

**NAME:**

Abeer Mohamed (Mahmoud), MD, PhD

**EDUCATION:****2008- 2013**

Ph.D., Pathology

University of Illinois at Chicago, College of Medicine, Chicago, IL

*Mentor: Maarten C. Bosland, DVSc, PhD.*

Dissertation Title: The Influence of Androgen Receptor Mutations and Estrogen Receptor- $\beta$  Status on the Anti-cancer Effects of Genistein on Prostate Cancer

**2002-2006**

M.Sc., Pathology

Assiut University, Collage of Medicine, Assiut, Egypt

*Mentor: Sanaa Sotohy, MD, PhD.*

Thesis Title: Immunohistochemical and Histopathological Evaluation of Malignant Small Round Cell Tumors in Childhood and Adolescence

**1994-2000**

Bachelor of medicine (M.B.B.CH)

Assiut University, Collage of Medicine, Assiut, Egypt, <http://www.aun.edu.eg/>

**POSITIONS AND HONORS****Positions and Employment**

- 2000 – 2002 Medical Intern, Assiut University Hospital, Assiut, Egypt
- 2002 – 2006 Surgical Pathology Resident, Assiut University Hospital, Assiut, Egypt
- 2006 – 2008 Surgical Pathology Fellow, South Egypt Cancer Institute, Assiut, Egypt
- 2008 – 2013 Graduate Research Assistant, Dept. Pathology, University of Illinois at Chicago.
- 2013 – 2015 Postdoctoral Research Associate, Department of Kinesiology, University of Illinois at Chicago.
- 2015 – 2018 Postdoctoral Fellow, American Heart Association, University of Illinois at Chicago.
- 2018 – Research Assistant Professor, Department of Physical Therapy, University of Illinois at Chicago, Chicago, IL.

**Professional Certification and Membership**

- 2006 - Egyptian Board of Surgical Pathology
- 2008 - American Association of Cancer Research (AACR)
- 2013 - American Heart Association (AHA)
- 2013 - Unites States and Canadian Academy of Pathology (USCAP)
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2016-	American Urology Association
2016-	American Diabetes Association
2017-	Society for Redox Biology and Medicine (SfRBM)

### Honors, Scholarships and Awards

- **American Heart Association, Career Development Award**, May 2018
- **NIH/NHLBI K99 Award**, January 2018
- **American Heart Association, Post-doctoral Fellowship Award**, July 2015-June 2017.
- **AACR Scholar-in-Training Award 2014**, Susan G. Komen, 2014
- **Laurette Kirstein Academic Excellence Scholarship**, University of Illinois at Chicago, Chicago, 2012-2013 academic year
- **Egyptian Ministry of Higher Education Scholarship** for pursuing Ph.D in Pathology, 2008- 2013

### A. CONTRIBUTION TO SCIENCE (PUBLICATIONS)

#### Theses:

**Mahmoud AM.** Androgen Receptor Mutations and Estrogen Receptor- $\beta$  Modulate Genistein Effects on Prostate Cancer Cells. Ph.D. Dissertation. College of Medicine, Department of Pathology, University of Illinois at Chicago, 2013.

**Mahmoud AM.** Histopathological Evaluation of Malignant Small Round Cell Tumors of Childhood. M.SC. Dissertation. Faculty of Medicine, Department of Pathology, Assiut University, 2006

#### Published Articles:

1. Bian JT, Piano MR, Kotlo KU, **Mahmoud AM**, Phillips SA. MicroRNA-21 Contributes to Reduced Microvascular Function in Binge Drinking Young Adults. *Alcohol Clin Exp Res.* 2018 Feb;42(2):278-285.
2. **Mahmoud AM**, Macias V, Al-Alem U, Deaton RJ, Kadjaksy-Balla A, Gann PH, Rauscher GH. BRCA1 protein expression and subcellular localization in primary breast cancer: Automated digital microscopy analysis of tissue microarrays. *PLoS One.* 2017 Sep 1;12(9):e0184385.
3. Robinson AT1, Fancher IS, **Mahmoud AM**, Phillips SA. Microvascular Vasodilator Plasticity Following Acute Exercise. *Exerc Sport Sci Rev.* 2017 Aug 14.
4. **Mahmoud AM**, Ali MM, Miranda ER, Mey JT, Blackburn BK, Haus JM, Phillips SA. Nox2 contributes to Hyperinsulinemia-induced redox imbalance and impaired vascular function. *Redox Biol.* 2017 Jun 3;13:288-300
5. **Mahmoud AM**, Szczurek MR, Blackburn BK, Mey JT, Chen Z, Robinson AT, Bian JT, Unterman TG, Minshall RD, Brown MD, Kirwan JP, Phillips SA, Haus JM. Hyperinsulinemia augments endothelin-1 protein expression and impairs vasodilation of human skeletal muscle arterioles. *Physiol Rep.* 2016 Aug;4(16).
6. Robinson A, Fancher I, Sudhakar V, **Mahmoud AM**, Ali MM, Fukai MU, Brown MD, Fukai T, and Phillips SA. Short-term Regular Aerobic Exercise Reduces Oxidative Stress Produced by Acute High Intraluminal Pressure in the Adipose Microvasculature. *Am J Physiol Heart Circ Physiol.* 2017 May 1;312(5):H896-H906.
7. **Mahmoud AM**, Al-Alem U, Dabbous F, Ali MM, Batai K, Shah E, Kittles RA. Zinc Intake and Risk of Prostate Cancer: Case-Control Study and Meta-Analysis. *PLoS One.* 2016 Nov 8;11(11):e0165956

8. **Mahmoud AM**, Ali MM. Stabilization versus Ablation of Tumor Vasculature: Implications in Radio and Chemo-sensitization. *Ely J Can Res*. 2016 July 18; 2(1):105.
9. **Mahmoud AM**, Brown MD, Phillips SA, Haus JM. Skeletal Muscle Vascular Function: A Counterbalance of Insulin Action. *Microcirculation*. 2015 Jul;22(5):327-47.
10. Rauscher GH, Kresovich JK, Poulin M, Yan L, Macias V, **Mahmoud AM**, Al-Alem U, Kajdacsy-Balla A, Wiley EL, Tonetti D, Ehrlich M. Exploring DNA methylation changes in promoter, intragenic, and intergenic regions as early and late events in breast cancer formation. *BMC Cancer*. 2015 Oct 29;15:816.
11. Phillips SA, **Mahmoud AM**, Brown MD, Haus JM. Exercise interventions and peripheral arterial function: implications for cardio-metabolic disease. *Prog Cardiovasc Dis*. 2015 Mar-Apr;57(5):521-34.
12. Williamson DL, Dungan CM, **Mahmoud AM**, Mey JT, Blackburn BK, Haus JM. Aberrant REDD1-mTORC1 responses to insulin in skeletal muscle from type 2 diabetics. *Am J Physiol Regul Integr Comp Physiol*. 2015 Oct 15;309(8):R855-63.
13. **Mahmoud AM**, Al-alem U, Ali MM, and Bosland MC. Genistein increases estrogen receptor beta expression in prostate cancer via reducing its promoter methylation. *J Steroid Biochem Mol Biol* 2015, Apr 27; 152:62-75.
14. **Mahmoud AM**, Zhu T, Parray A, Siddique HR, Yang W, Saleem M, Bosland MC. Differential effects of genistein on prostate cancer cells depend on mutational status of the androgen receptor. *PLoS One*. 2013 Oct 22;8(10).
15. DU J, Guo Y, Bao Y, Xing M, **Mahmoud AM**, Che Z, Chen Z, Yang W. Anticancer activities of sulindac in prostate cancer cells associated with c-Jun NH2-terminal kinase 1/ $\beta$ -catenin signaling. *Oncol Lett*. 2014 Jul;8(1):313-316.
16. Bosland MC, Ozten N, Eskra JN, **Mahmoud AM**. A Perspective on Prostate Carcinogenesis and Chemoprevention. *Current Pharmacology Reports*. 2015 Aug 1;1(4):258-265.
17. **Mahmoud AM**, Yang W, Bosland MC. Soy Isoflavones and Prostate Cancer: A Review of Molecular Mechanisms. *J Steroid Biochem Mol Biol*. 2013 Dec 25;140C:116-132.
18. Bosland MC, **Mahmoud AM**. Hormones and prostate carcinogenesis: Androgens and estrogens. *Journal of Carcinogenesis*, 2011, 10:33.
19. Al-Alem U, Rauscher GH, Shah E, Batai K, **Mahmoud AM**, Silva A, Peterson C, Kittles RA. Association of genetic ancestry with aggressive breast cancer in ethnically diverse population. *PLoS One*. 2014 Nov 25;9(11).

### **In Press**

- **Mahmoud AM**. Cancer Testis Antigens as Immunogenic and Oncogenic Targets in Breast Cancer. *Immunotherapy*. 2018

### **Abstracts and Presentations at Conferences (selected/partial)**

- **Mahmoud AM**, Ali MM, Miranda E, Mey JT, Blackburn BK, Robinson AT, Bian JT, Haus JM, Phillips SA. NADPH Oxidase Contributes to Oxidative Stress and Reduced eNOS Phosphorylation during Hyperinsulinemia in Human Skeletal Muscle Arterioles and Microvascular Endothelial Cells. Experimental Biology Annual Meeting, 2016. *The FASEB Journal* 30 (1 Supplement), 1276.2-1276.2.
- **Mahmoud AM**, Solomon TPJ, Phillips SA, Kirwan JP, Haus JM. Aerobic exercise reduces NOX<sub>2</sub> in skeletal muscle of obese insulin-resistant adults via interfering with RAGE/p-IkB- $\alpha$  axis. Experimental Biology Annual Meeting, 2016. *The FASEB Journal* 30 (1 Supplement), 1b762-1b762
- **AM Mahmoud**, MM Ali, V Sudhahar, M Ushio-Fukai, T Fukai, SA Phillips. Exercise Inhibits High-Fat Diet-Induced Upregulation of Endothelin-1 and Endothelin Receptor Type A and Restores Flow-Induced Arteriolar Dilation in Mice. *Circulation* 134 (Suppl 1), A15265-A15265

- Ali MM, **Mahmoud AM**, Phillips SA. The role of Epigenetic Mechanisms and Matrix Remodeling Enzymes in Oxidative Stress-induced loss of the microvascular endothelial glycocalyx. Experimental Biology Annual Meeting, 2016. The FASEB Journal 30 (1 Supplement), 1276.7-1276.7
  - Mey JT, **Mahmoud AM** and Haus JM. Human Skeletal Muscle Glyoxalase1 Protein Expression is attenuated with Type 2 Diabetes. Experimental Biology Annual Meeting, 2016. The FASEB Journal 30 (1 Supplement), lb713-lb713
  - JT Bian, **AM Mahmoud**, KU Kotlo, MR Piano, SA Phillips. Increased Expression of MicroRNA-21 Contributes to Reduced Microvascular Function in Young Adult Regular Binge Drinkers. Circulation 134 (Suppl 1), A15321-A15321
  - **Mahmoud AM**, Macias V, Al-alem U, Kresovich JK, Khramtsova G, Kajdacsy-Balla A, Rauscher GH. Ki67 is an independent prognostic marker in breast cancer even after accounting for molecular subtype. Cancer Research 2014; 74, 5569.
  - **Mahmoud AM**, Al-alem U, Macias V, Kresovich JK, Kajdacsy-Balla A, Rauscher GH. Androgen receptor is an independent prognostic marker of breast cancer in ethnically diverse women from Chicago. Cancer Research, 2015; 75, 2774.
  - **Mahmoud AM**, Macias V, Kresovich JK, Dookeran K, Kajdacsy-Balla A, Wiley EL, Rauscher GH. Is p53 an Independent Marker of Aggressiveness in an Ethnically Diverse Sample of Breast Cancer Patients, after Accounting for Molecular Subtype? Laboratory Investigation 2014; 94, 66A.
  - KA Dookeran, **AM Mahmoud**, M Poulin, L Yan, M Ehrlich, Kajdacsy-Balla A, Rauscher GH. Exploring the role of reproductive factors and DNA methylation in ethnic disparities in breast cancer tumor aggressiveness. Cancer Epidemiology and Prevention Biomarkers 24 (10 Supplement), B51-B51
  - **Mahmoud AM**, Al-alem U, Macias V, Deaton RJ, Kajdacsy-Balla A, Gann P, Rauscher GH. BRCA1 protein expression and subcellular localization in primary breast cancer: automated digital microscopy analysis of tissue microarrays. Cancer Research 2015; 75 (15 Supplement), LB-019.
  - **Mahmoud AM**, Macias V, Kresovich JK, Kajdacsy-Balla A, Wiley EL, Rauscher GH. Abstract LB-274: Mode of breast cancer detection: Do markers of tumor aggressiveness predict which tumors are “missed” at screening. Cancer Research 2014; 74, LB-274.
  - **AM Mahmoud**, JT Mey, TPJ Solomon, JP Kirwan, JM Haus. Aerobic Exercise Reduces Pro-inflammatory Cytokines in Skeletal Muscle via Downregulation of RAGE in Obese Insulin Resistant Adults. DIABETES 64, A200-A200
  - **Mahmoud AM**, Blackburn BK, Coleman K, Mey JT, Somal V, Solomon TPJ, Fealy CE, Malin SK, Kirwan JP, Haus JM. Aerobic Exercise Induces RAGE Shedding via ADAM10 in Human Skeletal Muscle. Advances in Skeletal Muscle Biology in Health and Disease. The 13th Biennial Conference, March, 2014, Florida.
  - **Mahmoud AM**, Szczurek M, Robinson A, Mey JT, Blackburn BK, Bian JT, Phillips SA, Haus JM. Hyperinsulinemia Disrupts Vascular Homeostasis, Enhances Oxidative Stress and Impairs Flow Induced Dilation of Human Skeletal Muscle Arterioles. AHA Scientific Sessions 2014. Circulation 130 (Suppl 2), A15804-A15804
  - **AM Mahmoud**, JT Mey, BK Blackburn, K Coleman, VS Somal, JT Bian, Phillips SA, Haus JM. Hyperinsulinemia Augments Endothelin-1 Release and Impairs Vasodilation of Human Skeletal Muscle Arterioles. DIABETES 63, A474-A474
  - **Mahmoud AM**, Mey JT, Blackburn BK, Coleman K, Somal VS, Bian JT, Szczurek MR, Robinson AT, Brown MD, Phillips SA, Haus JM. Hyperinsulinemia Disrupts Vascular Homeostasis, Enhances Oxidative Stress and Impairs Flow Induced Dilation of Human Skeletal Muscle Arterioles. American Diabetes Association, 74<sup>th</sup> Scientific Sessions, June, 2014, CA. DIABETES 62, A14-A14
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- Kresovich JK, Poulin M, Yang L, Macias V, **Mahmoud AM**, Al-Alem U, Balla AA, Wiley EL, Tonetti D, Ehrlich M, Rauscher GH. Exploring DNA methylation changes as early events in breast cancer formation. CPHHD/TREC Annual Scientific Meeting/UCLA, 2014, Los Angeles.
- **Mahmoud AM**, Somal V, Solomon TPJ, Kasumov T, Fealy CE, Malin SK, Kirwan JP, Haus JM. RAGE Expression in Human Skeletal Muscle is Normalized Following Aerobic Exercise Training. American Diabetes Association, 73<sup>rd</sup> Scientific Sessions, 2013, Chicago, IL.
- **AM Mahmoud**, VS Somal, TPJ Solomon, T Kasumov, CE Fealy, SK Malin, JM Haus. RAGE Expression in Human Skeletal Muscle Is Normalized Following Aerobic Exercise Training. DIABETES 62, A14-A14
- **Mahmoud AM**, Mey JT, Solomon TPJ, Fealy CE, Malin SK, Kirwan JP, Haus JM. Glyoxalase 1 protein expression in human insulin resistant skeletal muscle. *Abstract and poster*. Glyoxalase Centennial, November 2013, University of Warwick, UK.
- F Dabbous, U Al-alem, **AM Mahmoud**, K Batai, E Shah, Kittles RA. Dietary zinc and prostate cancer: a case-control study in African Americans men. *Cancer Research* 73 (8 Supplement), 3621-3621
- **AM Mahmoud**, U Al-alem, E Shah, K Batai, F Dabbous, M Ali, R Kittles. Zinc and prostate cancer: a systematic review. *Cancer Research* 73 (8 Supplement), 4883-4883
- Al-Alem U, Rauscher G, Shah E, Batai K, **Mahmoud AM**, Beisner E, Silva A, Peterson C, Kittles, R. The Relevance of Genetic Ancestry in Aggressive Breast Cancer. Abstract for the NIH Centers for Population Health and Health Disparities Conference, 2012.
- IK Martin, LT Stayner, JP Wilder, **AM Mahmoud**, AB Murphy, VL Freeman. The role of adiposity in racial and ethnic disparities in prostate cancer occurrence and progression: A systematic literature review. *Cancer Research* 72 (8 Supplement), 3598-3598
- **AM Mahmoud**, W Yang, U Al-Alem, MC Bosland. Physiological concentrations of genistein reduced ER- $\alpha$  promoter methylation and increased ER- $\alpha$  expression in prostate cancer cells. *Cancer Research* 72 (8 Supplement), 583-583. 2012
- **AM Mahmoud**, IK Martin, MJ Schlicht, L Nonn, MC Bosland. Differential effects of the isoflavone genistein on androgen receptor expression and cell proliferation comparing prostate cancer cells with mutant and wild type androgen receptor. *Cancer Research* 71 (8 Supplement), 1864-1864

## **RESEARCH SUPPORT**

### **Current Support:**

**1 K99 HL140049 01**

**Mohamed (PI)**

01/18-01/23

NIH-NLBI, "DNA Methylation and Vascular Function in Obesity: Role of Exercise and Weight Loss"

Role: Principle Investigator

### **Completed Support:**

**AHA 15POST24480172**

**Mahmoud (PI)**

07/15 – 06/17

American Heart Association, Research Programs, Postdoctoral Fellowship Award: "Effect of Hyperinsulinemia on Vasomotor Function in Isolated Human Skeletal Muscle Arterioles".

Role: Principal Investigator

**GM 0842**

**Mahmoud (PI)**

08/08 – 05/13

Egyptian Ministry of Higher Education, Predoctoral scholarship, "Role of androgen receptor mutations and estrogen receptor methylation in prostate cancer."

Role: Principal Investigator.