

# Benjamin R. Wolfson, Ph.D.

## EDUCATION

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### University of Maryland, Baltimore

*Ph.D., Molecular Medicine*

*Concentration: Cancer Biology*

Advisor: Dr. Qun Zhou, M.D., Ph.D.

**Baltimore, MD**

Aug. 2013-May 2018

### Tulane University

*B.S., Cellular and Molecular Biology*

*Minor in Public Health*

**New Orleans, LA**

2009-2013

## RESEARCH EXPERIENCE

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### Postdoctoral CRTA Fellow

**May 2018-Present**

Laboratory of Tumor Immunology and Biology

National Cancer Institute, National Institute of Health

Mentors: James Hodge, Ph.D., MBA, Jeffrey Schlom, Ph.D.

### Graduate Research Assistant

**2013–2018**

University of Maryland Baltimore

Mentor: Qun Zhou, M.D., Ph.D.

*Dissertation: miRNA-140 Regulation of the Mammary Microenvironment*

- *Performed functional and molecular analysis of the roles of multiple non-coding RNAs in several cell lineages in the mammary microenvironment under normal and pathological physiological conditions.*
- *Conducted in vivo diet-induced obesity studies, generated and characterized primary cell line function and role in cancer microenvironment.*
- *Wrote several first author research and review papers and grants. Edited/co-wrote numerous manuscripts and grants with other lab members. Conducted multiple oral/poster presentations.*

### Research Assistant

**2010-2013**

Tulane University

Mentor: WT Godbey, Ph.D.

- *Independently designed, produced, and characterized linear recombinant DNA for promoter-targeted delivery to bladder cancer cells.*
- *Performed in vivo bladder xenografts and inter-bladder delivery of promoter targeted recombinant DNA constructs to develop novel gene therapy techniques for bladder cancer detection.*

## Research Assistant

May-Aug. 2011

University of Texas Austin

Mentor: Laura Suggs Ph.D.

- *Developed and performed assays examining the effect of different substrates for neovascularization, angiogenesis, and tubulogenesis.*
- *Analyzed vascularization using 3D Slicer and ImageJ to create and quantify 3D models.*

## PEER-REVIEWED PUBLICATIONS

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1. **Wolfson B**, Lo P-K, Yao Y, Linhao L, Hongbing W, Zhou, Q. (2018). Impact of miR-140 Deficiency on Non-Alcoholic Fatty Liver Disease. *Molecular Nutrition & Food Research*. Doi: 10.1002/mnfr.201800189
2. Fang Y, **Wolfson B**, Godbey WT. (2017) Non-invasive Detection of Bladder Cancer via Expression-targeted Gene Delivery. *Journal of Gene Medicine*. Doi: 10.1002/jgm.2992
3. **Wolfson B**, Yu JE, Zhou Q. (2017). Exosomes may play a crucial role in HIV dendritic cell immunotherapy. *Annals of Transl Med*. Doi: 10.21037/atm.2017.05.09
4. Lo P-K, **Wolfson B**, Zhou Q. (2017) Adipogenesis and Noncoding RNAs. In V. Patel & V. Preedy (Eds.), *Handbook of Nutrition, Diet, and Epigenetics*. pp. 1–23
5. Lo P-K, Zhang Y, Yao Y, **Wolfson B**, Yu JE, Han S-Y, Duru N, Zhou Q. (2017). Tumor-associated myoepithelial cells promote the invasive progression of ductal carcinoma *in situ* through activation of TGF $\beta$  signaling. *J Biol Chem*. Pii:jbc.M117.775080. DOI: 10:1074/jbc.M117.775080
6. Yu JE, Han S-Y, **Wolfson B**, Zhou Q. (2017). The Role of Endothelial Lipase in Lipid Metabolism, Inflammation, and Cancer. Accepted, *Histology and Histopathology*
7. Duru N, Zhang Y, Gernapudi R, **Wolfson B**, Lo PK, Yao Y, Zhou Q. (2016). Loss of miR-140 is a key risk factor for radiation-induced lung fibrosis through reprogramming fibroblasts and macrophages. *Sci Rep*. 6: 39572. PMID 27996039
8. **Wolfson B**, Zhang Y, Gernapudi R, Duru N, Yao Y, Lo PK, Zhou Q. (2016). High-fat diet promotes mammary gland myofibroblast differentiation through miR-140 downregulation. *Mol Cell Biol*. 37(4): e00461–16. PMID 27895151
9. Lo PK, **Wolfson B**, Zhou Q. (2016). Cellular, physiological and pathological aspects of the long non-coding RNA NEAT1. *Front Biol*. 11:413-426.

10. Duru N, Wolfson B, Zhou Q. (2016). Mechanisms of the alternative activation of macrophages and non-coding RNAs in the development of radiation-induced lung fibrosis. *World J Biol Chem.* 7(4): 231–239. PMID 27957248
11. Lo PK, Zhang Y, **Wolfson B**, Gernapudi R, Yao Y, Duru N, Zhou Q. (2016). Dysregulation of the BRCA1/long non-coding RNA NEAT1 signaling axis contributes to breast tumorigenesis. *Oncotarget.* 7(40): 65067–65089. PMID 27556296
12. Duru N, Gernapudi R, Lo PK, Yao Y, **Wolfson B**, Zhang Y, Zhou Q. (2016). Characterization of the CD49f+/CD44+/CD24- single-cell derived stem cell population in basal-like DCIS cells. *Oncotarget.* 7(30): 47511–47525. PMID 27374087
13. Lo PK, **Wolfson B**, Zhou X, Duru N, Gernapudi R, Zhou Q. (2016). Noncoding RNAs in breast cancer. *Brief Funct Genomics.* 15(3): 200–221. PMID 26685283
14. Gernapudi R, Wolfson B, Zhang Y, Yao Y, Yang P, Asahara H, Zhou Q. (2015) miR-140 Promotes Expression of long non-coding RNA NEAT1 in Adipogenesis. *Mol Cell Biol.* 36:30-38. PMID:26459763
15. Duru N, Gernapudi R, Zhang Y, Yao Y, Lo PK, **Wolfson B**, Zhou Q. (2015) NRF2/miR-140 signaling confers radioprotection to human lung fibroblasts. *Cancer Lett.* 369:184-91. PMID:26300493
16. Lo PK, **Wolfson B**, Zhou Q. (2015) Cancer Stem Cells and Early Stage Basal-like Breast Cancer. *World J Obstet Gynecol.* 5(2):150-161.
17. **Wolfson B**, Eades G, Zhou Q. (2015) Adipocyte Activation of Cancer Stem Cell Signaling in Breast Cancer. *World J Biol Chem.* 6(2) 39-47. PMID: 26009703
18. Gernapudi R, Yao Y, Zhang Y, **Wolfson B**, Roy S, Duru N, Eades G, Yang P, Zhou Q. (2015) Targeting exosomes from preadipocytes inhibits preadipocyte to cancer stem cell signaling in early-stage breast cancer. *Breast Cancer Res Treat.* 150:685-95. PMID:25783182
19. Eades G, **Wolfson B**, Zhang Y, Li Q, Yao Y, Zhou Q. (2015) lincRNA-RoR and miR-145 Regulate Invasion in Triple-negative Breast Cancer via Targeting ARF6. *Mol Cancer Res.* 13:330-8. PMID: 25253741
20. **Wolfson B**, Eades G, Zhou Q. (2014) Roles of microRNA-140 in stem cell-associated early stage breast cancer. *World J Stem Cells.* 6(5), 591–597. PMID: 25426255

## ABSTRACT & POSTERS

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1. **Wolfson B**, Zhang Y, Gernapudi R, Duru N, Zhou Q. High-fat diet regulation of miR-140 in the mammary microenvironment. Biochemistry and Molecular Biology Retreat. University of Maryland Baltimore. January 2017
2. Duru N, **Wolfson B**, Gernapudi R, Zhou Q. Characterization of the CD44<sup>+</sup>/CD49f<sup>+</sup>/CD24<sup>-</sup> single-cell derived stem cell population in basal-like DCIS cells. Graduate Research conference. University of Maryland Baltimore. March 2016
3. Duru N, **Wolfson B**, Gernapudi R, Zhou Q. Characterization of the CD44<sup>+</sup>/CD49f<sup>+</sup>/CD24<sup>-</sup> single-cell derived stem cell population in basal-like DCIS cells. Biochemistry and Molecular Biology Retreat. University of Maryland Baltimore. January 2016
4. **Wolfson B**, Gernapudi R, Duru N, Zhou Q. Preadipocyte Exosomes Promote Early Stage Breast Cancer Formation by Enhancing Cancer Stem Cell Renewal Signaling. AACR Meeting Abstract No. 5067, Philadelphia PA. April 2015
5. Doshi KA, Natarajan K, **Wolfson, B**, Huszar D, Baer MR. The Pim kinase inhibitor AZD1208 sensitizes acute myeloid leukemia cells with fms-like tyrosine kinase 3 internal tandem duplication (FLT3-ITD) to cytotoxic effects of chemotherapy drugs. AACR Meeting Abstract No. 5332, Philadelphia PA. April 2015
6. **Wolfson B**, Gernapudi R, Duru N, Zhou Q. Preadipocyte Exosomes Promote Early Stage Breast Cancer Formation by Enhancing Cancer Stem Cell Renewal Signaling. Graduate Research Conference Abstract. University of Maryland Baltimore, March 2015
7. Eades G, **Wolfson B**, Zhou Q. Long non-coding RNA RoR and microRNA-145 regulate tumor cell invasion in triple-negative breast cancer via targeting of ADP-Ribosylation Factor 6. Biochemistry and Molecular Biology Retreat. University of Maryland Baltimore. January 2015
8. Fang Y, **Wolfson B**, Godbey W. Non-Invasive Urinary Assay for Cancer Detection Via Expression-Targeted Gene Delivery. American Society of Gene & Cell Therapy Annual Meeting Abstract No. 668, Washington DC, May 2014
9. **Wolfson B**, Fang Y, Godbey W. Expression-Based Targeting for Early Cancer Detection. Center for Engaged Learning and Teaching Research Retreat. Tulane University, New Orleans, La. April 2013

## SELECTED TALKS

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**Wolfson B.** High-fat diet regulation of miR-140 in the mammary microenvironment. University of Maryland RNA Interest Group, February 2017.

**Wolfson B.** High-fat diet regulation of miR-140 in the mammary microenvironment. 7<sup>th</sup> Annual Cancer Biology Research Retreat. University of Maryland Baltimore, May 2016

## AWARDS

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**Best Predoctoral Oral Presentation** **2016**  
7<sup>th</sup> Annual Cancer Biology Research Retreat.  
University of Maryland Baltimore

**Tulane Provost Grant for Scholarly Engagement** **2010-2013**  
Competitive grant to fund on-campus undergraduate research  
Tulane University

## TECHNICAL SKILLS

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**Molecular & Cellular Biology:** Mammalian cell culture, lipid-based DNA transfection, stable cell line generation, viral infection, cell viability & proliferation assays, western blotting, DNA/RNA/protein isolation, molecular cloning, luciferase reporter gene assays, qRT-PCR, ELISA, RNA stability. flow cytometry, light, fluorescent and confocal microscopy, 3D cell culture, direct and indirect cell co-culture, exosome isolation and characterization, transwell invasion and migration, tumor spheroid generation, cell contraction, wound healing.

**Animal work:** Mouse colony maintenance and genotyping, xenografting (mammary fat pad, bladder), dissection, primary cell line generation and maintenance, paraffin tissue sectioning, IHC, ISH, ICC.

**Writing:** Independently wrote NIH F31 and institutional T32 grants. Skills in writing science for general audience and science policy writing.

**Software Applications:** Microsoft Office, ImageJ, Graphpad Prism 5, UN-SCAN-IT, Wordpress, Adobe Photoshop.

## PROFESSIONAL EXPERIENCE

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**Associate Editor** **2017-2018**  
Journal of Science Policy and Governance

- *Collaborated with and supervised small groups of multidisciplinary PhD students in the editing of submissions to the Journal of Science Policy and Governance.*
- *Worked closely with manuscript authors to refine manuscript content, and improve writing style and clarity.*

### **Science Communications Intern**

**2017-2018**

University of Maryland School of Medicine

- *Competitive program for intensive development of writing, public speaking, and communications skills for both scientist and general audiences.*
- *Developed 3-minute thesis, articles discussing science for general audience, audiovisual productions about graduate school.*

## **PROFESSIONAL MEMBERSHIPS**

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American Association for Cancer Research (AACR)

**2014-present**

American Association for the Advancement of Science (AAAS)

**2017-present**

American Society for Biochemistry and Molecular Biology (ASBMB)

**2017-present**

Engaging Scientists and Engineers in Policy (ESEP)

**2017-present**

## **SCIENCE OUTREACH AND ADVOCACY**

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### **Volunteer educator**

**2015-2016**

Baltimore Underground Science Space (BUGGS)

- *Assisted with community outreach during lab open-houses including microscopy, education concerning cell structure, and leading discussion of molecular and cancer biology.*
- *Presented lecture concerning thesis research to general audience including scientists and non-scientists from the greater Baltimore area.*

### **Contributing writer**

**2017-2018**

AACR Cancer Policy Monitor

- *Worked closely with senior members of AACR regulatory policy office to identify topics, craft, and write articles concerning current events in cancer clinical trials, drug regulation, and science policy.*
- Published article, AACR Cancer Policy Monitor, *Funding is Essential for FDA Oncology Center of Excellence*, 9/5/17 (<http://www.aacr.org/AdvocacyPolicy/GovernmentAffairs/Pages/cancer-policy-monitor-sept-5-2017.aspx> - oce)
- Published article, AACR Cancer Policy Monitor, *Basket Trials: Accelerating Precision Medicine*, 7/11/17 (<http://www.aacr.org/AdvocacyPolicy/GovernmentAffairs/Pages/cancer-policy-monitor-july-11-2017.aspx#bas>)

### **Science and Science Policy Blogger**

**2017-Present**

([www.benwolfson.com](http://www.benwolfson.com))

- *Developed and wrote articles related to science and science policy for publication on my personal blog and local media.*
- Published Op-Ed, Baltimore Sun, *Fund Science to Fight Cancer*, 9/7/17 (<http://www.baltimoresun.com/news/opinion/oped/bs-ed-op-0908-cancer-funding-20170906-story.html>)

- Published Op-Ed, Baltimore Sun, Why I Marched for Science, 4/24/17  
(<http://www.baltimoresun.com/news/opinion/oped/bs-ed-why-i-marched-20170424-story.html>)

## **LEADERSHIP EXPERIENCE & INSTITUTIONAL SERVICE**

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<b>Organizer</b> Molecular Medicine Student Seminar Series	<b>Fall 2017</b> University of Maryland, Baltimore
<b>UMB Liaison</b> National Science Policy Group (NSPG)	<b>2017-2018</b> University of Maryland, Baltimore
<b>President and Founding Member</b> Student Organization for Advocacy and Policy	<b>2017-2018</b> University of Maryland, Baltimore
<b>Member</b> Molecular Medicine Department Event Committee	<b>2015-2017</b> University of Maryland, Baltimore
<b>Member</b> Molecular Medicine Department Recruiting Committee	<b>2015-2016</b> University of Maryland, Baltimore
<b>Parliamentarian/Co-President</b> Phi Sigma Pi Honors Fraternity, Chapter Gamma Tau	<b>2012-2013</b> Tulane University
<b>Treasurer</b> Phi Sigma Pi Honors Fraternity, Chapter Gamma Tau	<b>2010-2012</b> Tulane University
<b>Eagle Scout</b>	<b>2007</b>