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EDUCATION

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

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

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

PROFESSIONAL EXPERIENCE

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

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

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

1997 - 2004 **Harvard School of Public Health**, Boston, MA

Freelance Science Editing - Department of Nutrition

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

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

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

RECOGNITIONS, HONORS & AWARDS

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

Finalist for American Diabetes Association Pathway to Stop Diabetes Grant.

2012 Junior Faculty Development Award- Provost's office UNC, Chapel Hill

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

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

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

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

2005-6 Council of Graduate Schools (CGS)/Association of American Colleges and Universities (AAC&U)
 Preparing Future Faculty Fellow - Duke University, Durham, NC

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

2003 Society for Leukocyte Biology 2003 Presidential Award for Research, 2nd place.
 36th Annual Meeting for the SLB: Unraveling Inflammation. Philadelphia, PA.
 Harvard School of Public Health - Division of Biological Sciences- Dr. Edgar Haber Award in Biological
 Sciences for recognition of an outstanding original and creative thesis. Boston, MA.
 Junior Investigator Fellowship - Kern Aspen Lipid Conference. Aspen, CO.

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

2001 Junior Investigator Fellowship - Kern Aspen Lipid Conference. Aspen, CO.
 Harvard School of Public Health - Faculty Council Research Poster Contest, 1st prize. MA.

2000 Harvard Graduate Student Council Award - Keystone Obesity and Diabetes Meeting. Taos, NM.
 Keystone Award - Keystone Obesity and Diabetes Meeting. Taos, NM.
 Gordon Award - Gordon Atherosclerosis Conference, NH.

MEMBERSHIPS

Triangle Immunology Interest Group

Society for Leukocyte Biology

Obesity Society

American Society for Nutrition

American Heart Association

The American Society for Biochemistry and Molecular Biology

American Diabetes Association

American Association of Cancer Research

BIBLIOGRAPHY (35 peer-reviewed manuscripts published. *In press* or *submitted* are indicated. Reviews listed separately below)

My Bibliography through US National Library of Medicine:

<http://www.ncbi.nlm.nih.gov/myncbi/collections/bibliography/41146544/>

Refereed Articles:

Qin Y, Sundaram S, Essaid L, 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. *Submitted*

Johnson AR, Qin Y, Freerman AJ, Huang M, Cozzo AR, Zhao L, Sampey BS, Milner JJ, Beck MA, Damania B, Galanko JA, Edin ML, Zeldin DC, Fueger PT, Bivins B, Stahl A, Wu Y, Mohlke K, **Makowski L**. Macrophage Fatty Acid Transport Protein 1 Limits Obesity-induced Inflammation. *Submitted*

Johnson AR, Wilkerson MD, Sampey BP, Troester MA, Hayes DN, **Makowski L**. Cafeteria Diet-induced Obesity Results in Increased Oxidative Damage in White Adipose. *Submitted*

Allcock 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. *Submitted in revision*.

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*. 2014 Dec 2. pii: cebp.0934.2014. PMID: 25465802

Sundaram S, Freerman 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):e111394.. 2014. PMID: 25354395

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. Evaluation of the cytochrome p450 epoxygenase pathway in fatty liver disease-associated inflammation. *PLoS One*. 2014 Oct 13;9(10):e110162 2014. PMID: 25310404 PMCID: PMC4195706

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. *Cancer Med*. 2014 Nov 21. doi: 10.1002/cam4.353. PMID: 25417601

Sundaram S, Le TL, Essaid L, Freerman AJ, Huang MJ, 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

Kimes PK, Cabanski CR, Wilkerson MD, Zhao N, Johnson AR, 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

Makowski L, Zhou C, Zhong Y, Kuan P-F, Fan C, Sampey BP, 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.

Freerman AJ, Johnson AR, Sacks GN, 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. PMC3953299. 2014

Sundaram S, Freerman 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. PMC3904507. (p. 1-21).

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. PMC3978616. 2013

Qin Y, 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).

*commentary on manuscript: Molina PE. "Alcohol bingeing 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

Brauer HA, **Makowski L**, Hoadley KA, Lang LJ, Freermerman 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. PMC3684709. (p. 1-36).

Hu Y, Huang Y, Du Y, Orellana C, Singh D, Johnson A, 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. PMC3553996. (p. 1-30).

Bhatt AP, Jacobs SR, Freermerman 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. PMC3406848. (p. 1-6).

Sampey BP, Freermerman AJ, Zhang J, 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. PMC3373493. (p.1-10).

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. PMC3640417. NIHMSID # 373655. 2012. (p. 1-13).

Swanson A.K., **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)

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. PMC3640411. NIHMSID #331602. (p. 1-13).

Ang MK, Patel MR, Yin X, Sundaram S, Fritchie K, Zhao N, Liu Y, Freermerman 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. PMC3725262. (p. 1-11).

Sampey BP, Vanhoose AM, Winfield H, Freermerman 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. PMC3130193. (cover image in Obesity 6/2011) (p. 1-18).

- Sampey BP, 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. PMC3092029. 2011. (p. 1-14).
- 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. PMC2790330. (p. 1-8).
- 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 PMC2630792 (p. 1-9).
- 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. PMCID in process NIHMSID # 418145. (P. 1-6).
- 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. PMC4027059. NIHMSID # 418144. (p. 1-9).
- 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. PMC3493120. NIHMSID # 418140. *co-first (p. 1-9).
- 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. PMC3493120. NIHMSID # 418138. (p. 1-11).
- 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. PMC4027060. NIHMSID #418151. (p. 1-8).
- 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. PMC4027051. NIHMSID #418153. (p. 1-5).
- 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. PMC4027052. NIHMSID # 418137. *co-first. (p. 1-6).
- 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. (p. 1-13).
- 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^{-/-} mice. *Diabetes*. 48(10):1987-1994, 1999. (p. 1-8).
- 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. (p. 1-8).

Refereed Reviews (6):

Johnson AR, **Makowski L**. Nutrition and metabolic correlates of obesity and inflammation: clinical considerations. *J Nutrition*, in press 2014

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. PMC3816318.

Johnson AR, Milner JJ, **Makowski L**. The inflammation highway: metabolism accelerates inflammatory traffic in obesity. *Immunologic Reviews.* Volume 249, Issue 1, pages 218–238, September 2012. (P.1-21). PMID: 22889225. PMC3422768.

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. PMC2528145.

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. PMC3904771. NIHMSID #418148.

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. PMC4027055. NIHMSID #418146.

Journal Covers:

Sampey, *Obesity*, 2010

Stewart, *Molecular Cancer Research*, 2012

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

2015 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. (Qin, selected for oral presentation)

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. Society of Gynecologic Oncology 2015 Annual Meeting on Women's Cancer, Chicago, IL.

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. 2015

Johnson AR, Cozzo AJ, Freerman AJ, Johnson AR, Milner J, Stahl A, **Makowski L**. Macrophage FATP1 regulates obesity-induced insulin resistance. Keystone Symposium on Dendritic Cells and Macrophages Reunited, Montreal, QC. 2015

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

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

2014 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.

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.

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

Grace Shin, N. Graves, K. Gray, M. Head, B. Hemminger, **L. Makowski**, M. Troester. *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. 11/17/2014.

Neasha Graves, K. Gray, B. Hemminger, M. Head, **L. Makowski**, G. Shin, M. Troester. *Understanding How to Communicate Breast Cancer Risk Information to Young African American Women*. Annual Meeting of the American Public Health Association, New Orleans, LA. 11/18/2014. *oral

Neasha Graves, K. Gray, B. Hemminger, M. Head, **L. Makowski**, G. Shin, M. Troester. *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. 11/20/2014. *oral

Neasha Graves, K. Burns, K. Gray, D. Haine, B. Hemminger, M. Head, **L. Makowski**, G. Shin, M. Troester. *Enhancing the Environmental Health Literacy of Broad Audiences to Inform about Cancer Risk*. Annual Meeting of the American Public Health Association, San Francisco, CA. 11/20/2014.

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. Nov. 12-14, 2014

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, USA. April 9th 2014

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, USA. April 9th 2014 *\$1500 travel award to SS

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. 45th Annual Meeting of the Society of Gynecologic Oncology, March 2014, Tampa, Florida. (Oral presentation, KMS will present)

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 45th Annual Meeting on Women's Cancer. March 2014, Tampa, Florida (*Featured poster, *Basic Science Poster)

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. Society of Gynecologic Oncology 45th Annual Meeting on Women's Cancer. April 2014, San Diego, California. (*Featured poster)

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. 45th Annual Meeting of the Society of Gynecologic Oncology, March 2014, Tampa, Florida.

2013 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, Qin selected to present), *FASEB J.* 2013; 27:373.5.

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.

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, Johnson winner of Postdoctoral Oral Competition)

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.

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. 11/7/2013.

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 won travel scholarship).

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. Diet-induced obesity increases tumor aggressiveness in a genetically engineered mouse model of serous ovarian cancer. *Society of Gynecologic Oncology Annual Meeting on Women's Cancer-Embrace the Past, Revolutionize the Future*. Los Angeles, CA. (Oral presentation, VBJ will present)

2012 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)

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.

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, Johnson invited to present). *South East Lipid Research Conference*, Pine Mountain, GA.

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.

Qin Y, Hamilton J, Sacks G, Freemerman 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.

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. *Metabolism, Diet and Disease*, Washington DC. *BMC Proc.* 2012; 6(Suppl 3): P8. Published online 2012 June 1. PMC3395052.

Johnson AR, Freemerman 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. PMCID: PMC3374262.

Qin, Y, Sampey BP, Hamilton J, Sacks G, Freemerman AJ, Lei, L, Coleman, R, Stahl, A and **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 selected for American Society for Nutrition (ASN) Graduate Student Research Awards oral competition of 12 finalists out of 250 abstracts). *FASEB J, pending publication*.

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, pending publication*.

2011 Sampey BP, O'Connell T, Vanhose 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:lb307*

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:lb304*

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, Sampey presented).

Sampey BP, Freemerman AJ, Vanhose AM, O'Connell 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.

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.

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*. *published in Alcohol 46(2):176 March 2012. Presented in 2011.*

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*. *published in Alcohol 46(2):177 March 2012. Presented in 2011.*

2010 Sampey BP, Wilkerson M, Vanhose 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*.

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.

2008 **Makowski L,** Ilkayeva O, Muehlbauer M, Muoio DM. Metabolomic Profiling Reveals Flexibility in Macrophage Fuel Metabolism. *Kern Aspen Lipid Conference*. Aspen, CO.

Erbay E, Babaev VR, Mayers JR, **Makowski L,** Trepas 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.

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.

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. (Oral Presentation)

2007 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.

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.

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.

2006 **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. (Oral Presentation)

2004 **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.

2003 **Makowski L,** Brittingham K, Suttles J, Hotamisligil GS. Modulation of cholesterol metabolism by FABP aP2 in the macrophage. *American Diabetes Association- 63rd Scientific Session*. LA, *Diabetes*. 52 Supplement 1:A177.^

Makowski L, Brittingham K, Suttles J, Hotamisligil GS. Modulation of macrophage cholesterol metabolism by FABP aP2. *Kern Aspen Lipid Conference*. CO.

Hayes, DN, **Makowski L,** Hotamisligil GS. Application of DNA Microarray technology in the setting of small sample size in the FABP apoE^{-/-}aP2^{-/-} model. *Kern Aspen Lipid Conference*. CO.

Makowski L, Brittingham K, Suttles J, Hotamisligil GS. Modulation of macrophage inflammatory response by FABP aP2. *Journal of Leukocyte Biology- Unraveling Inflammation, 36th Annual Meeting for the Society for Leukocyte Biology- Supplement*. PA. (Oral Presentation)

2002 Maeda K, Uysal KT, **Makowski L,** Atsumi G, Gorgun CZ, Parker R, Bruning J, Hertzler 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.^

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.^

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.^

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. ([Oral Presentation](#))

Makowski L, Brittingham K, Suttles J, Hotamisligil GS. The effect of aP2 deficiency on Macrophage biology. *Kern Aspen Lipid Conference*. CO, 2002. ([Oral Presentation](#))

2001 **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.

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.

2000 **Makowski L**, Miller RW, Suttles J, Hotamisligil GS. The role of aP2 and mal1 in macrophage biology. *Keystone Obesity and Diabetes Meeting*. NM.

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. 73rd Scientific Sessions*. CA.

1998 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.^

INVITED LECTURES

2015 **Makowski, L.** *scheduled*, “Macrophage Metabolism Controls Obesity-induced Inflammation” 2015 FASEB summer Research conference on Nutritional Immunology, July 26 - 31, 2015, Lisbon, Portugal

Makowski, L. *scheduled*, “Role of the microenvironment in obesity-induced basal-like breast cancer” Gordon Conference on Mammary Gland Biology, session on Adipose Connections. June 7-12, 2015 Mount Snow Resort, West Dover, VT

Makowski, L. *scheduled*, “Manipulation of macrophage metabolism controls alternative macrophage polarization and obesity-induced inflammation” in the Plenary session entitled, “Metabolic Control of Immunity” at the 2015 Immunity and Health and Disease 48th Annual Society for Leukocyte Biology Meeting .

Makowski, L. *scheduled*, Fall Brigham Young University

Makowski, L. *scheduled*, Fall Vanderbilt University

2014 **Makowski, L.** “Obesity and weight loss on basal-like breast cancer risk” Breast Cancer and the Environment Research Program Annual Conference, San Francisco, CA

Makowski, L. “Obesity and weight loss on basal-like breast cancer risk” UNC Department of Nutrition Seminar Series, UNC Chapel Hill, NC.

Makowski, L. “Obesity, weight loss, and the microenvironment in basal-like breast cancer” Bioconference Live: Cancer Research, Discovery and Therapeutics. (webinar)

Makowski, L. “Obesity and the microenvironment in basal-like breast cancer”. Seventh AACR Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved. San Antonio, TX.

Makowski, L. “Manipulating metabolism: macrophage FATP-1 alters obesity-associated inflammation” Immunity, Inflammation and Metabolism Seminar Series, Duke University. Durham, NC.

2013 **Makowski, L.** “Manipulating macrophage lipid metabolism alters obesity associated inflammation and Insulin resistance” NC State, Raleigh, NC.

Makowski, L. “Obesity, HGF, and weight loss in a mouse model of basal-like breast cancer” Mouse Phase 1 Phenotyping Unit, Lineberger Comprehensive Cancer Center, UNC Chapel Hill, NC.

Makowski, L. “Obesity, HGF, and weight loss in a mouse model of basal-like breast cancer” Breast Cancer and the Environment Program National Conference. Madison, WI.

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 Univ., E. Lansing, MI

Makowski, L. “Manipulating macrophage fuel metabolism and inflammation in obesity” Visiting Scientist Seminar Series, Pennington Biomedical Research Center, Baton Rouge, LA.

2012 **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

Makowski, L. “Role of HGF in obesity-associated basal-like Breast Cancer” Julius L. Chambers Biomedical/Biotechnology Research Institute and Dept. of Biology Seminar Series. NC Central University, Durham, NC.

Makowski, L. “Manipulating macrophage fuel metabolism and inflammation in obesity” Department of Nutrition, UNC Greensboro, Greensboro, NC.

Makowski, L. “Manipulating Metabolism in Immune Cells” Metabolomics Workshop- Practical Applications of Metabolomics. Research Triangle Park, NC.

Makowski, L. “Obesity increases basal-like breast cancer (BLBC)” Mouse Phase 1 Phenotyping Unit, Lineberger Comprehensive Cancer Center, UNC Chapel Hill, NC.

Makowski, L. “The inflammation highway: metabolism accelerates inflammatory traffic in obesity” Endocrine Conference, UNC School of Medicine

2011 **Makowski, L.** “Obesity increases carcinogenesis in a mouse model of basal-like breast cancer (BLBC)” Mouse Phase 1 Phenotyping Unit, Lineberger Comprehensive Cancer Center, UNC Chapel Hill, NC.

Makowski, L. “Obesity and Inflammation in Diabetes” UNC Nutrition Research Institute Department of Community Outreach: Appetite for Life Lecture Series, Kannapolis, NC

Makowski L. “Pregnancy, Obesogenic Environments, and Basal-Like Breast Cancer” NIEHS, Raleigh, NC

Makowski, L. “Obesity & Diabetes: How what you eat changes your body”, North Carolina Math and Science High School, Durham, NC

Makowski L “Pregnancy, Obesogenic Environments, and Basal-Like Breast Cancer” Windows of Susceptibility “WOS” Conference Call, Breast Cancer and the Environment Research Program, NIH-NIEHS.

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

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

2010 **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

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, UNC, Chapel Hill, NC.

Makowski, L. “Macrophages, fuel metabolism and inflammation in obesity” Triangle Immunology Interest Group, RTP, NC.

Makowski, L. “Macrophages, fuel metabolism and inflammation in obesity” Nutritional Sciences Seminar Series, University of Kentucky, KY.

Makowski, L. Pioneering Women Lecture Series- Discussion on leadership and confidence/self esteem, Women in Science and Engineering (WISE), Duke University, Durham, NC

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, UNC, Chapel Hill, NC.

2009 **Makowski, L.** “Fuel Metabolism in Macrophages Alters Inflammatory Potential” Loyola University Medical Center, Biochemistry Graduate Student Seminar Series, Chicago, IL.

Makowski, L. “Changes in Mitochondrial Metabolism alter Muscle and Macrophage Biology” NC State University, School of Veterinary Medicine, Raleigh, NC.

Makowski, L. “Mitochondrial Metabolism Alters Muscle and Macrophage Biology” The Methodist Hospital Research Institute, Houston, TX.

Makowski, L. “Mitochondrial Metabolism Alters Muscle and Macrophage Biology” Baylor College of Medicine, Department of Pediatrics, Children’s Nutrition Research Center, Houston, TX.

Makowski, L. “Mitochondrial Metabolism Alters Muscle and Macrophage Biology” University of Alabama-Birmingham, Internal Medicine, Endocrinology Grand Rounds, Birmingham, AL.

Makowski, L. “Mitochondrial Metabolism Alters Muscle and Macrophage Biology” University of North Carolina- Chapel Hill, School of Public Health, Department of Nutrition, Chapel Hill, NC.

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.

Makowski, L. “Manipulating Fuel Metabolism with Carnitine Alters Macrophage Inflammatory Potential” Southeast Lipid Research Conference, Atlanta.

- 2008 **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.
- 2007 **Makowski L.** "Unraveling links between mitochondrial metabolism and glucose homeostasis: a metabolomics approach" *Department of Genetics & Complex Diseases*, Harvard School of Public Health. Boston, MA.
- 2004 **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-Chapel Hill. Chapel Hill, NC.
- Makowski L.** "Integration of Metabolic and Inflammatory Responses by Fatty Acid-Binding Proteins." *Department of Pharmacology*, Duke University. Durham, NC.
- 2003 **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.
- 2002 **Makowski L.** "The effect of aP2 deficiency on Macrophage biology." *Kern Aspen Lipid Conference*. Aspen, CO.

ORGANIZE SESSIONS AT CONFERENCE/MEETINGS

- 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 TAUGHT

- 2015 Course Director (30 classes), NUTR 620, Micronutrients, **UNC-CH**, Chapel Hill, NC
55 students
- Instructor (1 class), Path 767 Molecular and Cellular Biology of Cardiovascular Disease. 2 credits, **UNC-CH**, Chapel Hill, NC
10 students
- 2014 Course Director (30 classes), NUTR 620, Micronutrients, **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, Micronutrients, **UNC-CH**, Chapel Hill, NC
55 students
Course Director (15 classes) NUTR863, Inflammation and Metabolism in the Microenvironment, **UNC-CH**
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
Instructor (1 class) NUTR 885 Doctoral Seminar 1 credit, **UNC-CH**, Chapel Hill, NC
Instructor (rotations) NUTR 920 Research rotations for nutritional biochemistry doctoral students (1-3 credits), **UNC-CH**, Chapel Hill, NC
- 2012 Course Director (30 classes), NUTR 620, Micronutrients, **UNC-CH**, Chapel Hill, NC
53 students
Instructor (1 class), NUTR 812, Obesity: Cell to Society, **UNC-CH**, Chapel Hill, NC
25 students
Instructor (1 class), NUTR 845, Nutritional Metabolism Department of Nutrition, **UNC-CH**, Chapel Hill, NC
8 students
Seminar to NC Math and Science High School visiting students at UNC-CH, Chapel Hill 2/2012

- 20 students
 Founder and Organizer Monthly Work in Progress Seminar for Nutrition Biochemistry Division,
 Department of Nutrition, **UNC-CH**, Chapel Hill, NC
 3-4 faculty, approx 15 students, approx 5 staff
- 2011 Instructor (17 classes), NUTR 885, Doctoral Seminar, **UNC-CH**, Chapel Hill, NC
 31 students
 Instructor (1 class), PHYI 703, Experimental Physiology of Human Health and Disease, Department of
 Cell and Molecular Physiology, **UNC-CH**, Chapel Hill, NC
 12 students
 Instructor (1 class) BI422 Immunology, **NC Math and Science High School**, Durham, NC.
 20 students
 Founder and Organizer Monthly Work in Progress Seminar for Nutrition Biochemistry Division,
 Department of Nutrition, **UNC-CH**, Chapel Hill, NC
 3-4 faculty, approx 15 students, approx 5 staff
- 2010 Instructor (2 classes), NUTR 845, Nutritional Metabolism Department of Nutrition, **UNC-CH**, Chapel Hill,
 NC
 8 students
- 2006 Lecture, Introductory Cell Biology, **Elon College**, Elon, NC.
 30 students
 Lecture, Molecular and Cell Biology, **Elon College**, Elon, NC.
 30 students
- 2004 Tutorial Instructor, Pharmacology (New Pathway Course) **Harvard Medical School**, Boston, MA.
 8 students
 Instructor Advanced Topics in Nutrition NUT204, **Harvard School of Public Health**, Boston, MA.
 12 students
- 2003 Tutorial Instructor, Pharmacology (New Pathway Course) **Harvard Medical School**, Boston, MA.
 8 students
 Instructor Advanced Topics in Nutrition NUT204, **Harvard School of Public Health**, Boston, MA.
 12 students

TEACHING ACTIVITIES: STUDENT COMMITTEES AND LAB ADVISEES

Current Dissertation Committees:

- Yuanyuan Qin, Ph.D. Candidate "Obesity and effects on the microenvironment", Chair of committee.
- Liyang Zhao, M.S. Candidate "Role of macrophage GLUT1 deletion in atherogenesis", Chair of committee.
- Trisha Grevengoed, Ph.D. candidate "ACSL1's role in insulin resistance and directing fatty acids to a specific fate"
- Dan Cooper "TBD"
- Nicolas Vitko, Ph.D. candidate, *Dept. of Microbiology and Immunology*. "The physiological adaption of *S. aureus* to nitric oxide during infection."
- Susan Klieman, Ph.D. candidate. *Department of Nutrition, Division of Intervention and Policy* "Microbiome-Mediated Metabolic Activity and Weight Dysregulation in Anorexia Nervosa"

Completed Dissertation Committees:

- 2013-2015 Amanda Mah, Ph.D. candidate "The effect of nutrition on intestinal epithelial cell homeostasis"
- 2012-2014 Xiaomeng You, M.S. candidate "Interaction of Dietary Fat Types and Gut Microbiome on Modulation of Whole Body Energy Balance"
- Justin Milner, Ph.D. candidate "The immunological consequences of obesity on primary and secondary immune defenses to the 2009 pandemic h1n1 influenza virus"
- 2012-2013 Heather Paich, Ph.D. candidate "Adiposity and the Human Immune Response to Influenza."
- 2012-2013 Michael DePetrillo, M.S. candidate (leave of absence)

- 2011-2013 Patricia Casbas Hernández, Ph.D. candidate, *Dept. of Pathology and Laboratory Medicine*, Molecular and Cellular Graduate Program “In vitro coculture models to study heterotypic interactions in breast cancer microenvironment”
- 2011-2012 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”
- 2010-2011 Amy Johnson, PhD, Nutrition Determining the role of choline dehydrogenase in sperm cell function”
- 2010 Erik Karlsson, Ph.D., Nutrition, “The Influence of Diet-Induced Obesity on the Generation, Function and Maintenance of Influenza-Specific Memory CD8+ T Cells”

Masters and Year 1 & 2 Doctoral Advisory Committee:

Liyang Zhao 2013-present (Chair)
 Guo Hu 2013- 2014
 Scott Neidich, 2012-2014
 Yuanyuan Qin 2011- present (Chair)
 Daniel Cooper 2011- 2013
 Justin Milner, 2011- 2012
 Heather Paich 2011- 2012
 Trisha Grevengoed, 2010-2012
 Samantha Attard 2011-2011

MPH/RD Masters Paper Advisor:

-Elisabeth Leslie “Crohn’s Disease: Vitamin/Mineral Deficiencies, Protein Energy Malnutrition, and Improving the Quality of Care in a Hospital Setting”
 -Sarah Lowe “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 “Nutritional Intervention and Supplementation in a NCAA Division I Soccer Player Following ACL Reconstruction: A Case Study”
 -Kevin Miller “MSUD Goldilocks: A Case of Efforts to Get MNT Just Right”
 -Jillian Hamilton- 2012 “Clinical Presentation and Nutrition Management of Pediatric Eosinophilic Esophagitis”
 -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 Doctoral Qualifying Exam Committee (N=1-4 students):

2011, 2014

Nutrition MPH Qualifying Exam Committee (N=24-27 students annually):

2010-present

Qualifying Exam Committee External to Department of Nutrition:

2011 Erin Steinbach, Ph.D. candidate, Dept. of Microbiology and Immunology, UNC

Current Advisees/Lab Members:

Alyssa Cozzo, Doctoral candidate, 2014-present
 Liyang Zhao, Masters candidate, 2013-present
 Yuanyuan Qin, Doctoral candidate, Sanofi fellow, Nutrition, 2010-present
 Jimmy Zhang, undergraduate, 2012-present
 Maili Lim, undergraduate, Carolina Honors College, 2013-present
 Luma Essaid, undergraduate, Carolina Honors College, 2013-present
 Amy Johnson, Ph.D., 2012-present (NRSA F32 funded for 3 years)

Former Advisees/Lab Members:

Postdoctoral:

-Brante Sampey, Ph.D. 2010-2011 (currently at Metabolon, Inc., Raleigh, NC)

-Sneha Sundaram, Ph.D., 2011-2014 (currently at USDA)

Graduate:

-Kevin Miller, MPH Candidate, Nutrition, 2011, current clinical RD

-Jillian Hamilton (MPH Candidate, Nutrition), 2010-2012, currently RD/researcher at Duke.

Undergraduate:

-Megan Huang, BSPH (Bachelor of Science in Public Health Candidate, Nutrition), Honors Thesis 'The role of macrophage substrate metabolism on obesity-induced inflammation', Makowski lab 2012-2014

-Gina Sacks, BSPH (Bachelor of Science in Public Health Candidate, Nutrition), High Honors Thesis 'Role of HK III in Macrophages', Makowski lab 2010-2012 (currently in Medical School at Washington University, St. Louis, MO)

-Emeraghi David, BS candidate, 2010

High School:

-Jimmy Zhang (high school student, NC Math and Science High School), 2011-2012 (currently undergraduate at UNC Chapel Hill, technician in my lab)

Awards for Trainees:

2014 Luma Essaid- won a Gold Summer Undergraduate Research Fellowship (SURF) for \$4,000 to fund summer studies.

Luma Essaid- awarded the Tom and Elizabeth Long Research Award for 2014-2015 from Honors Carolina at UNC-CH.

Luma Essaid- \$2,000 Scholarship through UNC Health Care's Volunteer Association.

Luma Essaid- \$500 2014 Gillings Poster Award as part of the Experience Gillings 2014 event.

Trinh Le - won a Gillings School-wide Fred and Pearle McCall scholarship.

Trinh Le - won a Nutrition Department MaryAnn C. Farthing Scholarship.

Sneha Sundaram- awarded the AACR-Susan G. Komen Scholar in Training award for \$1500 to attend AACR in San Diego in 2014.

Alyssa Cozzo, doctoral candidate was selected by the Department of Nutrition as the recipient of the Ethel J. Coleman Endowed Scholarship in Nutritional Biochemistry for 2014-2015 for \$2,500.

Alyssa Cozzo, doctoral candidate was selected by the UNC Graduate School to be a 5 year merit scholar as part of the Royster Society of Fellows.

2013 Megan Huang – recipient of Tom and Elizabeth Long Research Award from the Carolina Honors Program (\$500) to help support honors thesis work.

Amy Johnson – recipient of NRSA F32 postdoctoral fellowship for 3 years of funding.

Yuanyuan Qin – Sabin Family Travel Scholarship (\$1,000) through McAllister Heart Institute for travel to FASEB meeting in Boston to present orally.

Megan Huang- Summer Undergraduate Research Fellowship (\$3,000) to conduct research in Makowski lab over summer.

Amy Johnson, Ph.D. – Recipient of \$1,200 Keystone Symposia Scholarship to attend 'Metabolic Control of Inflammation and Immunity' in Breckenridge, Colorado.

Yuanyuan Qin – FASEB American Society for Nutrition Oral presentation selected for FATP1 project (Boston)

Amy Johnson, Ph.D. – Oral invite 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.

2012 Amy Johnson, Ph.D.- 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

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).

Yuanyuan Qin – Travel Scholarship American Society for Nutrition, FASEB meeting in San Diego, CA.

Yuanyuan Qin – FASEB American Society for Nutrition Oral presentation selected for FATP1 project (San Diego).

Yuanyuan Qin – FASEB American Society for Nutrition Oral presentation selected for alcohol project (San Diego).

- 2011 Gina Sacks - Honors Thesis Award
 Gina Sacks - Summer Undergraduate Research Foundation Award (SURF\$3,000) to conduct research in Makowski lab over summer
 Jillian Hamilton - Graduate Work-Study Assistantship Scholarship (nominated and awarded)
 Yuanyuan Qin - Alcohol and Immunology Research Interest Group (AIRIG) Meeting, Chicago, IL Travel Scholarship
- 2010 Brante Sampey - Kern Lipid Conference Young Investigator Award, Colorado
 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).

Awards for Staff:

- 2013 Alex J. Freerman – Gillings School of Global Public Health Staff Award for outstanding service
 2011 Alex J. Freerman – Nutrition Department Staff Award for outstanding service

CONTRACTS & GRANTS (IN ORDER OF DATE RECEIVED)

Active

- | | |
|---|--|
| U01 ES019472
NIEHS
Role: Co-I/co-PI
Pregnancy, Obesogenic Environment, and Basal-like Breast Cancer
<i>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.</i> | 08/1/2010-07/31/2015
\$2,200,000 (Total)
1.8 calendar months |
| Department of Defense
Role: Co-I (PI Vickie Bae-Jump)
Pre-clinical and Clinical Investigation of the Impact of Obesity on Ovarian Cancer Pathogenesis
<i>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.</i> | 1/1/2013-12/31/2015
\$116,000 (Total)
0.6 calendar months |
| The Mary Kay Foundation
Role: PI
Reversing carcinogenic effect of obesity on basal-like breast cancer
<i>This grant will study the role that lifelong obesity, weight loss and HGF signaling play in mouse models of basal-like breast cancer.</i> | 6/16/2013-6/15/2015
\$100,000 |
| McAllister Heart Institute, UNC Pilot Grant
Role: PI
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> | 9/1/2013-8/30/2017
\$20,000 |
| American Heart Association
Role: PI
<i>The Role of Macrophage Substrate Metabolism in Atherosclerosis</i>
This proposal will investigate the role of macrophage glucose and FA transport and metabolism in the elaboration of inflammation during atherogenesis. | 7/1/2013-6/30/2015
\$154,000 (total)
0.6 calendar months* |
| NIH-R21 NCI CA180134-01
Role: PI | 8/7/2013-8/6/2015
\$351,762 (Total) |

2.4 calendar months

(PQA2) Reversing carcinogenic effect of obesity on basal-like breast cancer

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.

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.

Pending.

NIH-R01 NIDDK

Submitted 06/2013

Role: PI

\$ 1,853,892 (Total)

Metabolic reprogramming of macrophages and obesity-induced insulin resistance

This grant will study the effect of metabolic reprogramming on macrophage biology and obesity.

NIH-NCI/NIEHS- U01

Submitted 01/2015

Role: co-PI

\$4,541,333 (Total)

Age-related involution as a window of susceptibility for environmental breast cancer

This grant will study involution as a risk biomarker.

Completed

Department of Defense

6/1/2013-5/30/14

Role: Co-I (PI Vickie Bae-Jump)

\$295,333 (Total)

2.4 calendar months

Obesity Exposure across the Lifespan on Ovarian Cancer Pathogenesis

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.

U01 ES019472- Opportunity Fund

6/30/2013-5/20/2014

NIEHS

\$63,911 (Total)

Role: **Co-PI** (PI Troester)

0.6 calendar months

The Breast Cancer Puzzle: Using Interactive Media to Help Younger African American Women Understand and Reduce Risks for Breast Cancer.

Junior Faculty Development Award, UNC

1/1/2013-12/31/2013

Role: PI

\$7,500

This grant will fund the creation of a novel mouse model to investigate metabolic reprogramming of macrophages.

U01 ES019472- Opportunity Fund

8/1/2012-5/30/2013

NIEHS

\$100,000 (Total)

Role: Co-I

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.

N.C. Cancer Hospital Endowment Fund activities

3/2012-2/2013

Role: Co-I (PI Michele Mendez)

\$20,000

0.25 calendar months

Web-based 24h recalls to assess habitual diet among cancer survivors: A feasibility study

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.

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.

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.

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)

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)

Pathway to Independence (PI) (K99/R00) K99 AA017376 2007 – 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.

NRSA: F32 HL75970 2003 – 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.

Loan Repayment Program 2003 – 2005
 NIH-LRP

Role: PI

12 calendar

Miscellaneous Education Fellowships Completed- Tuition and stipend:

Harvard Division of Biological Sciences Fellowship.	1997 - 2002
Harvard Medical School - Lucille P. Markey Scholar- Masters in Medicine Fellowship.	1998 - 1999
Harvard School of Public Health - Nutrition Department Fellowship. Tuition and stipend.	1996 - 1997

PROFESSIONAL SERVICE

2015-present -Grant review for American Heart Association

2014-present -Organizing Committee for Annual Southeast Lipid Research Conference (SELRC)
 -UNC NCTracs Research Portal Development committee
 -Mary Kay Foundation Reviewer
 -UNC NORC Digital Histology Core Director & head of recharge center

2013-present -American Heart Association Peer Reviewer
 -UNC Nutrition Obesity Research Center (NORC) pilot and feasibility grant review
 -Invited presentation for lunch with Dean Rimer (*my images chosen for cover of new Gillings SPH website)

2012-present -UNC Gillings School of Global Public Health School-wide Awards Committee.
 -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 -U01 Breast Cancer and the Environment Research Consortium (BCERC)-
 Publication Committee, NIEHS
 -Reviewed abstracts for The Obesity Society annual meeting, Metabolism and Integrative Physiology, Orlando 2011
 -Coleman Scholarship Award Committee, UNC Dept. of Nutrition

2010- present -Staff Service Awards Committee, UNC Dept. of Nutrition
 -MPH Admissions Committee, UNC Dept of Nutrition
 -Breast Cancer and the Environment Research Program- Community Advisory Committee
 -Hosted NC Math and Science High School summer students for lab presentation

2005-present Ad-hoc reviewer for *Journal of Leukocyte Biology; Cell Biochem. and Function; Journal of Clinical Investigation; 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

2014 Establish 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. Nov. 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 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 Hosted NC Math and Science High School students for lab presentation
- 2011 Hosted NC Math and Science High School summer and resident students for lab presentation
- 2010 Breast Cancer Career Panel, Gillings School of Global Public Health, UNC
Hosted NC Math and Science High School summer students for lab presentation

UNC CENTER MEMBERSHIPS AND TRAINING GRANTS

Member Nutrition Obesity Research Center
Member McAllister Heart Institute
Member Lineberger Comprehensive Cancer Center
Member the Center for Environmental Health and Susceptibility
Associate Member of the Center for Gastrointestinal Biology and Disease
Member, Intravascular Biology Training
Member, Nutrition Training Grant
Member, Lineberger Comprehensive Cancer Center Training Grant