

Name: Bruce M. Spiegelman

Address: 271 Waban Avenue, Waban, MA 02468

Date of Birth: November 14, 1952

Place of Birth: Bay Shore, New York

Education:
1974 B.S. College of William and Mary
1978 Ph.D. Princeton University (Biochemistry)

Postdoctoral Training:
1979-1982 *Research Fellow, Department of Biology, Massachusetts Institute of Technology (Cell Biology)*

Research Fellowships:
1974-1975 *Predoctoral Fellowship, Princeton University*
1974-1978 *National Institutes of Health Predoctoral Traineeship, Princeton University*
1979-1980 *Postdoctoral Fellowship, American Cancer Society*
1981-1982 *Postdoctoral Fellowship, National Institutes of Health*

Academic Appointments:
1982-1987 *Assistant Professor of Pharmacology, Dana-Farber Cancer Institute and Harvard Medical School*

1987-1991 *Associate Professor of Biological Chemistry and Molecular Pharmacology, Dana-Farber Cancer Institute and Harvard Medical School*

1991-1993 *Professor of Biological Chemistry and Molecular Pharmacology, Dana-Farber Cancer Institute and Harvard Medical School*

1993- *Professor of Cell Biology, Dana-Farber Cancer Institute and Harvard Medical School*

2006- *Director of the Center for Energy Metabolism and Chronic Disease, Dana-Farber Cancer Institute*

2008- *Stanley J. Korsmeyer Professor of Cell Biology and Medicine, Dana-Farber Cancer Institute and Harvard Medical School*

Major Awards and Honors:

1974	<i>Phi Beta Kappa, College of William and Mary</i>
1974	<i>Highest Honors in Biology, College of William and Mary</i>
1987-1992	<i>Established Investigator Award, American Heart Assoc.</i>
1989	<i>Richard and Claire Morse Award for Excellence in Cancer Research</i>
1990	<i>Claudia Adams Barr Award in Cancer Research</i>
1996, 2004	<i>MERIT Award, National Institute of Diabetes and Digestive Kidney Diseases, National Institutes of Health</i>
1997	<i>Heinrich Wieland Prize for Lipid Research, Faculty of Chemistry, University of Munich, Germany</i>
1997-2000	<i>Johnson and Johnson Focused Giving Award</i>
1997-1999	<i>CaP CURE Award</i>
1999	<i>Yamanouchi USA Foundation Research Award</i>
2002	<i>Solomon Berson Award, American Physiological Society</i>
2002	<i>Elected, National Academy of Sciences, USA</i>
2002	<i>Elected, American Academy of Arts and Sciences</i>
2003	<i>Rolf Luft Award in Endocrinology, Karolinska Institute, Sweden</i>
2003	<i>Bristol-Myers Squibb Award for Distinguished Achievement in Metabolic Research</i>
2004	<i>Jacobaeus Prize, Novo-Nordisk Foundation, Denmark</i>
2004	<i>Elliot Joslin Medal, Joslin Diabetes Center</i>
2006	<i>Elected, European Molecular Biology Organization (EMBO), Foreign Associate</i>
2007	<i>TransAtlantic Medal, British Endocrine Society</i>
2008	<i>Debrecen Prize for Molecular Medicine, University of Debrecen, Medical and Health Science Center, Hungary</i>
2008	<i>Naomi Berrie Award for Outstanding Achievement in Diabetes Research, The Russell Berrie Foundation, Columbia University Medical Center</i>
2010	<i>Hans Bloemendal Medal for Outstanding Scientific Achievement, Radboud University Nijmegen Medical Centre, The Netherlands</i>
2012	<i>The Banting Medal for Scientific Achievement, American Diabetes Association</i>
2013	<i>Manpei Suzuki International Prize for Diabetes Research, Japan</i>
2014	<i>Elected, Institute of Medicine (IOM) of the National Academies</i>
2015	<i>InBev-Baillet Latour Health Prize, Belgium</i>
2015	<i>Helmholtz Diabetes Award, Munich Germany</i>

Major Committee Assignments:

1991-1993	<i>Chairman, Markey Program in Developmental Biology Harvard Medical School</i>
1993-Present	<i>Executive Committee, Biological and Biomedical Sciences Ph.D. Program, Harvard Medical School</i>
1993-1998	<i>Chairman, Admissions Committee, Biological and Biomedical Sciences Ph.D. Program, Harvard Medical School</i>
1994-2000	<i>Policy on Animal Facilities Committee, Dana-Farber Cancer Institute</i>

1997-2011	<i>Chairman, Academic Promotions and Appointments Committee, Dana-Farber Cancer Institute</i>
1998-2002	<i>Metabolism Study Section, NIH</i>
1999-2005	<i>Board of Scientific Advisors, Keystone Symposia</i>
2002-2006	<i>Scientific Advisory Board, Howard Hughes Medical Institute</i>
2011; 2012	<i>Class Membership Committee Member, Biomedical Sciences, National Academy of Sciences</i>
2012-	<i>Advisory Council Member, National Institute of Diabetes, Digestive and Kidney Diseases</i>
2013-2016	<i>Chair (elected) of National Academy of Sciences, Section 42: Medical Physiology and Metabolism</i>

Editorial:

1988-1991	<i>Editorial Board, Journal of Cell Biology</i>
1989-1991, 1994, 1999	<i>Editor, Current Opinion in Cell Biology (Cell Differentiation)</i>
1991-	<i>Editorial Board, Cell Growth and Differentiation</i>
1992-	<i>Associate Editor, Obesity Research</i>
1994-2011	<i>Editorial Board, Current Opinion in Cell Biology</i>
1998-	<i>Editorial Board, Archives of Biochemistry and Biophysics</i>
1999-	<i>Editorial Board, Gene Expression</i>
2001-	<i>Editorial Board, Annual Review of Cell Biology</i>
2005-	<i>Co-Founder and Associate Editor, Cell Metabolism</i>
2007-	<i>Editorial Board, Cell Metabolism</i>
2009-	<i>Advisory Board, EMBO Molecular Medicine</i>
2009-	<i>Advisory Board, EMBO Reports</i>
2010-	<i>Editorial Board, Diabetology International, Japan</i>

Professional Societies:

American Society for Cell Biology
American Association for Advancement of Science
American Diabetes Association

Major Research Interests:

1. Gene Control in Cell Differentiation and Cancer
2. Molecular Basis of Obesity and Diabetes
3. Regulation of Lipid Metabolism
4. Nuclear Receptors in Development and Disease

Teaching Experience:

1982-1985	<i>Conference Leader, Medical Pharmacology Course</i>
1983-1986	<i>Lecturer, Cell Membranes Course</i>
1985-1988	<i>Lecturer, Cell Biology Course</i>
1987-1994	<i>Course Director, Cancer Biology</i>
1990-Present	<i>Lecturer, Chemistry and Biology of the Cell</i>
1999-2002	<i>Course Director and Lecturer, Chemistry and Biology of the Cell</i>

Bibliography:

1. **Spiegelman BM and Coursen BW.** *Age-related changes associated with the induction of o-pyrocatechuic acid carboxylase in Aspergillus ornatus.* Arch Microbiol. 1975; 104:33-37.
2. **Spiegelman BM, Penningroth SM and Kirschner MW.** *Turnover of tubulin and the N-site GTP in Chinese hamster ovary cells.* Cell. 1977; 12:587-600.
3. **Spiegelman BM, Lopata MA and Kirschner MW.** *Multiple sites for the initiation of microtubule assembly in mammalian cells.* Cell. 1979; 16:239-252.
4. **Spiegelman BM, Lopata MA and Kirschner MW.** *Aggregation of microtubule initiation sites preceding neurite outgrowth in mouse neuroblastoma cells.* Cell. 1979; 16:253-263.
5. **Cleveland DW, Spiegelman BM and Kirschner MW.** *Conservation of microtubule associated proteins. Isolation and characterization of tau and high molecular weight microtubule associated protein from chicken brain and from mouse fibroblasts and comparison to the corresponding mammalian brain proteins.* J Biol Chem. 1979; 254:12670-12678.
6. **Spiegelman BM and Green H.** *Control of specific protein biosynthesis during the adipose conversion of 3T3 cells.* J Biol Chem. 1980; 255:8811-8818.
7. **Castellot JJ, Jr, Karnovsky MJ and Spiegelman BM.** *Potent stimulation of vascular endothelial cell growth by differentiated 3T3-adipocytes.* Proc Natl Acad Sci USA. 1980; 77:6007-6011.
8. **Spiegelman BM and Green H.** *cAMP-linked control of lipogenic enzyme synthesis during adipose differentiation of 3T3 cells.* Cell. 1981; 24:503-510.
9. **Spiegelman BM and Farmer SR.** *Decrease in tubulin and actin gene expression prior to morphological differentiation of 3T3-adipocytes.* Cell. 1982; 29:53-60.
10. **Castellot JJ, Jr, Karnovsky MJ and Spiegelman BM.** *Differentiation-dependent stimulation of neovascularization and endothelial cell chemotaxis by 3T3-adipocytes.* Proc Natl Acad Sci USA. 1982; 79:5579-5601.
11. **Spiegelman BM, Frank M and Green H.** *Molecular cloning of mRNA from 3T3-adipocytes: Regulation of mRNA from glycerophosphate dehydrogenase and other differentiation-dependent proteins during adipocyte development.* J Biol Chem. 1983; 258:10083-10089.
12. **Spiegelman BM and Ginty CA.** *Fibronectin modulation of cell shape and lipogenic gene expression in 3T3-adipocytes.* Cell. 1983; 35:657-666.
13. **Cook KS, Hunt CR and Spiegelman BM.** *Developmentally-regulated mRNAs in 3T3-adipocytes: Analysis of transcriptional control.* J Cell Biol. 1985; 100:514-520.
14. **Cook KS, Groves DL, Min H-Y and Spiegelman BM.** *A developmentally regulated mRNA from 3T3 adipocytes encodes a novel serine protease homologue.* Proc Natl Acad Sci USA. 1985; 82:6480-6484.

15. **Hunt CR, Ro H-S, Dobson DE, Min H-Y and Spiegelman BM.** *Adipocyte P2 gene: Developmental expression and homology of 5'-flanking sequences among fat cell-specific genes.* Proc Natl Acad Sci USA. 1986; 83:3786-3790.
16. **Castellot JJ, Kambe AM, Dobson DE and Spiegelman BM.** *Heparin potentiation of 3T3-adipocyte stimulated angiogenesis: Mechanisms of action on endothelial cells.* J Cell Physiol. 1986; 127:323-329.
17. **Cherington V, Morgan B, Spiegelman BM and Roberts TM.** *Recombinant retroviruses that transduce individual polyoma tumor antigens: Effects on growth and differentiation.* Proc Natl Acad Sci USA. 1986; 83:4307-4311.
18. **Spiegelman BM, Cook KS and Hunt CR.** *Regulation of gene expression during the differentiation of 3T3-adipocyte.* Prog Clin Biol Res. 1986; 226:445-454.
19. **Dobson DE, Groves DL and Spiegelman BM.** *Nucleotide sequence and hormonal regulation of mouse glycerophosphate dehydrogenase mRNA during adipocyte and muscle cell differentiation.* J Biol Chem. 1987; 262:1804-1809.
20. **Min H-Y and Spiegelman BM.** *Adipsin, the adipocyte serine protease: Gene structure and control of expression by tumor necrosis factor.* Nucleic Acids Res. 1986; 14:8879-8892.
21. **Cook KS, Min H-Y, Johnson, D, Chaplinsky RJ, Flier JS, Hunt CR and Spiegelman BM.** *Adipsin: A circulating serine protease homolog secreted by adipose tissue and sciatic nerve.* Science. 1987; 237:402-405.
22. **Flier JS, Cook KS, Usher P and Spiegelman BM.** *Severely impaired adipsin expression in genetic and acquired obesity.* Science. 1987; 237:405-408.
23. **Distel R, Ro HS, Rosen BS, Groves DL and Spiegelman BM.** *Nucleoprotein complexes that regulate gene expression in adipocyte differentiation: Direct participation of c-fos.* Cell. 1987; 49:835-844.
24. **Castellot JJ and Spiegelman BM.** *Differentiation-dependent stimulation of angiogenesis by 3T3-adipocytes.* In: Current Communications in Molecular Biology. Angiogenesis: Mechanisms and Pathobiology. Cold Spring Harbor Laboratory, 1987; pp 85-89.
25. **Cherington V, Gee C, Brown M, Paucha E, Spiegelman BM and Roberts T.** *Analysis of the effects of polyoma and SV40 large T antigens on differentiation.* In: Nuclear Oncogenes. Cold Spring Harbor Laboratory, 1987; pp 138-143.
26. **Rauscher FJ III, Sambucetti LC, Curren T, Distel RJ and Spiegelman BM.** *Common DNA binding site for Fos protein complexes and transcription factor AP-1.* Cell. 1988; 52:471-480.
27. **Cherington V, Brown M, Paucha E, Spiegelman BM and Roberts TM.** *Separation of Simian Virus 40 large-T-antigen-transforming and origin binding functions from the ability to block differentiation.* Mol Cell Biol. 1988; 8:1380-1384.

28. **Spiegelman BM.** *Regulation of gene expression in the adipocyte: Implication for obesity and proto-oncogene function.* Trends in Genetics. 1988; 4:203-207.
29. **Spiegelman BM, Distel RJ, Ro HS, Rosen BS and Satterberg B.** *Fos proto-oncogenes and the regulation of gene expression in adipocyte differentiation.* J Cell Biol. 1988; 107:829-832.
30. **Distel RJ and Spiegelman BM.** *Involvement of fos as a trans-acting factor in adipogenic gene expression.* In: Cellular Factors in Development and Differentiation: Embryos, Teratocarcinomas, and Differentiated Tissues, Alan R. Liss, Inc. 1988; pp 187-209.
31. **Spiegelman BM, Lowell B, Napolitano A, Dubuc P, Barton D, Francke U, Groves DL, Cook KS and Flier JS.** *Adrenal glucocorticoids regulate adipsin gene expression in genetically obese mice.* J Biol Chem. 1989; 264:1811-1815.
32. **Rosen BS, Cook KS, Yaglom J, Groves DL, Volanakis JE, Damm D, White T and Spiegelman BM.** *Adipsin and complement factor D activity: An immune-related defect in obesity.* Science. 1989; 244:1483-1487.
33. **Johnson RS, Sheng M, Greenberg ME, Kolodner RD, Papaioannou VE and Spiegelman BM.** *Targeting of non-expressed genes in embryonic stem cells via homologous recombination.* Science. 1989; 245:1234-1236.
34. **Platt K, Min HY, Ross SR and Spiegelman BM.** *Obesity-linked regulation of the adipsin gene promoter in transgenic mice.* Proc Natl Acad Sci USA. 1989; 86:7490-7494.
35. **Kitagawa K, Rosen BS, Spiegelman BM, Lienhard GE and Tanner LI.** *Insulin stimulates the acute release of adipsin from 3T3-adipocytes.* Biochem Biophys Acta 1989; 1014:83-89.
36. **Flier JS, Lowell B, Napolitano A, Usher P, Rosen B, Cook KS and Spiegelman B.** *Adipsin: Regulation and dysregulation in obesity and other metabolic states.* Recent Progress in Hormone Research 1989; 45:567-581.
37. **Herrera R, Ro HS, Robinson GS, Xanthopoulos CG and Spiegelman BM.** *A direct role for C/EBP and the AP-1-binding site in gene expression linked to adipocyte differentiation.* Mol Cell Biol. 1989; 9:5331-5339.
38. **Wilkison WO, Min HY, Claffey KP, Satterberg BL and Spiegelman BM.** *Control of the adipsin gene in adipocyte differentiation.* J Biol. Chem. 1990; 265:477-482.
39. **Rosen BS, Cook KS, Yaglom J, Groves DL, Volanakis JE, Damm D, White T and Spiegelman BM.** *Adipsin and the alternative pathway of complement in the regulation of energy balance.* In: Obesity: Towards a Molecular Approach. UCLA Symposia on Molecular and Cellular Biology, New Series, Volume 132. Bray G, Ricquire D and Spiegelman B, eds. Alan R.Liss, New York, 1990; pp 273-287.
40. **Spiegelman BM.** *Cell differentiation.* Current Opinion in Cell Biology 1990; 1:1059-1060.
41. **Lowell B, Napolitano A, Usher P, Dulloo AG, Rosen BS, Spiegelman BM and Flier JS.** *Reduced adipsin expression in murine obesity: Effect of age and treatment with the*

- sympathomimetic thermogenic drug mixture ephedrine and caffeine*. *Endocrinology* 1990; 126:1514-1520.
42. **Dobson DE, Kambe A, Block E, Dion T, Lu H, Castellot JJ, Jr, and Spiegelman BM.** *1-Butyryl-glycerol: A novel angiogenesis factor secreted by differentiating adipocytes*. *Cell*. 1990; 61:223-230.
 43. **Distel RJ and Spiegelman BM.** *Proto-oncogene c-fos as a transcription factor*. *Advances in Cancer Research* 1990; 55:37-55.
 44. **Johnson PR, Spiegelman B, Rosen B, Turkenkopf I, Ree H and Greenwood MRC.** *Reduced adipsin mRNA and circulating adipsin protein are modulated by adrenal steroids in obese Zucker rats*. *Am J Physiol*. 1990; pp 184-188.
 45. **Herrera R, Agarwal S, Walton K, Satterberg B, Distel R, Goodman R, Spiegelman BM and Roberts TM.** *A direct role for c-fos in AP-1 dependent gene transcription*. *Cell Growth and Differentiation*. 1990; 1:483-490.
 46. **Ross SR, Graves R, Greenstein A, Platt KA, Shyu H-L, Mellovitz B and Spiegelman BM.** *A fat-specific enhancer is the primary determinant of gene expression for adipocyte P2 in vivo*. *Proc Natl Acad Sci USA* 1990; 87:9590-9594.
 47. **Allegretto EA, Smeal T, Angel P, Spiegelman BM and Karin M.** *DNA-Binding activity of Jun is increased through its interaction with Fos*. *J Cell Biochem*. 1990; 42:193-206.
 48. **Graves RA, Tontonoz P, Ross SR and Spiegelman BM.** *Identification of a potent adipocyte-specific enhancer: Involvement of an NF-1-like factor*. *Genes and Development* 1991; 5:428-437.
 49. **Wilkison WO, Choy L and Spiegelman BM.** *Biosynthetic regulation of monobutyryl, an adipocyte-secreted lipid with angiogenic activity*. *J Biol Chem*. 1991; 266:16886-16891.
 50. **Graves RA, Tontonoz P and Spiegelman BM.** *Identification and analysis of an adipose specific enhancer*. In: *Obesity in Europe 91*, G Ailhaud et al. (eds). John Libbey & Co. Ltd. 1991; pp 155-161.
 51. **Distel RJ, Robinson GS and Spiegelman BM.** *Fatty acid regulation of gene expression: Transcriptional and post-transcriptional mechanisms*. *J Biol Chem*. 1992; 267:5937-5941.
 52. **Graves RA, Tontonoz P and Spiegelman BM.** *Analysis of a tissue-specific enhancer: ARF6 regulates adipogenic gene expression*. *Mol Cell Biol*. 1992; 12:1202-1208.
 53. **White RT, Damm D, Hancock N, Rosen BS, Lowell BB, Flier JS and Spiegelman BM.** *Isolation of the cDNA for human adipsin: Tissue specificity and equivalence to complement factor D*. *J Biol Chem*. 1992; 267:9210-9213.
 54. **Choy LN, Rosen BS and Spiegelman BM.** *Adipsin and an endogenous pathway of complement from adipose cells*. *J Biol Chem*. 1992; 267:12736-12741.

55. **Ross SR, Choy L, Graves RA, Fox N, Soleyjeva V, Klaus S, Ricquier D and Spiegelman BM.** *Hibernoma formation in transgenic mice and isolation of a brown adipocyte cell line expressing the uncoupling protein gene.* Proc Natl Acad Sci USA 1992; 89:7561-7565.
56. **Graves RA, Tontonoz P, Platt KA, Ross SR and Spiegelman BM.** *Identification of a fat cell enhancer: Analysis of requirements for adipose tissue-specific gene expression.* J Cell Biochem. 1992; 49:219-224.
57. **Claffey KS, Wilkison WO and Spiegelman BM.** *Vascular endothelial growth factor: Regulation by cell differentiation and activated second messenger pathways.* J Biol Chem. 1992; 267:16317-16322.
58. **Oliviero S, Robinson GS, Struhl K and Spiegelman BM.** *Yeast GCN4 as a probe for oncogenesis by AP-1 transcription factors: Transcriptional activation through AP-1 sites is not sufficient for cellular transformation.* Genes and Development 1992; 6:1799-1809.
59. **Field SJ, Johnson RS, Mortensen R, Papaioannou VE, Spiegelman BM and Greenberg ME.** *Growth and differentiation of embryonic stem cells that lack an intact c-fos gene.* Proc Natl Acad Sci USA 1992; 89:9306-9310.
60. **Johnson RS, Spiegelman BM and Papaioannou V.** *Pleiotropic effects of a null mutation in the c-fos proto-oncogene.* Cell 1992; 71:577-586.
61. **Hotamisligil G, Shargill N and Spiegelman BM.** *Adipose expression of tumor necrosis factor- α : Direct role in obesity-linked insulin resistance.* Science 1993; 259:87-91.
62. **Wilkison WO and Spiegelman BM.** *Biosynthesis of the vasoactive lipid monobutyrin.* J Biol Chem. 1993; 268:2844-2849.
63. **Spiegelman BM and Hotamisligil GS.** *Through thick and thin: Wasting, obesity and TNF- α .* Cell 1993; 73:625-627.
64. **Spiegelman BM, Choy L, Hotamisligil G, Graves RA and Tontonoz P.** *Regulation of adipocyte gene expression in differentiation and syndromes of obesity/diabetes.* J Biol Chem. 1993; 268:6823-6826.
65. **Tontonoz P, Kim JB, Graves RA and Spiegelman BM.** *ADD1: A novel helix-loop-helix protein associated with adipocyte determination and differentiation.* Mol Cell Biol. 1993; 13:4753-4759.
66. **Johnson RS, Van Lingen B, Papaioannou V and Spiegelman BM.** *A null mutation at the c-jun locus causes embryonic lethality and retarded cell growth in culture.* Genes & Development 1993; 7:1309-1317.
67. **Pascual M, Catana E, White T, Spiegelman BM and Schifferli JA.** *Inhibition of complement alternative pathway in mice with Fab antibody to recombinant adipsin/Factor D.* Eur J of Immunol. 1993; 23:1389-1392.

68. **Halvorsen Y-DC, Bursell S-E, Wilkison WO, Clermont AC, Brittis M, McGovern TJ and Spiegelman BM.** *Vasodilation of rat retinal microvessels induced by monobutyryn.* J Clin Invest. 1993; 92:2872-2876.
69. **Ross SR, Graves RA and Spiegelman BM.** *Targeted expression of a toxin gene to adipose tissue: transgenic mice resistant to obesity.* Genes & Dev. 1993; 7:1318-1324.
70. **Hofman C, Lorenz K, Braithwaite SS, Colca JR, Palazuk BJ, Hotamisligil GS and Spiegelman BM.** *Altered gene expression for tumor necrosis factor- α and its receptors during drug and dietary modulation of insulin resistance.* Endocrinology 1994; 134:264-270.
71. **Klaus S, Choy L, Champigny O, Cassard-Doulcier, Ross S, Spiegelman B and Ricquier D.** *Characterization of the novel brown adipocyte cell line HIB 1B.* J Cell Sci. 1994; 107:313-319.
72. **Jain J, Nalefski EA, McCaffrey PG, Johnson RS, Spiegelman BM, Papaioannou V and Rao A.** *Normal peripheral T cell function in c-Fos deficient mice.* Mol Cell Biol. 1994; 14:1566-1574.
73. **Napolitano A, Lowell BB, Damm D, Leibel RL, Ravussin E, Jimerson DC, Lesem MD, Van Dyke DC, Daly PA, Chatis P, White RT, Spiegelman BM and Flier JS.** *Concentrations of adipsin in blood and rates of adipsin secretion by adipose tissue in humans with normal, elevated and diminished adipose tissue mass.* Int J of Obesity 1994; 18:213-218.
74. **Hotamisligil GS, Murray DL, Choy LN and Spiegelman BM.** *Tumor necrosis factor α inhibits signaling from the insulin receptor.* Proc Natl Acad Sci USA 1994; 91:4854-4858.
75. **Tontonoz P, Hu E, Graves RA, Budavari AB and Spiegelman BM.** *mPPAR γ 2: Tissue-specific regulator of an adipocyte enhancer.* Genes & Dev., 1994; 8:1224-1234.
76. **Hu E, Mueller E, Johnson R, Papaioannou V, Oliviero S and Spiegelman BM.** *Targeted disruption of the c-fos gene demonstrates c-fos-dependent and -independent pathways for gene expression stimulated by growth factors or oncogenes.* EMBO J. 1994; 13:3094-3103.
77. **Paylor R, Johnson RS, Papaioannou V, Spiegelman BM and Wehner JM.** *Behavioral assessment of c-fos mutant mice.* Brain Research 1994; 651:275-282.
78. **Hotamisligil GS, Budavari A, Murray D and Spiegelman BM.** *Reduced tyrosine kinase activity of the insulin receptor in obesity-diabetes: central role of tumor necrosis factor- α .* J Clin Invest. 1994; 94:1543-1549.
79. **Hotamisligil GS and Spiegelman BM.** *Tumor Necrosis Factor α : A key component of the obesity-diabetes link.* Diabetes 1994; 43:1271-1278.
80. **Tontonoz P, Graves RA, Budavari AI, Erdjument-Bromage H, Lui M, Hu E, Tempst P and Spiegelman BM.** *Adipocyte-specific transcription factor ARF6 is a heterodimeric complex of two nuclear hormone receptors, PPAR γ 2 and RXR α .* Nuc Acids Res. 1994; 22:5628-5634.
81. **Tontonoz P, Hu E and Spiegelman BM.** *Stimulation of adipogenesis in fibroblasts by PPAR γ 2, a lipid-activated transcription factor.* Cell 1994; 79:1147-1156.

82. **Platt KA, Claffey KP, Wilkison WO, Spiegelman BM and Ross SR.** *Independent regulation of adipose-tissue-specificity and obesity response of the adiponin promoter in transgenic mice.* J Biol Chem. 1994; 269:28558-28562.
83. **Tontonoz P, Hu E, Devine J, Beale EG and Spiegelman BM.** *PPAR γ 2 regulates adipose expression of the phosphoenolpyruvate carboxykinase gene.* Mol Cell Biol. 1995; 15:351-357.
84. **Claffey KP, Senger DR and Spiegelman BM.** *Structural requirements for dimerization, glycosylation, secretion and biological function of VPF/VEGF.* Biochimica et Biophysica Acta 1995; 1246:1-9.
85. **Kim JB, Spotts GD, Halvorsen Y-D, Shih H-M, Ellenberger T, Towle HC and Spiegelman BM.** *Dual DNA binding specificity of ADD1/SREBP1 controlled by a single amino acid in the bHLH domain.* Mol Cell Biol. 1995; 15:2582-2588.
86. **Hotamisligil GS, Arner P, Caro J, Atkinson R and Spiegelman BM.** *Increased adipose tissue expression of TNF- α in human obesity and insulin resistance.* J Clin Invest. 1995; 95:2409-2415.
87. **Ross SR, Graves RA, Choy L, Soleveva V, Spiegelman BM.** *Transgenic mouse models of disease: Altering adipose tissue function *in vivo*.* New York Acad of Sci. 1995; 758:297-313.
88. **Saez E, Rutberg SE, Mueller E, Oppenheim H, Smoluk J, Yuspa SH and Spiegelman BM.** *C-fos is required for malignant progression of skin tumors.* Cell 1995; 82:721-732.
89. **Hu E, Tontonoz P and Spiegelman BM.** *Transdifferentiation of myoblasts by the adipogenic transcription factors PPAR γ and C/EBP α .* Proc Natl Acad Sci. 1995; 92:9856-9860.
90. **Tontonoz P, Hu E and Spiegelman BM.** *Regulation of adipocyte gene expression and differentiation by PPAR γ .* Current Opinion in Genetics and Development 1995; 5:571-576.
91. **Forman BM, Tontonoz P, Chen J, Brun RP, Spiegelman BM and Evans RM.** *15-deoxy- $\Delta^{12,14}$ -Prostaglandin J2 is a ligand for the adipocyte determination factor PPAR γ .* Cell 1995; 83:803-812.
92. **Saez E, Oppenheim H, Smoluk J, Andersen JW, Van Etten RA and Spiegelman BM.** *C-fos is not essential for v-abl-induced lymphomagenesis.* Cancer Res. 1995; 55:6196-6199.
93. **Kopecky J, Clarke G, Enerback S, Spiegelman B and Kozak LP.** *Expression of the mitochondrial uncoupling protein gene from the aP2 gene promoter prevents genetic obesity.* J Clin Invest., 1995; 96:2914-2923.
94. **Hotamisligil GS, Peraldi P, Budavari A, Ellis E, White MF and Spiegelman BM.** *IRS-1-mediated inhibition of insulin receptor tyrosine kinase activity in TNF- α - and obesity-induced insulin resistance.* Science 1996; 271:665-668.

95. **Brun RP, Tontonoz P, Forman BM, Ellis R, Chen J, Evans RM and Spiegelman BM.** *Differential activation of adipogenesis by multiple PPAR isoforms.* Genes and Dev. 1996; 10:974-984.
96. **Kim JB and Spiegelman BM.** *ADD1/SREBP1 promotes adipocyte differentiation and gene expression linked to fatty acid metabolism.* Genes and Dev. 1996; 10:1096-1107.
97. **Hu E, Liang P and Spiegelman BM.** *AdipoQ: A novel adipose-specific gene dysregulated in obesity.* J Biol Chem. 1996; 271:10697-10703.
98. **Peraldi P, Hotamisligil GS, Buurman WA, White MF and Spiegelman BM.** *Tumor Necrosis Factor (TNF)- α inhibits insulin signaling through stimulation of the p55 TNF receptor and activation of sphingomyelinase.* J Biol Chem. 1996; 271:13018-13022.
99. **Hotamisligil GS, Peraldi P and Spiegelman BM.** *The molecular link between obesity and diabetes.* Current Opinion in Endocrinology and Diabetes 1996; 3:16-23.
100. **Vidal-Puig A, Jimenes-Linan M, Lowell BB, Hamann A, Hu E, Spiegelman BM, Flier JS, and Moller DE.** *Regulation of PPAR γ gene expression by nutrition and obesity in rodents.* J Clin Invest. 1996; 97:2553-2561.
101. **Watanabe Y, Johnson RS, Butler LS, Binder DK, Spiegelman BM, Papaioannou V and McNamara JO.** *Null mutation of c-fos impairs structural and functional plasticities in the kindling model of epilepsy.* J Neuroscience 1996; 16:3827-3836.
102. **Rutberg SE, Saez E, Glick A, Dlugosz AA, Spiegelman BM and Yuspa SH.** *Differentiation of mouse keratinocytes is accompanied by PKC-dependent changes in AP-1 proteins.* Oncogene 1996; 13:167-176.
103. **Spiegelman BM and Flier JS.** *Adipogenesis and obesity: Rounding out the big picture.* Cell 1996; 87:377-389.
104. **Johnson R, Spiegelman B, Hanahan D and Wisdom R.** *Cellular transformation and malignancy induced by ras requires c-jun.* Mol Cell Biol. 1996; 16:4504-4511.
105. **Hotamisligil GS, Distel RJ, Johnson RS, Papaioannou V and Spiegelman BM.** *Uncoupling of obesity from insulin resistance through a targeted mutation in the fatty acid binding protein aP2.* Science, 1996; 274:1377-1379.
106. **Choy LN and Spiegelman BM.** *Regulation of alternative pathway activation and C3a production by adipose cells.* Obesity Research 1996; 4:521-532.
107. **Honrado GI, Johnson RS, Golombek DA, Spiegelman BM, Papaioannou VE and Ralph MR.** *The circadian system of c-fos deficient mice.* J Comp Phys. 1996; 178:563-570.
108. **Hu E, Kim JB, Sarraf P and Spiegelman BM.** *Inhibition of adipogenesis through MAP kinase-mediated phosphorylation of PPAR γ .* Science 1996; 274:2100-2103.

109. **Zhang B, Berger J, Hu EI, Szalkowski D, White-Carrington S, Spiegelman BM and Moller DE.** *Negative regulation of PPAR γ gene expression contributes to the ant-adipogenic effects of TNF- α .* Mol Endo. 1996; 10:1457-1466.
110. **Brun RP, Kim JB, Hu E, Altiok S and Spiegelman BM.** *Adipocyte differentiation: A transcriptional regulatory cascade.* Curr Opin Cell Biol. 1996; 8:826-832.
111. **Soloveva V, Graves RA, Rasenick MM, Spiegelman BM and Ross SR.** *Transgenic mice over-expressing the β_1 -adrenergic receptor in adipose tissue are resistant to obesity.* Mol Endo. 1997; 11:27-38.
112. **Hollenberg AN, Susulic VS, Madura JP, Zhang B, Moller DE, Tontonoz P, Sarraf P, Spiegelman BM and Lowell BB.** *Functional antagonism between CCAAT/enhancer binding protein- α and peroxisome proliferator-activated receptor- γ on the leptin promoter.* J Biol Chem. 1997; 272:5283-5290.
- Hotamisligil G, Arner P, Atkinson RL and Spiegelman BM.** *Differential regulation of the p80 tumor necrosis factor receptor in human obesity and insulin resistance.* Diabetes 1997; 46:451-455.
113. **Ericsson J, Jackson SM, Kim JB, Spiegelman BM and Edwards PA.** *Identification of glycerol-3-phosphate acyltransferase as an adipocyte determination and differentiation factor 1- and sterol regulatory element-binding protein-response gene.* J Biol Chem. 1997; 272:7298-7305.
114. **Hu E and Spiegelman BM.** *Identification of novel genes involved in adipose differentiation by differential display.* In: Methods in Molecular Biology, 1997; Vol 85, pp 195-204.
115. **Spiegelman BM, Hu E, Kim JB and Brun R.** *PPAR γ and the control of adipogenesis.* Biochimie 1997; 79:111-112.
116. **Brun RP, Kim JB, Hu E and Spiegelman BM.** *Peroxisome proliferator-activated receptor gamma and the control of adipogenesis.* Current Opinion in Lipidology 1997; 8:212-218.
117. **Barlow C, Schroeder M, Lekstrom-Himes J, Kylefjord H, Deng C-X, Wynshaw-Boris A, Spiegelman BM and Xanthopoulos KG.** *Targeted expression of Cre-recombinase to adipose tissue of transgenic mice directs adipose-specific excision of loxP-flanked gene segments.* Nuc Acids Res. 1997; 25:2543-2545.
118. **Peraldi P and Spiegelman BM.** *TNF- α : Lien moleculaire entre obesite et resistance a l'insuline.* J de Diabetologie 1997; pp 149-159.
119. **Altiok S, Xu M and Spiegelman BM.** *PPAR γ induces cell cycle withdrawal: Inhibition of E2F/DP DNA binding activity via downregulation of PP2A.* Genes and Dev. 1997; 11:1987-1998.
120. **Peraldi P, Xu M and Spiegelman BM.** *Thiazolidinediones block TNF- α -induced inhibition of insulin signaling.* J Clinical Invest. 1997; 100:1863-1869.

121. **Peraldi, P and Spiegelman BM.** *Studies of the mechanism of inhibition of insulin signaling by tumor necrosis factor- α .* J Endocrinology 1997; 155:219-220.
122. **Brun RP and Spiegelman BM.** *PPAR γ and the molecular control of adipogenesis.* J Endocrinology 1997; 155:217-218.
123. **Tontonoz, P, Singer S, Forman BM, Sarraf P, Fletcher JA, Fletcher CD, Brun RP, Mueller E, Altiock S, Oppenheimer H, Evans RM and Spiegelman BM.** *Terminal differentiation of human liposarcoma cells induced by ligands for peroxisome proliferators-activated receptor gamma and the retinoid X receptor.* Proc Natl Acad Sci USA 1997; 94:237-241.
124. **Sabban, EL, Nankova BB, Serova LI, Hiremagalur B, Rusnak M, Saez E, Spiegelman B and Kvetnansky R.** *Regulation of gene expression of catecholamine biosynthetic enzymes by stress.* Advances in Pharmacology 1998; 42:564-567.
125. **Kim JB, Sarraf P, Wright M, Mueller E, Lowell BB and Spiegelman BM.** *Nutritional and insulin regulation of fatty acid synthetase and leptin gene expression through ADD1/SREBP1.* J Clin Invest. 1998; 101:1-9.
126. **Mueller E, Sarraf P, Tontonoz P, Evans R, Martin KJ, Zhang M, Fletcher C, Singer S and Spiegelman BM.** *Terminal differentiation of human breast cancer through PPAR γ .* Molecular Cell 1998; 1:465-470.
127. **Spiegelman BM.** *Peroxisome proliferator activated receptor gamma: A key regulator of adipogenesis and systemic insulin sensitivity.* (Wieland Prize Award Lecture) Eur J Med Res. 1997; 2:1-8.
128. **Puigserver P, Wu Z, Park CW, Graves R, Wright M and Spiegelman BM.** *A cold inducible coactivator of nuclear receptors linked to adaptive thermogenesis.* Cell 1998; 92:829-839.
129. **Spiegelman BM.** *PPAR- γ : Adipogenic regulator and thiazolidinedione receptor.* Diabetes 1998; 47:507-514.
130. **Kim JB, Wright HM, Wright M and Spiegelman BM.** *ADD1/SREBP1 activates PPAR γ through the production of endogenous ligand.* Proc Natl Acad Sci USA 1998; 95:4333-4337.
131. **Peraldi P and Spiegelman B.** *TNF- α and insulin resistance: Summary and future prospects.* Mol Cell Biochem. 1998; 192:169-175.
132. **Spiegelman BM.** *PPAR γ in monocytes: less pain, any gain?* Cell 1998; 93:153-155.
133. **Serova LI, Saez E, Spiegelman BM and Sabban EL.** *c-Fos deficiency inhibits induction of mRNA for some, but not all, neurotransmitter biosynthetic enzymes by immobilization stress.* J Neurochemistry 1998; 70:1935-1940.
134. **Sarraf P, Mueller E, Jones D, King FJ, DeAngelo DJ, Partridge JB, Holden SA, Chen LB, Singer S, Fletcher C and Spiegelman BM.** *Differentiation and reversal of malignant changes in colon through PPAR γ .* Nature Medicine 1998; 4:1046-1052.

135. **Sakaue H, Ogawa W, Matsumoto M, Kuroda S, Takata M, Sugimoto T, Spiegelman BM and Kasuga M.** *Posttranscriptional control of adipocyte differentiation through activation of phosphoinositide 3-kinase.* J Biol Chem. 1998; 273:28945-28952.
136. **Michael L, Wu Z, Cheatam RB, Puigserver P, Adelmant G, Lehman J, Kelley DP and Spiegelman BM.** *Restoration of insulin-sensitive glucose transporter (GLUT-4) gene expression in muscle cells by the transcriptional coactivator PGC-1.* Proc Natl Acad Sci USA 2001; 98:3820-3825.
137. **Tabor DE, Kim JB, Spiegelman BM and Edwards PA.** *Transcriptional activation of the stearyl-CoA desaturase 2 gene by sterol regulatory element-binding protein/adipocyte differentiation factor 1.* J Biol Chem. 1998; 273:22052-22058.
138. **Ho I-C, Kim JH-J, Rooney JW, Spiegelman BM and Glimcher LH.** *A potential role for the nuclear factor of activated T cells family of transcriptional regulatory proteins in adipogenesis.* Proc Natl Acad Sci USA 1998; 95:15537-15541.
139. **Sarraf P, Mueller E, Smith WM, Wright HM, Kim JB, Aaltonen LA, de la Chapelle A, Spiegelman BM and Eng C.** *Loss-of-function mutations in PPAR gamma associated with human colon cancer.* Mol Cell. 1999; 3:799-804.
140. **Wu Z, Rosen ED, Brun R, Hauser S, Adelmant G, Darlington GJ and Spiegelman BM.** *Cross-regulation of C/EBP α and PPAR γ controls in the Transcriptional Pathway of Adipogenesis and Insulin Sensitivity.* Molecular Cell 1999; 3:151-158.
141. **Demetri GD, Fletcher CDM, Mueller E, Sarraf P, Campbell N, Spiegelman BM and Singer S.** *Induction of solid tumor differentiation by the peroxisome proliferator-activated receptor ligand troglitazone in patients with liposarcoma.* Proc Natl Acad Sci USA 1999; 96:3951-3956.
142. **Foretz M, Pacot C, Dugail I, Lemarchand P, Guichard C, Le Liepvre X, Berthelie-Lubrano C, Spiegelman B, Kim JB, Ferre P and Foufelle F.** *ADD1/SREBP1c is required for the activation of hepatic lipogenic gene expression by glucose.* Mol Cell Biol. 1999; 19:3760-3768.
143. **King FJ, Hu E, Harris DE, Sarraf P, Spiegelman BM and Roberts TM.** *DEF-1: A novel Src SH3 binding protein that promotes adipogenesis in fibroblastic cell lines.* Mol Cell Biol. 1999; 19:2330-2337.
144. **Spiegelman, BM.** *Good Fats and Thin Bats.* Cell 1999; 96:449-451.
145. **Devine JH, Eubank DW, Clouthier DE, Tontonoz P, Spiegelman BM, Hammer RE and Beale EG.** *Adipose expression of the phosphoenolpyruvate carboxykinase promoter requires peroxisome proliferator-activated receptor gamma and 9-cis-retinoic acid receptor binding to an adipocyte-specific enhancer in vivo.* J Biol Chem. 1999; 274:13604-13612.
146. **Castillo G, Brun RP, Rosenfield JK, Hauser S, Park CW, Troy AE, Wright ME and Spiegelman BM.** *An adipogenic cofactor bound by the differentiation-domain of PPAR γ .* EMBO 1999; 18:3676-3687.

147. **Fajas L, Schoonjans K, Gelman L, Kim JB, Najib J, Martin G, Fruchart J-C, Briggs M, Spiegelman BM and Auwerx J.** *Regulation of peroxisome proliferator-activated γ expression by adipocyte differentiation and determination factor 1/sterol regulatory element binding protein 1: Implications for adipocyte differentiation and metabolism.* Mol Cell Biol. 1999; 19:5495-5503.
148. **Devchand PR, Hiji AK, Perroud M, Schleuning W-D, Spiegelman BM and Wahli W.** *Chemical probes that differentially modulate peroxisome proliferator-activated receptor α and BLTR, nuclear and cell surface receptors for leukotriene B₄.* J Biol Chem. 1999; 274:23341-23348.
149. **Rosen ED, Sarraf P, Troy AE, Bradwin G, Moore K, Milstone D, Spiegelman BM and Mortensen R.** *PPAR γ is required for adipogenesis in vivo and in vitro.* Molecular Cell 1999; 4:611-617.
150. **Wu Z, Puigserver P, Andersson U, Zhang C, Adelmant G, Mootha V, Troy A, Cinti S, Lowell B, Scarpulla R and Spiegelman BM.** *Mechanisms controlling mitochondrial biogenesis and respiration through the thermogenic coactivator PGC-1.* Cell 1999; 98:115-124.
151. **Wu Z, Puigserver P and Spiegelman BM.** *Transcriptional activation of adipogenesis.* Current Opinion in Cell Biology 1999; pages 689-694.
152. **Spiegelman B, Castillo G, Hauser S and Puigserver P.** *Regulation of energy balance by PPAR γ and its coactivators.* In: Progress in Obesity Research. Guy-Grand B and Ailhaud G, eds. John Libbey & Co., 1999; pp 39-46.
153. **Puigserver P, Adelmant G, Wu Z, Fan M, Xu J, O'Malley B and Spiegelman BM.** *Activation of PPAR γ coactivator-1 through transcription factor docking.* Science 1999; 286:1368-1371.
154. **Wright, H.M., Clish, C.B., Mikami, M., Hauser, S., Yanagi, K., Hiramatsu, R., Serhan, C.N., Spiegelman, B.M.** *A synthetic antagonist for the peroxisome proliferator-activated receptor γ inhibits adipocyte differentiation.* J Biol Chem. 2000; 275:1873-1877.
155. **Lowell BB and Spiegelman BM.** *Towards a molecular understanding of adaptive thermogenesis.* Nature 2000; 404:652-660.
156. **Tcherepanova I, Puigserver P, Norris JD, Spiegelman BM and McDonnell DP.** *Modulation of estrogen receptor- α transcriptional activity by the coactivator PGC-1.* J Biol Chem. 2000; 275:16302-16308.
157. **Hauser S, Adelmant G, Sarraf P, Wright HM, Mueller E and Spiegelman BM.** *Degradation of the peroxisome proliferator-activated receptor γ is linked to ligand-dependent activation.* J Biol Chem. 2000; 275:18527-18533.
158. **Rosen ED, Walkey CJ, Puigserver P and Spiegelman BM.** *Transcriptional regulation of adipogenesis.* Genes & Development 2000; 14:1293-1307.

159. **Yoon C, Chickering TW, Rosen ED, Dussault B, Qin Y, Soukas A, Friedman JM, Williams WE and Spiegelman BM.** *PPAR γ target gene encoding a novel angiopoietin-related protein associated with adipose differentiation.* *Molecular Cellular Biology* 2000; 20:5343-5349.
160. **Monsalve M, Wu Z, Adelmant A, Puigserver P, Fan M and Spiegelman BM.** *Direct coupling of transcription and mRNA processing through the thermogenic coactivator PGC-1.* *Molecular Cell* 2000; 6:307-316.
161. **Rosen ED and Spiegelman BM.** *Peroxisome proliferator-activated receptor ligands and atherosclerosis: ending the heartache.* *J Clinical Invest.* 2000; 106:629-631.
162. **Mueller E, Smith M, Sarraf P, Kroll T, Aiyer A, Kaufman DS, Oh W, Demetri G, Figg WD, Zhou X-P, Eng C, Spiegelman BM and Kantoff PW.** *Effects of ligand activation of peroxisome proliferator-activated receptor γ in human prostate cancer.* *Proc Natl Acad Sci USA* 2000; 97:10990-10995.
163. **Kroll TG, Sarraf P, Pecciarini L, Chen C-J, Mueller E, Spiegelman BM and Fletcher JA.** *PAX8-PPAR γ fusion oncogene in human thyroid carcinoma.* *Science* 2000; 289:1357-1360.
164. **Spiegelman BM, Puigserver P and Wu Z.** *Regulation of adipogenesis and energy balance by PPAR γ and PGC-1.* *International J of Obesity* 2000; 24:S8-S10.
165. **Michael L, Wu Z, Cheatham RB, Puigserver P, Adelmant G, Lehman J, Kelley DP and Spiegelman BM.** *Restoration of insulin-sensitive glucose transporter (GLUT-4) gene expression in muscle cells by the transcriptional coactivator PGC-1.* *Proc Natl Acad Sci USA* 2001; 98:3820-3825.
166. **Spiegelman B.M. and Flier JS.** *Obesity and regulation of energy balance.* *Cell* 2001; 104:531-543.
167. **Yoon JC, Puigserver P, Chen G, Wu Z, Rhee J, Adelmant G, Stafford J, Kahn CR, Granner DK, Newgard CB and Spiegelman BM.** *Control of hepatic gluconeogenesis through the transcriptional coactivator PGC-1.* *Nature* 2001; 413:131-138.
168. **Herzig S, Long F, Jhala U, Hedrick S, Quinn R, Bauer A, Rudolph D, Schutz G, Yoon C, Puigserver P, Spiegelman B and Montminy M.** *CREB regulates hepatic gluconeogenesis via the co-activator PGC-1.* *Nature* 2001; 413:179-183.
169. **Rosen ED and Spiegelman BM.** *PPAR γ : A nuclear regulator of metabolism, differentiation, and cell growth.* *J Biol Chem.* 2001; 276:37731-37734.
170. **Tsukiyama-Kohara K, Poulin F, Kohara M, DeMaria CT, Cheng A, Wu Z, Gingras AC, Katsume A, Elchebly M, Spiegelman BM, Harper ME, Tremblay ML and Sonenberg N.** *Adipose tissue reduction in mice lacking the translational inhibitor 4E-BP1.* *Nature Medicine* 2001; 7:1128-1132.

171. **Puigserver P, Rhee J, Lin J, Wu Z, Yoon JC, Zhang C-Y, Krauss VK, Mootha V, Lowell BB and Spiegelman BM.** *Cytokine stimulation of energy expenditure through p38 MAP kinase activation of the PPAR γ coactivator1.* *Molecular Cell* 2001; 971-982.
172. **Kulke MH, Demetri GD, Sharpless NE, Ryan DP, Shivdasani R, Clark JS, Spiegelman BM, Kim H, Mayer RJ and Fuchs CS.** *A phase II stud of troglitazone, an activator of the PPAR γ receptor, in patients with chemotherapy-resistant metastatic colorectal cancer.* *Cancer J.* 2002; 8:395-399.
173. **Lin J, Puigserver P, Donovan J, Tarr P and Spiegelman BM.** *Peroxisome proliferator-activated receptor gamma coactivator 1beta (PGC-1 β), a novel PGC-1-related transcription coactivator associated with host cell factor.* *J Biol Chem.* 2002; 18:1645-1648.
174. **Rosen ED, Hsu C-H, Wang X, Sakai S, Freeman MW, Gonzalez FJ and Spiegelman BM.** *C/EBP α induces adipogenesis through PPAR γ : An unified pathway.* *Genes & Dev.* 2002; 16: 22-26.
175. **Ge K, Guermah M, Yuan C-X, Ito M, Wallberg AE, Spiegelman BM and Roeder RG.** *Transcription coactivates TRAP220 is required for PPAR gamma 2-stimulated adipogenesis.* *Nature* 2002; 417:563-567.
176. **Lin, J, Tarr, P, Puigserver P, Olson, E, Lowell BB, Zhang CY, Boss O, Bassel-Duby R and Spiegelman, BM.** *Transcriptional Coactivator PGC-1alpha drives the expression of Slow-Twitch Muscle Fibres.* *Nature* 2002; 418:797-801.
177. **Girnun GD, Smith WM, Drori S, Sarraf P, Mueller E, Eng C, Nambiar P, Rosenberg DW, Bronson RT, Edelmann W, Kucherlapati R, Gonzalez FJ and Spiegelman BM.** *APC-dependent suppression of colon carcinogenesis by PPAR γ .* *Proc Natl Acad Sci USA* 2002; 99:13771-13776.
178. **Mueller E, Drori S, Aiyer A, Yie J, Sarraf P, Chen H, Hauser S, Rosen ED, Ge K, Roeder, RG and Spiegelman BM.** *Genetic analysis of adipogenesis through peroxisome proliferator-activated receptor γ isoforms.* *J Biol Chem.* 2002; 277:41925-41930.
179. **Girnun GD and Spiegelman BM.** *Taking PPAR α in chemoprevention.* *Gastroenterology* 2003; 124:564-567.
180. **Wallberg AE, Yamamura S, Malik S, Spiegelman BM and Roeder RG.** *Coordination of p300-mediated chromatin remodeling and TRAP/mediator function through coactivator PGC-1alpha.* *Mol Cell* 2003; 12:1137-1149.
181. **Tritos NA, Mastaitis J, Kokkotou EG, Puigserver P, Spiegelman BM and Maratos-Flier E.** *Characterization of the peroxisome proliferator activated receptor coactivator 1 alpha (PGC-1 α) expression in the murine brain.* *Brain Research* 2003; 961:255-260.
182. **Rhee J, Inoue Y, Yoon JC, Puigserver P, Fan M, Gonzalez FJ and Spiegelman BM.** *Regulation of the hepatic fasting response by PPAR γ Coactivator-1alpha (PGC-1): Requirement for HNF4 α in gluconeogenesis.* *Proc Natl Acad Sci USA* 2003; 100:4012-4017.

183. **Puigserver P and Spiegelman BM.** *Peroxisome Proliferator-Activated Receptor-gamma Coactivator 1-alpha (PGC-1alpha): Transcriptional coactivator and metabolic regulator.* Endocrine Review 2003; 24:78-90.
184. **Handschin C, Rhee J, Lin J, Tarr PT and Spiegelman BM.** *An autoregulatory loop controls peroxisome proliferator-activated receptor γ coactivator 1 α expression in muscle.* Proc Natl Acad Sci USA 2003; 100:7111-7116.
185. **Yoon JC, Xu G, Deeney JT, Yang S-N, Rhee J, Puigserver P, Levens AR, Yang R, Zhang C-Y, Lowell BB, Berggren P-O, Newgard CB, Bonner-Weir S, Weir G and Spiegelman BM.** *Suppression of β -cell energy metabolism and insulin release by PGC-1 α .* Dev Cell 2003; 5:75-83.
186. **Puigserver P, Rhee J, Donovan J, Walkey CJ, Yoon JC, Oriente F, Kitamura Y, Altomonte J, Dong H, Accili D and Spiegelman BM.** *Insulin-regulated hepatic gluconeogenesis through FOXO1-PGC-1 α interaction.* Nature 2003; 423:550-555.
187. **Mootha VK, Lindgren CM, Eriksson KF, Subramanian A, Sihag S, Lehar J, Puigserver P, Carlsson E, Ridderstrale M, Laurila E, Houstis N, Daly MJ, Patterson N, Mesirov JP, Golub TR, Tamayo P, Spiegelman B, Lander ES, Hirschhorn JN, Altshuler D and Groop LC.** *PGC-1alpha-responsive genes involved in oxidative phosphorylation are coordinately downregulated in human diabetes.* Nat Genet. 2003; 34:267-273.
188. **St. Pierre J, Lin J, Krauss S, Tarr PT, Yang R, Newgard CB and Spiegelman BM.** *Bioenergetic analysis of peroxisome proliferator-activated receptor γ coactivators 1 α and 1 β (PGC-1 α and PGC-1 β) in muscle cells.* J Biol Chem. 2003; 278:26597-26603.
189. **Lin J, Tarr PT, Yang R, Rhee J, Puigserver P, Newgard CB and Spiegelman BM.** *PGC-1beta in the regulation of hepatic glucose and energy metabolism.* J Biol Chem. 2003; 278:30843-30848.
190. **Rosen, ED, Kulkarni RN, Sarraf P, Ozcan U, Okada T, Hsu CH, Eissenman D, Magnuson MA, Gonzalez FJ, Kahn CR and Spiegelman BM.** *Targeted elimination of peroxisome proliferator-activated receptor gamma in beta cells leads to abnormalities in islet mass without compromising glucose homeostasis.* Mol Cell Biol. 2003; 23:7222-7229.
191. **Norris AW, Chen L, Fisher SJ, Szanto I, Ristow M, Jozsi AC, Hirshmann MF, Rosen ED, Goodyear LJ, Gonzalez FJ, Spiegelman BM and Kahn CR.** *Muscle-specific PPARgamma-deficient mice develop increased adiposity and insulin resistance but respond to thiazolidinediones.* J Clin Invest. 2003; 112:608-618.
192. **Fan M, Rhee J, St-Pierre J, Handschin C, Puigserver P, Lin J, Jaeger S, Erdjument-Bromage H, Tempst P and Spiegelman BM.** *Suppression of mitochondrial respiration through recruitment of p160 Myb binding protein to PGC-1 α : Modulation by p38 MAPK.* Genes and Development 2004; 18:278-289.
193. **Cao W, Daniel KW, Robidoux J, Puigserver P, Medvedev AV, Bai X, Floering LM, Spiegelman BM, Collins S.** *p38 mitogen-activated protein kinase is the central regulator of cyclic AMP-dependent transcription of the brown fat uncoupling protein 1 gene.* Mol Cell Biol. 2004; 24:3057-3067.

194. **Mootha VK, Handschin C, Arlow D, Xie X, St. Pierre J, Sihag S, Yang W, Altshuler D, Puigserver P, Willy PJ, Shulman IG, Heyman RA, Lander ES and Spiegelman BM.** *Err α and Gabpa/ β specify PGC-1 α -dependent OXPHOS gene expression that is altered in diabetic muscle.* Proc Natl Acad Sci USA 2004; 101:6570-6575.
195. **Lin J, Wu P-H, Tarr PT, St-Pierre J, Zhang C-Y, Mootha VK, Jäeger S, Vianna CR, Reznick R, Manieri M, Donovan MX, Wu Z, Cooper MP, Fan MC, Rohas LM, Zavacki AM, Cinti S, Shulman GI, Lowell BB, and Spiegelman BM.** *Defects in adaptive energy metabolism with CNS-linked hyperactivity in PGC-1 α null mice.* Cell 2004; 119:121-135.
196. **Spiegelman BM and Heinrich R.** *Biological control through regulated transcriptional coactivators.* Cell 2004; 119:157-167.
197. **Drori S, Girnun GD, Tou L, Szwaya JD, Mueller E, Shivdasani, RA and Spiegelman BM.** *Hic-5 regulates an epithelial program mediated by PPAR γ .* Genes & Dev. 2005; 19:362-375.
198. **Lin J, Yang R, Tarr PT, Wu PH, Handschin C, Li S, Yang W, Pei L, Uldry M, Tontonoz P, Newgard CB and Spiegelman BM.** *Hyperlipidemia effects of dietary saturated fats mediated through PGC-1 β coactivation of SREBP.* Cell 2005; 120:261-273.
199. **Rodgers JT, Lerin C, Haas W, Gygi SP, Spiegelman BM and Puigserver P.** *Nutrient control of glucose homeostasis through a complex of PGC-1 α and SIRT1.* Nature 2005; 434:113-118.
200. **Andersen G, Wegner L, Yanagisawa K, Rose CS, Lin J, Glumer C, Drivsholm T, Borch-Johnsen K, Jorgensen T, Hansen T, Spiegelman BM, Pedersen O.** *Evidence of an association between genetic variation of the coactivator PGC-1 β and obesity.* J of Genetic Medicine 2005; 42:402-407.
201. **Arany Z, He H, Lin J, Hoyer K, Handschin C, Toka O, Ahmad F, Matsui T, Chin S, Wu P-H, Rybkin II, Shelton JM, Manieri M, Cinti S, Schoen FJ, Bassel-Duby R, Rosenzweig A, Ingwall JS and Spiegelman BM.** *Transcriptional coactivator PGC-1 α controls the energy state and contractile function of cardiac muscle.* Cell Metabolism 2005; 1:259-271.
202. **Hong JH, Hwang ES, McManus MT, Amsterdam A, Tian Y, Kalmukova R, Mueller E, Benjamin T, Spiegelman BM, Sharp PA, Hopkins N and Yaffee MB.** *TAZ, a transcription modulator of mesenchymal stem cell differentiation.* Science 2005; 309:1074-1078.
203. **Chen Z, Torrens JL, Anand A, Spiegelman BM and Friedman JM.** *Krox20 stimulates adipogenesis via C/EBP β -dependent and -independent mechanisms.* Cell Metab. 2005; 1:93-106.
204. **Lin J, Handschin C and Spiegelman BM.** *Metabolic control through the PGC-1 family of transcription coactivators.* Cell Metab. 2005; 1:361-370.
205. **Handschin C, Lin J, Wu PH, Rhee J, Peyer A-K, Meyer UA and Spiegelman BM.** *Nutritional regulation of hepatic heme biosynthesis and porphyria through PGC-1 α .* Cell 2005;

- 122:505-515.
206. **Uldry M, Yang W, St. Pierre J, Lin, J, Seale S and Spiegelman BM.** *Complementary action of the PGC-1 coactivators in mitochondrial biogenesis and brown fat differentiation.* Cell Metabolism 2006; 3:333-341.
207. **Arany Z, Novikov M, Chin, S, Ma Y, Rosenzweig A and Spiegelman BM.** *Transverse aortic constriction leads to accelerated heart failure in mice lacking PGC-1 α .* Proc Natl Acad Sci USA 2006; 103:10086-10091.
208. **Rhee J, Ge H, Yang W, Fan M, Handschin C, Cooper M, Lin J, Li C, Spiegelman BM.** *Partnership of PGC-1 α and HNF4 α in the regulation of lipoprotein metabolism.* J Biol Chem. 2006; 281:14683-14690.
209. **St. Pierre J, Drori D, Uldry M, Silvaggi J, Rhee J, Jaeger S, Handschin C, Zheng K, Lin J, Yang W, Simon DK, Bachoo R and Spiegelman BM.** *Suppression of reactive oxygen species and neurodegeneration by the PGC-1 transcriptional coactivators.* Cell 2006; 127:397-402.
210. **Cooper MP, Qu L, Rohas LM, Lin J, Yang W, Erdjument-Bromage H, Tempst P and Spiegelman BM.** *Defects in homeostasis in Leigh Syndrome French Canadian Variant through PGC-1 α /LRP130 complex.* Genes & Dev. 2006; 20:2996-3009.
211. **Sandri M, Lin J, Handschin C, Yang W, Zrany Z, Lecker SH, Goldberg AL and Spiegelman BM.** *PGC-1 α protects skeletal muscle from atrophy by suppressing FoxO3 action and atrophy-specific gene transcription.* Proc Natl Acad Sci USA 2006; 103:16260-16265.
212. **Vianna CR, Huntgeburth M, Coppari R, Choi CS, Lin J, Krauss S, Barbatelli G, Tzameli I, Kim Y-B, Cinti S, Shulman GI, Spiegelman BM and Lowell BB.** *Hypomorphic mutation in PGC1 β causes mitochondrial dysfunction and liver insulin resistance.* Cell Metabolism 2006; 4:453-464.
213. **Spiegelman BM and Enerback S.** *The adipocyte: A multifunctional cell.* Cell Metabolism 2006; 4:425-427.
214. **Handschin C and Spiegelman BM.** *PGC-1 coactivators, energy homeostasis, and metabolism.* Endocrine Review 2006; 27:728-735.
215. **Rosen ED and Spiegelman BM.** *Adipocytes as regulators of energy balance and glucose homeostasis.* Nature 2006; 444:847-853.
216. **Arany Z, Lebrasseur N, Morris C, Smith E, Yang W, Ma Y, Chin S and Spiegelman, BM.** *The transcriptional coactivator PGC-1 β drives the formation of oxidative type IIX fibers in skeletal muscle.* Cell Metab. 2007; 5:35-46.
217. **Handschin C, Kobayashi YM, Chin S, Seale P, Campbell KP and Spiegelman BM.** *PGC-1 α regulates the neuromuscular junction program and ameliorates Duchenne muscular dystrophy.* Genes & Dev. 2007; 21:770-783.
218. **Girnun GD, Naseri E, Vafai SB, Qu L, Szwaya JD, Bronson R, Alberta JA and Spiegelman BM.** *Synergy between PPAR γ ligands and platinum-based drugs in cancer.*

- Cancer Cell 2007; 11:395-406.
219. **Seale P, Kajimura S, Yang W, Chin S, Rohas L, Uldry M, Tavernier G, Langin D and Spiegelman BM.** *Transcriptional control of brown fat determination by PRDM16.* Cell Metabolism 2007; 6:38-54.
 220. **Rohas LM, St-Pierre J, Uldry M, Jaeger S, Handschin C and Spiegelman BM.** *A fundamental system of cellular energy homeostasis regulated by PGC-1 α .* Proc Natl Acad Sci USA 2007; 104:7933-7938.
 221. **Handschin C, Chin S, Li P, Liu F, Maratos-Flier E, LeBrasseur NK, Yan Z and Spiegelman BM.** *Skeletal muscle fiber-type switching G, exercise intolerance and myopathy in PGC-1 α muscle-specific knockout animals.* J Biol Chem. 2007; 282:30014-30021.
 222. **Handschin C, Choi CS, Chin S, Kim S, Kawamori D, Kurpad AJ, Neubauer N, Hu J, Liu F, Maratos-Flier E, Mootha VK, Kim Y-B, Kulkarni RN, Shulman GI and Spiegelman BM.** *Abnormal glucose homeostasis in skeletal muscle-specific PGC-1 α knockout mice through skeletal muscle-pancreatic β cell cross-talk.* J Clinical Invest. 2007; 117:3463-3474.
 223. **Tontonoz P and Spiegelman BM.** *Fat and beyond: The diverse biology of PPAR γ .* Annu Rev Biochem. 2008; 77:289-312.
 224. **Arany, Z, Foo S-Y, Ma Y, Ruas JL, Bommi-Reddy A, Girnun G, Cooper M, Laznik D, Rangwala S, Rosenzweig A and Spiegelman BM.** *HIF-independent regulation of VEGF and angiogenesis by the transcriptional coactivator PGC-1 α .* Nature 2008; 451:1008-1012.
 225. **Arany Z, Wagner BK, Ma Y, Chinsomboon J, Laznik D and Spiegelman BM.** *Gene expression-based screening identifies microtubule inhibitors as inducers of PGC-1 α and oxidative phosphorylation.* Proc Natl Acad Sci. USA 2008; 105:4721-4726.
 226. **Calvo, JA, Daniels TG, Wang X, Paul A, Lin J, Spiegelman BM, Stevenson SC and Rangwala SM.** *Muscle-specific expression of PPAR γ coactivator-1 α improves exercise performance and increases peak oxygen uptake.* J Applied Physiology 2008; 104:1304-1312.
 227. **Kajimura S, Seale P, Tomaru T, Erdjument-Bromage H, Cooper MP, Ruas JL, Chin S, Tempst P, Lazar MA and Spiegelman BM.** *Regulation of the brown and white fat gene programs through a PRDM16/CtBP transcriptional complex.* Genes & Dev. 2008; 22:1397-1409.
 228. **Handschin C and Spiegelman BM.** *The role of exercise and PGC1 α in inflammation and chronic disease.* Nature 2008; 454:463-469.
 229. **Seale P, Bjork B, Yang W, Kajimura S, Chin S, Kuang S, Scimè A, Devarakonda S, Conroe HM, Erdjument-Bromage H, Tempst P, Rudnicki MA, Beier DR and Spiegelman BM.** *PRDM16 controls a brown fat/skeletal muscle switch.* Nature 2008; 454:961-967.
 230. **Walkey CJ and Spiegelman BM.** *A functional peroxisome proliferator-activated receptor- $\{\gamma\}$ ligand-binding domain is not required for adipogenesis.* J Biol Chem. 2008;

283(36):24290-24294.

231. **Wenz T, Diaz F, Spiegelman BM and Moraes CT.** *Activation of the PPAR/PGC-1 α pathway prevents a bioenergetic deficit and effectively improves a mitochondrial myopathy phenotype.* Cell Metabolism 2008; 8(3):249-256.
232. **Cooper MP, Uldry M, Kajimura S, Arany Z and Spiegelman BM.** *Modulation of PGC-1 coactivator pathways in brown fat differentiation through LRP130.* J Biol Chem. 2008; 283(46):31960-31967.
233. **Choi CS, Befroy DE, Codella R, Kim S, Reznick RM, Hwang YJ, Liu ZX, Lee HY, Distefano A, Samuel VT, Zhang D, Cline GW, Handschin C, Lin J, Petersen KF, Spiegelman BM, Shulman GI.** *Paradoxical effects of increased expression of PGC-1 α on muscle mitochondrial function and insulin-stimulated muscle glucose metabolism.* Proc Natl Acad Sci USA 2008; 105(50):19926-19931.
234. **Seale P, Kajimura S, Spiegelman BM.** *Transcriptional control of brown adipocyte development and physiological function--of mice and men.* Genes & Dev. 2009; 23(7):788-797.
235. **Estall JL, Kahn M, Cooper MP, Fisher FM, Wu MK, Laznik D, Qu L, Cohen DE, Shulman GI, Spiegelman BM.** *Sensitivity of lipid metabolism and insulin signaling to genetic alterations in hepatic PGC-1 α expression.* Diabetes 2009; 58(7):1499-1508.
236. **Kleiner S, Nguyen-Tran V, Baré O, Huang X, Spiegelman BM, Wu Z.** *PPAR δ agonism activates fatty acid oxidation via PGC-1 α but does not increase mitochondrial gene expression and function.* J Biol Chem. 2009; 284(28):18624-18633.
237. **Kajimura S, Seale P, Kubota K, Lunsford E, Frangioni JV, Gygi SP, Spiegelman BM.** *Initiation of myoblast to brown fat switch by a PRDM16-C/EBP β transcriptional complex.* Nature 2009; 460(7259):1154-1158.
238. **Wenz T, Rossi SG, Rotundo RL, Spiegelman BM, Moraes CT.** *Increased muscle PGC-1 α expression protects from sarcopenia and metabolic disease during aging.* Proc Natl Acad Sci USA 2009; 106(48):20405-20410.
239. **Estall JL, Ruas JL, Choi CS, Laznik D, Badman M, Flier EM, Shulman GI, Spiegelman BM.** *PGC-1 α negatively regulates hepatic FGF21 expression by modulating the heme/Rev- Erb α axis.* Proc Natl Acad Sci USA 2009; 106(52):22510-22515.
240. **Gupta RK, Arany Z, Seale P, Mepani RJ, Ye L, Conroe HM, Roby YA, Kulaga H, Reed RR, Spiegelman BM.** *Transcriptional Control of Preadipocyte Determination by Zfp423.* Nature 2010; 464(7288):619-623.
241. **Kajimura S, Seale P, Spiegelman BM.** *Transcriptional control of brown fat development.* Cell Metabolism 2010 Apr 7; 11(4):257-262.
242. **Volakakis N, Kadkhodaei B, Joodmardi E, Wallis K, Panman L, Silvaggi J, Spiegelman BM, Perlmann T.** *NR4A Orphan Nuclear Receptors as Mediators of CREB-dependent Neuroprotection.* Proc Natl Acad Sci USA 2010; 107(27):12317-12322.

243. **Choi JH, Banks AS, Estall JL, Kajimura S, Bostrom P, Laznik D, Ruas JR, Chalmers MJ, Kamenecka TM, Blucher M, Griffin PR, Spiegelman BM.** *Anti-diabetic drugs inhibit obesity-linked phosphorylation of PPAR γ by Cdk5.* Nature 2010; 466:451-456.
244. **Chakkalakal JV, Nishimune H, Ruas JL, Spiegelman BM, Sanes JR.** *Retrograde influence of muscle fibers on their innervation revealed by a novel marker for slow motor neurons.* Development 2010; 137(20):3489-3499.
245. **Boström P, Mann N, Wu J, Pablo QA, Plovie ER, Gupta RK, Xiao C, MacRae CA, Rosenzweig A, Spiegelman BM.** *C/EBP β controls exercise-induced cardiac growth and protect against pathological cardiac remodeling.* Cell 2010; 143(7):1072-1083.
246. **Seale P, Conroe HM, Estall JL, Kajimura S, Frontini A, Ishibashi J, Cohen P, Cinti S, Spiegelman BM.** *Prdm16 determines the thermogenic program of subcutaneous white adipose tissue.* J Clin Invest. 2011; 121(1):96-105.
247. **Rasbach KA, Gupta RK, Ruas JL, Wu J, Naseri E, Estall JL, Spiegelman BM.** *PGC-1 α regulates a HIF2 α -dependent switch in skeletal muscle fiber-types.* Proc Natl Acad Sci USA 2010; 107(50):21866-21871.
248. **Wu J, Ruas JL, Estall JL, Rasbach KA, Choi JH, Ye L, Boström P, Tyra HM, Crawford RW, Campbell KP, Rutkowski TD, Kaufman RJ, Spiegelman BM.** *The unfolded protein response mediates adaptation to exercise in skeletal muscle through a PGC-1 α /ATF6 α complex.* Cell Metabolism 2011; 13(2):160-169.
249. **Lustig Y, Ruas JL, Estall JL, Lo JC, Devarakonda S, Laznik D, Choi JH, Ono H, Olsen JV and Spiegelman BM.** *Separation of the Gluconeogenic and Mitochondrial Functions of PGC-1 α through S6 Kinase.* Genes & Dev. 2011; 25(12):1232-1244.
250. **Choi JH, Banks AS, Kamenecka TM, Busby SA, Chalmers MJ, Kumar N, Kuruvilla DS, Shin Y, He Y, Bruning JB, Marciano DP, Cameron MD, Laznik D, Jurczak MJ, Schürer SC, Vidović D, Shulman GI, Spiegelman BM and Griffin PR.** *Anti-Diabetic Actions of a Non-Agonist PPAR γ Ligand Blocking Cdk5-Mediated Phosphorylation.* Nature 2011; 477-481.
251. **Fisher FM, Estall JL, Adams AC, Antonellis PJ, Bina HA, Flier JS, Kharitonov A, Maratos-Flier E, Spiegelman BM.** *Integrated Regulation of Hepatic Metabolism by Fibroblast Growth Factor 21 (FGF21) in Vivo.* Endocrinology 2011; 152(8):2996-3004.
252. **Devarakonda S, Gupta K, Chalmers MJ, Hunt JF, Griffin PR, Van Duyne GD, Spiegelman BM.** *Disorder-to-order transition underlies the structural basis for the assembly of a transcriptionally active PGC-1 α /ERR γ complex.* Proc Natl Acad Sci USA 2011; 108(46):18678-18683.
253. **Gupta RK, Rosen ED and Spiegelman BM.** *Identifying Novel Transcriptional Components Controlling Energy Metabolism.* Cell Metab. 2011; 14(6):739-745.
254. **Khandekar MJ, Cohen P, Spiegelman BM.** *Molecular mechanisms of cancer development in obesity.* Nat Rev Cancer. 2011; 11(12):886-895.
255. **Boström P, Wu J, Jedrychowski MP, Korde A, Ye L, Lo JC, Rasbachm KA, Boström EA,**

- Choi JH, Long JZ, Kajimura S, Zingaretti MC, Vind BF, Tu H, Cinti S, Højlund K, Gygi SP, Spiegelman BM. *A PGC1- α -dependent myokine that drives brown-fat-like development of white fat and thermogenesis.* Nature 2012; 481(7382):463-468.
256. Fisher FM, Kleiner S, Douris N, Fox EC, Mepani R, Verdeguer F, Wu J, Kharitonkov A, Flier JS, Maratos-Flier E, Spiegelman BM. *FGF21 regulates PGC-1 α and browning of white adipose tissues in adaptive thermogenesis.* Genes & Dev. 2012; 26(3):271-281.
257. Gupta RK, Mepani RJ, Kleiner S, Lo JC, Khandekar MJ, Cohen P, Frontini A, Bhowmick DC, Ye L, Cinti S and Spiegelman BM. *Zfp423 Expression Identifies Committed Preadipocytes and Localizes to Adipose Endothelial and Perivascular Cells.* Cell Metab. 2012; 15(2):230-239.
258. Kitami T, Logan DJ, Negri J, Hasaka T, Tolliday NJ, Carpenter AE, Spiegelman BM, Mootha VK. *A Chemical Screen Probing the Relationship between Mitochondrial Content and Cell Size.* PLoS ONE 2012; 7(3):e33755.
259. Ohno H, Shinoda K, Spiegelman BM, Kajimura S. *PPAR γ agonists induce a white-to-brown fat conversion through stabilization of PRDM16 protein.* Cell Metab. 2012; 15(3):395-404.
260. Wu J, Boström P, Sparks LM, Ye L, Choi JH, Giang A, Khandekar M, Nuutila P, Schaart G, Huang K, Tu H, van Marken Lichtenbelt WD, Hoeks J, Enerbäck S, Schrauwen P and Spiegelman BM. *Beige Adipocytes are a Distinct Type of Thermogenic Fat Cell in Mouse and Human.* Cell 2012; 150(2):366-376.
261. Kleiner S, Mepani RJ, Laznik D, Ye L, Jurczak MJ, Jornayvaz FR, Estall JL, Chatterjee DB, Shulman GI, Spiegelman BM. *Development of insulin resistance in mice lacking PGC-1 α in adipose tissues.* Proc Natl Acad Sci USA 2012; 109(24):9635-9640.
262. Koncarevic A, Kajimura S, Cornwall-Brady M, Andreucci A, Pullen A, Sako D, Kumar R, Grinberg AV, Liharska K, Ucran JA, Howard E, Spiegelman BM, Seehra J, Lachey J. *A Novel Therapeutic Approach to Treating Obesity through Modulation of TGF β Signaling.* Endocrinology 2012; 153(7):3133-3146.
263. Da Cruz S, Parone PA, Lopes VS, Lillo C, McAlonis-Downes M, Lee SK, Vetto AP, Petrosyan S, Marsala M, Murphy AN, Williams DS, Spiegelman BM, Cleveland DW. *Elevated PGC-1 α activity sustains mitochondrial biogenesis and muscle function without extending survival in a mouse model of inherited ALS.* Cell Metab. 2012; 15(5):778-786.
264. Ye L, Kleiner S, Wu J, Sah R, Gupta RK, Banks AS, Cohen P, Khandekar MJ, Boström P, Mepani RJ, Laznik D, Kamenecka TM, Song X, Liedtke W, Mootha VK, Puigserver P, Griffin PR, Clapham DE, Spiegelman BM. *TRPV4 is a regulator of adipose oxidative metabolism, inflammation and energy homeostasis.* Cell 2012; 151(1):96-110.
265. Ruas JL, White JP, Rao RR, Kleiner S, Brannan KT, Harrison BC, Greene NP, Wu J, Estall JL, Irving BA, Lanza IR, Rasbach KA, Okutsu M, Nair KS, Yan Z, Leinwand LA, Spiegelman BM. *A novel PGC-1 α isoform induced by resistance training regulates skeletal muscle hypertrophy.* Cell 2012; 151(6):1319-1331.

266. **Vazquez F, Lim JH, Chin H, Bhalla K, Girnun G, Pierce K, Clish CB, Granter SR, Widlund HR, Spiegelman BM, Puigserver P.** *PGC1a Expression Defines a Subset of Human Melanoma Tumors with Increased Mitochondrial Capacity and Resistance to Oxidative Stress.* *Cancer Cell* 2013; 23(3):287-301.
267. **Wu J, Cohen P, Spiegelman BM.** *Adaptive thermogenesis in adipocytes: Is beige the new brown?* *Genes & Dev.* 2013; 27(3):234-250.
268. **Spiegelman BM.** *Banting lecture 2012: regulation of adipogenesis: toward new therapeutics for metabolic disease.* *Diabetes* 2013; 62(6):1774-1782.
269. **Adamovich Y, Shlomai A, Tsvetkov P, Umansky KB, Reuven N, Estall JL, Spiegelman BM, Shaul Y.** *The Protein Level of PGC-1a, a Key Metabolic Regulator, Is Controlled by NADH-NQO1.* *Mol Cell Biol.* 2013; 33(13):2603-2613.
270. **Ye L, Wu J, Cohen P, Kazak L, Khandekar MJ, Jedrychowski MP, Zeng X, Gygi SP and Spiegelman BM.** *Fat cells directly sense temperature to activate thermogenesis.* *PNAS* 2013; 110(30):12480-12485.
271. **Goswami D, Devarakonda S, Chalmers MJ, Pascal BD, Spiegelman BM, Griffin PR.** *Time Window Expansion for HDX Analysis of an Intrinsically Disordered Protein.* *J Am Soc Mass Spectrom.* 2013; 24(10):1584-1592.
272. **Wrann CD, White JP, Salogiannis J, Laznik-Bogoslavski D, MA D, Lin JD, Greenberg ME, Spiegelman BM.** *Exercise induces hippocampal BDNF through a PGC-1a/FNDC5 pathway.* *Cell Metab.* 2013; 18(5):649-59.
273. **Wu, J and Spiegelman BM.** *Irisin ERKs the Fat.* *Diabetes* 2014; 63(2):381-383.
274. **Rosen ED and Spiegelman BM.** *What We Talk About When We Talk About Fat.* *Cell* 2014; 156(1-2):20-44.
275. **Cohen P, Levy JD, Zhang Y, Frontini A, Kolodin DP, Svensson KJ, Lo JC, Zeng X, Ye L, Khandekar MJ, Wu J, Gunawardana SC, Banks AS, Camporez JP, Jurczak MJ, Kajimura S, Piston DW, Mathis D, Cinti S, Shulman GI, Seale P, Spiegelman BM.** *Ablation of PRDM16 and Beige Fat Causes Metabolic Dysfunction and a Subcutaneous to Visceral Adipose Switch.* *Cell* 2014; 156(1-2):304-316.
276. **Roberts LD, O'Sullivan J, Schinzel RT, Lewis GD, Lee Y, Palma MJ, Calhoun S, Chen M, Ramachandran V, Larson MG, Bouchard C, Rankinen T, Souza AL, Clish CB, Wang TJ, Soukas AA, Cowan CA, Spiegelman BM, Gerszten RE.** *B-Amino isobutyric Acid Induces Browning of White Fat and Hepatic β -oxidation and is Inversely Correlated with Cardiometabolic Risk Factors.* *Cell Metab.* 2014; 19(1):96-108.
277. **Long JZ, Svensson KJ, Tsai L, Zeng X, Roh HC, Kong X, Rao RR, Lou J, Lokurkar I, Baur W, Castellot JJ, Rosen ED, Spiegelman BM.** *A Smooth Muscle-Like Origin for Beige Adipocytes.* *Cell Metab.* 2014; 19(5):810-820.
278. **Rao RR, Long JZ, White JP, Svensson KJ, Lou J, Lokurkar I, Jedrychowski MP, Ruas JL, Wrann CD, Lo JC, Camera DM, Lachey J, Gygi S, Sehra J, Hawley JA and Spiegelman BM.** *Meteorin-like is a hormone that regulates immune-adipose interactions to increase beige fat thermogenesis.* *Cell* 2014; 157(6): 1279-1291.

279. **Kong X, Banks AS, Liu T, Kazak L, Rao RR, Cohen P, Wang X, Yu S, Lo JC, Tseng Y, Cypess AM, Xue R, Kleiner S, Kang S, Spiegelman BM, Rosen ED.** *IRF4 is a key thermogenic transcriptional partner of PGC-1 α .* Cell 2014; 158(1): 69-83.
280. **Lo JC, Ljubicic S, Leibiger B, Kern M, Leibiger IB, Moede T, Kelly ME, Chatterjee Bhowmick D, Murano I, Cohen P, Banks AS, Khandekar MJ, Dietrich A, Flier JS, Cinti S, Blüher M, Danial NN, Berggren P, Spiegelman BM.** *Adipsin is an Adipokine that Improves β Cell Function in Diabetes.* Cell 2014; 158(1): 41-53.
281. **Kir S, White JP, Kleiner S, Kazak L, Cohen P, Baracos VE, Spiegelman BM.** *Tumour-derived PTH-related protein triggers adipose tissue browning and cancer cachexia.* Nature 2014. Nature 2014; 513 (7516): 100-104.
282. **Banks AS, McAlliste, FE, Camporez JG, Zushin PH, Jurczak MJ, Bogoslavski D, Shulman JL, Gygi SP, Spiegelman BM.** *An Erk/Cdk5 axis controls the diabetogenic actions of PPAR γ .* Nature 2014; 517 (7534):391-395.
283. **Choi JH, Choi SS, Kim ES, Jedrychowski MP, Yang YR, Jang HJ, Suh PG, Banks AS, Gygi SP, Spiegelman BM.** *Thrap3 docks on phosphoserine 273 of PPAR γ and controls diabetic gene programming.* Genes & Dev. 2014; 28(21):2361-2369.
284. **White JP, Wrann CD, Rao RR, Nair SK, Jedrychowski MP, You SY, Gygi SP, Ruas JL, Hornberger TA, Wu Z, Glass DJ, Piao X and Spiegelman BM.** *G protein-coupled receptor 56 regulates mechanical overload-induced muscle hypertrophy.* Proc Natl Acad Sci USA 2014; 111(44): 15756-15761.
285. **Cipolletta D, Cohen P, Spiegelman BM, Benoist C, Mathis D.** *Appearance and disappearance of the mRNA signature characteristic of Treg cells in visceral adipose tissue: Age, diet, and PPAR γ effects.* Proc Natl Acad Sci USA 2015; 112(2):482-487
286. **Irving BA, Lanza IR, Henderson GC, Rao RR, Spiegelman BM, Sreekumaran Nair.** *Combined Training Enhances Skeletal Muscle Mitochondrial Oxidative Capacity Independent of Age.* J Clin Endocrinol Metab. 2015; 100(4):1654-1663.
287. **Cohen, P and Spiegelman BM.** *Brown and Beige Fat: Molecular Parts of a Thermogenic Machine.* Diabetes 2015; 64(7):2346-2351.
288. **Liu X, Xiao J, Zhu H, Wei X, Platt C, Damilano F, Xiao C, Bezzerides V, Boström P, Che L, Zhang C, Spiegelman BM, Rosenzweig A.** *Combine miR-222 Is Necessary for Exercise-Induced Cardiac Growth and Protects against Pathological Cardiac Remodeling.* Cell Metab. 2015; 21(4): 584-595.
289. **Schrauwen P, van Marken Lichtenbelt WD, Spiegelman BM.** *The future of brown adipose tissues in the treatment of type 2 diabetes.* Diabetologia 2015; 58(8):1704-1707.
290. **Jedrychowski MP, Wrann CD, Paulo JA, Gerber KK, Szpyt J, Robinson MM, Nair KS, Gygi SP, Spiegelman BM.** *Detection and Quantitation of Circulating Human Irisin by Tandem Mass Spectrometry.* Cell Metab. 2015; 22(4):734-740.

291. **Kajimura S, Spiegelman BM, Seale P.** *Brown and beige fat: Physiological roles beyond heat-generation.* Cell Metab. 2015; 22(4):546-559.
292. **Kazak L, Chouchani ET, Jedrychowski MP, Erickson BK, Shinoda K, Cohen P, Vetrivelan R, Lu GZ, Laznik-Bogoslavski D, Hasenfuss SC, Kajimura S, Gygi SP, Spiegelman BM.** *A Creatine-Driven Substrate Cycle Enhances Energy Expenditure and Thermogenesis in Beige Fat.* Cell 2015; 163(3):643-655.
293. **Kir S, Komaba H, Garcia AP, Economopoulos KP, Liu W, Lanske B, Hodin RA, Spiegelman BM.** *PTH/PTHrP Receptor Mediates Cachexia in Models of Kidney Failure and Cancer.* Cell Metab. 2015; 23(2):315-323.
294. **Svensson KJ, Long JZ, Jedrychowski MP, Cohen P, Lo JC, Serag S, Kir S, Shinoda K, Tartaglia JA, Rao RR, Chedotal A, Kajimura S, Gygi SP, Spiegelman BM.** *A Secreted Slit2 Fragment Regulates Adipose Tissue Thermogenesis and Metabolic Function.* Cell Metab. 2016; S1550-4131(16)00042-5.
295. **Chouchani ET, Kazak L, Jedrychowski MP, Lu GZ, Erickson BK, Szpyt J, Pierce KA, Laznik-Bogoslavski D, Vetrivelan R, Clish CB, Robinson AJ, Gygi SP and Spiegelman BM.** *Mitochondrial ROS regulate thermogenic energy expenditure and sulfenylation of UCP1.* Nature 2016; In Press.