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**Education**

**Ph.D.**, Biological Sciences in Public Health, Division of Medical Sciences, Department of Nutrition, Harvard School of Public Health, Boston, MA. 1996-2003.

Thesis Advisor: Professor Gökhan S. Hotamisligil, M.D., Ph.D.

Thesis Title: *The Role of Fatty Acid Binding Protein aP2 in Atherosclerosis and Macrophage Biology.*

**MMS**, Masters in Medical Science, Lucille P. Markey Scholar Fellowship Program, Harvard Medical School, Boston, MA. 1998-1999.

**BS**, Biology, Boston College, Chestnut Hill, MA. 1990-1994.

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## Professional Experience

**Assistant Professor**, Department of Nutrition, Division of Biochemistry,  
UNC Gillings School of Global Public Health and UNC School of Medicine, Chapel Hill, NC.  
2010-Present.

**Visiting Assistant Professor**, Department of Nutrition, Division of Biochemistry,  
UNC Gillings School of Global Public Health and UNC School of Medicine, Chapel Hill, NC.  
2009-2010.

**Postdoctoral Fellow**, Department of Medicine, Division of Endocrinology, Duke University Medical Center,  
Stedman Center for Nutrition and Metabolism, Durham, NC. 2004-2009.

**Postdoctoral Fellow**, Department of Genetics and Complex Diseases, Harvard School of Public Health,  
Boston, MA. 2003-2004.

**Freelance Science Editing**, Department of Nutrition, Harvard School of Public Health,  
Boston, MA. 1997-2004.

**Work-Study Position**, Department of Nutrition, Lipoprotein Analysis, Harvard School of Public Health,  
Boston, MA. 1996-1997.

**Lab Assistant**, Center for Neuroscience, Neuroanatomy, University of California, Davis, CA.  
1995-1996.

**Lab Assistant**, High Throughput Screening Department, Geron Corporation, Menlo Park, CA.  
1994-1995.

## Awards, Honors, and Recognition

Finalist for American Diabetes Association Pathway to Stop Diabetes Grant. 2015.

Honorary Public Health Society Delta Omega Theta Chapter Faculty Award and Membership. Recognition of  
service in field of Nutrition. 2014.

Junior Faculty Development Award, Provost's Office UNC Chapel Hill. 2012.

Early Career Investigator Award, Kern Lipid Conference. Vail, CO. 2011.

Early Career Investigator Award, Kern Aspen Lipid Conference. Aspen, CO. 2008.

Early Career Investigator Award, Kern Aspen Lipid Conference. Aspen, CO. 2007.

Keystone Award, Keystone Obesity and Diabetes Meeting. Vancouver, CA. 2006.

Council of Graduate Schools (CGS)/Association of American Colleges and Universities (AAC&U) Preparing  
Future Faculty Fellow, Duke University, Durham, NC. 2005-2006.

Faculty Council Research Poster Contest Honorable Mention, Harvard School of Public Health Boston, MA. 2004.

Society for Leukocyte Biology 2003 Presidential Award for Research, 2<sup>nd</sup> place. 36<sup>th</sup> Annual Meeting for the SLB:  
Unraveling Inflammation. Philadelphia, PA. 2003.

Dr. Edgar Haber Award in Biological Sciences, Recognition for Outstanding Original and Creative Thesis.  
Harvard School of Public Health, Division of Biological Sciences, Boston, MA. 2003.

Junior Investigator Fellowship, Kern Aspen Lipid Conference. Aspen, CO. 2003.

Junior Investigator Fellowship, Kern Aspen Lipid Conference. Aspen, CO. 2002.

Junior Investigator Fellowship, Kern Aspen Lipid Conference. Aspen, CO. 2001.

Faculty Council Research Poster Contest, 1<sup>st</sup> prize. Harvard School of Public Health, Boston, MA. 2001.

Harvard Graduate Student Council Award, Keystone Obesity and Diabetes Meeting. Taos, NM. 2000.

Keystone Award, Keystone Obesity and Diabetes Meeting. Taos, NM. 2000.

Gordon Award, Gordon Atherosclerosis Conference, NH. 2000.

### **Memberships:**

American Association of Cancer Research, 2014-

American Heart Association, 2012-

American Diabetes Association 2010-

American Society for Nutrition, 2010-

Triangle Immunology Interest Group, 2009-

Society for Leukocyte Biology 1996-

Obesity Society 1996-

### **UNC Center Memberships and Training Grants:**

Lineberger Comprehensive Cancer Center Training Grant, Member 2012-present

Nutrition Obesity Research Center (NORC), Member 2010-present

McAllister Heart Institute (MHI), Member 2010-present

Lineberger Comprehensive Cancer Center (LCCC), Member 2010-present

Center for Environmental Health and Susceptibility (CEHS), Member 2010-present

The Center for Gastrointestinal Biology and Disease (CGIBD), Associate Member 2010-present

Intravascular Biology Training (IVB), Member 2010-present

Nutrition Training Grant, Member 2010-present

### **Bibliography**

My Bibliography through US National Library of Medicine:

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/41146544/?sort=date&direction=ascending>

^indicates student or postdoctoral fellow mentored

### **Submitted:**

1. Fishbein L, Leshchiner I, Walter V, Danilova L, A. Robertson G, Johnson AR, Lichtenberg T, Murray BA, Ghayee HK, Else T, Ling S, Jefferys SR, de Cubas AA, Wenz B, Korpershoek E, Amelio AL, **Makowski L**, Rathmell WK, Gimenez-Roqueplo A-P, Giordano TJ, Asa SL, Tischler AS, TCGA Research Network, Pacak K, Nathanson KL, Wilkerson MD. Comprehensive molecular characterization of pheochromocytoma and paraganglioma. *NEJM*, submitted. (p. 1-15).
2. Roque DR, **Makowski L**, Chen T-H, Rashid N, Bae-Jump V. Association between differential gene expression and body mass index among endometrial cancers from The Cancer Genome Atlas Project. *Gynecologic Oncology*. Submitted. (p. 1-18).
3. Allicock M, Gray K, Graves N, **Makowski L**, Freeman K, Troester, MA. Basal-like Breast Cancer Risk and African American Women: What health care providers know and how they communicate breast cancer risk to patients. *JHCPU*. Submitted. (p. 1-8).

## Refereed Articles:

1. Johnson AR<sup>^</sup>\*, Qin YY<sup>^</sup>\*, Cozzo A, Freemerman AJ, Huang MJ<sup>^</sup>, Zhao L<sup>^</sup>, Sampey BP<sup>^</sup>, Milner JJ, Beck MA, Edin ML, Zeldin D, Galanko JA, Lee D, Fueger PT, Damania B, Bivins B, Stahl A, Wu Y, Mohlke K, **Makowski L**. Macrophage Fatty Acid Transporter 1 (FATP1) Drives Alternative Macrophage Polarization and Limits Obesity-Induced Inflammation. \*denotes co-first authorship. *Molecular Metabolism*, 10-MAY-2016 DOI information: 10.1016/j.molmet.2016.04.005. NIHMS785697 (p. 1-21).
2. Qin Y<sup>^</sup>, Sundaram S<sup>^</sup>, Essaid L<sup>^</sup>, Miller SM, Darr DB, Galanko JA, Montgomery SA, Major B, Johnson GL, Troester MA, **Makowski L**. Remodeling the Microenvironment by Weight Loss Restrained High Fat Diet-Induced Basal-like Breast Tumor Progression. 16:26 *Cancer Cell International*. 1 April 2016 (p. 1-13).
3. Johnson AR<sup>^</sup>, Wilkerson MD, Sampey BP<sup>^</sup>, Troester MA, Hayes DN, **Makowski L**. Cafeteria Diet Induced Obesity Results in Increased Oxidative Damage in White Adipose. *BBRC*. 2016 Mar 28. PMID: 27033600 (p. 1-6).
4. Cozzo AJ<sup>^</sup>\*, Sundaram S<sup>^</sup>\*, Zhao L<sup>^</sup>, Zattra O<sup>^</sup>, Qin Y<sup>^</sup>, Freemerman AJ, Essaid L<sup>^</sup>, Darr DB, Montgomery SA, McNaughton KK, Ezzell JA, Galanko JA, Troester MA, **Makowski L**. cMET inhibitor crizotinib impairs angiogenesis and reduces tumor burden in the C3(1)-Tag model of basal-like breast cancer. Springer Plus Breast Cancer Collection *Springerplus*. 2016 Mar 19;5:348. PMID: 27057482 PMCID: PMC4799044 \*denotes co-first authorship (p. 1-10).
5. Casbas-Hernandez, Sun X, Roman-Perez E, D'Arcy M, Sandhu R, Hishida A, McNaughton K, Yang R, **Makowski L**, Sherman ME, Figueroa JD, Troester, MA. Tumor Intrinsic Subtype is reflected in Cancer-Adjacent Tissue. *Cancer Epidemiol Biomarkers Prev*. 2015 Feb;24(2):406-14. doi: 10.1158/1055-9965.EPI-14-0934. Epub 2014 Dec 2. PMID: 25465802. PMCID: PMC4437571. (p. 1-10).
6. Sundaram S<sup>^</sup>, Freemerman AJ, Galanko JA, McNaughton KK, Bendt KM, Darr DB, Troester MA, **Makowski, L**. Obesity-Mediated Regulation of HGF/c-Met is Associated with Reduced Basal-like Breast Cancer Latency in Parous Mice. *PLoS One*. 2014 Oct 29; 9(10):e1111394.2014. PMID: 25354395. (p. 1-7).
7. Schuck RN, Zha W, Edin ML, Gruzdev A, Vendrov KC, Miller TM, Xu Z, Lih FB, DeGraff LM, Tomer KB, Jones HM, **Makowski L**, Huang L, Poloyac SM, Zeldin DC, and Lee CR. The Cytochrome P450 Epoxygenase Pathway Regulates the Hepatic Inflammatory Response in Fatty Liver Disease. *PLoS One*. 2014 Oct 13; 9(10):e110162 2014. PMID: 25310404. PMCID: 4195706. (p. 1-12).
8. Schuler KM, Rambally BS, DiFurio MJ, Sampey BP<sup>^</sup>, Gehrig PA, **Makowski L**, Bae-Jump VL. Antiproliferative and metabolic effects of metformin in a preoperative window clinical trial for endometrial cancer. *Cancer Med*. 2015 Feb;4(2):161-73. doi: 10.1002/cam4.353. Epub 2014 Nov 21. PMID: 25417601. PMCID: PMC4329001 (p. 1-13).
9. Sundaram S<sup>^</sup>, Le TL<sup>^</sup>, Essaid L<sup>^</sup>, Freemerman AJ, Huang MJ<sup>^</sup>, Galanko JA, McNaughton KK, Bendt KM, Darr DB, Troester MA, **Makowski L**. Weight Loss Prevents Obesity-Associated Basal-like Breast Cancer Progression: Role of Hepatocyte Growth Factor. *Frontiers in Oncology*. 2014 Jul 8; 4:175. PMID: 25072025. (p. 1-11).
10. Kimes PK, Cabanski CR, Wilkerson MD, Zhao N, Johnson AR<sup>^</sup>, Perou CM, **Makowski L**, Maher CA, Liu Y, Marron JS, Hayes DN. SigFuge: Single Gene Clustering of RNA-seq Reveals Differential Isoform Usage among Cancer Samples. *Nucleic Acids Res*. 2014 Jul 16. PII: gku521. PMID: 25030904. PMCID: PMC4132703 (p. 1-12).
11. **Makowski L**, Zhou C, Zhong Y, Kuan P-F, Fan C, Sampey BP<sup>^</sup>, DiFurio M, Bae-Jump VL. Obesity Increases Tumor Aggressiveness in a Genetically Engineered Mouse Model of Serous Ovarian Cancer. *Gynecologic Oncology- special issue The Obesity Crisis: Impact of Gynecologic Cancer*. Volume 133, Issue 1, Pages 90–97. April 2014. PMID: 3904507.
12. Freemerman AJ, Johnson AR<sup>^</sup>, Sacks GN<sup>^</sup>, Milner JJ, Kirk EL, Troester MA, Macintyre AN, Goraksha-Hicks P, Rathmell JC, **Makowski L**. Metabolic Reprogramming of Macrophages: Glucose Transporter (GLUT1)-Mediated Glucose Metabolism drives a Pro-Inflammatory Phenotype. *J Biol Chem*. 2014 Feb 3. [Epub ahead of print] PMID: 24492615. PMCID: 3953299. (p. 1-14).

13. Sundaram S<sup>^</sup>, Freemerman AJ, McNaughton KK, Galanko JA, Bendt KM, Darr DB, Perou CM, Troester MA, **Makowski, L.** Role of HGF in Obesity-Associated Tumorigenesis: C3 (1)-Tag Mice as a Model for Human Basal-like Breast Cancer. *Breast Cancer Res Treat.* 2013 Dec; 142(3):489-503. DOI: 10.1007/s10549-013-2741-5. Epub 2013 Nov 12. PMID: 24218051. PMCID: 3904507. (p. 1-15).
14. Casbas-Hernandez P, D'Arcy M, Roman-Perez E, Brauer HA, McNaughton K, Miller SM, Chhetri RK, Oldenburg AL, Fleming JM, Amos KD, **Makowski L,** Troester MA. (2013) Role of HGF in Epithelial-Stromal Cell Interactions during Progression from Benign Breast Disease to Ductal Carcinoma in situ. *Breast Cancer Res.* 2013 Sep 12; 15(5):R82. PMID: 24025166. PMCID: 3978616. (p. 1-14).
15. Qin Y<sup>^</sup>, Hamilton J, Bird MA, Chen MM, Ramirez L, Zahs A, Kovacs EJ, **Makowski L.** Adipose Inflammation and Macrophage Infiltration after Binge Ethanol and Burn Injury. *Alcoholism- Clinical and Experimental Research,* 2014 Jan; 38(1):204-13. DOI: 10.1111/acer.12210. Epub 2013 Aug 1. (p. 1-10).
  - a. \*commentary on manuscript: Molina PE. "Alcohol Binging Exacerbates Adipose Tissue Inflammation following Burn Injury" *Alcoholism- Clinical and Experimental Research,* 2014 Jan; 38(1):33-5. DOI: 10.1111/acer.12296. Epub 2013 Oct 31. PMID: 24175882.
16. Brauer HA, **Makowski, L,** Hoadley KA, Lang LJ, Freemerman AJ, Perou CM, Troester MA. Impact of Stromal Microenvironment on Metabolic Phenotypes in Breast Cancer: Evidence for Stroma-Influenced Warburg Effect. *Clin Cancer Res.* 2012. PMID: 23236214. PMCID: 3684709. (p. 1-36).
17. Hu Y, Huang Y, Du Y, Orellana C, Singh D, Johnson A<sup>^</sup>, Kuan P-F, Hammond S, **Makowski L,** Randell S, Chiang D, Hayes D, Jones, C, Liu Y, Prins J, Liu J. DiffSplice: The Genome-Wide Detection of Differential Splicing Events with RNA-seq. *Nucleic Acids Research.* 2012. PMID: 23155066. PMCID: 3553996. (p. 1-10).
18. Bhatt AP, Jacobs SR, Freemerman AJ, **Makowski L,** Rathmell JC, Dittmer DP, and Damania B. Dysregulation of Fatty Acid Synthesis and Glycolysis in Non-Hodgkin Lymphoma. *Proc Natl Acad Sci USA.* Jul 17; 109(29):11818-23. Epub 2012 Jun 29. PMID: 22752304. PMCID: 3406848. (p. 1-6).
19. Sampey BP<sup>^</sup>, Freemerman AJ, Zhang J<sup>^</sup>, Kuan PF, Galanko JA, O'Connell TM, Ilkayeva OR, Muehlbauer MJ, Stevens RD, Newgard CB, Brauer HA, Troester MA, **Makowski L.** Metabolomic Profiling Reveals Mitochondrial-Derived Lipid Biomarkers that Drive Obesity-Associated Inflammation. *PLoS One.* 2012; 7(6):e38812. Epub 2012 Jun 12. PMID: 22701716. PMCID: 3373493. (p. 1-10).
20. Stewart DA, Yang Y, **Makowski L,** Troester MA. Basal-like Breast Cancer Cells Induce Phenotypic and Genomic Changes in Macrophages *in vitro.* *Molecular Cancer Research.* 2012 Jun; 10(6):727-738. Epub 2012 Apr 24. PMID: 22532586. PMCID: 3640417. NIHMSID # 373655. 2012. (p. 1-13).
21. Swanson A.K<sup>^</sup>, **Makowski L.** Physiologic and Metabolic Responses during Vigorous Exercise: Why Recovery Nutrition is Indispensable. *Sports, Cardiovascular, and Wellness Nutrition SCAN's Pulse,* 31(2):1-5. 2012. No PMID or PMCID. (p. 1-5)
22. Sun X, Casbas-Hernandez P, Bigelow C, **Makowski L,** Jerry DJ, Schneider SS, Troester MA. Normal Breast Tissue of Obese Women is Enriched For Macrophage Markers And Macrophage-Associated Gene Expression. *Breast Cancer Res Treat.* 2012 Feb; 131(3):1003-12. Epub 2011 Oct 15. PMID: 22002519. PMCID: 3640411. NIHMSID #331602. (p. 1-13).
23. Ang MK, Patel MR, Yin X, Sundaram S<sup>^</sup>, Fritchie K, Zhao N, Liu Y, Freemerman AJ, Wilkerson MD, Walter V, Weissler MC, Shockley WW, Couch ME, Zanation AM, Hackman TG, Chera BS, Harris SL, Miller CR, Thorne L, Hayward MC, Funkhouser W, Olshan AF, Shores CG, **Makowski L,** Hayes DN. High XRCC1-Protein Expression is Associated with Poorer Survival in Patients with Head and Neck Squamous Cell Carcinoma. *Clin Cancer Res.* 2011 Oct 15; 17(20):6542-6552. Epub 2011 Sep 9. PMID: 21908577. PMCID: 3725262. (p. 1-11).
24. Sampey BP<sup>^</sup>, Vanhoose AM, Winfield H, Freemerman AJ, Muehlbauer M, Fueger PT, Newgard CB, and **Makowski L.** Cafeteria-Diet is a Robust Model of Human Metabolic Syndrome with Liver and Adipose Inflammation: Comparison to High Fat Diet. *Obesity (Silver Spring).* Jun; 19(6):1109-17. Epub 2011 Feb 17. PMID: 21331068. 2011. PMCID: 3130193. (Cover image in Obesity 6/2011) (p. 1-18).

24. Sampey BP<sup>^</sup>, Lewis TD; Barbier CS, **Makowski L**, Kaufman DG. Genistein Effects on Stromal Cells Determines Epithelial Proliferation in Endometrial Co-Cultures. *Exp Mol Pathol*. 2011 Jun; 90(3):257-63. Epub 2011 Jan 31. PMID: 21281625. PMCID: 3092029. (p. 1-14).
25. Erbay E., Babaev VR, Mayers JR, **Makowski L**, Charles KN, Snitow ME, Fazio S, Wiest MM, Watkins SM, Linton MF, Hotamisligil GS. Reducing Endoplasmic Reticulum Stress Through a Macrophage Lipid Chaperone Alleviates Atherosclerosis. *Nature Medicine*. 15(12):1383-1391. 2009. PMID: 19966778. PMCID: 2790330. (p. 1-8).
26. **Makowski L**, Noland RC, Koves TR, Xing W, Ilkayeva OR, Muehlbauer MJ, Stevens RD, Muoio DM. Metabolic Profiling of PPARalpha-/- Mice Reveals Defects in Carnitine and Amino Acid Homeostasis that are Partially Reversed by Oral Carnitine Supplementation. *FASEB J*, 23(2):586-604. 2008. PMID: 18945875. PMCID: 2630792. (p. 1-9).
27. Furuhashi M, Tuncman G, **Makowski L**, Atsumi G, Vaillancourt E, Cao H, Görgün CZ, Kono K, Babaev VR, Fazio S, Linton MF, Sulsky R, Robl JA, Parker RA, Hotamisligil GS. Treatment of Diabetes and Atherosclerosis by Inhibiting Fatty-Acid-Binding Protein aP2. *Nature*. 2007 Jun 21; 447(7147):959-965. Epub 2007 Jun 6. PMID: 17554340. NIHMSID # 418145. (p. 1-6).
28. Baumgartl J, Baudler S, Scherner M, Babaev V, **Makowski L**, Suttles J, McDuffie M, Fazio S, Kahn CR, Hotamisligil GS, Krone W, Linton M, Brüning JC. Myeloid Lineage Cell-Restricted Insulin Resistance Protects apolipoproteinE Deficient Mice against Atherosclerosis. *Cell Metabolism*, Apr 1; 3(4): 247-256. 2006. PMID: 16581002. PMCID: 4027059. NIHMSID # 418144. (p. 1-9).
29. **Makowski L\***, Brittingham K\*, Reynolds JM, Suttles J, Hotamisligil GS. The Fatty Acid-Binding Protein, aP2, Coordinates Macrophage Cholesterol Trafficking and Inflammatory Activity. Macrophage Expression of aP2 Impacts Peroxisome Proliferator-Activated Receptor gamma and IkappaB kinase Activities. *J Biol Chem*. Apr 1; 280(13):12888-95, 2005. PMID: 15684432. PMCID: 3493120. NIHMSID # 418140. \*co-first author (p. 1-9).
30. Boord JB, Maeda K, **Makowski L**, Babaev VR, Fazio S, Linton MF, Hotamisligil GS. Combined Adipocyte-Macrophage Fatty Acid-Binding Protein Deficiency Improves Metabolism, Atherosclerosis, and Survival in apoE Deficient Mice. *Circulation*. Sept 14; 110(11):1492-8, 2004. PMID: 15684432. PMCID: 3493120. NIHMSID # 418138. (p. 1-11).
31. Maeda K, Uysal KT, **Makowski L**, Gorgun CZ, Atsumi G, Parker R, Bruning J, Vogel-Hertzel A, Bernlohr DA, Hotamisligil GS. The Role of Fatty Acid-Binding Protein, mal1, in Obesity and Insulin Resistance. *Diabetes*, Feb; 52(2):300-307, 2003. PMID: 12540600. PMCID: 4027060. NIHMSID #418151. (p. 1-8).
32. Boord JB, Maeda K, **Makowski L**, Babaev VR, Fazio S, Linton MF, Hotamisligil GS. Adipocyte Fatty Acid-Binding Protein, aP2, alters late Atherosclerotic Lesion Formation in Severe Hypercholesterolemia. *Arteriosclerosis Thrombosis Vascular Biology*. Oct 1; 22(10):1686-91, 2002. PMID: 12377750. PMCID: 4027051. NIHMSID #418153. (p. 1-5).
33. **Makowski L\***, Boord JB\*, Maeda K, Babaev VR, Uysal KT, Morgan MA, Parker RA, Suttles J, Fazio S, Hotamisligil GS, Linton MF. Lack of Macrophage Fatty Acid-Binding Protein aP2 Protects Mice Deficient in Apolipoprotein E against Atherosclerosis. *Nature Medicine*. 7(6):699-705, 2001. PMID: 11385507. PMCID: 4027052. NIHMSID # 418137. \*co-first author. (p. 1-6).
34. Chu NF, **Makowski L**, Chang JB, Wang DJ, Liou HS, Shieh SM. Lipoprotein Profiles, not Anthropometric Measures, correlate with Serum Lipoprotein (a) values in Children: The Taipei Children Heart Study. *European Journal of Epidemiology*. 16(1):5-12, 2000. PMID: 10780336. (p. 1-13).
35. Scheja L, **Makowski L**, Uysal KT, Wiesbrock SM, Shimshek DR, Meyers DS, Morgan M, Parker RA, Hotamisligil GS. Altered Insulin Secretion Associated with Reduced Lipolytic Efficiency in aP2<sup>-/-</sup> mice. *Diabetes*. 48(10):1987-1994, 1999. PMID: 10512363. (p. 1-8).
36. Chu NF, **Makowski L**, Hotamisligil GS, Rimm EB. Stability of Human Plasma Leptin Concentrations within 36 hours following Specimen Collection. *Clinical Biochemistry*. 32(1):87-89, 1999. PMID: 10074899. (p. 1-8).

## Refereed Reviews and Commentaries:

1. Cozzo AJ and **Makowski L**. Contribution of adipose tissue to development of cancer. *Comprehensive Physiology*, the new title for the update to APS's *Handbooks of Physiology*. Invited review in preparation to submit June 2016. (p. 1-6).
2. Torres AM, **Makowski L**, Wellen KE. Metabolism fine-tunes macrophage activation. *eLife Elife*. 2016 Feb 19;5: pii: e14354. doi: 10.7554/eLife.14354. PMID: 26894957. (commentary) (p. 1-2).
3. Johnson AR, **Makowski L**. Nutrition and Metabolic Correlates of Obesity and Inflammation: Clinical Considerations. *J Nutrition*, 2015 May;145(5):1131S-1136S. doi: 10.3945/jn.114.200758. Epub 2015 Apr 1. PMID: 25833891. PMC4410497. (p. 1-3).
4. Sundaram S, Johnson AR, **Makowski L**. Obesity, Metabolism and the Microenvironment: Links to Cancer. *Journal of Carcinogenesis- Special Issue on Metabolism and Carcinogenesis. J Carcinog*. 2013 Oct 9; 12:19. eCollection 2013. PMID: 24227994. PMCID: 3816318. (p. 1-5).
5. Johnson AR, Milner JJ, **Makowski L**. The Inflammation Highway: Metabolism Accelerates Inflammatory Traffic in Obesity. *Immunologic Reviews*. Volume 249, Issue 1, (p 218–238), September 2012. (P.1-21). PMID: 22889225. PMCID: 3422768.
6. **Makowski L** and Hayes, DN. Role of LKB1 in Lung Cancer Development. *British Journal of Cancer*. 2008 Sep 2; 99(5):683-8. 2008. (p. 1-5). PMID: 18728656. PMCID: 2528145.
7. **Makowski L** and Hotamisligil GS. The Role of Fatty Acid Binding Proteins in Metabolic Syndrome and Atherosclerosis. *Current Opinion in Lipidology*. 16(5); 543-8. 2005. (p. 1-6). PMID: 16148539. PMCID: 3904771. NIHMSID #418148.
8. **Makowski L**, Hotamisligil GS. Fatty Acid Binding Proteins - The Evolutionary Crossroads of Inflammatory and Metabolic Responses. *Journal of Nutrition*. 134; 2464S-2468S. 2004. (p. 1-5). PMID: 15333743. PMCID: 4027055. NIHMSID #418146.

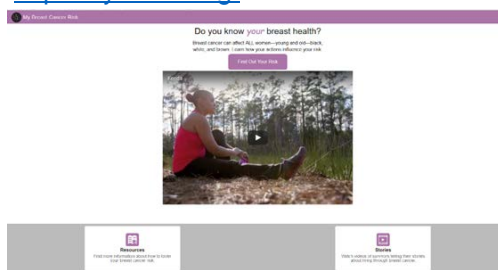
## Journal Covers (2):



Sampey, *Obesity*, 2010  
Stewart, *Molecular Cancer Research*, 2012

## Websites Created (1):

<http://mybcrisk.org/>



## Abstracts (^Published) and Oral Presentations (Indicated):

1. Cozzo AJ, Sundaram S, Zattra O, Qin Y, Freerman AJ, Essaid L, Darr DB, Montgomery SA, McNaughton KK, Ezzell JA, Galanko JA, Troester MA, **Makowski L**. cMET inhibitor crizotinib impairs angiogenesis and reduces tumor burden in the C3(1)-Tag model of basal-like breast cancer. Gillings Annual Spotlight on Student Research, UNC, Chapel Hill, NC, 2016.
2. Cozzo AJ, Freerman AJ, McCann JV, Zattra O, Hursting SD, Dudley AC, **Makowski L**. Pro-angiogenic, Pro-metastatic Tie2-Expressing Macrophages in Normal Obese Mammary Gland. Seventh Annual Translational Medicine Research Symposium, UNC, Chapel Hill, NC, 2016.
3. Cozzo AJ, Freerman AJ, McCann JV, Zattra O, Hursting SD, Dudley AC, **Makowski L**. Macrophage phenotype and metabolism in obesity-associated breast tumor angiogenesis and metastasis . Integrative Vascular Biology/McAllister Heart Institute Annual Research Symposium, UNC, Chapel Hill, NC, 2016.
4. Fuller AM, Sandhu R, Stewart DA, **Makowski L**, and Troester MA. An interdisciplinary approach to elucidating immune-mediated mechanisms of obesity-associated basal-like breast cancer risk, oncogenesis, and progression. Integrative Vascular Biology/McAllister Heart Institute Annual Research Symposium, UNC, Chapel Hill, NC, 2015.
5. Oldenburg AL, Yu X, **Makowski L**, Troester MA. "Optical coherence tomography for depth-resolved imaging of intracellular motility in mammary epithelial cell organoids and excised tissue." Engineering Approaches to Biomolecular Motors: From *in vitro* to *in vivo*, Biophysical Society, Vancouver, Canada, June 14-17, 2016.
6. Fishbein L, Leshchiner I, Walter V, Danilova L, A. Robertson G, Johnson AR, Lichtenberg T, Murray BA, Ghayee HK, Else T, Ling S, Jefferys SR, de Cubas AA, Wenz B, Korpershoek E, Amelio AL, **Makowski L**, Rathmell WK, Gimenez-Roqueplo A-P, Giordano TJ, Asa SL, Tischler AS, TCGA Research Network, Pacak K, Nathanson KL, Wilkerson MD. Comprehensive molecular characterization of pheochromocytoma and paraganglioma. American Assoc. for Cancer Research National Meeting, Louisiana. April 2016. (Oral presentation).
7. Staley AS, Roque DR, Schuler KM, Rambally BS, Sampey B, Everett R, Thakker D, Gehrig PA, O'Connor S, **Makowski L**, Bae-Jump VL. Molecular and Metabolic Differences of Treatment Responders versus Non-Responders in a Phase 0 Clinical Trial of Metformin in Endometrial Cancer. 47<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology. San Diego, California. March 2016. (Oral Presentation).
8. Clark LH, Zhou C, **Makowski L**, Guo H, Zhang L, Freerman AJ, Bae-Jump. Obesity Exposure across the Lifespan Leads to Increased Tumor Growth in a Genetically Engineered Mouse Model of Serous Ovarian Cancer. 47<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology on Women's Cancer. San Diego, California. March 2016.
9. Wysham WZ, Zhong Y, Dickens HK, Malloy KM, Han X, Guo H, Zhou C, **Makowski L**, Bae-Jump VL. Increased Efficacy of Metformin Corresponds to Differential Metabolic Effects in the Ovarian Tumors from Obese *versus* Lean Mice. 47<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology. San Diego, California. March 2016.
10. Roque DR, Schuler KM, Rambally BS, Sampey B, Everett R, Thakker D, Gehrig PA, O'Connor S, **Makowski L**, Bae-Jump VL. Molecular and Metabolic Differences of Treatment Responders versus Non-Responders in a Phase 0 Clinical Trial of Metformin in Endometrial Cancer. 35<sup>th</sup> Annual Meeting of the New England Association of Gynecologic Oncologists. Kennebunkport, Maine. June 2015. (Oral Presentation).
11. Qin Y\*, Johnson AR\*, Freerman AJ, Huang MJ, Cozzo AJ, Edin ML, Zeldin DC, Galanko JA, Damania B, Wu Y, Mohlke K, Bivins B, Stahl A, **Makowski L**. Macrophage Fatty Acid Transporter 1 Drives Alternative Polarization and Limits Obesity-Induced Inflammation. *Integrative Vascular Biology (IVB) & McAllister Heart Institute Annual Symposium*, University of North Carolina, Chapel Hill, NC. (Oral Presentation by Qin). 2015.



12. Wysham WZ, Chen TH, **Makowski L**, Mutch DG, Berchuck A, Karlan BY, DA, Bae-Jump VL. Relationship between Body Mass Index (BMI) and Gene Expression Profiles of High Grade Serous Ovarian Cancers in The Cancer Genome Atlas (TCGA) Project. *46<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology 2015 Annual Meeting on Women's Cancer*. Chicago, IL. 2015.
13. Qin Y, Sundaram S, Essaid L, Miller SM, Darr DB, Galanko J, Montgomery SA, Major B, Johnson GL, Troester MA, **Makowski L**. Remodeling the microenvironment by weight loss restrained high fat diet-induced basal-like breast tumor progression. Gordon Research Conference-Mammary Gland Biology, West Dover VT, USA. 2015.
14. Qin, Y, Sundaram S, Zhao L, Essaid L, McNaughton K, Darr D, Troester M, **Makowski L**. Reversal of obesity-induced basal-like breast cancer in C3(1)-Tag model. 2015 Keystone symposia-Integrating Metabolism and Tumor biology, Vancouver, British Columbia Canada. 2015.
15. Cozzo AJ, Sundaram S, Essaid L, Christensen T, Qin Y, Darr DB, Galanko J, Troester MA, **Makowski L**. Effect of the MET inhibitor crizotinib on basal-like breast tumor development and progression. Gordon Conference on Mammary Gland Biology, Mount Snow, VT. 2015
16. Cozzo AJ, Freerman AJ, Johnson AR, Milner J, Abel D, **Makowski L**. Macrophage GLUT1 is Necessary for Classical M1 Macrophage Activation and lack of GLUT1 Shifts Adipose Macrophages towards Alternative M2 Macrophages. *Keystone Symposium on Dendritic Cells and Macrophages Reunited*, Montreal, QC. March 2015.
17. Johnson AR, Cozzo AJ, Freerman AJ, Johnson AR, Milner J, Stahl A, **Makowski L**. Macrophage FATP1Regulates Obesity-Induced Insulin Resistance. *Keystone Symposium on Dendritic Cells and Macrophages Reunited*, Montreal, QC. March 2015.
18. Zhao L, Freerman AJ, Johnson AR, Sundaram S, Christensen T, Bennett BJ, **Makowski L**. Lack of Macrophage GLUT1-Mediated Glucose Metabolism Increases Atherosclerotic Lesion Instability. *Arteriosclerosis, Thrombosis and Vascular Biology/Peripheral Vascular Disease*. San Francisco, CA. 2015.
19. Zhao L, Freerman AJ, Johnson AR, Sundaram S, Christensen T, Bennett BJ, **Makowski L**. Lack of Macrophage GLUT1-Mediated Glucose Metabolism Increases Atherosclerotic Lesion Instability. *The UNC McAllister Heart Institute-Intravascular Biology Symposium*. UNC Chapel Hill, NC. 2015.
20. Johnson AR, Qin Y, Megan J. Huang MJ, Freerman AJ, Galanko JA, Coleman RA, Edin ML, Zeldin DC, Bivins B, Stahl A, **Makowski L**. Macrophage FATP1 Protects Mice from High Fat Diet-Induced Inflammation and Obesity. *Southeast Lipid Research Conference (SELRC)*, Georgia. 2014.
21. Qin Y, Johnson AR, Megan J. Huang MJ, Freerman AJ, Galanko JA, Coleman RA, Edin ML, Zeldin DC, Bivins B, Stahl A, **Makowski L**. Macrophage FATP1 Protects Mice from High Fat Diet-Induced Inflammation and Obesity. *Metabolism, Diet and Disease*, Washington DC. 2014.
22. Qin Y, Sundaram S, Zhao L, Essaid L, McNaughton KK, Bendt KM, Darr D, Troester MA, **Makowski L**. Weight loss reversed the carcinogenic effect of obesity on basal-like breast cancer. 2014 San Antonio Breast Cancer Symposium, San Antonio, TX, USA. 2014.
23. Graves N, Grey K, **Makowski L**, Troester MA. Understanding How to Communicate Breast Cancer Risk Information to Young African American Women. *American Public Health Association*, New Orleans, LA. 2014.
24. Shin G, Graves N, Gray K, Head M, Hemminger B, **Makowski L**, Troester M. Breast Cancer Puzzle: Using Electronic Media to Communicate Breast Cancer Risk Information to Young African American Women, *Annual Meeting of the American Public Health Association*, New Orleans, LA. November 17, 2014.
25. Graves N, Gray K, Hemminger B, Head M, **Makowski L**, Shin G, Troester M. Understanding How to Communicate Breast Cancer Risk Information to Young African American Women. *Annual Meeting of the American Public Health Association*, New Orleans, LA. November 18, 2014. (Oral Presentation).

26. Graves N, Gray K, Hemminger B, Head M, **Makowski L**, Shin G, Troester M. My Breast Cancer Risk: Using Technology to Enhance the Environmental Health Literacy of Young Black Women. *Annual Meeting of the NIEHS Breast Cancer and the Environment Research Program*, San Francisco, CA. November 20, 2014. (Oral Presentation).
27. Graves N, Burns K, Gray K, Haine D, Hemminger B, Head M, **Makowski L**, Shin G, Troester M. Enhancing the Environmental Health Literacy of Broad Audiences to Inform about Cancer Risk. *Annual Meeting of the American Public Health Association*, San Francisco, CA. November 20, 2014.
28. Haine D, **Makowski L**. Obesity-Associated Breast Cancer Risk: A Role for Epigenetics? An Examination of Evidence. Session: Using Scientific Data to Promote Student Learning about Epigenetic Inheritance, *National Association for Biology Teachers (NABT) 2014 Professional Development Conference*, Cleveland, OH. November 12-14, 2014.
29. Wysham WZ, Chen TH, **Makowski L**, Mutch D, Berchuck A, Karlan B, Levine DA, Bae-Jump VL. Relationship between Body Mass Index (BMI) and Gene Expression Profiles of High Grade Serous Ovarian Cancers. *The Cancer Genome Atlas (TCGA) Project 29<sup>th</sup> Annual Meeting of the Mid-Atlantic Gynecologic Oncology Society*. Chapel Hill, North Carolina. October 2014. (Oral Presentation).
30. Sundaram S, Freerman AJ, Kirk E, Galanko JA, McNaughton K, Bendt KM, Darr DB, Troester MA, **Makowski L**. Obesity-Mediated Regulation of HGF/c-Met and Reduced Basal-like Breast Cancer Latency in Parous Mice. *AACR Annual Meeting 2014*, San Diego, CA. April 9, 2014.
31. Sundaram S, Le T, Essaid L, McNaughton K, Bendt KM, Darr DB, Troester MA, **Makowski L**. Weight Loss Prevents Obesity-Associated Basal-like Breast Cancer Progression: Role of Hepatocyte Growth Factor/c-Met. *AACR Annual Meeting 2014*, San Diego, CA. April 9, 2014 \*\$1500 travel award to SS
32. Schuler KM, Rambally BS, DiFurio MJ, Sampey BP, Gehrig PA, **Makowski L**, Bae-Jump VL. Biologic and Metabolic Effects of Metformin in a Pre-Operative Window Clinical Trial for Endometrial Cancer. *45<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology*. Tampa, Florida. March 2014. (Oral Presentation by Shuler KM).
33. Bae-Jump V, Chen T-H, **Makowski L**. Differential Gene Expression was Associated with Increasing Body Mass Index (BMI) Among Endometrial Cancers from The Cancer Genome Atlas (TCGA) Project. *Society of Gynecologic Oncology 45<sup>th</sup> Annual Meeting on Women's Cancer*. Tampa, Florida. March 2014. (\*Featured poster, \* Won Best Basic Science Poster).
34. Jackson, AL, Kilgore, JE, Zhou, C, Han, S, **Makowski, L**, Bae-Jump, VL. Phenformin has Anti-Tumorigenic Effects in Human Ovarian Cancer Cells and in a Genetically Engineered Mouse Model of Serous Ovarian Cancer. *105<sup>th</sup> Annual Meeting of the American Association for Cancer Research, April 2014, San Diego, California*. (\*Featured poster).
35. Jackson, A, Zhong, Y, Zhou, C, Kilgore, J, **Makowski, L**, Gehrig P, Bae-Jump, V. Metformin had Increased Efficacy under Obese Conditions in a Novel Genetically Engineered Mouse Model of Serous Ovarian Cancer. *45<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology*. March 2014. Tampa, Florida.
36. Qin Y, Freerman AJ, Li LO, Coleman RA, Galanko JA, Edin ML, Zeldin DC, Stahl A and **Makowski L**. Fatty Acid Transport Protein 1 Mediates Macrophage Eicosanoid Metabolism. *American Society for Nutrition - Experimental Biology (Joint) Meeting*, Boston, MA. (Oral Presentation by Qin), *FASEB J*. 2013; 27:373.5. 2013.
37. Qin Y, Freerman AJ, Li LO, Coleman RA, Galanko JA, Edin ML, Zeldin DC, Stahl A and **Makowski L**. Fatty Acid Transport Protein 1 Mediates Macrophage Eicosanoid Metabolism. *Integrative Vascular Biology (IVB) & McAllister Heart Institute Annual Symposium*, University of North Carolina, Chapel Hill, NC. 2013.
38. Johnson AR, Freerman AJ, Milner JJ, Abel ED, Rathmell J, and **Makowski L**. The Manipulation of Macrophage Glucose Metabolism alters Inflammatory Response. *Integrative Vascular Biology (IVB) & McAllister Heart Institute Annual Symposium*, University of North Carolina, Chapel Hill, NC. (Oral Invitation, Johnson selected to present and winner of Postdoctoral Oral Competition). 2013.

39. Stewart D, Yang Y, Sun X, **Makowski L**, Brantley K, Cook J, Troester M. Characterizing Breast Cancer Subtype-Specific Responses to Macrophages. *American Association for Cancer Research Annual meeting*, Washington DC. 2013.
40. Neasha Graves, **Liza Makowski**, K. Gray, M. Head, B. Hemminger, G. Shin, M. Troester. Using Electronic Media to Communicate Breast Cancer Risk Information to Young African American Women, *Annual Meeting of the NIEHS Breast Cancer and the Environment Research Program*, Madison, WI. November 7, 2013.
41. Johnson AR, Freerman AJ, Milner JJ, Abel ED, Rathmell JC, and **Makowski, L**. The Manipulation of Macrophage Glucose Metabolism alters Inflammatory Response. *Keystone Symposia-Metabolic Control of Inflammation and Immunity*. Breckenridge, CO. (Johnson awarded travel scholarship). 2013.
42. Bae-Jump V, Zhou C, Zhong Y, Du X, **Makowski L**, Jia W. Diet-Induced Obesity Increases Tumor Aggressiveness in a Genetically Engineered Mouse Model of Serous Ovarian Cancer. *44<sup>th</sup> Annual Meeting of the Society of Gynecologic Oncology on Women's Cancer: Embrace the Past, Revolutionize the Future*. Los Angeles, CA. (Oral Presentation by Bae-Jump V). March 9-12, 2013.
43. Brauer HA, **Makowski L**, Hoadley KA, Casbas-Hernandez P et al. Impact of Stromal Microenvironment on Metabolic Phenotypes in Breast Cancer: Role for HGF/MET Regulation of Glucose Metabolism. *Breast Cancer and the Environment Research Program (BCERP) Extended Environmental Exposures Annual Meeting: Windows of Susceptibility*. San Francisco, California. (November 2012).
44. Sundaram S, Freerman AJ, Hamilton J, McNaughton K, Joseph A. Galanko JA, Darr DB, Perou CM, Troester M, **Makowski L**. Role of HGF in Obesity-Associated Tumorigenesis: C3(1)-Tag mice as a Model for Human Basal-like Breast Cancer. *AACR-San Antonio Breast Cancer Symposium*, San Antonio, TX. 2012.
45. Johnson AR, Freerman AJ, Abel ED, Rathmell JC, and **Makowski, L**. The Manipulation of Macrophage Metabolism alters Inflammatory Status and Eicosanoid Profiles. (Poster and Oral Presentation, Presentation by Johnson). *South East Lipid Research Conference*, Pine Mountain, GA. 2012.
46. Qin, Y, Freerman AJ, Lei LO, Coleman RA, Zhou Y, Wright F, Edin ML, Zeldin DC, Stahl A, and **Makowski L**. Fatty Acid Transport Protein Mediates Macrophage Activation and Inflammatory Response. *South East Lipid Research Conference*, Pine Mountain, GA. 2012.
47. Qin Y, Hamilton J, Sacks G, Freerman AJ, Lei L, Coleman R, Zhou Y, Wright F, Edin M, Zeldin D, Stahl A, and **Makowski L**. Fatty Acid Transport Protein Mediates Macrophage Polarization. *UNC McAllister Heart Institute-Intravascular Biology Research Symposium*, Chapel Hill, NC. 2012.
48. Brauer HA, **Makowski L**, Hoadley KA, Lang LJ, Freerman AJ, Perou CM, Troester MA. Impact of Stromal Microenvironment on Metabolic Phenotypes in Breast Cancer: Evidence for Stroma-Influenced Warburg Effect. *Metabolism, Diet and Disease*, Washington DC. *BMC Proc.* 2012; 6(Suppl 3): P8. Published online 2012 June 1. PMC3395052.
49. Johnson AR, Freerman AJ, Abel ED, Rathmell J, **Makowski L**. Glucose Metabolism is Linked to the Inflammatory Status of Macrophages. *Metabolism, Diet and Disease*, Washington DC. *BMC Proc.* 2012; 6(Suppl 3): P62. Published online 2012 June 1. PMID: PMC3374262.
50. Qin Y, Sampey BP, Hamilton J, Sacks G, Freerman AJ, Lei L, Coleman R, Stahl A. **Makowski L**. Fatty Acid Transport Protein Mediates Macrophage Polarization. *American Society for Nutrition - Experimental Biology (Joint Meeting, San Diego, CA)*. *FASEB*. (Oral Presentation, Qin selected to present and for American Society for Nutrition (ASN) Graduate Student Research Awards oral competition of 12 finalists out of 250 abstracts). *FASEB J* 2012.
51. Qin Y, Bird M, Chen M, Kovacs EJ, **Makowski L**. Alcohol Exposure and Burn Injury Drive Acute Adipose Inflammation and Alterations in Glucose Transporter GLUT1. *American Society for Nutrition - Experimental Biology (Joint Meeting, San Diego, CA)*. *FASEB* (Oral Presentation, Qin selected to present) *FASEB J* 2012.

52. Qin Y, Bird M, Chen M, Kovacs EJ, **Makowski L**. Alcohol Exposure and Burn Injury Drive Acute Adipose Inflammation and Alterations in Glucose Transporter GLUT1. *Alcohol and Immunology Research Interest Group (AIRIG) meeting*, Chicago, IL. 2011. (Oral Presentation). ^published in *Alcohol* 46(2):176 March 2012.
53. Qin Y, Bird M, Chen M, Kovacs EJ, **Makowski L**. Adipose Inflammation Induced by Acute Alcohol Exposure and Burn Trauma. *Alcohol and Immunology Research Interest Group (AIRIG) Meeting*, Chicago, IL. 2011. (Oral Presentation). ^published in *Alcohol* 46(2):177 March 2012.
54. Sampey BP, O'Connell T, Vanhoose AM, Kuan PF, Freemerman AJ, Newgard CB, **Makowski L**. Metabolomic Profiling Reveals Pro-Inflammatory Lipid Biomarkers Associated with Obesity. *American Society for Nutrition - Experimental Biology (Joint) Meeting*, Washington DC. ^ *FASEB J March 17, 2011 25:1b307*.
55. Sundaram S, Freemerman AJ, Sampey BP, Darr D, Bendt K, Hua K, Troester M, **Makowski L**. Obesity Increases Carcinogenesis in a Mouse Model of Basal-like Breast Cancer (BLBC). *American Society for Nutrition - Experimental Biology (Joint) Meeting*, Washington DC. ^ *FASEB J March 17, 2011 25:1b304*.
56. Sampey BP, **Makowski L**. "Cafeteria Diet is a Robust Model of Obesity, Inflammation and Glucose Intolerance." *UNC Intravascular Biology/McAllister Heart Institute Research Symposium*. Chapel Hill, NC (Oral Presentation by Sampey BP).
57. Sampey BP, Freemerman AJ, Vanhoose AM, OConnell T, Kuan PF, Newgard CB, **Makowski L**. Metabolomic Profiling Reveals Pro-Inflammatory Lipid Biomarkers Associated with Obesity and Metabolic Syndrome. *Lipid Biology and Lipotoxicity Keystone*, Ireland. 2011.
58. Steward DA, Yang Y, **Makowski L**, Troester MA. Basal-like Breast Cancer Cells Induce Phenotypic and Genomic Changes in Macrophages *in vitro*. *Breast Cancer and the Environment Research Program Annual Meeting. Prevention of Breast Cancer: from the Lab to the Individual to the Community*. Cincinnati, OH. 2011.
59. Sampey BP, Wilkerson M, Vanhoose AM, Winfield H, Ilkayeva O, Muehlbauer M, Newgard CB, Troester M, Hayes DN, and **Makowski, L**. Metabolomic and Genomic Analysis of Cafeteria-Diet Induced Macrophage Infiltration of Adipose Tissue Reveals a Robust Model of Obesity, Inflammation and Glucose Intolerance. *Kern Aspen Lipid Conference*, Aspen, CO. 2010.
60. Sampey BP, Wilkerson M, Vanhoose AM, Winfield H, Ilkayeva O, Muehlbauer M, Newgard CB, Hayes DN, and **Makowski, L**. Metabolomic and Genomic Analysis of Cafeteria-Diet Induced Macrophage Infiltration of Adipose Tissue Reveals a Robust Model of Obesity, Inflammation and Glucose Intolerance. *Lipid Maps: Lipidomics Impact on Cell Biology: Atherosclerosis and Inflammatory Disease*. San Diego, CA. 2010.
61. **Makowski L**, Ilkayeva O, Muehlbauer M, Muoio DM. Metabolomic Profiling Reveals Flexibility in Macrophage Fuel Metabolism. *Kern Aspen Lipid Conference*. Aspen, CO. 2008.
62. Erbay E, Babaev VR, Mayers JR, **Makowski L**, Trepatt X, Snitow ME, Wiest MM, Watkins SM, Linton MF and Hotamisligil GS. Integration of Lipotoxic Signals to the Endoplasmic Reticulum Stress Response through a Lipid Chaperoning Mechanism. *Kern Aspen Lipid Conference*. Aspen, CO. 2008.
63. **Makowski L**, Koves T, Slentz D, Ilkayeva O, Muehlbauer M, Muoio DM. Ectopic Expression of Mitochondrial HMG-CoA Synthase in Skeletal Myocytes Increases Glucose Uptake and Metabolism. *Mitochondrial Biology in Cardiovascular Health and Disease*. NIH, Bethesda, MD. 2008.
64. **Makowski L**, Ilkayeva O, Muehlbauer M, Muoio DM. Macrophage Fuel Metabolism alters Inflammatory Potential. *Leukocytes: Tissue Interactions, Homeostasis and Host Defense-Society for Leukocyte Biology*. Denver, CO. 2008. (Oral Presentation).

65. Cao H, Gerhold K, **Makowski L**, Hayes DN, Watkins SM and Hotamisligil GS. Fatty Acid Binding Proteins (FABPs), Fatty Acid Binding Proteins (FABPs), aP2 and mal1, Control Systemic Lipid Fluxes, Composition, and Regulate Metabolism, Through Adipose Tissue. *Keystone Obesity and Diabetes Meeting. Obesity: Peripheral and Central Pathways Regulating Energy Homeostasis*. Keystone, CO. 2007.
66. Erbay E, Snitow ME, **Makowski L**, Hotamisligil GS. Coupling Lipotoxic Signals to the Endoplasmic Reticulum Stress Response and Macrophage Apoptosis via Cytoplasmic Lipid Chaperons. *Keystone Meeting- Obesity: Peripheral and Central Pathways Regulating Energy Homeostasis*. Keystone, CO. 2007.
67. **Makowski L**, Koves T, Noland R, Slentz D, Ilkayeva O, Muehlbauer M, Muoio DM. Comprehensive Metabolomic Profiling of PPARalpha Null Mice during the Fed to Fasted Transition. *Kern Aspen Lipid Conference*. Aspen, CO. 2007.
68. **Makowski L**, Koves T, Slentz D, An J, Ilkayeva O, Muehlbauer M, Newgard CB and Muoio DM. A Novel Role for Mitochondrial-derived Fatty Acid Metabolites and Insulin Signaling. *Keystone Obesity and Diabetes Meeting*. Vancouver, Canada. 2006. (Oral Presentation).
69. **Makowski L**, Brittingham K, Hayes DN, Suttles J, Hotamisligil GS. FABP aP2 at the Crossroads of Metabolic and Inflammatory Signaling. *Keystone Obesity and Diabetes Meeting*. Banff, Canada. 2004.
70. **Makowski L**, Brittingham K, Suttles J, Hotamisligil GS. Modulation of Cholesterol Metabolism by FABP aP2 in the Macrophage. *American Diabetes Association- 63<sup>rd</sup> Scientific Session*. LA, *Diabetes*. 52 Supplement 1:A177. ^ 2003.
71. **Makowski L**, Brittingham K, Suttles J, Hotamisligil GS. Modulation of Macrophage Cholesterol Metabolism by FABP aP2. *Kern Aspen Lipid Conference*. CO. 2003.
72. Hayes, DN, **Makowski L**, Hotamisligil GS. Application of DNA Microarray Technology in the Setting of Small Sample Size in the FABP apoE<sup>-/-</sup>aP2<sup>-/-</sup> Model. *Kern Aspen Lipid Conference*. CO. 2003.
73. **Makowski L**, Brittingham K, Suttles J, Hotamisligil GS. Modulation of Macrophage Inflammatory Response by FABP aP2. *Journal of Leukocyte Biology- Unraveling Inflammation, 36<sup>th</sup> Annual Meeting for the Society for Leukocyte Biology- Supplement*. PA. 2003. (Oral Presentation).
74. Maeda K, Uysal KT, **Makowski L**, Atsumi G, Gorgun CZ, Parker R, Bruning J, Hertz A, Bernlohr DA, Hotamisligil GS. Genetic Analysis of the Role of Keratinocyte Lipid Binding Protein, Mal1, on Obesity and Insulin Resistance. *Diabetes*. 51 Supplement 2:A578. ^ 2002.
75. Maeda K, Uysal KT, Atsumi G, **Makowski L**, Gorgun CZ, Kim JK, Shulman GI, Hotamisligil GS. Combined Lack of Adipocyte-Macrophage Fatty Acid Binding Proteins aP2 and mal1 Protects Mice against Metabolic Syndrome. *Diabetes*. 51 Supplement 2:A336. ^ 2002.
76. Suttles, J, Brittingham, KC, **Makowski L**, Hotamisligil GS. Modulation of Macrophage Gene Expression and Pro-Inflammatory activity by the Adipocyte Fatty Acid-Binding Protein, aP2. *Journal of Interferon and Cytokine Research*, 22 Supplement 1. ^ 2002.
77. **Makowski L**, Maeda K, Atsumi G, Boord JB, Babaev V, Suttles J, Fazio S, Linton MF, and Hotamisligil GS. Fatty Acid Binding Proteins in Macrophage Biology. *International Journal of Obesity- Abstracts, Ninth International Congress on Obesity*. Sao Paulo, Brazil. 2002. (Oral Presentation).
78. **Makowski L**, Brittingham K, Suttles J, Hotamisligil GS. The Effect of aP2 Deficiency on Macrophage Biology. *Kern Aspen Lipid Conference*. CO. 2002. (Oral Presentation).
79. **Makowski L**, Boord JB, Babaev VR, Morgan MA, Parker RA, Suttles J, Fazio S, Linton MA, Hotamisligil GS. Lack of Fatty Acid-Binding Protein aP2 alters Macrophage Biology. *Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation and Related Diseases*. CO. 2001.

80. **Makowski L**, Boord JB, Maeda K, Babaev VR, Uysal KT, Morgan MA, Parker RA, Suttles J, Fazio S, Hotamisligil GS, Linton MA. The Role of aP2 in Macrophage Biology and Atherosclerosis. *Kern Aspen Lipid Conference*. CO. 2001.
81. **Makowski L**, Miller RW, Suttles J, Hotamisligil GS. The Role of aP2 and mal1 in Macrophage Biology. *Keystone Obesity and Diabetes Meeting*. NM. 2000.
82. Boord JB, Fazio S, Uysal K, Babaev VR, Brown AM, **Makowski L**, Maeda K, Hotamisligil GS, Linton MF. aP2 Fatty Acid-Binding Protein Expression by Macrophages Accelerates Early Atherosclerotic Lesion Formation in Apo-E Deficient Mice. *American Heart Association Conference 2000. 73<sup>rd</sup> Scientific Sessions*. CA. 2000.
83. Scheja L, **Makowski L**, Shimshek DR, Uysal KT, Wiesbrock SM, Meyers DS, Parker RA, Hotamisligil GS. Impaired Lipolysis and Altered Insulin Secretion in Mice Deficient for the Adipocyte Fatty Acid-Binding Protein, aP2. *International Journal of Obesity- Abstracts, Eighth International Congress on Obesity, France*. 22 (Supplement 3): S32. ^ 1998.

### Invited Lectures

1. **Makowski L** "Macrophage Metabolism Controls Obesity-Induced Inflammation and Atherosclerosis". University of Virginia, Charlottesville, VA. *Scheduled 2016*.
2. **Makowski L** "Obesity and metabolic reprogramming of macrophages in the normal microenvironment of triple negative breast cancer". Kansas University Medical Center, Kansas City, MO. *Scheduled 2016*.
3. **Makowski L** "Role of the normal microenvironment in obesity-induced triple negative breast cancer". Roswell Park Cancer Institute, Buffalo, NY. 2016
4. **Makowski L** "Macrophage Metabolism Controls Obesity-Induced Inflammation." *2015 FASEB Summer Research Conference on Nutritional Immunology*. Lisbon, Portugal. 2015.
5. **Makowski L** "Role of the Microenvironment in Obesity-Induced Basal-like Breast Cancer." *Gordon Conference on Mammary Gland Biology, session on Adipose Connections*. Mount Snow Resort, West Dover, VT. 2015.
6. **Makowski L** "Manipulation of Macrophage Metabolism Controls Alternative Macrophage Polarization and Obesity-Induced Inflammation." *Plenary session entitled, "Metabolic Control of Immunity," Immunity and Health and Disease 48<sup>th</sup> Annual Society for Leukocyte Biology Meeting*. 2015.
7. **Makowski L** "Macrophage Metabolism and Obesity." *Brigham Young University*. Provo, Utah. 2015.
8. **Makowski L** "Macrophage Metabolism and Metainflammation." *Vanderbilt University*. Nashville, TN. 2015.
9. **Makowski L** "Obesity and Weight Loss on Basal-like Breast Cancer Risk." *Breast Cancer and the Environment Research Program (BCERP) Annual Conference*. San Francisco, CA. 2014.
10. **Makowski L** "Obesity and Weight Loss on Basal-like Breast Cancer Risk." *UNC Department of Nutrition Seminar Series. University of North Carolina at Chapel Hill*. Chapel Hill, NC. 2014.
11. **Makowski L** "Obesity, Weight Loss, and the Microenvironment in Basal-like Breast Cancer." *Bioconference Live: Cancer Research, Discovery and Therapeutics*. 2014. (Webinar)
12. **Makowski L** "Obesity and the Microenvironment in Basal-like Breast Cancer." *Seventh AACR Conference: The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved*. San Antonio, TX. 2014.
13. **Makowski L** "Manipulating Metabolism: Macrophage FATP-1 alters Obesity-Associated Inflammation." *Immunity, Inflammation and Metabolism Seminar Series, Duke University*. Durham, NC. 2014.

14. **Makowski L** “Manipulating Macrophage Lipid Metabolism alters Obesity Associated Inflammation and Insulin Resistance.” *North Carolina State University*. Raleigh, NC. 2013.
15. **Makowski L** “Obesity, HGF, and Weight Loss in a Mouse Model of Basal-like Breast Cancer.” *Mouse Phase 1 Phenotyping Unit. University of North Carolina at Chapel Hill, Lineberger Comprehensive Care Center*. Chapel Hill, NC. 2013.
16. **Makowski L** “Obesity, HGF, and Weight Loss in a Mouse Model of Basal-like Breast Cancer.” *Breast Cancer and the Environment Program (BCERP) National Conference*. Madison, WI. 2013.
17. **Makowski L** “Role of HGF in Obesity-Associated Tumorigenesis: C3 (1)-Tag Mice as a Model for Human Basal-like Breast Cancer.” *Department of Microbiology and Molecular Genetics, Michigan State University*. E. Lansing, MI. 2013.
18. **Makowski L** “Manipulating Macrophage Fuel Metabolism and Inflammation in Obesity.” *Visiting Scientist Seminar Series, Pennington Biomedical Research Center*. Baton Rouge, LA. 2013.
19. **Makowski L** “Nutrition and Metabolic Correlates of Inflammation: Clinical Considerations.” *NIH workshop, Inflammation and Nutritional Science for Programs/Policies and Interpretation of Research Evidence (INSPIRE)*. Bethesda, MD. 2012.
20. **Makowski L** “Role of HGF in Obesity-Associated Basal-like Breast Cancer.” *Julius L. Chambers Biomedical/Biotechnology Research Institute and Department of Biology Seminar Series*. North Carolina Central University. Durham, NC. 2012.
21. **Makowski L** “Manipulating Macrophage Fuel Metabolism and Inflammation in Obesity.” *Department of Nutrition, University of North Carolina Greensboro*. Greensboro, NC. 2012.
22. **Makowski L** “Manipulating Metabolism in Immune Cells.” *Metabolomics Workshop- Practical Applications of Metabolomics*. Research Triangle Park, NC. 2012.
23. **Makowski L** “Obesity Increases Basal-like Breast Cancer (BLBC).” *Mouse Phase 1 Phenotyping Unit. University of North Carolina at Chapel Hill, Lineberger Comprehensive Cancer Center*. Chapel Hill, NC. 2012.
24. **Makowski L**. “The Inflammation Highway: Metabolism Accelerates Inflammatory Traffic in Obesity.” *Endocrine Conference, University of North Carolina School of Medicine*. Chapel Hill, NC. 2012.
25. **Makowski L** “Obesity Increases Carcinogenesis in a Mouse Model of Basal-like Breast Cancer (BLBC).” *Mouse Phase 1 Phenotyping Unit. University of North Carolina at Chapel Hill, Lineberger Comprehensive Cancer Center*. Chapel Hill, NC. 2011.
26. **Makowski L** “Obesity and Inflammation in Diabetes.” *UNC Nutrition Research Institute Department of Community Outreach: Appetite for Life Lecture Series*, Kannapolis, NC. 2011.
27. **Makowski L** “Pregnancy, Obesogenic Environments, and Basal-Like Breast Cancer.” *NIEHS*, Raleigh, NC. 2011.
28. **Makowski L**. “Obesity & Diabetes: How what you eat Changes your Body.” *North Carolina School of Science and Mathematics*. Durham, NC. 2011.
29. **Makowski L** “Pregnancy, Obesogenic Environments, and Basal-Like Breast Cancer.” *Windows of Susceptibility “WOS” Conference Call: Breast Cancer and the Environment Research Program (BCERP), NIH-NIEHS*. 2011.
30. **Makowski L** “The Role of Diet in Breast Cancer.” *Breast Cancer and the Environment Research Program (BCERP) Integration Meeting. Presenter and Co-Chair of Discussion*. Natcher Conference Center, National Institutes of Health. Bethesda, MD. 2011.

31. **Makowski L** "Alcohol Exposure and Burn Injury Drive Acute Adipose Inflammation and Alterations in Glucose Transporter GLUT1." *Alcohol and Immunology Research Interest Group (AIRIG)*. Chicago, IL. 2011.
32. **Makowski L** "Cafeteria Diet-A Rodent Model of Human Metabolic Syndrome: Physiologic, Genomic and Metabolomic Analysis Reveals a Robust Model of Obesity and Macrophage Inflammation." *Systems Biology Seminar Series-Center for Environmental Health and Susceptibility*. Hamner Institutes for Health Sciences, NC. 2010.
33. **Makowski L** "Cafeteria Diet-A Rodent Model of Human Metabolic Syndrome: Physiologic, Genomic and Metabolomic Analysis Reveals a Robust Model of Obesity and Macrophage Inflammation." *Cardiovascular Epidemiology Seminar Series, University of North Carolina at Chapel Hill*. Chapel Hill, NC. 2010.
34. **Makowski L** "Macrophages, Fuel Metabolism and Inflammation in Obesity." *Triangle Immunology Interest Group*. Research Triangle Park, NC. 2010.
35. **Makowski L** "Macrophages, Fuel Metabolism and Inflammation in Obesity." *Nutritional Sciences Seminar Series*. University of Kentucky. Lexington, KY. 2010.
36. **Makowski L** *Pioneering Women Lecture Series- Discussion on Leadership and Confidence/Self Esteem, Women in Science and Engineering (WISE)*. Duke University. Durham, NC. 2010.
37. **Makowski L** "Cafeteria Diet-A Rodent Model of Human Metabolic Syndrome: Physiologic, Genomic and Metabolomic Analysis Reveals a Robust Model of Obesity and Macrophage Inflammation" *Center for Gastro-Intestinal Biology and Disease, University of North Carolina at Chapel Hill*. Chapel Hill, NC. 2010.
38. **Makowski L** "Fuel Metabolism in Macrophages alters Inflammatory Potential." *Biochemistry Graduate Student Seminar Series, Loyola University Medical Center*. Chicago, IL. 2009.
39. **Makowski L** "Changes in Mitochondrial Metabolism alter Muscle and Macrophage Biology." *North Carolina State University, School of Veterinary Medicine*. Raleigh, NC. 2009.
40. **Makowski L** "Mitochondrial Metabolism alters Muscle and Macrophage Biology." *The Methodist Hospital Research Institute*. Houston, TX. 2009.
41. **Makowski L** "Mitochondrial Metabolism alters Muscle and Macrophage Biology." *Baylor College of Medicine, Department of Pediatrics, Children's Nutrition Research Center*. Houston, TX. 2009.
42. **Makowski L** "Mitochondrial Metabolism alters Muscle and Macrophage Biology." *University of Alabama-Birmingham, Internal Medicine, Endocrinology Grand Rounds*. Birmingham, AL. 2009.
43. **Makowski L** "Mitochondrial Metabolism alters Muscle and Macrophage Biology." *University of North Carolina at Chapel Hill, School of Public Health, Department of Nutrition*, Chapel Hill, NC. 2009.
44. **Makowski L** "Mitochondrial Metabolism alters Muscle and Macrophage Biology. University of Utah-Salt Lake City, Department of Internal Medicine, Division of Endocrinology, Metabolism & Diabetes. *Metabolism Interest Group Seminar Series*. Salt Lake City, UT. 2009.
45. **Makowski L** "Manipulating Fuel Metabolism with Carnitine alters Macrophage Inflammatory Potential." *Southeast Lipid Research Conference*. Atlanta, GA. 2009.
46. **Makowski L** "Unraveling the Role of Fatty Acids in Inflammation and Glucose Homeostasis: From the Cytosol to the Mitochondria." *Penn State University*. State Park, PA. 2008.
47. **Makowski L** "Unraveling Links between Mitochondrial Metabolism and Glucose Homeostasis: A Metabolomics Approach." *Harvard School of Public Health, Department of Genetics & Complex Diseases*. Boston, MA. 2007.



48. **Makowski L** "Integration of Metabolic and Inflammatory Responses by Fatty Acid-Binding Proteins." *Department of Cell and Molecular Physiology Seminar Series. University of North Carolina at Chapel Hill.* Chapel Hill, NC. 2004.
49. **Makowski L** "Integration of Metabolic and Inflammatory Responses by Fatty Acid-Binding Proteins." *Duke University, Department of Pharmacology.* Durham, NC. 2004.
50. **Makowski L** "Integration of Metabolic and Inflammatory Responses by Fatty Acid-Binding Proteins." *Adipocyte and Metabolism Study Group-Boston Obesity Nutrition Research Center.* Boston University, Boston, MA. 2003.
51. **Makowski L** "The Effect of aP2 Deficiency on Macrophage Biology." *Kern Aspen Lipid Conference.* Aspen, CO. 2002.

#### **Organize Sessions at Conference/Meetings:**

- 2016 AACR- American Association for Cancer Research Annual Meeting Program Committee for 2017 meeting, Washington DC.
- 2015 *Southeast Regional Lipid Conference (SELRC)* Session entitled "Metabolism and Macrophage Biology." Atlanta, GA.
- 2012 *Southeast Regional Lipid Conference (SELRC)* Session entitled, "Lipid Oxidation and Chronic Disease." Callaway Gardens, GA.

#### **Teaching Activities:**

##### **Courses for Past 3 Years:**

- 2016 Co-Instructor with Dr. Rosalind Coleman (16 classes), **NUTR 845**, Nutritional Metabolism, Department of Nutrition, 3 credits. **UNC-CH**, Chapel Hill, NC. 10 students.  
  
Co-instructor with Dr. Natalia Krupenko (30 classes), **NUTR 620**, Human Metabolism: Micronutrients. 3 credits. **UNC-CH**, Chapel Hill, NC. 60 students.  
  
Guest lecturer (1 class), **Bio-329L**, Comparative Physiology, 3 credits. Duke University. 25 students.
- 2015 Course Director (30 classes), **NUTR 620**, Human Metabolism: Micronutrients. 3 credits. **UNC-CH**, Chapel Hill, NC. 55 students.  
  
Guest Lecturer. **NUTR 600**, Nutritional Metabolism- Macronutrients, Department of Nutrition, 3 credits. **UNC-CH**, Chapel Hill, NC. 60 students.  
  
Instructor (1 class), **Path 767**, Molecular and Cellular Biology of Cardiovascular Disease. 3 credits, **UNC-CH**, Chapel Hill, NC. 8 students.  
  
Instructor (1 class), **STOR 765**, Statistical Consulting. 3 credits, **UNC-CH**, Chapel Hill, NC. 30 students.
- 2014 Course Director (30 classes), **NUTR 620**, Human Metabolism: Micronutrients. 3 credits. **UNC-CH**, Chapel Hill, NC. 55 students.  
  
SciVentures Summer Camp (2 sessions) – Through **UNC Planetarium** Camp "Cell Biology" for middle school-aged kids. 15 students.
- 2013 Course Director (30 classes), **NUTR 620**, Human Metabolism: Micronutrients. 3 credits. **UNC-CH**, Chapel Hill, NC. 55 students.

Course Director (15 classes), **NUTR863**, Advanced Nutritional Biochemistry: Microenvironments: Inflammation in Obesity, Atherosclerosis, and Cancer. 2 credits. **UNC-CH**, Chapel Hill, NC. 5 students.

Instructor (1 class), **NUTR 812**, Obesity: Cell to Society. 3 credits. **UNC-CH**, Chapel Hill, NC. 25 students.

Instructor (1 class), **NUTR 813**, Nutrition Epidemiology. 3 credits. **UNC-CH**, Chapel Hill, NC. 35 students.

Instructor (1 class), **NUTR 885**, Doctoral Seminar. 1 credit, **UNC-CH**, Chapel Hill, NC. 20 students.

Instructor (Rotations) **NUTR 920**, Research rotations for Nutritional Biochemistry Doctoral Students. (1-3 credits), **UNC-CH**, Chapel Hill, NC. 3 students.

### Graduate Supervision and Committees:

#### ○ Current Dissertation Committees:

- Sarah Ahn, Ph.D. Candidate. Department of Micro and Immunology, "Growing Anti-Tumor T Cells." 2016-
- Jennifer Rebeles, Ph.D. Candidate, Department of Nutrition "The effects of weight loss and weight gain on the T cell memory response to influenza virus infection" 2016-
- Alyssa Cozzo, Ph.D. Candidate. Department of Nutrition, "Role of microenvironment in basal-like breast cancer", Chair of Committee. Makowski Lab 2015-

#### ○ Completed Dissertation Committees (Department of Nutrition - unless indicated):

- Hanyan Wang, M.S. Candidate, Department of Statistics and Operations Research. "An exploratory analysis of pMEK distribution characteristics and association with clinical data on lung cancer" 2015-2016.
- Zhenhua Yuan, M.S. Candidate, Department of Statistics and Operations Research. "The Effects of Four Biomarkers Expression Level and Other Explanatory Characteristics of NSCLC Cancer Patients on their Overall Survival Time" 2015-2016.
- Susan Klieman, Ph.D. Candidate. Department of Nutrition, Division of Intervention and Policy, "Microbiome-Mediated Metabolic Activity and Weight Dysregulation in Anorexia Nervosa." 2013-2016.
- Nicolas Vitko, Ph.D. Candidate. "The Physiological adaption of S. Aureus to Nitric Oxide during Infection." Department of Microbiology and Immunology. 2013-2015.
- Yuanyuan Qin, Ph.D. Candidate "Obesity and Effects on the Microenvironment." Chair of Committee. 2013-2015. Makowski Lab
- Liyang Zhao, M.S. Candidate. "Role of Macrophage GLUT1 Deletion in Atherogenesis." Chair of Committee. 2013-2015. Makowski Lab
- Trisha Grevengoed, Ph.D. Candidate. "ACSL1's role in Insulin Resistance and Directing Fatty Acids to a Specific Fate." 2013-2015.
- Dan Cooper, Ph.D. Candidate. "Physiological Consequences of Compartmentalized Glycerolipid Synthesis." 2013-2015.
- Amanda Mah, Ph.D. Candidate. "The Effect of Nutrition on Intestinal Epithelial Cell Homeostasis." 2013-2015.
- Xiaomeng You, M.S. Candidate. "Interaction of Dietary Fat Types and Gut Microbiome on Modulation of Whole Body Energy Balance." 2012-2014.
- Justin Milner, Ph.D. Candidate. "The Immunological Consequences of Obesity on Primary and Secondary Immune Defenses to the 2009 Pandemic H1N1 Influenza Virus." 2012-2014.
- Guo Hu, M.S. Candidate. Effects of liver-specific ACSL4 (long-chain acyl-Coenzyme A synthetase 4) deletion in liver lipid metabolism" 2012-2014
- Heather Paich, Ph.D. Candidate. "Adiposity and the Human Immune Response to Influenza." 2012-2013.
- Michael DePetrillo, M.S. Candidate. (Leave of Absence) 2012-2013.
- Patricia Casbas Hernández, Ph.D. Candidate. Molecular and Cellular Graduate Program. "In vitro coculture models to study heterotypic interactions in breast cancer microenvironment." Department of Pathology and Laboratory Medicine. 2011-2013.

- Drew Millett, M.S. Nutrition. "Short-term Feeding Effects of High-Fat Diet on Hippocampal Neuroinflammation: Differences among C57BL/6J, C3H/HeN, and C3H/HeJ Mice." 2011-2012.
- Amy Johnson, Ph.D. Nutrition. "Determining the role of Choline Dehydrogenase in Sperm Cell Function." 2010-2011.
- Erik Karlsson, Ph.D. Nutrition. "The Influence of Diet-Induced Obesity on the Generation, Function and Maintenance of Influenza-Specific Memory CD8+ T Cells." 2010.

○ **Doctoral Advisory Committee (*pre-thesis proposal defense*)**

2015-2016 (Chair)	Alyssa Cozzo
2012-2014	Scott Neidich
2011-2013 (Chair)	Yuanyuan Qin
2011-2013	Daniel Cooper
2011-2012	Justin Milner
2011-2012	Heather Paich
2010-2012	Trisha Grevengoed
2011-2011	Samantha Attard

○ **MPH/RD Masters Paper Advisor:**

- Greg Schiltz – 2015 "Fuel for Thought: Examining the Impact of a Mealtime Nutrition Education Program on Nutrition Self-Efficacy and Dietary Intake of Division I NCAA Football Athletes."
- Alannah Flanick – 2015 "Overcoming Enteral Intolerance in Patient with 30% TBSA Burns – A Case Study."
- Elisabeth Leslie – 2014 "Crohn's Disease: Vitamin/Mineral Deficiencies, Protein Energy Malnutrition, and Improving the Quality of Care in a Hospital Setting."
- Sarah Lowe – 2014 "Nutrition status and Quality of Life (QOL) have been previously Correlated in Patients with Various types of Cancers, yet the Relationship in Pre-Treatment Pancreatic and Periampullary Cancer Patients Remains Unknown."
- Jacquelyn Supplee- 2014 "Nutritional Intervention and Supplementation in a NCAA Division I Soccer Player Following ACL Reconstruction: A Case Study."
- Kevin Miller – 2013 "MSUD Goldilocks: A Case of Efforts to Get MNT Just Right."
- Jillian Hamilton – 2012 "Clinical Presentation and Nutrition Management of Pediatric Eosinophilic Esophagitis." (worked in Makowski Lab)
- Laura Joseph – 2011 "Case Study: Pregnancy Complicated by Substance Abuse and Eating Disorder."
- Ashley Kitchens Swanson – 2011 "Physiologic and Metabolic Responses During Vigorous Exercise: Why Recovery Nutrition Is Indispensable."

○ **Nutrition Department Doctoral Qualifying Exam Committee (N=1-4 students):** 2011, 2014.

○ **Nutrition Department MPH Qualifying Exam Committee (N=24-27 students annually):** 2010-Present.

○ **Qualifying Exam Committee - External to Department of Nutrition:**

- Erin Steinbach, Ph.D. Candidate, Department of Microbiology and Immunology, University of North Carolina, Chapel Hill. 2011.

**Current Makowski Lab Advisees/Lab Members:**

Ashley Fuller, Doctoral candidate, 2015-Present. (Pathology, joint mentoring with Melissa Troester (Epi))  
Alyssa Cozzo, Doctoral candidate, 2014-Present.

Ottavia Zattra, Undergraduate BSPH Candidate 2015-Present.

Jimmy Zhang, Undergraduate, 2012-Present.

## Former Makowski Lab Advisees/Lab Members:

### ○ Postdoctoral:

- Amy Johnson, Ph.D., 2012-2015
  - NIH NRSA F32 funded for 3 years
  - Currently a Product Specialist at Seahorse Bioscience, a part of Agilent Technologies
  - Published 6 first or co-authored manuscripts with 3 submitted, and 1 in preparation.
- Sneha Sundaram, Ph.D., 2011-2014
  - Currently Research Nutritionist, Grand Forks Human Nutrition Research Center, ARS, USDA
  - Published 6 first or co-authored manuscripts with 1 submitted.
- Brante Sampey, Ph.D. 2010-2011
  - Currently Manager, Pharmacology & Toxicology at Roivant Science, Inc. Roivant, NC and Chair of the RTP-Drug Metabolism Discussion Group
  - Published 5 first or co-authored manuscripts with 2 submitted.

### ○ Graduate:

- Liyang Zhao, M.S. Candidate, "The Role of Macrophage GLUT1-Mediated Glucose Metabolism in Atherosclerosis."
  - 2013-2015.
  - Currently a doctoral candidate in graduate school at the University of North Carolina at Chapel Hill in the Department of Nutrition.
  - Published 1 first or co-authored manuscript with 1 in press and 2 in preparation.
- Yuanyuan Qin, Doctoral Candidate, Sanofi Fellow. "Remodeling the Microenvironment by Weight Loss Restrained High Fat Diet-Induced Basal-like Breast Cancer."
  - 2010-2015.
  - Currently a Postdoctoral Fellow at the University of California, San Francisco.
  - Published 1 first or co-authored manuscript with 1 in press and 1 submitted.

### ○ Undergraduate:

- Luma Essaid, BSPH (Bachelor of Science in Public Health Candidate, Nutrition). Honors Thesis, Carolina Honors College, "The Role of Hepatocyte Growth Factor in Obesity-Induced Basal-like Breast Cancer."
  - 2013-2015.
  - Currently a Medical Student at the University of North Carolina at Chapel Hill.
- Maili Lim, BSPH (Bachelor of Science in Public Health Candidate, Nutrition). Honors Thesis, Carolina Honors College, "Determining the Role of the Macrophage GLUT1 Transporter and Glucose Metabolism in Obesity-Associated Inflammation."
  - 2013-2015
  - Currently a Medical Student at the University of North Carolina at Chapel Hill.
- Megan Huang, BSPH (Bachelor of Science in Public Health Candidate, Nutrition), Honors Thesis 'The role of macrophage substrate metabolism on obesity-induced inflammation',
  - 2012-2014
  - Currently at Harvard Chan School of Public Health for MS degree
- Gina Sacks, BSPH (Bachelor of Science in Public Health Candidate, Nutrition), High Honors Thesis 'Role of HK III in Macrophages',
  - 2010-2012
  - Currently in Medical School at Washington University, St. Louis, MO

### ○ High School - undergraduate:

- Jimmy Zhang (High School Student, North Carolina School of Science and Mathematics),
  - 2011-2012 as high school mentee.
  - 2012-present as undergraduate technician (Undergraduate at the University of North Carolina at Chapel Hill, Technician in Makowski Lab)
  - Will attend UNC Dental School in 2016

- Christopher Kartawira (High School Student, North Carolina School of Science and Mathematics),
  - o 2016-

#### Awards for Makowski Lab Trainees:

- Dr. Amy Johnson, *Postdoctoral Award for Research Excellence*. 2015-2016. (\$1,000).
- Maili Lim, *Michael P. and Jean W. Carter Research Award*, for research. 2014-2015.
- Luma Essaid, *Gold Summer Undergraduate Research Fellowship (SURF)* - \$4,000 to fund summer studies. 2014.
- Luma Essaid, *Tom and Elizabeth Long Research Award*, Honors Carolina at UNC-CH. 2014-2015. (\$500)
- Luma Essaid, *UNC Health Care's Volunteer Association*, 2014. \$2,000 Scholarship.
- Luma Essaid, *2014 Gillings Poster Award* as part of the Experience Gillings 2014 Event. \$500
- Trinh Le, *Gillings School-wide Fred and Pearle McCall Scholarship*. 2014.
- Trinh Le, *Nutrition Department MaryAnn C. Farthing Scholarship*. 2014.
- Sneha Sundaram, *AACR-Susan G. Komen Scholar in Training Award* - \$1500 to attend AACR in San Diego in 2014.
- Alyssa Cozzo, Doctoral Candidate, selected by the UNC Department of Nutrition as the *Recipient of the Ethel J. Coleman Endowed Scholarship in Nutritional Biochemistry for 2014-2015*. (\$2,500).
- Alyssa Cozzo, Doctoral Candidate, *University of North Carolina Chancellor's Fellowship, Royster Society of Fellows*, includes a 5-Year (Full) Merit Scholarship and Stipend through the Graduate School, University of North Carolina at Chapel Hill. 2014.
- Megan Huang, *Recipient of Tom and Elizabeth Long Research Award from the Carolina Honors Program* (\$500) to help support honors thesis work. 2013.
- Amy Johnson, *Recipient of NRSA F32 Postdoctoral Fellowship for 3 years of funding*. 2013.
- Yuanyuan Qin, *Sabin Family Travel Scholarship* (\$1,000) through McAllister Heart Institute for travel to FASEB meeting in Boston for oral presentation. 2013.
- Megan Huang, *Summer Undergraduate Research Fellowship* (\$3,000) to conduct research in Makowski Lab over summer. 2013.
- Amy Johnson, Ph.D., *Recipient of Keystone Symposia Scholarship* to attend 'Metabolic Control of Inflammation and Immunity' in Breckenridge, Colorado. 2013. (\$1200)
- Yuanyuan Qin, *FASEB American Society for Nutrition*, Oral presentation selected for FATP1 project. 2013. (Boston)
- Amy Johnson, Ph.D., Oral invitation to present, and Overall Winner of Postdoctoral Category at *Integrative Vascular Biology (IVB) & McAllister Heart Institute Annual Symposium*. University of North Carolina, Chapel Hill, NC. 2013.
- Amy Johnson, Ph.D., *2012 Winner of Postdoc Chalk Talk Competition at SE Lipid Research Conference*, focusing on her project "The Role of Substrate Metabolism and Macrophage Activation in Obesity."
- Jillian Hamilton, *NC Dietetic Association Student of the Year*, 2012.
- Gina Sacks, *Joseph Edozien Outstanding Undergraduate Award* for 2011-2012.
- Yuanyuan Qin, *Finalist in American Society for Nutrition (ASN) Graduate Student Research Awards Oral Competition* for FATP1 project at FASEB meeting in San Diego, CA. (12 finalists out of 250). 2012.
- Yuanyuan Qin, *Travel Scholarship American Society for Nutrition*, FASEB meeting in San Diego, CA. 2012.
- Yuanyuan Qin, *FASEB American Society for Nutrition Oral Presentation selected for FATP1 Project* (San Diego). 2012.
- Yuanyuan Qin, *FASEB American Society for Nutrition Oral presentation selected for Alcohol Project* (San Diego). 2012.
- Gina Sacks, *Honors Thesis Award*, University of North Carolina, Chapel Hill. 2011.
- Gina Sacks, *Summer Undergraduate Research Foundation Award (SURF\$3,000)* to conduct research in Makowski Lab over summer. 2011.
- Jillian Hamilton, *Graduate Work-Study Assistantship Scholarship* (Nominated and Awarded). 2011.
- Yuanyuan Qin, *Alcohol and Immunology Research Interest Group (AIRIG) Meeting Travel Scholarship*. Chicago, IL. 2011.
- Brante Sampey, *Kern Lipid Conference Young Investigator Award*, Colorado. 2010.
- Brante Sampey, Nominated and accepted into the *Science Excellence Program with AAAS* (2010-2012).
- Brante Sampey, Abstract was selected for a platform presentation at *The Inaugural Oliver Smithies Nobel Lecture and Postdoctoral Research Forum (UNC)*. 2010.

## Awards for Makowski LabStaff:

- [Alex J. Freerman](#) – UNC Department of Nutrition Staff Award for Exceptional Service, 2015.
- [Alex J. Freerman](#) – UNC Department of Nutrition Star Heel Award for Outstanding Service, 2011 & 2013.

## Contracts & Grants

### Active

American Cancer Society Research Scholar Grant – RSG CCE 128826 (Bae-Jump) Role: co-I Obesity, Cation-Selective Transporters and Metformin in Endometrial Cancer <i>We will evaluate the contribution of a representative metformin transporter to the anti-tumor efficacy of metformin in obese and non-obese orthotopic mouse models. In addition, we will correlate treatment response to metformin in EC patients with (i) expression and genetic variants of the metformin transporters, (ii) modulation of the AMPK-mTOR pathway, and (iii) metabolic factors associated with obesity.</i>	(5% effort for me)	1/1/2016 – 12/31/2019 \$1,002,631 (Total)
NIH/NCI R35 197627 (Hursting) Role: co-I Breaking the Obesity-Cancer Link: New Targets and Strategies <i>The goal of this 7-year Outstanding Investigator Grant is to elucidate mechanistic targets, identify new biomarkers that can be used in parallel human and animal studies, and develop effective interventions to break obesity-cancer links and reduce the burden of cancer in obese people.</i>	(5% effort for me)	8/1/2015-7/31/2022 \$5,338,256
NIH-R21 NCI CA180134-01 <b>Role: PI</b> (PQA2) Reversing carcinogenic effect of obesity on basal-like breast cancer <i>The basal-like subtype is a highly aggressive triple negative form of breast cancer that we showed to be increased by obesity. This project will examine reversibility of basal-like carcinogenesis through weight loss or pharmacologic means.</i>	(20% effort for me)	8/7/2013-7/31/2017 \$351,762 (Total)
UNC Lineberger Comprehensive Cancer Center Tier 2 Development Grant University Research Fund Grant ( <u>faculty salary support not allowed</u> ) <b>Role: PI</b> Metabolic Immunomodulation of Obesity-Induced Basal-Like Breast Cancer <i>This project will examine the role of macrophage metabolism in cancer progression.</i>		01/01/2016-12/31/2017 \$150,000 (Total)
American Kennel Club Canine Health Foundation, Inc. #2244-A <b>Role: co-I</b> (PI Jones, UNC Biology) Beyond Peto's Paradox with the Geriatric Peromyscus <i>This grant will use genomic data to examine why some animals do not get cancer through evolutionary genetics.</i>	(2% effort for me)	01/01/2016-06/30/2016 \$8,500 (Total)
McAllister Heart Institute, Scott Custer Cardiology Seed Grant Fund <b>Role: PI</b> ( <u>faculty salary support not allowed</u> ) The Role of Fuel Metabolism and Macrophage Activation in Atherosclerosis <i>This grant will study the effect of metabolic reprogramming on macrophage biology and atherosclerosis.</i>		9/1/2013-6/31/2017 \$20,000 (Total)

### Pending

NIH -R01 Health Disparities RFA <b>Role: PI</b> Contribution of the microenvironment to obesity-induced basal-like breast cancer risk <i>The grant aims to test mechanisms underlying how obesity alters the microenvironment, growth factor signaling, and metabolic regulation of macrophage subtype.</i>	(20% effort for me)	Submitted \$1,935,373 (Total)
NIH-R01 NCI Provocative Question RFA <b>Role: PI</b> (PQ3) Metabolic Immunomodulation in Obesity-Induced Basal-Like Breast Cancer <i>This grant examines macrophage phenotype in angiogenesis and metastasis.</i>	(20% effort for me)	Submitted \$2,135,121 (Total)

NIH-R01 NIDDK  
**Role: PI** (20% effort for me) Submitted  
\$ 1,853,892 (Total)  
Manipulating substrate utilization controls adipose tissue macrophage inflammation in obesity  
*This grant will study the effect of metabolic reprogramming on macrophage biology and obesity.*

DOD- Ovarian Cancer Research Program (OCR) Teal Expansion Award LOI submitted  
Role: co-I (PI Bae-Jump, UNC Gyn-Onc/LCCC) (10% effort for me) \$684,000 (Total)  
Obesity, health disparities and ovarian cancer.  
*This will test if metabolic consequences of obesity irreversibly alter the genotype/metabolic phenotype of OC during oncogenesis, resulting in biologically distinct cancers that are no longer influenced by the host metabolic environment.*

NIH-NCI/NIEHS- R01 (10% effort for me) Submitted  
Role: co-I (PI Oldenburg, UNC Physics) \$ 2,890,145 (Total)  
A rapid, label-free platform to assess biomarkers of environmental exposure in breast cancer  
This grant will study involution as a risk biomarker for breast cancer in humans, murine models and *in vitro*.

American Cancer Society Submitted  
Role: co-I (PI Qing Zhang, UNC LCCC) (2% effort for me) \$792,000 (Total)  
Egln2-FDXR action on mitochondrial function regulates ER+ breast cancer  
*Our ultimate goal from this study is to develop novel therapeutic interventions to target mitochondrial function and eliminate breast cancer growth.*

NIH-R01 Submitted  
Role: co-I (PI Qing Zhang, UNC LCCC) (2% effort for me) \$1,900,000 (Total)  
Egln2-FDXR action on mitochondrial function regulates ER positive breast cancer  
*Our ultimate goal from this study is to develop novel therapeutic interventions to target mitochondrial function and eliminate breast cancer growth.*

NIH/NCI - 1R01 Submitted  
Role: co-I (PI Bae-Jump, UNC Gyn-Onc/LCCC) (10% effort for me) \$1,250,000 (Total)  
Obesity-Induced Metabolic Signature of Ovarian Cancer and Impact on Treatment  
*This proposal will test the obese systemic and local effects on OC and response to therapy using murine models and patient samples.*

NIH- Health Disparities to submit 6/17/16  
Role: co-I (PI Bae-Jump, UNC Gyn-Onc/LCCC) (10% effort for me) \$1,900,000 (Total)  
Obesity, health disparities and ovarian cancer.  
*This study will test the hypothesis that the metabolic consequences of obesity alters the genotype/metabolic phenotype of OC during oncogenesis, resulting in biologically distinct cancers with metabolic vulnerabilities targetable for treatment using mouse models, PDXs, and human samples.*

**Completed**

1. Department of Defense 1/1/2013-08/31/2015  
Role: Co-I (PI Vickie Bae-Jump, OB-Gyn) \$116,000 (Total)  
Pre-clinical and Clinical Investigation of the Impact of Obesity on Ovarian Cancer Pathogenesis 0.6 calendar months  
*This grant will investigate how the metabolic and endocrine effects of obesity may play a contributing role in the pathogenesis of ovarian cancer and may lead to biologically different cancers than those that arise in leaner women, possibly necessitating distinct treatments.*

2. The Mary Kay Foundation 6/16/2013-6/15/2015  
**Role: PI** \$100,000  
Reversing carcinogenic effect of obesity on basal-like breast cancer  
*This grant will study the role that lifelong obesity, weight loss and HGF signaling play in mouse models of basal-like breast cancer.*

3. American Heart Association 13BGIA17070106 7/1/2013-6/30/2015  
**Role: PI** \$154,000 (Total)  
 The Role of Macrophage Substrate Metabolism in Atherosclerosis 0.6 calendar months  
*This proposal will investigate the role of macrophage glucose and FA transport and metabolism in the elaboration of inflammation during atherogenesis.*
4. Nutrition Research Institute 1/1/2015-5/31/2015  
**Role: PI** \$80,000 (Total)  
 Obesity and Macrophage Metabolism in Breast Oncogenesis  
*This grant will test the hypothesis that macrophage polarization through metabolic reprogramming alters tumorigenesis.*
5. U01 ES019472 08/1/2010-05/31/2015  
 NIEHS \$2,200,000 (Total)  
**Role: co-PI** (Lead PI Troester) 1.8 calendar months  
 Pregnancy, Obesogenic Environment, and Basal-like Breast Cancer  
*Basal-like breast cancers are most prevalent in young, African American women and correlate with parity. This project will dissect the role of parity and post-partum weight gain on the development of basal-like breast carcinoma and the role of the microenvironment in mouse models and human samples. In addition, this project would fund a breast cancer outreach program.*
6. Department of Defense 6/1/2013-5/30/14  
 Role: Co-I (PI Vickie Bae-Jump, OB-Gyn) \$295,333 (Total)  
 Obesity Exposure across the Lifespan on Ovarian Cancer Pathogenesis 2.4 calendar months  
*This grant will investigate unique ovarian cancer mouse model, cell culture studies, and patient samples to comprehensively interrogate characteristics unique to obesity-driven ovarian cancers.*
7. U01 ES019472- Opportunity Fund/Supplement 6/30/2013-5/20/2014  
 NIEHS \$63,911 (Total)  
**Role: Co-PI** (lead PI Troester, Epi) 0.6 calendar months  
 The Breast Cancer Puzzle: Using Interactive Media to Help Younger African American Women Understand and Reduce Risks for Breast Cancer.
8. Provost's Office Junior Faculty Development Award, UNC 1/1/2013-12/31/2013  
**Role: PI** \$7,500 (Total)  
 This grant will fund the creation of a novel mouse model to investigate metabolic reprogramming of macrophages.
9. U01 ES019472- Opportunity Fund/Supplement 8/1/2012-5/30/2013  
 NIEHS \$100,000 (Total)  
**Role: Co-PI** (lead PI Troester, Epi) 0.6 calendar months  
 Premenopausal High Fat Diet, Obesity, and Breast Cancer Microenvironment  
*This project will examine pubertal versus post-partum high fat diet-exposure with and without obesity in two mouse models- one that gains weight and one that resists obesity. We will examine the development of basal-like breast carcinoma and other subtypes and the role of the inflammatory microenvironment.*
10. N.C. Cancer Hospital Endowment Fund activities 3/2012-2/2013  
 Role: Co-I (PI Michele Mendez) \$20,000 (Total)  
 Web-based 24h recalls to assess habitual diet among cancer survivors: A feasibility study 0.25 calendar months  
*The proposal seeks funding to test the feasibility of using a web-based tool that would enable us to cost-effectively collect valid dietary intake data among cancer survivors at the UNC hospitals.*



11. UNC- NC TraCS - NIH Clinical and Translational Science Award (CTSA) 8/15/2012-11/14/2013  
 Role: Co-I (PI Nigel Mackman) \$50,000 (Total)  
 Role of the Tissue Factor/FVIIa-PAR-2 Pathway in Obesity  
*This grant will study a link between the coagulation cascade and obesity. Decreased procoagulant protein tissue factor (TF) in bone marrow cells resulted in reduced weight gain and steatosis compared with mice with control bone marrow. The experiments described in this proposal will test the hypothesis that inhibition of the TF/FVIIa-PAR-2 pathway will reduce DIO and insulin resistance.*
12. R00 AA017376 Pathway to Independence (Makowski Hayes) 1/1/2010 – 12/21/2012  
 NIH-NIAAA \$747,000 (Total)  
 Role: PI 9 calendar months  
 Macrophage Mitochondrial Stress in Inflammation, Insulin Resistance & Obesity  
*Although strong links between obesity and inflammation exist, little is known about the role of mitochondrial metabolism in macrophage biology and whether macrophages in obese adipose tissue are in a state of mitochondrial dysregulation. Macrophage lipid burden likely results in incomplete beta-oxidation and mitochondrial stress, which in turn promotes inflammation and obesity. The results of this work may enable us to target novel pathways in the control of obesity and insulin resistance.*
13. Nutrition Obesity Research Consortium (NORC) - Pilot and Feasibility 4/2010-3/2012  
 Principle Investigator: Liza Makowski (Hayes) \$41,968 (Total)  
 UNC Chapel Hill, Department of Nutrition 0.6 calendar months  
 Role: PI  
 NIDDK P30DK056350  
 The Role of Macrophage Activation and Glucose Transport in Obesity  
*The goal of this research is to understand specifically the role of glucose metabolism in macrophages and the formation of inflammation and obesity. We hypothesize that cells with elevated glucose metabolism will have exaggerated pro-inflammatory or "M1" immune responses. (No salary support)*
14. Center for Gastrointestinal Biology and Disease - Pilot and Feasibility 8/2010-11/2011  
 Principle Investigator: Liza Makowski (Hayes) \$30,000 (Total)  
 UNC Chapel Hill, Division of Gastroenterology 0.6 calendar months  
 Role: PI  
 NIDDK P30DK034987  
 The Role of Glucose Transport and Inflammation in Kupffer Cells  
*This pilot project will investigate the role of glucose transport and metabolism in Kupffer cells and the formation of liver inflammation, steatosis in high-fat diet-induced obesity. We hypothesize that cells with elevated glucose metabolism will have exaggerated pro-inflammatory and insulin de-sensitizing effects on hepatocytes. (No salary support)*
15. Pathway to Independence (PI) (K99/R00) K99 AA017376 9/1/2007 – 8/31/2009  
 NIH-NIAAA \$ 160,000 (Total)  
 Role: PI 12 calendar  
 Macrophage Mitochondrial Stress in Inflammation, Insulin Resistance & Obesity  
*Although strong links between obesity and inflammation exist, little is known about the role of mitochondrial metabolism in MP biology and whether MPs in obese adipose tissue are in a state of mitochondrial dysregulation. MP lipid burden likely results in incomplete beta-oxidation and mitochondrial stress, which in turn promotes inflammation and obesity. The results of this work may enable us to target novel pathways in the control of obesity and insulin resistance.*
16. NRSA: F32 HL75970 9/1/2003 – 8/31/2005  
 NIH-NHLBI \$96,000 (Total)  
 Role: PI 12 calendar  
 Role of Fatty Acid Binding Proteins in Lipid Signaling  
*FABP regulate FA-sensitive intracellular signaling pathways involved in the pathogenesis of Metabolic Syndrome. This proposal aims to further characterize the direct mechanism of FABP action in macrophage biology. First, lipid metabolism will be investigated in established single (aP2 or mal1) and double (aP2/mal1) -/- macrophage cell lines. Second, the cholesterol metabolic pathway will be studied in these cell lines. Third, inhibitors to proteins central to the cholesterol efflux pathway, namely PPARgamma, will be used in wildtype and FABP null macrophage cell lines to demonstrate at which point in the pathway FABPs are acting.*

**Miscellaneous Education Fellowships Completed- Tuition and stipend**

1. Graduate Fellowship - Harvard Division of Biological Sciences, Harvard Medical School. 1997 – 2002.
2. Lucille P. Markey Scholar- Masters in Medicine Fellowship. Harvard Medical School. 1998 – 1999.
3. Graduate Fellowship – Nutrition Department, Harvard School of Public Health. 1996 – 1997.

**Professional Service:**

- 2016- Present    Study Section: National Institutes of Health (NIH) Study Section as Early Career Reviewer: Tumor Microenvironment Study Section.  
Grant Review, *University of Nebraska Central Administration, Office of the Executive Vice President and Provost*  
AACR (American Association for Cancer Research) Scientific Program Committee  
Poster Judge-UNC Translational Medicine Symposium
- 2015- Present    Grant Review, *American Heart Association*.  
Grant Review, *Wellcome Trust*.
- 2014- Present    Organizing Committee, Annual Southeast Lipid Research Conference (SELRC).  
Portal Development Committee, *NCTracs Research*, University of North Carolina.  
Reviewer, *Mary Kay Foundation*.  
Director & Head of Recharge Center, Digital Histology Core, Nutrition Obesity Research Center (NORC), University of North Carolina.
- 2013- Present    Peer Reviewer, *American Heart Association*.  
Pilot and Feasibility Grant Review, *Nutrition Obesity Research Center (NORC)*, University of North Carolina.  
Invited Presentation for lunch with Dean Rimer (\*my images chosen for cover of new UNC Gillings School of Global Public Health website).
- 2012- Present    School-Wide Awards Committee, *Gillings School of Global Public Health*, University of North Carolina at Chapel Hill.  
Invited Guest Panelist on Career Development: “Postdoctoral Fellowship to Faculty Position – Setting yourself apart from the pack.” *South East Lipid Research Conference*. Pine Mountain, GA.  
Invited Judge for Career Development Postdoc Chalk Talk Competition. *South East Lipid Research Conference*. Pine Mountain, GA.
- 2011-Present    Publication Committee, *U01 Breast Cancer and the Environment Research Consortium (BCERC)*, NIEHS.  
Reviewed Abstracts for The Obesity Society Annual Meeting, Metabolism and Integrative Physiology, Orlando, FL. 2011.  
Coleman Scholarship Award Committee, *University of North Carolina at Chapel Hill*, Department of Nutrition.
- 2010- Present    Staff Service Awards Committee, *University of North Carolina at Chapel Hill*, Department of Nutrition.  
MPH Admissions Committee, *University of North Carolina*, Department of Nutrition.  
Community Advisory Committee, *Breast Cancer and the Environment Research Program*.  
Host Lab Presentation, North Carolina School of Science and Mathematics Summer Students.

2005-Present Ad-hoc reviewer for *Journal of Leukocyte Biology*; *Cell Biochem. and Function*; *Journal of Clinical Investigation (JCI)*; *Journal of Lipid Research*, *EMBO*, *ATVB*, *British Journal of Nutrition*; *Diabetes*, *Biomed Central Cancer*, *Journal of the American Medical Association (JAMA)*, *Journal of Endocrinology*, *Liver International*, *Cancer Research*, *Mediators of Inflammation*, *Science Translational Medicine*.

#### Faculty Engagement:

- 2016 Guest scientist, for *STEAM (Science Technology Engineering Arts and Math) Day at Northside Elementary School*, Chapel Hill, NC.
- 2015 Invited Faculty Speaker, for Postdoc Parents Brown Bag to discuss career experience.
- Guest scientist, for *STEAM (Science Technology Engineering Arts and Math) Day at Northside Elementary School*, Chapel Hill, NC.
- 2014 Established a high school lesson plan with UNC Center for Environmental Health's Dana Haine based on our studies asking the question "Obesity-Associated Breast Cancer Risk: A role for Epigenetics? An Examination of Evidence." This lesson plan was presented at the session on using scientific data to promote student learning about epigenetic inheritance at the *National Association for Biology Teachers (NABT) 2014 Professional Development Conference*, Cleveland, OH. November 12-14, 2014.
- Created a class based on Obesity and Breast Cancer Project, for the *SciVentures Camp on Cells at the Morehead Planetarium and Science Center*. (~24 middle school aged kids scheduled over two day camp)
- Based on our focus group studies in our Obesity and Breast cancer U01 BCERP Project, a presentation entitled "Understanding How to Communicate Breast Cancer Risk Information to Young African American Women" will presented by our *UNC Community Outreach and Engagement Core at Center for Environmental Health and Sciences collaborator N. Graves at the American Public Health Association*, New Orleans 2014.
- 2013 Assisted with preparation of obesity training module outreach handout and workshop presentation for the *Community Outreach and Engagement Core at Center for Environmental Health and Sciences*, UNC.
- 2012 Planned and served as a tour guide for North Carolina School of Science and Mathematics students for the mini-term course "Food, Nutrition, and Chemistry". Presented to students on metabolism and inflammation in obesity including work in my lab and in the field, organized a guest lecture, and organized a seminar.
- 2011 Hosted North Carolina School of Science and Mathematics summer students for lab presentation titled "You Are What You Eat".
- Guest lecture on Metabolism and Inflammation in Obesity for BI 422, Immunology, at the *North Carolina School of Science and Mathematics*,
- 2010 Breast Cancer Career Panel, *Gillings School of Global Public Health, University of North Carolina*.
- Hosted North Carolina School of Science and Mathematics summer students for lab presentation titled "You Are What You Eat".