Ayman M. Ibrahim, Ph.D.

POSITION TITLE:

- Project Manager and Postdoctoral researcher at Magdi Yacoub foundation, Aswan heart center, Aswan, Egypt
- Lecturer, Department of Zoology, Faculty of Science, Cairo University, Giza, 2613, Egypt

Emails:

- ayman.maher@aswanheartcentre.com
- ayman@sci.cu.edu.eg

EDUCATION:

2008 **(B.Sc) Zoology/chemistry double major:** Department of Zoology, Faculty of Science, Cairo University

2012 **(M.Sc.) Telomerase activity in breast cancer:** Department of Zoology, Faculty of Science, Cairo University: Master of Science

2016 (**Ph.D.) Fibroblast-epithelial interaction during epithelial outgrowth in mouse mammary gland development and breast cancer:** Joint supervision between Glasgow University, UK and Cairo University, Egypt (The program included 2 years stay in Prof. Torsten Stein laboratory, MVLS, Glasgow University, Scotland, UK)

POSITIONS:

- 4/2009 – 2/2012: **Instructor**, Department of Zoology, Faculty of Science Cairo University, Cairo, Egypt.
- 10/2009 – 1/2012: **Research Assistant, Cancer biology laboratory,** Department of Zoology, Faculty of Science Cairo University, Cairo, Egypt.
- 2/2012 – 1/2014: **Assistant lecturer**, Department of Zoology, Faculty of Science Cairo University, Cairo, Egypt.
- 1/2017 to date: **Lecturer**, Department of Zoology, Faculty of Science Cairo University, Cairo, Egypt.
- 4/2019 – 4/2020: **Post doctoral Researcher** in Biochemistry department, School of Medicine, Tulane university
- 12/2015 to date: **Post doctoral Researcher and Project Manger** at Magdi Yacoub Foundation (Aswan heart center), Aswan, Egypt

AWARDS:

2008: Honored by Cairo University as the top graduated students.
2011: 2nd award for oral presenation at the 5th Middle East Best of AACR – CTRC Best of SABCS
2014: 2nd award in poster presentation in "Visualizing Cancer: Microscopy and Beyond" at Beatson institute (12th September 2014)

Laboratory Skills

- **Animal models work experience**

- B57 black mice mammary gland excision and manipulation
- MMTV and Her-2 mouse breast cancer models; mammary gland excision and tissue staining for target proteins
- Mammary gland transplantation and single cells injection

- **Molecular biology techniques**:

- DNA and RNA extraction from tissue and blood samples.
- cDNA synthesis.
- PCR (Regular and nested)
- TRAP assay for telomerase activity measurement.
- RT-qPCR (practical and analysis)
- Plasmids manipulations for transformation purposes (growth, recovery, plasmid DNA isolation, insertions…)
- Practical conduct for RNA amplification, RNA microarray and RNA sequencing (classic and single cells)
- Basic background of bioinformatics (R software for microarray analysis).

- **Proteomics techniques**:

- Protein extraction and concentration measurement from tissue samples and cell lines.
- Western blotting.
- Zymography.
- Immunohistochemistry and immunofluorescence (Single, double, and triple staining)
- FACs analysis and cell sorting

- **Cell culture techniques**:

- Culturing and sub culturing of cell lines.
- 3D culture model.
- Primary cells isolation (Fibroblasts, epithelial cells and macrophages)
- Transfection of cell lines
- Lentivirus production and transduction of cell lines
- Wound healing assay
- Adhesion assay
- Hanging drops technique
- Invasion assays
- 3D structure embedding and staining
- Induced pluripotent stem cells (IPSCs) generation from skin fibroblasts, iPSCs handling and passaging
- Differentiation and characterization of iPSCs-derived cardiomyocytes

- **Microscopy**

- Bright field microscopy

- Phase contrast microscopy
- Fluorescence microscopy
- Confocal microscopy/Airyscan module

- **Transcriptome and high throughput data**

- Illumina chips microarray (whole genome of mouse)
  (Samples hybridization, chip scanning, data retrieval and data analysis (basic and advanced)), with a good background of data analysis of R software
- RNA sequencing and basic data analysis
- Singe cell RNA sequencing

Scientific Visits:

- **1st February- 16th of February 2016 and 26th of February - 5th of March 2016:** Visiting researcher in Prof. Derrek Terrar's laboratory, Pharmacology Department, Oxford University, as a training course on induced pluoripotent stem cells (iPSCs) generation from primary fibroblasts (Supervised by Faizzan Ahmed, Msc).
- **17th – 25th February 2016:** Visiting researcher in Magdy Yacoub institute, Harefield, Dr. Najma latif's laboratory, as a part of collaboration with Aswan heart center, Egypt, to assess primary fibroblasts populations using cell culture, immunocytochemistry (ICC), flow cytometry and confocal microscopy techniques.
- **15th of May- 16th of July 2017:** Visiting researcher in Dr. Ming Lie laboratory, Pharmacology Department, Oxford University, to continue a research plan fulfilling the collaboration between Aswan research centre and Oxford University

Conferences and meetings:

- 3th Breast - Gynecological International Cancer Conference, BGICC, January 2011, Cairo, Egypt. (Attendance)
- The 5th Middle East Best of AACR – CTRC Best of SABCS – January 12 – 13, 2011(Oral presentation)
- Beatson International Cancer Conference (Targeting the tumor stroma), Glasgow, UK – 7th – 10th July 2013 (Poster presentation)
- European Network of Breast Development and Cancer labs (ENBDC) Meeting, Weggies, Switzerland - 8th-10th June 2014 (Poster presentation)
- 2nd Breast Cancer Symposium of the CRUK Glasgow Centre, 20th June 2014, Glasgow, UK (Poster presentation)
- Visualizing Cancer: Microscopy and Beyond at Beatson institute, Glasgow, UK- 12th September 2014 (Poster presentation)
- Rheumatic heart diseases (**From molecules to the global community**), 13th-16th Jan 2017, JW Marriott, Cairo, Egypt (Poster presentation).
- 8th Biennial Heart Valve Biology & Tissue Engineering Meeting, 26th – 28th of September 2018, London, UK
- GRC conference for mammary gland and cancer biology. 14th – 19th June 2019, Maine, USA (Poster presentation)
- Leducq biannual meeting, 18th – 20th November 2019, Philadelphia, USA (Oral presentation)

- Leducq biannual meeting, 12th – 13th November 2020, Virtual meeting (Oral presentation)

Fund(s):

- Graduate Research Challenge Fund (GRCF) program, Faculty of Science, Cairo University to support master degree work (2010-2012)
- Joint supervision scholarship from the Ministry of higher education to support the practical work in Glasgow University (2013-2016)

List of Publication(s):

- **Ibrahim AM,** Sabet SF, El-Shinawi M (**2012**) Investigation of Telomerase Activity in Inflammatory and Non Inflammatory Breast Cancer. J Cancer Sci Ther 4: 360-367. doi:10.4172/1948-5956.1000168
- Olijnyk, D., **A. M. Ibrahim**, et al. (**2014**). "Fibulin-2 is involved in early extracellular matrix development of the outgrowing mouse mammary epithelium." Cellular and Molecular Life Sciences 71(19): 3811-3828.
- **Ibrahim, A. M.,** C. Cairney, et al. (**2017**). RNA Profiling of Non-cultured Fibroblasts Isolated from Pubertal Mouse Mammary Gland Sections. Mammary Gland Development: Methods and Protocols. F. Martin, T. Stein and J. Howlin. New York, NY, Springer New York: 149-164.
- **Ibrahim, A. M.,** Sabet, S., El-Ghor, A. A., Kamel, N., Anis, S. E., Morris, J. S., & Stein, T. (**2018**). Fibulin-2 is required for basement membrane integrity of mammary epithelium. Scientific Reports, 8(1), 14139. https://doi.org/10.1038/s41598-018-32507-x
- Eissa, M.I., El-Sherbiny, M.A., **Ibrahim, A.M.** et al. Biochemical and Histopathological studies on female and male Wistar rats fed on genetically modified soybean meals (Roundup Ready). JoBAZ 80, 54 (**2019**). https://doi.org/10.1186/s41936-019-0114-2
- Al Kindi, H. N., Shehata, M., **Ibrahim, A. M.,** Roshdy, M., Simry, W., Aguib, Y., & Yacoub, M. H. (2020). Cor Triatriatum sinister (Divided Left Atrium): histopathological features and clinical management. The Annals of Thoracic Surgery. https://doi.org/10.1016/j.athoracsur.**2020**.01.025
- **Ibrahim AM**, Gray Z, Gomes AM, Myers L, Behbod F, Machado HL. Gas6 expression is reduced in advanced breast cancers. NPJ Precis Oncol. 2020;4:9. Published **2020** Apr 24. doi:10.1038/s41698-020-0116-z
- Wang Y, Chaffee TS, LaRue RS, et al. Tissue-resident macrophages promote extracellular matrix homeostasis in the mammary gland stroma of nulliparous mice. Elife. 2020;9:e57438. Published **2020** Jun 1. doi:10.7554/eLife.57438
- Fahim SA, Abdullah MS, Espinoza-Sánchez NA, et al. Inflammatory Breast Carcinoma: Elevated microRNA miR-181b-5p and Reduced miR-200b-3p, miR-200c-3p, and miR-203a-3p Expression as Potential Biomarkers with Diagnostic Value. Biomolecules. **2020**;10(7):E1059
- **Ibrahim AM**, Moss MA, Gray Z, Rojo MD, Burke CM, Schwertfeger KL, Dos Santos CO, Machado HL. Diverse Macrophage Populations Contribute to the Inflammatory Microenvironment in Premalignant Lesions During

Localized Invasion. Front Oncol. **2020** Sep 24;10:569985. doi: 10.3389/fonc.2020.569985. PMID: 33072601; PMCID: PMC7541939.

- **Ibrahim AM**, Roshdy M, Elshorbagy S, Hosny M, Halawa S, Yehia D, Elfawy HA, Eldessouki A, Mohamed F, Ellithy A, Abdelfattah M, Elsawy A, Elkhatib M, Allouba M, Elguindy A, Aguib Y, Yacoub M. An Investigation of Fibulin-2 in Hypertrophic Cardiomyopathy. Int J Mol Sci. **2020** Sep 29;21(19):7176. doi: 10.3390/ijms21197176. PMID: 33003281; PMCID: PMC7583916.
- Al Kindi HN, **Ibrahim AM**, Roshdy M, Abdelghany BS, Yehia D, Masoud AN, Simry W, Aguib Y, Yacoub MH. Clinical, cellular, and molecular characterisation of cardiac rhabdomyoma in tuberous sclerosis. Cardiol Young. 2021 Feb 19:1-9. doi: 10.1017/S1047951121000172. Epub ahead of print. PMID: 33602381