Curriculum Vitae

Andrew Seth Greenberg, M.D.

Work Address: Director, Obesity and Metabolism Laboratory
Jean Mayer USDA Human Nutrition Research Center on Aging
At Tufts University
711 Washington Street
Boston, MA 02111
(617) 556-3144

Date & Place of Birth: April 1955
New Hyde Park, New York

Education: 1977 B.A., Amherst College, Amherst, MA
1981 M.D., New York University School of Medicine, New York, NY

Post-Graduate Training/Employment:

1981-84 Intern, Junior Resident, Senior Resident in Internal Medicine
Hospital of the University of Pennsylvania, Philadelphia, PA

1984-87 Medical Staff Fellow, Diabetes Branch, National Institute of Arthritis, Diabetes, and Digestive and Kidney Disease, National Institutes of Health, Bethesda, MD

1987-91 Medical and Senior Staff Fellow, Section on Membrane Regulation, Laboratory of Cellular and Developmental Biology, NIDDK, National Institutes of Health, Bethesda, MD

1991-93 Expert, Section on Membrane Regulation, Laboratory of Cellular and Developmental Biology, NIDDK, National Institutes of Health, Bethesda, MD

1993-2003 Scientist II, Energy Metabolism Laboratory, USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA

1993-Present Attending Physician, Division of Endocrinology, Diabetes, Metabolism, and Molecular Medicine, Division of Clinical Nutrition, Tufts Medical Center, Boston, MA

2003-2007 Scientist I, Director, Laboratory of Obesity and Metabolism, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA

2007-Present Senior Scientist, Director, Laboratory of Obesity and Metabolism, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA

Licensure and Certification:

1983 Medical License, Pennsylvania-MD
License Number 028859
1993 Medical License, Massachusetts
License Number 80352
1985 Diplomate, American Board of Internal Medicine,
Certification Number 100521
1987 Diplomate, Endocrinology & Metabolism
Certification Number 100521

Honors/Awards:

1976 March of Dimes Summer Student Fellowship
1977 Graduated cum laude with Honors in Biology, Amherst College
1977-78 John Woodruff Simpson Fellow in Medicine, Amherst College
1991 Henry Christian Award for Excellence in Research,
American Federation for Clinical Research
1999 Leon Kassel, MD Lectureship," Obesity in 1999, Etiology, Therapy and New Frontiers"
2001 Ray and Roy Kroc Lecture in Advanced Diabetes Research and Visiting Professor at Stanford University School of Medicine,
"Molecular Regulation of Adipocyte Lipolysis: Implications for Diabetes"
2005 Paul Dalgin Memorial Lecture, Obesity and the Metabolic Syndrome: Pathogenesis and Progress, Stamford Hospital
2006 Dr. Robert C. and Veronica Atkins Professorship in Metabolism and Nutrition,
Tufts University School of Medicine
2015 Solomon Berson NYU School of Medicine Alumni Achievement Award in Basic Science

Teaching:

1993-2000 Tufts University School of Medicine, Pathophysiology Endocrinology-2nd year students, participated as session leader.
1993-Present Instruct residents during rotation through Clinical Endocrine Inpatient Service
1995-2005 Gerald J. and Dorothy R. Friedman Tufts School of Nutrition Science and Policy, Nutrition 271 – Nutritional Biochemistry
2005-Present Ph.D. students at Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy participate in rotations through the Obesity & Metabolism Laboratory
1993- Present- Endocrinology and Diabetes Fellows- teaching and round

Academic Appointments:

1993-2003 Scientist II, Energy Metabolism Laboratory, USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA
1993-Present Assistant Professor, Tufts University School of Medicine
1995-Present Assistant Professor, Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy
2003-2007 Scientist I, Director, Obesity and Metabolism Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA

2006-Present Robert C and Veronica Atkins Professorship in Metabolism and Nutrition, Tufts University School of Medicine
2007-Present Associate Professor, Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy
2007-Present Senior Scientist, Director, Laboratory of Obesity and Metabolism, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA
2008- Present: Professor, Tufts University School of Medicine.

Patents:

1. Cloning of the perilipin proteins. Co-inventors: Constantine Londos, Andrew S. Greenberg, Alan R. Kimmel, and John J. Egan - US 6,074,842
2. Methods for treatment of insulin resistance and related disorders. Inventor: Andrew S. Greenberg - US: 6,897,019 (2005), France: 01071429 (2004), Germany: DE 699 847 T2 (2004), United Kingdom: 0171429 (2004) licensed to Celgene, Inc.
3. Genetic variation in perilipin is associated with lower risk for type 2 diabetes and obesity: 2005 patent application pending. Co-inventors: Andrew S. Greenberg, Jose Ordovas, Qiu Lu, and Doris Corella - licensed to Interleukin Genetics
4. Estrogen metabolite regulation of AMPK activated protein kinase: 2006 patent application pending. Co-inventors: Andrew S. Greenberg and Tara D'Eon

Professional Activities:

1997 Organizer and Chairperson, Diabetes and Metabolism Mini-symposium, FASEB, ACN
2000-Present Member, Tufts Medical Center Clinical Research Committee
2004-Present Member, Scientific Advisory Committee of the Tufts Medical Center General Clinical Research Center
2004-Present Member, Jean Mayer USDA Human Nutrition Research Center on Aging Animal Users Committee
2004-2006 Editorial Board, Adipocytes
2005 Member, Organizing Committee for the 2005 Annual Meeting of the North American Association for the Study of Obesity
2005 Organized the Jean Mayer USDA Human Nutrition Research Center on Aging Annual Retreat
2005-2006 Chair-Elect, Organizing Committee of the 2006 Annual Meeting for the North American Association for the Study of Obesity
2005-Present Member, Executive Committee of the NIH funded Boston Obesity and Nutrition Research Center
2005-Present Member, Committee for NIH funded Training Grant: Nutrition and Chronic Disease (PI: Robert Russell, Jean Mayer Human Nutrition Research Center on Aging at Tufts University)
2006 Co-Chair, Organizing Committee of the 2007 Annual Meeting of the North American Association for the Study of Obesity (The Obesity Society)
2006-2007 Ad hoc member of promotion committees for the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy
2007 Chair, Organizing Committee of the 2007 Annual Meeting of the North American Association for the Study of Obesity (The Obesity Society)

2007 Ad hoc Member, Clinical and Integrative Diabetes and Obesity Study Section, NIH Center for Scientific Review
2007-Present Elected to Council of The Obesity Society
2007-Present Co-Director, Clinical and Community Research Core of the NIH Funded Boston Obesity Nutrition Research Center
2007-Present Member, Tufts Medical Center Cancer Center
2008-Present Editorial Board, Endocrinology
2008-Present Editorial Board, Obesity
2010-Elected Co-Chair of FASEB Summer Conference on Lipid Droplets: Metabolic Consequences of the Storage of Neutral Lipids
2012 Co Chair of FASEB Summer Conference on Lipid Droplets: Metabolic Consequences of the Storage of Neutral Lipids

Society Memberships:
American Diabetes Association (15 years)
American Society of Biochemistry and Molecular Biology (10 years)
American Society of Nutrition (12 years)
Endocrine Society (15 years)

Journal Review:
American Journal of Clinical Nutrition
American Journal of Physiology: Endocrinology
Biochemistry
Cell Metabolism
Circulation
Circulation Research
Current Biology
Diabetes
Endocrinology
FASEB
International Journal of Obesity
Journal of Biological Chemistry
Journal of Clinical Endocrinology and Metabolism
Journal of Clinical Investigation
Journal of Lipid Research
Journal of Nutrition
Lancet
Metabolism
Molecular Endocrinology
Obesity Research
PLOS
Science

Bibliography:

1. **Greenberg AS**, Taylor SI, and Londos C. Presence of a functional inhibitory GTP-binding regulatory component, G_i, linked to adenylate cyclase in adipocytes of ob/ob mice. Journal of Biological Chemistry, 1987, 262:4565-4568.

2. Egan JJ, **Greenberg AS**, Chang MK, and Londos C. Control of endogenous phosphorylation of the major cAMP-dependent protein kinase substrate in adipocytes by insulin and ß-adrenergic stimulation. Journal of Biological Chemistry, 1990, 265:18769-18775.

3. **Greenberg AS**, Egan JJ, Wek SA, Garty NB, Blanchette-Mackie EJ, and Londos C. Perilipin, a major hormonally-regulated adipocyte-specific phosphoprotein associated with the periphery of lipid storage droplets. Journal of Biological Chemistry, 1991, 266:11341-11346

4. Nishimura H, Saltis J, Habberfield AD, Garty NB, **Greenberg AS**, Londos C, and Simpson IA. Phosphorylation state of the GLUT4 isoform of the glucose transporter and subfractions of the rat adipose cell: Effects of insulin and isoproterenol. Proceedings of the National Academy of Sciences, U.S.A., 1991, 88:11500-11504.

5. Egan JJ, **Greenberg AS**, Chang MK, Wek SA, Moos MA, and Londos C. Mechanism of hormone-stimulated lipolysis in adipocytes: Translocation of hormone-sensitive lipase to the lipid storage droplet. Proceedings of the National Academy of Sciences, U.S.A., 1992, 89:8537-8541.

6. **Greenberg AS**, Nordan RP, McIntosh J, Calvo JC, Scow RO, and Jablons D. Interleukin-6 reduces lipoprotein lipase activity in adipose tissue of mice *in vivo* and in 3T3 -L1 adipocytes: A possible role for IL-6 in cancer cachexia. Cancer Research, 1992, 52:4113-4116.

7. **Greenberg AS**, Egan JJ, Wek SA, Moos M, Londos C, and Kimmel A. Isolation of cDNAs for perilipins A and B: Sequence and expression of lipid droplet-associated proteins of adipocytes. Proceedings of the National Academy of Sciences, U.S.A., 1993; 90:12035-12039.

8. Blanchette-Mackie EJ, Dwyer NK, Barber T, Coxey RA, Takeda T, Rondonine CM, Theodorakis JL, **Greenberg AS**, and Londos C. Perilipin is located on the surface layer of the intracellular lipid droplets in adipocytes. Journal of Lipid Research, 1995, 36:1211-1226.

9. Roberts SB, Fuss P, Dallal GE, Atkinson A, Evans WJ, Joseph L, Fiatarone MA, **Greenberg AS**, and Young VR. Effects of age on energy expenditure and substrate oxidation during experimental overfeeding in healthy men. Journal of Gerontology, 1996, 51:B148-157.

10. Roberts SR, Nicoloson M, Staten M, Sawaya AL, Heyman MB, Fuss P, and **Greenberg AS**. Total energy expenditure, but not metabolic rate is correlated with circulating leptin in

humans. Relationship between circulating leptin and energy expenditure in adult men and women aged 18 years to 81 years. Obesity Research, 1997, 5:459-46.

11. Souza SC, Yamamoto MT, Franciosa MD, Lien P, and **Greenberg AS**. BRL 49653 blocks the lipolytic actions of tumor necrosis factor-alpha: A possible new insulin sensitizing mechanism for the thiazolidinediones. Diabetes, 1998, 47:691-695.

12. Fried SK, Bunkin DA, and **Greenberg AS**. Omental and subcutaneous adipose tissue of obese subjects release interleukin-6: Depot difference and regulation by glucocorticoid. Journal of Clinical Endocrinology and Metabolism, 1998, 83:847-850.

13. Rosenbaum SE and **Greenberg AS**. The short and long-term effects of tumor necrosis factor-alpha and BRL 49653 on peroxisome proliferator-activated receptor (PPAR) gamma 2 gene expression and other adipocyte genes. Molecular Endocrinology, 1998, 12:1150-1160.

14. Souza SE, Moitoso de Vargas L, Moss LG, and **Greenberg AS**. Overexpression of perilipin A and B blocks tumor necrosis factor-alpha induced lipolysis. Journal of Biological Chemistry, 1998, 272:24665-24669.

15. Melanson KJ, **Greenberg AS**, Ludwig D, Saltzman E, and Roberts SB. Blood glucose and hormonal responses to small and large meals in healthy young and older women. Journal of Gerontology, 1998, 53A:B299-305.

16. McCrory MA, Fuss PJ, Hayes NP, Vinken AG, **Greenberg AS**, and Roberts SB. Eating out and overeating in America: association between restaurant food consumption and body fatness in healthy adult men and women aged 18-80. Obesity Research, 1999, 7:564-571.

17. Heymsfield SB, **Greenberg AS**, Fujoka K, Dixon RM, Kushner R, Hunt T, Lubina JA, Patane J, Self B, Hunt P, and McCamish M. Recombinant leptin for weight loss in obese and lean adults: A randomized controlled dose-escalation trial. JAMA, 1999, 282:1568-74.

18. Bathalon GP, Tucker KL, Vinken LAG, Greenberg AS, and Roberts SB. The accuracy of three common diet methodologies in postmenopausal women classified as restrained or unrestrained eaters. American Journal of Clinical Nutrition, 2000, 71:739-45.

19. Moriguti JC, Das SK, Saltzman E, Corales A, McCrory MA, Greenberg AS, and Roberts SB. Effects of a 6-week hypocaloric diet on changes in body composition, hunger and subsequent weight regain in healthy young and older adults. Journal of Gerontology, Biological Sciences, and Medical Sciences, 2001, 56(4):M206-11.

20. Rosenstock M, **Greenberg AS**, and Rudich A. Distinct long-term regulation of glycerol and non-esterified fatty acid release by insulin and TNF-alpha. Diabetologia, 2001, 44: 55-62.

21. Rudich A, Vanounou S, Riesenberg K, Porat M, Tirosh A, Harman-Boehm I, **Greenberg AS**, Schlaeffer F, and Bashan N. The human immunodeficiency virus protease inhibitor nelfinavair induces insulin resistance and increases basal lipolysis in 3T3-L1 adipocytes. Diabetes, 2001, 50:1425-1431.

22. Saltzman E, Das SK, Lichtenstein AH, Dallal GE, Corrales A, Schaefer EJ, **Greenberg AS**, and Roberts SB. An oat-containing hypocaloric diet reduces systolic blood pressure and improves lipid profile beyond effects of weight loss in men and women. Journal of Nutrition, 2001, 131:1465-1470.

23. Das SK, Moriguti JC, McCrory MA, Saltzman E, Mosunic C, **Greenberg AS**, and Roberts SB. An underfeeding study in healthy men and women provides further evidence of impaired energy regulation of energy expenditure in old age. Journal of Nutrition, 2001, 131(6):1833-8.

24. Bathalon GP, Hays NP, Meydani SN, Dawson-Hughes B, Schaefer EJ, Lipman R, Nelson M, **Greenberg AS**, and Roberts SB. Metabolic, psychological and health correlates of dietary restraint in healthy postmenopausal women. Journal of Gerontology, Biological Sciences and Medical Sciences, 2001, 56(4):M206-11.

25. Saltzman E, Moriguti JC, Das SK, Corrales A, Fuss P, **Greenberg AS**, and Roberts SB. Effects of a cereal rich in soluble fiber on body composition and dietary compliance during consumption of a hypocaloric diet. Journal of American College of Nutrition, 2001, 20(1): 50-7.

26. Atshaves BP, Stoery SM, McIntosh AL, Petrescu AD, Lyuksyutova OL, **Greenberg AS**, and Schroeder F. Sterol carrier protein-2 expression modulates protein and lipid composition of lipid droplets. Journal of Biological Chemistry, 2001, 62:5324-35.

27. Faber BC, Cleutejens KB, Niessen RL, Aarts PL, Boon W, **Greenberg AS**, Kitslaar PJ, Tordoir JH, and Daemen MJ. Identification of genes potentially involved in rupture of human atherosclerotic plaques. Circulation Research, 2001, 89:547-54.

28. Chen JS, **Greenberg AS**, Tseng YZ, and Wang SM. Protein kinase C-regulated expression of adipose differentiation-related protein in sterol ester-laden RAW macrophages. Journal of Cellular Biochemistry, 2001, 83:187-99.

29. **Greenberg AS**, Shen WJ, Muliro K, Patel S, Souza SC, Roth RA, and Kraemer FB. Stimulation of lipolysis and hormone-sensitive lipase via the extracellular signal regulated kinase pathway. Journal of Biological Chemistry, 2001, 276:45456-45461.

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31. Bathalon GP, Hays NP, McCrory MA, Vinken AG, Tucker KL, **Greenberg AS**, Castaneda C, and Roberts SB. The energy expenditure of postmenopausal women classified as restrained or unrestrained eaters. European Journal of Clinical Nutrition, 2001, 55:1059-67.

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34. Fong TH, Yang CC, **Greenberg AS**, and Wang SM. Immunocytochemical studies on lipid droplet surface protein in adrenal cells. Journal of Cellular Biochemistry, 2002, 86:432-439.

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36. Skolnik PR, Rabbi MF, Mathys J-M, and **Greenberg AS**. Stimulation of peroxisome proliferator activated receptors α and γ (PPARα and PPARγ blocks HIV-1 replication and TNF production in acutely infected primary blood cells, chronically infected U1 cells, and alveolar macrophages from HIV-infected subjects. Journal of Acquired Immune Deficiency Syndrome, 2002, 31:1-10.

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43. Zhang HH, Souza SC, Muliro KV, Kraemer FB, Obin MS, and **Greenberg AS**. Lipase-selective functional domains of perilipin A differentially regulates constitutive and protein kinase A-stimulated lipolysis. Journal of Biological Chemistry, 2003, 278:51535-42.

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45. Trujillo ME, Sullivan S, Harten I, Schneider SH, **Greenberg AS**, and Fried SK. Interleukin-6 regulates human adipose tissue lipid metabolism and leptin production *in vitro*. Journal of Clinical Endocrinology and Metabolism, 2004, 89:5577-5582.

46. Qi L, Shen H, Larson I, Schaefer EJ, **Greenberg AS**, Tregouet DA ,Corella D, and Ordovas JM. Gender-specific association of a perilipin (*PLIN)* gene haplotype with obesity risk in a White population. Obesity Research, 2004, 12:1758-1765.

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50. Pittas AG, Hariharan R, Stark PC, Hajduk CL, **Greenberg AS** and Roberts SB. Interstitial glucose level is a significant predictor of energy intake in free-living women with healthy body weight. Journal of Nutrition, 2005, 135:1070-4.

51. Corella D, Qi L, Sorli JV, Godoy D, Portoles O, Coltell O, **Greenberg AS**, and Ordovas JM. Obese subjects carrying the 11482G>A polymorphism at the perilipin (PLIN) locus are resistant to weight loss following dietary energy restriction. Journal of Clinical Endocrinology and Metabolism, 2005, 90(9):5121-6.

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53. Pittas AG, Das SK, Hajduk CL, Golden J, Saltzman E, Stark PC, **Greenberg AS**, and Roberts SB. A low glycemic load diet facilitates greater weight loss in overweight adults with high baseline insulin secretion but not in overweight adults with low insulin secretion in the CALERIE trial. Diabetes Care, 2005, 28(12):2939-2941.

54. D'Eon TM, Souza SC, Aronovitz M, Obin MS, Fried SK, and **Greenberg AS**. Estrogen regulation of adiposity and fuel partitioning: Evidence of genomic and non-genomic regulation of lipogenic and oxidative pathways. Journal of Biological Chemistry, 2005 280(43):35983-91.

55. Jones CY, Wilson IB, **Greenberg AS**, Shevitz A, Knox TA, Gorbach SL, Spiegelman D, Jacobson DL, and Wanke C. Insulin resistance in HIV-infected men and women in the nutrition for healthy living cohort. Journal of Acquired Immune Deficiency Syndrome, 2005, Oct 1, 20(2):202-11.

56. Cinti S, Mitchell G, Barbatelli G, Murano I, Ceresi E, Faloia E, Wang S, Fortier M, **Greenberg AS (corresponding author)**, and Obin MS. Adipocyte death defines macrophage localization and function in adipose tissue of obese mice and humans. Journal of Lipid Research, 2005, 46(11):2347-55

57. Gross DN, Miyoshi H, Hosaka T, Zhang HH, Pino EC, Souza S, Obin MS, **Greenberg AS**, and Pilch PF. Dynamics of lipid droplet associated proteins during hormonally stimulated lipolysis in engineered adipocytes: Stabilization and lipid droplet binding of ADRP/adipophilin. Molecular Endocrinology, 2006, 20:459-466.

58. Trujillo ME, Lee MJ, Sullivan S, Feng J, Schneider SH, **Greenberg AS**, and Fried SK. Tumor necrosis factor {alpha} and glucocorticoid synergistically increase leptin production in human adipose tissue – Role for p38 MAPK. Journal of Clinical Endocrinology and Metabolism, 2006, 91: 4:1484-1490.

59. Miyoshi H, Souza SC, Zhang HH, Strissel KJ, Christoffolete MA, Kovsan J, Rudich A, Kraemer FB, Bianco AC, Obin MS, and **Greenberg AS**. Perilipin promotes HSL-mediated adipocyte lipolysis via phosphorylation-dependent and independent mechanisms. Journal of Biological Chemistry, 2006, 281:23:15837-15844.

60. Pittas AG, Roberts SB, Das SK, Gilhooly CH, Saltzman E, Golden J, Stark PC, and **Greenberg AS.** The effects of dietary glycemic load on type 2 diabetes risk factors during weight loss. Obesity, 2006, 14:200-209.

61. Miyoshi H, Perfield JW 3rd, Souza SC, Shen WJ, Zhang HH, Stancheva ZS, Kraemer FB, Obin MS, and **Greenberg AS**. Control of ATGL action by serine 517 of perilipin A globally

regulates PKA-stimulated lipolysis in adipocytes. Journal of Biological Chemistry, 2007, 282: 996-1002, Epub 2006, Nov.

62. Granneman JG, Moore HP, Granneman RL, **Greenberg AS,** Obin MS, and Zhu Z. Analysis of lipolytic protein trafficking and interactions in adipocytes. Journal of Biological Chemistry, 2007, 282: 996-1002.

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64. Souza SC, Christoffolete MA, Ribeiro MO, Miyoshi H, Strissel KJ, Stancheva ZS, Rogers NH, D'Eon TM, Perfield JW, Imachi H, Obin MS, Bianco AC, and **Greenberg AS**. Perilipin regulates the thermogenic actions of norepinephrine in brown adipose tissue. Journal of Lipid Research, 2007, 48:1273-1279.

65. Kovsan J, Ben-Romano R, Souza SC, **Greenberg AS**, and A Rudich. Regulation of adipocyte lipolysis by degradation of the perilipin protein: Nelfinavir enhances lysosome-mediated perilipin proteolysis. Journal of Biological Chemistry, 2007, 282:21704-2711.

66. Strissel KJ, Stancheva Z, Miyoshi H, Perfield JW II, DeFuria J, Jick Z, **Greenberg AS**, and Obin MS. Adipocyte death, adipose tissue remodeling and obesity complications. Diabetes. 2007 Dec;56(12)2910-8.

67. D'Eon TM, Rogers N, Stancheva ZS, and **Greenberg AS**. Estradiol and the estradiol metabolite, 2-hydroxyestradiol activated AMP-activated protein kinase in C2C12 myotubes. Obesity. 2008.16:1284-1288. PMCID: In Process

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69. Wang Y, Ausman LM, Russell RM, **Greenberg AS**, Wang XD. Increased apoptosis in high-fat diet-induced nonalcoholic steatohepatitis in rats is associated with c-Jun NH2-terminal kinase activation and elevated proapoptotic. Bax J Nutr. 2008 Oct;138(10):1866-71. PMCID: PMC2587062.

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hepatocarcinogenesis in rats. Int J Cancer. 2009 Feb 1;124(3):540-6. PMCID: PMC2671079.

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76. DeFuria J, Bennett G, Strissel KJ, Perfield JW 2nd, Milbury PE, **Greenberg AS**, Obin MS. Dietary blueberry attenuates whole-body insulin resistance in high fat-fed mice by reducing adipocyte death and its inflammatory sequealae.J Nutr 2009, 139:15110-6. PMCID: PMC2709302.

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81. Wang Y, Ausman LM< Greenberg AS, Russell RM, Wang XD. Dietary lycopene and tomato extract supplementation inhibit nonalcoholic steato-hepatisis promoted hepatocarcinogenesis in rats. In J Cancer 2010, Apr 15, 126:1788-96. PMCID: PMC2829382.

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84. Shaul ME, Bennett G, Strissel KJ, **Greenberg AS**, Obin MS. Dynamic, M2-like Remodeling Phenotypes of CD11c+ Adipose Tissue Macrophages During High Fat Diet-Induced Obesity in Mice. Diabetes. 2010 May;59(5):1171-81. PMCID: PMC2857897.

85. Sawada T, Miyoshi H, Shimada K, Suzuki A, Okamatsu-Ogura y, Perfield JW 2nd, Kondo T, Nagai S, Shimizu C, Yoshioka N, **Greenberg AS**, Kimura K, Koike T. Perilipin overexpression in white adipose induces a brown fat-like phenotype. PloS One. 2010 Nov 16;5(11)e14006. PMCID: PMC2982838.

86. Kovsan J, Bashan N, **Greenberg AS**, Rudich A. Potential role of autophagy in modulation of lipid metabolism. Am J Physiol Endocrinol Metab. 2010 Jan;298(1):E1-7. PMCID: In Process.

87. Kovsan J, Bluher M, Tarnovscki T, Kloting N, Kirshtein B, Madar L, Shai I, Golan R, Harman-Boehm I, Schon MR, **Greenberg AS**, Elazar Z, Bashan N, Rudich A. Altered autophagy in human adipose tissues in obesity. J Clin Endocrinol Metab. 2011 Feb;96(2):E267-77.PMCID: In Process

88. Ranjit S, Boutet E, Gandhi P, Prot M, Tamori Y, **Greenberg AS**, Puri V, Czech MP. Regulation of fat specific protein 27 by isoproterenol and TNF-σ to control lipolysis in murine adipocytes. J Lipid Res 2011, Feb 52:221-36. PMCID: PMC3023542.

89. Lê KA, Mahurkar S, Alderete TL, Hasson RE, Adam TC, Kim JS, Beale E, Xie C, **Greenberg AS,** Allayee H, Goran MI. Subcutaneous adipose tissue macrophage infiltration is associated with hepatic and visceral fat deposition, hyperinsulinemia, and stimulation of NF-κB stress pathway. Diabetes. 2011 Nov;60(11):2802-9. PMCID: PMC319806.

90. Ong KT, Mashek MT, Bu Sy, **Greenberg AS**, Mashek DG. Adipose triglyceride lipase is a major hepatic lipase that regulates triacylglycerol turnover and fatty acid signaling and partitioning. Hepatology. 2011 Jan 53:116-26. PMCID: PMC3025059.

91. Perfield JW, Lee Y, Shulman GI, Samuel VT, Jurczak MJ, Chang E, Xie C, Tsichlis PN, Obin MS and **Greenberg AS**. Tumor Progression Locus 2(TPl2) Regulates Obesity Associated Inflammation and Insulin Resistance. Diabetes. 2011 Apr;60(4):1168-76. PMCID: PMC3064090.

92. Liu Z, Brooks RS, Ciappio ED, Kim SJ, Crott JW, Bennett G, **Greenberg AS,** Mason JB. Diet-induced obesity elevates colonic TNF-α in mice and is accompanied by an activation of Wnt signaling: a mechanism for obesity-associated colorectal cancer. J Nutr Biochem. 2012 Oct;23(10):1207-13. PMCID: In process

93. Vieira Potter VJ, Strissel KJ, Xie C, Chang E, Bennett G, Defuria J, Obin MS, **Greenberg AS**. Adipose tissue inflammation and reduced insulin sensitivity in ovariectomized mice occurs in the absence of increased adiposity. Endocrinology. 2012 Sep;153(9):4266-77. PMCID: PMC3423617.

94. McManaman JL, Bales ES, Orlicky DJ, Jackman M, Maclean PS, Cain S, Crunk AE, Mansur A, Graham CE, Bowman TA, **Greenberg AS**. Perilipin-2-null mice are protected against diet-induced obesity, adipose inflammation, and fatty liver disease. J Lipid Res. 2013 May; 54(5):1346-59. PMCID: PMC3622329.

95. Grahn TH, Zhang Y, Lee MJ, Sommer AG, Mostoslavsky G, Fried SK, **Greenberg AS**, Puri V. FSP27 and PLIN1 interaction promotes the formation of large lipid droplets in human adipocytes. Biochem Biophys Res Commun. 2013 Mar 8; 432(2):296-301.PMCID: PMC3595328.

96. Vernier S, Chiu A, Schober J, Weber T, Nguyen P, Luer M, McPherson T, Wanda PE, Marshall CA, Rohatgi N, McDaniel ML, **Greenberg AS**, Kwon G. β-cell metabolic alterations under chronic nutrient overload in rat and human islets. Islets. 2012 Nov-Dec;4(6):379-92. PMCID: PMC3605166.

97. Ueno M, Shen WJ, Patel S, **Greenberg AS**, Azhar S, Kraemer FB. Fat-specific protein 27 modulates nuclear factor of activated T cells 5 and the cellular response to stress. J Lipid Res. 2013 Mar;54(3):734-43. PMCID: PMC3617947

98. Spartano NL, Lamon-Fava S, Matthan NR, Obin MS, Greenberg AS, Lichtenstein. Linoleic acid suppresses cholesterol efflux and ATP-binding cassette transporters in murine bone macrrow-derived macrophages. Lipids. 2013, May;49:415-422. Pubmed in process

99. Tripathy S, Lytle KA, Stevens RD, Bain JR, Newgard CB, Greenberg AS, Huang LS, Jump DB. Fatty acid elongase-5 (Elovl5) regulates hepatic triglyceride catabolism in obese C57BL6J mice. J. Lipid Res. 2014 May 9;55(7): 1448-1464. (epub) Pubmed in process.

100. Spartano NL, Lamon-Fava S, Matthan NR, Ronxhi J, Greenberg AS, Obin MS, Lichtenstein AH. Regulation of ATP-binding cassette transporters and cholesterol efflux by glucose in primary human monoyctes and bone marrow derived macrophages. Exp Clin Endocrinol Diabetes 2014, Sep 122(8):463-8 (epub) Pubmed in process.

101. Urban LE, McCrory MA, Rasmussen H, Greenberg AS, Fuss PJ, Saltzman E, Roberts SB. Independent additive effects of five dietary variables on ad libitum energy intake in residential study. Obesity. 2014. Sep;22 (9):2018-25. (epub) Pubmed in process.

Reviews:

1. Roberts SB and **Greenberg AS**. The New Obesity Genes. Nutrition Reviews, 1996, 54: 41-49.

2. Roberts SB and **Greenberg AS**. Age-associated changes in energy regulation and their relation to mitochondrial DNA mutations. Aging and Clinical Expression Research, 1995, 7: 469-470.

3. **Greenberg AS** and McDaniel ML. Identifying the links between insulin resistance and β-cell function: the role of cytokines. European Journal of Clinical Investigation, 2002, 32 Supplement 3:24-34.

4. Pittas A and **Greenberg AS**. Thiazolidinediones in the treatment of Type II Diabetes. Expert Opinion on Pharmacotherapy, 2002, 3:529-40.

5. **Greenberg AS**. Expanding Scope of the Metabolic Syndrome and Implications for the Cardiovascular Risk in Type 2 Diabetes with Particular Focus on the Merging Role of the Thiazolidinediones. Journal of Diabetes and its Complications, 2003, 17:318-228.

6. Ordovas J, Pittas A, and **Greenberg AS**. Might the diabetic environment in utero lead to type 2 diabetes? Lancet, 2003 31:1839-40.

7. Eisenstein J and **Greenberg AS**. Ghrelin, update. Nutritional Review, 2003, 61:101-104.

8. **Greenberg AS**. Obesity: now and later. Nutritional Clinical Care, 2003, 6:2-3.

9. Pittas AG, Joseph NA, and **Greenberg AS**. Adipocytokines and Insulin Resistance. Journal of Clinical Endocrinology and Metabolism, 2004, 89(2):447-52.

10. **Greenberg AS** and Obin MS. Obesity and the role of adipose tissue in inflammation and metabolism. American Journal of Clinical Nutrition, 2006 Feb; 83(2):461S-5S.

11. **Greenberg AS** and Obin MS. Many roads lead to the lipid droplet. 2008, Cell Metabolism in press.

12. **Greenberg AS,** Kraemer FB, Soni KG, Jedrychowski MP, Yan QW, Graham CE, Bowman TA, Mansur A. Lipid droplet meets a mitrochondrial protein to regulate adipocyte lipolysis. EMBO J. 2011 Nov 2;30(21):4337-9. PMCID: PMC3230382.

13. **Greenberg AS**, Coleman RA, Kraemer FB, McManaman JL, Obin MS, Puri V, Yan QW, Miyoshi H, Mashek DF. The role of lipid droplets in metabolic disease in rodents and humans. J Clin Invest. 2011 Jun 1;121(6):2102-10. PMCID: PMC3104768.

14. **Greenberg AS**, Coleman RA. Expanding roles for lipid droplets. Trends Endocrinolol Metab. 2011 Jun;22(6):195-6. PMCID: In Process

15. Karastergiou K, Smith SR, **Greenberg AS**, Fried SK. Sex differences in human adipose tissues - the biology of pear shape. Biol Sex Differ. 2012 May 31;3(1):13. PMCID: PMC3411490.

16. Fried SK, **Greenberg AS**. Lipocalin 2: a "sexy" adipokine that regulates 17β-estradiol and obesity. Endocrinology. 2012 Apr;153(4):1582-4. PMCID: PMC3320254.

17. Mashek DG, Greenberg AS. Serum TAG analysis differentiates between genetic and obesity associated NAFLD. Diabetes 2013Jan;63:42-44. In process

Books and Book Chapters:

Pittas A and **Greenberg AS**. Contemporary Diagnosis and Management of Diabetes. Handbooks in Health Care, Newton, PA, USA, 2003.

Rogers N, Obin MS, and **Greenberg AS**. Chapter 5: Obesity and Adipokines in Contemporary Endocrinology: Treatment of the Obese Patient. Editors: R Kushner and DH Bessenden 2006.

Invited Presentations:

1. Clinical assessment of the obese patient. Obesity Update: Assessment and Treatment of the Patient with Medically Significant Obesity. (Continuing Medical Education Course) Sacramento, California, 10/1991.

2. Perilipin: A lipid droplet-associated, hormonally-regulated phosphoprotein of adipocytes. Application of New Techniques Study Adipose Tissue Metabolism, Joint Annual Meeting of the North American Association for the Study of Obesity and the Society of the Study of Ingestive Behavior, 10/1991.

3. Regulatory Events at the Surface of the Lipid Droplet in Adipocytes-Perilipin, a Novel Phosphoprotein. The Lipid Club of the George Washington University School of Medicine, 3/1991.

4. Trafficking at the Surface of the Lipid Droplet in Adipocytes: Implications for the Regulation of Fat Metabolism. Medical College of Pennsylvania, 4/1991.

5. Perilipin: a Novel Hormonally Regulated, Adipocyte-Specific Phosphoprotein Located at the Surface of the Lipid Storage Droplet in Adipocytes. Obesity Research Center at St. Luke's-Roosevelt Hospital Center, New York, 1991.

6. Perilipin-Endocrine Grand Rounds, Beth Israel Hospital, Boston, MA, 1994.

7. Perilipins, a Family of Lipid Droplet Associated Proteins. Tufts University Vascular Biology Seminar Series, 1994.

8. Perilipins, a Family of Lipid-Droplet Associated Proteins, a Link between Adipocytes and Steroidogenic Tissues: Implications for Regulation of Intracellular Lipid Metabolism. Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, 1995.

9. Age-Associated Changes in Energy Regulation and their Relation to Mitochondrial DNA Mutations. Consequences of Age Change Explored at the Cellular and Subcellullar Levels on Organismic Function (Joint talk given by Roberts SB and Greenberg AS) Volterra, Italy, 1995.

10. Role of Perilipins in Lipid Metabolism. Plenary Speaker, Woods Hole Meeting on Adipose Tissue, Boston Obesity Nutrition Research Center, 2/1995.

11. Perilipins, a Family of Lipid-Droplet Associated Proteins, a Link between Adipocytes and Steroidogenic Tissues: Implications for Regulation of Intracellular Lipid Metabolism. Endocrine Grand Rounds, Tufts Medical Center, 5/1995.

12. Molecular Regulation of Lipolysis. GRASP Center Grand Rounds, Tufts Medical Center, 9/1995.

13. Molecular Regulation of Lipolysis: A Possible Role for the Perilipin Family of Proteins. Department of Biochemistry, Mt. Sinai School of Medicine, NY, 12/1995.

14. Obesity, Medical Grand Rounds, Tufts Medical Center, 3/1996.

15. Tumor Necrosis Factor Regulation of Adipocyte Lipolysis. American Physiological Society, FASEB 1998, Pluripotent Effects of Tumor Necrosis Factor-α on Insulin Sensitive Tissues, New Orleans, LA. 4/1998.

16. Advances in the Molecular Basis and Understanding of Obesity. Obesity: Bridging the Gap between Research and Clinical Practice, Jean Mayer USDA HNRC at Tufts University, 6/1998.

17. Regulation of Adipocyte Lipolysis. Novartis Pharmaceuticals Corporation, East Hanover, NJ, 10/1998.

18. Impact of TNF-α on Insulin Resistance: Role of the Thiazolidinediones, Parke Davis Sponsored Symposium: Ponte Verde, Florida, 11/1998.

19. Hormonal Regulation of Adipocyte Lipolysis: Possible Role of the Lipid-Droplet Associated Proteins the Perilipins. Beth Israel Deaconess Endocrine Grand Rounds, 3/1999.

20. Obesity in 1999: Etiology, Therapy, and New Frontiers. Leon Kassel Lectureship, Sinai Hospital, Baltimore, Maryland, 4/1999.

21. Cytokines and Insulin Resistance. The Insulin Resistance Syndrome: Molecular Mechanisms Linking Obesity, Insulin Resistance and Cardiovascular Disease, Cambridge, England, 5/1999.

22. Clinical Effects of Leptin in Humans. 81st Annual Meeting of the Endocrine Society, San Diego, California. 6/1999.

23. Regulation of Adipocyte Lipolysis. University of Vermont School of Medicine Endocrine Grand Rounds, Burlington Vermont, 3/2000.

24. Forum for Collaborative HIV Research on Adipocyte Biology. Washington D.C., 8/2000.

25. Molecular Regulation of Adipocytes Lipolysis and its Potential Implications for Obesity Related Metabolic Complications. Centre for Cardiovascular Genetics, University College of London, 8/2000.

26. Adipose Tissue as an Endocrine Organ: IL-6 in Adipose Tissue. North American Association for the Study of Obesity Annual Meeting, Cancun, Mexico, 10/2000.

27. Identifying the Links between Insulin Resistance and Beta Cell Function: the Role of Cytokines in Peripheral Tissues/Organs. Insulin Resistance and Beta-Cell Function Think Tank, Sponsored by SmithKline Beecham Newport, Rhode Island, 10/2000.

28. Diabetes, Obesity, and Atherosclerosis: Inflammation, the Final Common Pathway? SmithKline Beecham, Upper Providence, PA, 11/2000.

29. Molecular Regulation of Lipolysis. Endocrine Grand Rounds, Columbia University College of Physicians & Surgeons, 1/2001.

30. Molecular Regulation of Adipocyte Lipolysis and its Implications for Diabetes. Kroc Visiting Professorship at Stanford University School of Medicine, 4/2001.

31. Molecular Regulation of Adipocyte Lipolysis and its Implications for Type II Diabetes. Tufts Medical Center Endocrine Grand Rounds, 5/2001.

32. Perilipin Regulates Fat Metabolism in Cells and Animals. Gene Regulation and Adipose/Lipid Metabolism-Lean Mice Models, North American Association for the Study of Obesity Annual Meeting, Quebec, Canada 10/2001.

33. Regulation of Lipolysis: Implications for Insulin Resistance and Diabetes. Endocrinology Grand Rounds, Washington University School of Medicine, St. Louis, Missouri, 10/2001.

34. Players, Proteins, and Pathophysiology. Adipose Tissue Study Group, Boston Obesity and Nutrition Research Center Boston University, 11/2001.

35. Perilipin, Potential Marker of Plaque Rupture: What is Perilipin? Why is it found in plaques? Vulnerable Plaque Detection and Treatment Program Lecture Series, Massachusetts General Hospital, 12/2001.

36. Molecular Regulation of Lipolysis: Implications for Diabetes, Atherosclerosis, and Insulin Resistance. University of Minnesota School of Medicine, Citywide Endocrine Grand Rounds, 3/2002.

37. Regulation of Lipolysis and Perilipin Function. Annual Meeting of the American College of Sports Medicine, St. Louis, Missouri, 5/2002.

38. Cytokines and Adipose Tissue Metabolism. University College of London, 8/2002.

39. Fat Cells as Protagonists in Health and Disease. Medical Grand Rounds, Tufts Medical Center, 3/2003.

40. The Triad of Diet, Obesity, and Insulin Resistance: Molecular and Cellular Mechanisms. Nutritional Modulation of Aging and Age-Related Diseases, Baltimore, MD, 6/2003.

41. The Adipocyte Equation in Lipid Metabolism. North American Association for the Study of Obesity, Ft. Lauderdale, Florida. 10/2003.

42. Perilipin: Protagonist and Protector of the Metabolic Syndrome. Endocrine Grand Rounds, University of San Diego School of Medicine, VA Hospital, 2/2004.

43. Perilipin, Molecular Dissection of its Role in Adipocyte Lipolysis. Program in Molecular Medicine, University of Massachusetts School of Medicine, 3/2004.

44. Perilipin and HSL. Integrative Role of Fatty Acids in Metabolic Regulation: Implications for Obesity and Diabetes Research, American Diabetes Association Research Symposium, 4/2004.

45. Cytokine Action - Role in Metabolic Syndrome. Integrative Approaches to Understanding Obesity and its Metabolic and Clinical Consequences, FASEB Summer Conference, 8/2004.

46. Living Well to 100, Nutrition, Genetics, and Inflammation: Inflammation and Weight Management, Metabolic Syndrome, 11/2004.

47. Obesity and the Metabolic Syndrome: Pathogenesis and Progress. 2005 Paul Dalgin Memorial Lecture, Stamford Hospital, 2005.

48. The Underlying Role of Adipose Tissue in the Inflammation of the Metabolic Syndrome. IBC's Targeting Metabolic Syndrome, 5/2005.

49. Metabolic Syndrome: A view from the Fat Cell. Bio 2005, Philadelphia, Pennsylvania 6/2005.

50. Adipocyte Necrosis and Macrophage Function in Obesity, North American Association for the Study of Obesity, Vancouver, Canada, 10/2005.

51. Adipocyte Necrosis and Macrophage Function in Obesity, Tufts Medical Center Endocrine Grand Rounds, 11/2005.

52. Through Obesity and Thin: Metabolic Disease, a New Paradigm and Disease for the 21st Century. Tufts Research Day, 12/2005.

53. Adipocyte Necrosis and Macrophage Function in Obesity. University of Maryland School of Medicine, 12/2005.

54. A Role for Estrogen in Regulating Obesity and Metabolism. Endocrinology Division, University of Pittsburgh, 03/2006.

55. Adipocyte Necrosis, Possible Role in Obesity Associated Alterations in Adipose Tissue Inflammation. Department of Nutrition Seminar, University of North Carolina at Chapel Hill, 03/2006.

56. Role of Estrogen in Systemic Metabolism. Endocrinology Division, University of Maryland, Baltimore, 03/2006.

57. Metabolic Complications of Obesity: An Epidemic for the 21st Century. Medical Grand Rounds, Tufts Medical Center, 04/2006.

58. Estrogen Regulation of Adipocyte and Systemic Metabolism: Society for Women's Research, Isis Fund Network on Metabolism, Washington D.C., 05/2006.

59. Necrosis and Adipocytes in Obesity. American Diabetes Association Scientific Sessions, Washington D.C., 6/2006.

60. Role of Estrogen in Systemic Metabolism. Endocrine Grand Rounds. Columbia College of Physicians and Surgeons, 11/2006.

61. Role of Estrogen in Systemic Metabolism. Endocrine Grand Rounds, Dartmouth School of Medicine, 12/2006.

62. Role of Inflammation in Obesity Related Insulin Resistance and Type 2 Diabetes. ILSI Annual Meeting, Cancun, Mexico, 1/2007.

63. The Role of Adipose Tissue Inflammation in Obesity-Associated Complications. Center for Molecular Studies in Digestive and Liver Diseases & Division of Gastroenterology. University of Pennsylvania School of Medicine. 8th Annual Conference, 4/2007.

64. Obesity and Inflammation: Remodeling of Abdominal Visceral Fat. Experimental Biology, American Society for Nutrition Medical Nutrition Conference, Washington DC, 4/2007.

65. Obesity-Associated Inflammation, Immune Dysfunction and Effect of Nutrient and Life Style Modification. Adipose Tissue Inflammation and Its Role in Modulating Adipocyte-Derived Hormones and Systemic Metabolism. Experimental Biology, American Society for Nutrition, Washington D.C., 5/2007.

66. Structure/Function Studies of Perilipin in Adipocytes, Animals, and Humans. FASEB Summer Conference, Saxtons River, Vermont, 8/2007.

67. Role of Macrophage Death in Obesity-Associated Adipose Tissue Inflammation and Insulin Resistance. 3rd Russell Berrie Symposium on Diabetes and Obesity, Israel, 10/2007.

68. Sex Hormones, Obesity, and the Metabolic Syndrome. Program Chair - Annual Scientific Meeting of The Obesity Society, New Orleans, Louisiana, 10/2007.

69. Estrogen, Obesity, and Adipose Tissue Inflammation. Department of Psychiatry, University of Cincinnati, Ohio, 11/2007.

70. Journey from the Lipid Droplet to Obesity-Associated Adipose Tissue Inflammation. NIH Inter-Institute Endocrine Grand Rounds, Bethesda, MD, 12/2007.

71. Invited speaker: Adipose Tissue Metabolism, Inflammation, and Cancer. AACR-TREC-NCI Conference: Energy Balance and Cancer – Mediators and Mechanisms. Lansdowne, VA, 2/2008.

72. Cell Press Lab Links: Metabolic Diseases, invited speaker: Lipid droplet proteins and fat/glucose homeostasis. Worcester, MA. 5/8/08

73. Invited Speaker: Symposium entitled: Fat in the Fire, invited talk: Signaling and Inflammation. Annual Meeting of the Obesity Society, Phoenix, Arizona. 10/2008

74. American Diabetes Association Annual Meeting- 69th Scientific Session Invited Speaker: Regulatory Role of Lipid Droplet Proteins in Basal and Stimulated Lipolysis. New Orleans, LA 6/2009

75. Invited Speaker: FASEB Summer Conference: The Physiological Basis for Obesity Therapteutics. Invited Talk: Role of Estrogen in Regulating Metabolism, August, 2009

76. 11th Abbott Nutrition R & D Conference, Inflammaton and Chronic Disease. June, 2010 Roos Park, Ohio. Invited talk: Obesity, Inflammation, and Metabolism.

77. Invited Speaker: Brown Adipose Tissue and Human Obesity., Stockholm , Sweden , July 2010, invited talk: Perilipin regulates the thermogenic actions of norepinephrine in brown adipose tissue

78. Invited Speaker: Columbia University, New York, NY,March 23, 2011. Seminars in Lipoprotein Metabolism, Atherosclerosis and Nutrition.: Lipid droplet Regulation in vitro and in vivo consequences

79. Invited Speaker : Tufts University Program in Pharmacology and Experimental Therapeutics, The interaction between lipid metabolism and inflammation to cause metabolic dysfunction.April 25, 2011.

80. EB Symposium Annual Meeting 2012. Type 2 Diabetes: Beyond Body Fat. Bisphenol A, An Ubiquitous Environmental Agent that Promotes Obesity and Diabetes

81. Invited Speaker, The University of Chicago Biomedical Sciences Cluster, Committee on Molecular Metabolism and Nutrition. Potential role of Perinatal Bisphenol A in the Development of Diet-Induced Obesity and Diabetes.

82. Tufts Medical Center, Division of Endocrinology Seminar Series, March 25,2014. Research Update.

83. NIH Symposium: The Human Microbiome: Implications for Nutrition and Clinical Practice. March 28, 2014. Keynote Address: The Intestinal Microbiome and Diet Interact to Regulate Body Fat and Metabolism.

84. FASEB Summer Conference. Molecular Mechanisms of Intestinal Lipid Transport and Metabolism. July 6-11, 2014. The ABCs of Lipid Droplets

85. FASEB Summer Conference. Lipids Droplets and Their Metabolic Consequences. July 13, 2014. ACSL5 Ablation Regulates Lipid Metabolism

86. Invited Speaker, NYU Endocrine Grand Rounds, NYU School of Medicine. October 31, 2014. Role of Adipocytes in Regulating Lipid Metabolism and Obesity

87. Invited Speaker, Northwestern University School of Medicine Endocrine Grand Rounds, November 13, 2014. Healthy Fat Cells Protect Against Disease.

88. Invited Speaker, Purdue University Nutrition Program, February 6, 2015. Preliminary Insights into Role of ACSL4 and ACSL5 In Metabolism.

Present Grants:

1950-51000-061-05S Greenberg AS (PI)
10/01/09-09/31/14
USDA
Regulation of Adipocyte and Adipose Tissue Metabolism in Obesity Related Inflammation and Metabolic Disorders
The goal of this project is to understand the mechanisms by which obesity and aging affect adipocyte metabolism with a particular focus on lipid droplet metabolism, inflammation, insulin sensitivity, and metabolism. Dr. Greenberg oversees this portion of this grant application.

P30 DK046200 Fried SK (PI) 4/01/13-3/31/18
NIDDK

Boston Nutrition Obesity Center (BNORC)

Dr. Greenberg is associate director of the BNORC and co-director of adipocyte biology and nutrient metabolism core, and director of the pilot and feasibility program of BNORC.
Role: Associate Director and Co-Director, Adipocyte Biology and Nutrient Metabolism Core

RO1 1R01DK098606 - 01A1 Greenberg, AS (PI)
5/01/14-3/31/17
NIDDK
Role of ACSL5 in Liver and Intestinal Triacyglycerol Metabolism
The goal of this project is to understand how alterations in ACSL5 regulate liver, intestinal, microbiome, and systemic metabolism.

U01 ES020958 Greenberg AS, Rubin B (Multi-PIs)
9/19/11-5/31/15
NIEHS
Age Dependent Role of Bisphenol A in Obesity and Insulin Resistance
The goal of this grant is to determine whether oral administration of BPA to rats results in alterations in pancreatic function and glucose-insulin homeostasis.

T32 DK062032 Greenberg AS (PI)
8/1/90-9/29/17
NIDDK
Research Training Program in Nutrition, Obesity and Metabolic Disorders

The goal of this grant is to train predoctoral students at the School of Nutrition at Tufts University for completion of their predoctoral training in the areas of obesity, metabolic disorders and nutrition.

R03 ES022710 Greenberg AS (PI)
10/01/13-09/30/14
NIH
Age-Dependent Role of Bisphenol A in Nonalcoholic Fatty Liver Disease
The goal of this grant application is investigate the role of perinatal and continuous BPA exposure in the development of liver disease.

Tufts CTSI Catalyst Award Hu, M (PrimaryPI) (Greenberg Co-PI)
07/1/13-6/31/14
Tufts CTSI
The Role of CDK6 in Adipogenesis, Obesity, and Diabetes
Dr. Hu is the primary PI with Dr. Greenberg and his laboratory and the BNORC Adipose Biology and Nutrient Metabolism Core working with Dr. Hu. The goal of this grant is to study role of CDK6 in adipogenesis, obesity, and diabetes

Previous Grants in Last Five Years:

1RO1DK082574-01A1 Greenberg AS (PI) 09/20/09-08/31/12
NIDDK
TPL2: A Central Node in Obesity-Associated Inflammation and Metabolic Disorder
Role: PI

1RC2ES018781 Greenberg AS, Rubin B (Multi-PIs) 09/30/09-07/31/12
NIEHS
Defining the role of BPA in promoting obesity and associated metabolic complications
Role: Co-PI

1 R24 DK0867669-01 Greenberg AS (PI) 07/15/10-07/14/12
(NCE)
Sex Difference in Adipose Tissue Biology and Metabolic Disease
Role: PI

T32 DK062032-18 Greenberg AS (PI) 09/30/07-09/29/12
NIH/NIDDK
Research Training Program in Nutrition and Chronic Disease
Role: PI

Greenberg AS and Rudich A (Multi-PIs) 10/01/08-08/31/12
United States Binational Science Foundation
Lipolysis regulation by lysosomal degradation of lipid droplet-associated proteins
Role: PI

Greenberg AS (PI) 09/01/10- 12/30/12
Robert C and Veronica Atkins Foundation
Estrogen Action in Regulating Postmenopausal and Overfeeding Effects on Metabolism
Role: PI

Greenberg AS and Kyriakis J (Multi-PIs) 07/01/-11-06/31/12
Tufts Provost Seed Grant Collaboration
Role of GCK in Obesity Associated Inflammation and Insulin Resistance
Role: Co-PI

Greenberg AS and Kyriakis J (Multi-PIs) 05/01/11-04/31/12
Tufts (NIH Funded) CTSA Pilot project
Novel MAPK Pathways in Obesity-Induced Insulin Resistance
Role: Co-PI

R01 DK074979 PI: Obin, MS 01/01/2008-12/31/2012
NIH, NIDDK

Adipocyte Death and Obesity-Induced Inflammation
Role: Co-investigator

PI: Greenberg AS 04/01/09-/03/31/12
(NCE)
Unilever
Effects of Nutrients on Adipose Tissue Metabolism
Role: PI

Former and Current Trainees:

1993-1995 You-Hou Kang, M.D.: Role of Perilipin and Mechanisms of Lipolysis.
Department of Medicine, the University of Toronto School of Medicine.
Research Associate, Department of Genetics and Complex Diseases, Harvard School of Public Health.

1995-2000 Sandra Souza, Ph.D.: Role of Perilipin and Mechanisms of Lipolysis.
Current Position: Fellow, Novartis Research Institute, Boston, MA.

1999-2003 Hui-Hong Zhang, Ph.D.: Perilipin Domains that Regulate Triglyceride Hydrolysis.
Current Position: Research Associate, Department of Genetics and Complex Diseases, Harvard School of Public Health.

2000-2002 Hitomi Imachi, M.D., Ph.D.: Role of Lipotransin in Regulating Lipolysis, Visiting Scientist.
Current Position: Assistant Professor, Department of 1st Internal Medicine, Kagawa University.

2001-2003 Anastassios Pittas, M.D.: Postdoctoral fellow, Estrogen Regulation of Adipose Tissue, Mentor on K23 DK61506 Pittas (PI) 09/30/2002 - 09/29/2006 NIDDK Glycemic Index and Metabolic Syndrome: A Randomized Trial. Major goal: To define the effects of the dietary glycemic index on measures related to the metabolic syndrome.
Current Position: Assistant Professor at Tufts University School of Medicine.
R01 DK 76092, Vitamin D and Calcium Homeostasis in Relation to Type 2 Diabetes: A Randomized trial. 9/30/2006 - 7/31/2011

2002-2006 Tara D'Eon, Ph.D.: Pre-doctoral Student, Estrogen Regulation of Adipose Tissue.
Ph.D. awarded, Gerald J and Dorothy R. Friedman Tufts University School of Nutrition Science and Policy,
Merit-Based Doctorate Award from Canadian Institute for Health Research (4/2003)
Awarded Woodrow Wilson Johnson and Johnson Dissertation Fellowship for Studies in Women's Health (1/2005)
Awarded Caroline tum Suden/ Francis Hellebrandt Professional Opportunity

Abstract-Based Award from American Physiological Society (1/2005)
Fellow, Department of Diabetes and Metabolism, Novartis Institute for Biomedical Research, Inc
Present Position: Scientific Advisor, Sanofi-Aventis.

2003-2006 Hideaki Miyoshi, M.D., Ph.D.: Transgenic and Cellular Analysis of Perilipin Function, Postdoctoral Fellow.
Current Position: Faculty member of Hokkaido University School of Medicine.

2003- 2009 Nicole Rogers, M.S.: Pre-doctoral Student, Gerald J and Dorothy R. Friedman Tufts University School of Nutrition Science and Policy: Estrogen Regulation of Energy and Skeletal Muscle Metabolism
Current Position: Postdoctoral Fellow, Scripps Institute

2006-2009 James Perfield, Ph.D.: Postdoctoral Fellow, NIH Training Grant: Doctoral Program in Human Nutrition and Metabolism (PI: Joel Mason). TPL2 Regulation of Obesity-Associated Inflammation and Insulin Resistance
Current Position: Research Scientist, Eli Lilly.

2007-present Qing-Wu Yan, Ph.D., Scientist III, Regulation of Lipid Metabolism in Obesity

2008-2010 Sajid Hussain, MD
Current Position: GI Fellow, St. Luke Roosevelt

2008-2011 Yunkyoung Lee, Ph.D., Role of Inflammation in Obesity Inflammation and Metabolism. Currently: Assistant Professor, Jeju National University

2008-2011 Eugene Chang, Ph.D., Regulation of Intracellular Lipid Metabolism.
Currently: Research Professor, Sungkyunkwan Univ.

2009-present Brooke Stephens Hasson, Ph.D.: Postdoctoral Fellow, Obesity and Metabolism Laboratory, HNRCA//Atkins Foundation Grant, currently Research Scientist at Boston Medical Center.

2009-2012 Victoria Vieira-Potter, Ph.D.; Postdoctoral Fellow, Obesity and Metabolism Laboratory, HNRCA/NIH grant. Currently: Assistant Professor
Department of Nutrition and Exercise Physiology, University of Missouri

2010-present Thomas Bowman, DPM, PhD.; Postdoctoral Fellow, Obesity and Metabolism Laboratory, NIH, PI- NRSA, Role of Perilipin in Hepatic Steatosis and Metabolism.

2010-2012 Christine Graham, PhD.; Postdoctoral Fellow, Obesity and Metabolism Laboratory, HNRCA, currently Program Coordinator and Evaluator for

Center for Biomedical Research Excellence for the Study of Pain and Sensory Function, University of New England.

2012-Present Elizabeth Killion, MA: Pre-doctoral Student, Gerald J and Dorothy Friedman School of Nutrition Science and Policy. Role of Adipocyte Acyl CoA Synthetase 4 in Adipocyte and Obesity Related Metabolism

2013-Present John Griffin, MA; Pre-doctoral Student, Gerald J and Dorothy Friedman School of Nutrition Science and Policy. Role of Intestinal Perilipin2 and Acyl CoA Synthetase 5 in the Regulation of Dietary Fat Absorption and Diet-Induced Obesity.