

- Python
- R
- Linux command line
- High-Performance Computing (HPC)

Bioinformatic experience:

- Conducted analysis for bulk RNA-seq, bulk ATAC-seq, ChIP-seq, and CUT&RUN.
- Developed a pipeline to automate RNA-seq analysis (the pipeline automatically performs a Fastqc, generates a Genome index, genome aligning using STAR, and count matrix using subread)
  - https://github.com/Ahmed-Ghobashi/RNA-seq
- Using machine learning classifiers to study the effect of secretory cells on the consensus molecular subtypes (CMS) of colorectal cancers.
- Conducted analysis for mice colon single-cell RNA-seq to investigate the effect of *BRAF* mutation or *MSH2* deletion on colon cell differentiation.
- Conducted analysis for single-cell multi-omic data (sc-RNA-seq and sc-ATAC-seq) to investigate the differentiation of enteroendocrine cells (EECs) in colon cancer.
- Using Kaggle datasets to build artificial neural network (ANN) and convolutional neural network (CNN) for breast cancer prediction and brain tumor classification respectively.
  - https://www.kaggle.com/ahmedghobashi/notebooks

Publications:

1. Ladaika CA, **Ghobashi AH**, Boulton WC, Miller SA, O'Hagan HM. Single-cell multi-omics reveals insights into the differentiation of rare cell types in mucinous colorectal cancer (2024). bioRxiv [Preprint]. 2024 Feb 5:2024.02.01.578409. doi: 10.1101/2024.02.01.578409. PMID: 38370733; PMCID: PMC10871185.

2. **Ghobashi AH**, Lanzloth R, Ladaika CA, O'Hagan HM. Single-cell profiling reveals the impact of genetic alterations on the differentiation of inflammation-induced colon tumors (2023). bioRxiv [Preprint]. 2023 Dec 2:2023.11.30.569463. doi: 10.1101/2023.11.30.569463. PMID: 38077052; PMCID: PMC10705473.

3. **Ghobashi, A. H**., Vuong, T. T., Kimani, J. W., Ladaika, C. A., Hollenhorst, P. C., & O'Hagan, H. M. (2023). Activation of AKT induces EZH2-mediated β-catenin trimethylation in colorectal cancer. *Iscience*. **https://doi.org/10.1016/j.isci.2023.107630**

4. Sriramkumar, S., Sood, R., Huntington, T. D., **Ghobashi, A. H**., Vuong, T. T., Metcalfe, T. X., ... & O'Hagan, H. M. (2022). Platinum-induced mitochondrial OXPHOS contributes to cancer stem cell enrichment in ovarian cancer. *Journal of Translational Medicine*, *20*(1), 246. **https://doi.org/10.1186/s12967-022-03447-y**

5. Miller, S. A., **Ghobashi, A. H**., & O'Hagan, H. M. (2021). Consensus molecular subtyping of colorectal cancers is influenced by goblet cell content. *Cancer Genetics*, *254*, 34-39. **https://doi.org/10.1016/j.cancergen.2021.01.009**

6.

7. Sriramkumar, S., Matthews, T. D., **Ghobashi, A. H**., Miller, S. A., VanderVere-Carozza, P. S., Pawelczak, K. S., ... & O'Hagan, H. M. (2020). Platinum-induced ubiquitination of phosphorylated H2AX by RING1A is mediated by replication protein A in ovarian cancer. *Molecular Cancer Research*, *18*(11), 1699-1710. **https://doi.org/10.1158/1541-7786.mcr-20-0396**

8. Hanafi, M. Y., Zaher, E. L., El-Adely, S. E., Sakr, A., **Ghobashi AH***,* Hemly, M. H., ... & Kamel, M. A. (2018). The therapeutic effects of bee venom on some metabolic and antioxidant parameters associated with HFD-induced non-alcoholic fatty liver in rats. *Experimental and therapeutic medicine*, *15*(6), 5091-5099**. https://doi.org/10.3892/etm.2018.6028**

9. **Ghobashi AH** & Kamel, M. A. (2018). Tip60: updates. Journal of applied genetics, 59(2), 161-168. **https://doi.org/10.1007/s13353-018-0432-y**

Posters and presentations:

- ***Ahmed Ghobashi****,* Heather M. O'Hagan*. Investigating the role of AKT signaling in colorectal cancer plasticity.* Presentation. IU Annual GCDB Retreat 2023
- ***Ahmed Ghobashi****,* Heather M. O'Hagan*. Elucidating the role of the AKT/EZH2 axis in colorectal cancer.* Poster. IU Simon Cancer Center's Cancer Research Day 2022
- ***Ahmed Ghobashi****,* Heather M. O'Hagan*. Elucidating the role of the AKT/EZH2 axis in colorectal cancer.* Van Andel Institute Epigenetic Symposium 2022
- ***Ahmed Ghobashi****,* Heather M. O'Hagan. *Elucidating the role of the AKT-EZH2-β-catenin axis in mediating the transcriptional response to reactive oxygen species in colorectal cancer*. Poster. IU Simon Cancer Center's Cancer Research Day 2021 (**2nd place prize in translational research posters**)
- ***Ahmed Ghobashi***, Heather M. O'Hagan. *Investigating the role of the AKT-EZH2 axis in colon cancer*. Presentation. IU Simon Comprehensive Cancer Center Virtual Seminar Series 2020

Honors:

- Selected to participate in the NIH-funded Van Andel Institute Epigenomic Workshop 2022
- Medical Sciences Doane and Eunice Dahl Wright Fellowship, Indiana University 2021-2022
- College of Arts and Sciences fellowship, Indiana University 2018
- Alexandria University Excellence Award 2012

Online courses:

- Deep Learning A-Z™ 2023: Neural Networks, AI & ChatGPT Bonus (Udemy, September 2023)
  - https://www.udemy.com/certificate/UC-503132a9-2fbe-4457-a618-29b25f8afa17/
- Advanced learning algorithms (Coursera, June 2023)
  - https://coursera.org/verify/WWSHKM38C3P6

Research experience:

Ph.D. Candidate, Indiana University-Bloomington **Indiana, USA**
Fall, 2018-present

- Thesis Title: Investigating the role of AKT-EZH2 axis in colorectal cancer

Graduate Research Assistant, **Medical Research Institute** **Alexandria, Egypt**
2014- 2017

- Examined the distribution of MTHFR C677T polymorphism in normal Egyptian population
- Explored the therapeutic effect of bee venom on non-alcoholic fatty liver disease (NAFL)

Research Intern, University of Virginia **Virginia, USA**
June 2016-September, 2016

- Intern in Weibin Shi's lab
- Investigated the Role of RCN2 protein in atherosclerosis development

Teaching experience at Indiana University-Bloomington:

- Mentoring an undergraduate student in the lab **Fall 2022-Present**
- Mentoring rotation students in the lab **Fall 2021, Fall 2023**
- Assistant Instructor
    - Assisted students by demonstrating lab techniques and protocols
        - Biology Laboratory L113 **Spring,2018**
        - Cell Biology Laboratory L313 **Fall,2019, Spring 2022**

Work experience:

- **Alexandria University Hospital** **Alexandria, Egypt**
2013-2018
- Clinical Oncology Pharmacist at Clinical Oncology Department
    - Patient counseling
    - Preparation of chemotherapeutic drugs
    - Validation of treatment protocols

Service

- Helping GCDB graduate program in recruiting graduate students by hosting students in graduate recruitment week (GRW) (2019, 2020)