

CURRICULUM VITAE

Name: Lee Alan Witters

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Office Address: The Class of 1978 Life Sciences Center
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Place of Birth: Canton, Ohio

Education:

1965 A.B. Oberlin College

1969 M.D. University of Rochester School of Medicine and Dentistry

1992 M.A. Dartmouth College (honorary)

Postdoctoral Training:

Internship and Residencies:

1969-1971 Clinical Fellow in Medicine, Harvard Medical School

1969-1970 Intern in Medicine, Beth Israel Hospital, Boston, MA

1970-1971 Assistant Resident in Medicine, Beth Israel Hospital

Research Fellowships:

1965-1969 Research Associate, Department of Medicine, University of Rochester School of Medicine and Dentistry

1971-1973 Clinical Associate, National Heart and Lung Institute Molecular Disease Branch (with Donald S. Fredrickson), National Institutes of Health

1973-1975 Research Fellow in Medicine, Harvard Medical School and Massachusetts General Hospital

Academic Appointments:

1973-1975 Research Fellow in Medicine, Harvard Medical School

1975-1978 Instructor in Medicine, Harvard Medical School

1978-1981 Assistant Professor of Medicine, Harvard Medical School

1981-1982 Honorary Research Fellow, Department of Biochemistry, University of Dundee, Scotland

1982-1984 Associate Professor of Medicine, Harvard Medical School

1984-1986 Associate Professor of Medicine, Dartmouth Medical School,

1984-1999 Chief, Endocrine-Metabolism Division, Department of
Medicine, Dartmouth Medical School
1985-1986 Associate Professor of Biochemistry, Dartmouth Medical School
1986- Professor of Medicine, Dartmouth Medical School
1986- Professor of Biochemistry, Dartmouth Medical School
1987- Eugene W. Leonard 1921 Professor of Medicine & Biochemistry,
Dartmouth Medical School
1993-1999 Director, Endocrinology Program, Norris Cotton Cancer Center,
Dartmouth Medical School
1996-1999 Adjunct Professor of Biological Sciences, Dartmouth College
1999-2003 Director, Humanitates Vitae (Human Biology Program), Dartmouth College
1999- Professor of Biological Sciences, Dartmouth College

Hospital Appointments:

1973-1975 Clinical and Research Fellow in Medicine, Massachusetts
General Hospital
1975-1978 Assistant in Medicine, Massachusetts General Hospital
1979-1983 Assistant Physician, Massachusetts General Hospital
1983-1985 Associate Physician, Massachusetts General Hospital
1984-1999 Chief, Endocrine-Metabolism Division, Dartmouth Medical School
1984- Attending Physician, Dartmouth-Hitchcock Medical Center
1985- Consultant in Medicine, Medical Services, Massachusetts
General Hospital

Awards and Honors:

1965 Graduated with Honors in Chemistry, Oberlin College
1969 Graduated with Distinction in Research, University of
Rochester School of Medicine and Dentistry
1974-1976 Fellow, The Medical Foundation of Boston, Inc.
1977-1979 Research and Development Awardee, American Diabetes Association
1978-1983 Research Career and Development Awardee, U.S. Public Health Service
1981-1982 Fellow, John Simon Guggenheim Foundation
1997-1998 Faculty Advisor of the Year (for service to the Nathan Smith
Premedical Society), Dartmouth College
1999-2000 Teacher of the Year in the Basic Sciences, Dartmouth Medical School
2001 Excellence in Medical Education Award, DMS, Awarded by DMS
Class of 2004
2002 Faculty Speaker, Dartmouth College Commencement Class Day (elected by
Class of 2002)
2002 Elected as Honorary member, Golden Key International Honour Society:
keynote speaker at member induction ceremony
2003 Elected as Distinguished Member, National Society of Collegiate Scholars;
keynote speaker at member induction ceremony
2004 Professor of the Year, Dartmouth College, named by Order of Omega
2004 Profiles in Excellence Teaching Award (by Student Assembly), Dartmouth College

2006	Dean of Faculty Award for Undergraduate Mentoring and Advising, Dartmouth College
2006	Linda '82 and Paul Gridley Faculty Fellow Award (for faculty-student involvement; inaugural recipient), Dartmouth College
2010	Distinguished Educator Award, Dartmouth Medical School (voted by members of the class of 2012)
2010	Faculty Advisor of the Year (voted by Council of Student Organizations)
2010	Distinguished Educator Award, Dartmouth Medical School (voted by members of the class of 2013)
2011	Basic Science Teaching Award, Dartmouth Medical School (voted by graduating class of 2011)
2011	Distinguished Lecturer Award, Dartmouth Medical School (voted by members of the class of 2014)
2012	Elected to inaugural class Geisel School of Medicine Academy of Master Educators

Licensure and Certification:

1969- -Massachusetts License Registration No. 37796
 1973- Diplomate, Internal Medicine, American Board of Internal Medicine
 1975- Diplomate, Endocrinology and Metabolism, American Board of Internal Medicine
 1984- New Hampshire License Registration No. 7006

Memberships, Offices and Committee Assignment in Professional Societies:

1965	Sigma Xi, Oberlin College
1969	Alpha Omega Alpha, University of Rochester
1977	Member, Professional Section, American Diabetes Association
1977	American Federation for Clinical Research
1982	Member, American Society for Clinical Investigation
1984	Member, American Association for the Advancement of Science
1984-1986	Member, Medical Science Review Committee, Juvenile Diabetes Foundation
1985-1989	Metabolism Study Section, National Institutes of Health
1988	American Society for Biochemistry and Molecular Biology
1991	The Biochemical Society (United Kingdom)
1999-2000	Chair and Vice Chair, Gordon Research Conference on 2 nd Messengers and Protein Phosphorylation

Service to Biomedical Journals:

Editor , Biochemical Journal 1995-2002

Reviewer for:

Journal of Biological Chemistry

Journal of Clinical Investigation
 Science
 European Journal of Biochemistry
 New England Journal of Medicine
 Diabetes
 Endocrinology
 Archives of Biochemistry and Biophysics
 Molecular and Cellular Biology
 FASEB Journal
 Journal of Cell Biology
 Nature/Nature Medicine

Major Research Interests:

1. Hormonal and Nutritional Regulation of Lipogenesis
2. Cellular Responses to Metabolic Stress: the AMP-activated Protein Kinase
3. Molecular Mechanism(s) of Hormone Action

Teaching Experience:

1971-1973 Visiting Physician, Georgetown University Hospital, Medical Services, Washington, D.C.

1973-1985 Attending Physician, Medical Services, Massachusetts General Hospital

1975-1985 Attending Physician, Endocrine Unit, Massachusetts General Hospital

1975-1985 Attending Physician, Diabetes Unit, Massachusetts General Hospital

1973-1985 Lecturer: Harvard Medical Endocrine Pathophysiology and Emergency Medicine Courses; MGH Internal Medicine and Endocrine Postgraduate Courses ; regular lectureships at various medical schools and other hospitals

1985- Attending Physician, Department of Medicine and Endocrine-Metabolism Division, Dartmouth-Hitchcock Medical Center

1985- Lecturer in Endocrinology, Physiology and Biochemistry, Dartmouth Medical School

1996- Lecturer, Department of Biological Sciences, Dartmouth College

1999-2003 Director and Faculty Member, Humanitates Vitae (the Human Biology Program at Dartmouth College)

Major Clinical, Hospital, Medical School and College Service Responsibilities:

1973-1985 Physician, Diabetes Outpatient Clinic, Massachusetts General Hospital plus inpatient consultation service

1973-1985 Attending Physician, Medical Ward Services, Massachusetts General Hospital

1975- Attending Physician, Endocrine Services, Massachusetts General Hospital

1978-1981 Member, Subcommittee for Review for Research Proposals, Massachusetts General Hospital

1978-1979 Member, Committee on Research, Massachusetts General Hospital

1980 Member, Internship Selection Committee, Medical Services, Massachusetts General Hospital

- 1985-1999 Chief, Endocrine-Metabolism Division, Department of Medicine, Dartmouth Medical School; Director, Endocrine Fellowship Program, Dartmouth Medical School; Attending Physician, DHMC
- 1986-1988 Member, Research and Development Committee, V.A. Hospital, White River Junction, VT
- 1985-1986 Chairman, Dean's Committee on Impact of Medical Center Relocation on Dartmouth Medical School
- 1986- Co-Director, Endocrine Research Training Program, Dartmouth Medical School
- 1986-1987 Member, Search Committee for Pharmacology Chairman, Clinical Pharmacology
- 1987-1996 Member, Diabetes Advisory Committee, Mary Hitchcock Memorial Hospital
- 1987-1992 Chairman, Department of Medicine Faculty Promotions Committee, Dartmouth Medical School
- 1989-1990 Chairman, Rheumatology Chairman Search Committee, DMS
- 1989-1991 Chair/Co-Chairman, Department of Medicine Clinician-Scientist Search Committee, DMS
- 1990-1993 Member, DMS Research Committee
- 1991 Member, Dean's Committee on New Curricular Directions, DMS
- 1993-1997 Director, Endocrinology Program, Norris Cotton Cancer Center, Dartmouth Medical School
- 1997-1999 Director, Cell Signaling, Growth and Differentiation Program, Norris Cotton Cancer Center, Dartmouth Medical School
- 1997- Faculty Advisor, The Nathan Smith Premedical Society, Dartmouth College
- 1997- DMS Institutional Representation to the American Society for Clinical Investigation
- 1999-2002 Chair, Committee on Physician-Scientists, Dartmouth Medical School
- 2000- Chair, Health Professions Advisory Committee, Dartmouth College
- 2001-2002 Member, Committee on Academic Advising, Dartmouth College
- 1999- Member, Advisory Board, Diabetes Center, Massachusetts General Hospital
- 2002-2003 Member, Search Committee for DMS Dean
- 2002-2003 Member, College Course Steering Committee, Dartmouth College
- 2003-2006 Member, Committee on Instruction, Dartmouth College
- 2004- Member, Dickey Center Faculty Steering Committee, Dartmouth College
- 2004-2006 Member, Dickey Center Global Health Initiative Steering Committee, Dartmouth College
- 2006- Member, Committee on Classroom Technology, Academic Computing Division, Dartmouth College
- 2010- Member, AB/MD Program Study Group, Dartmouth College
- 2010 Director, Health Professions Program, Dartmouth College (note: this is the year of my formal appointment, but I have been doing this *pro bono* since 1997, along with my advisorship of the undergraduate Nathan Smith Society).

Bibliography:

Original Manuscripts

1. Witters, L. A., Alberico, L., and Avruch, J. (1976) Insulin regulation of glycogen synthase in the isolated rat hepatocyte. *Biochem. Biophys. Res. Comm.* 69: 977-1003.
2. Witters, L. A., Herbert, P. N., Shulman, R. S., Krauss, R. A., and Levy, R. I. (1976) Therapeutic failure in familial type II hyperlipoproteinemia. *Metabolism* 25: 1017-1025.
3. Witters, L. A., Ohman, J. L., Weir, G. C., Raymond, L., and Lowell, F. C. (1977) Insulin antibodies in the pathogenesis of insulin allergy and resistance. *Amer. J. Med.* 63: 703-709.
4. Witters, L. A., Avruch, J. (1978) Insulin regulation of hepatic glycogen synthase and phosphorylase. *Biochemistry* 17: 406-410.
5. Avruch, J., Witters, L. A., Alexander, M. C., and Bush, M. A. (1978) The effects of glucagon and insulin on cytoplasmic protein phosphorylation in hepatocytes. *J. Biol. Chem.* 253: 4754-4761.
6. Avruch, J., Witters, L. A., Alexander, M. C., Bush, M. A., and Crapo, L. M. (1979) Insulin and the phosphorylation of intracellular proteins. *Proc. ICN/UCLA Symp. Transmembrane Signalling* 31: 621-628.
7. Witters, L. A., Kowaloff, E. M., and Avruch, J. (1979) Glucagon regulation of protein phosphorylation: Identification of acetyl-CoA carboxylase as a substrate. *J. Biol. Chem.* 254: 245-249.
8. Witters, L. A. and Trasko, C. T. (1979) Regulation of hepatic free fatty acid metabolism by insulin and glucagon. *Amer. J. Physiol.* 237: E23-E29.
9. Witters, L. A., Moriarty, D., and Martin, D. B. (1979) Regulation of hepatic acetyl-CoA carboxylase by insulin and glucagon. *J. Biol. Chem.* 254: 6644-6649.
10. Alexander, M. C., Kowaloff, E. M., Witters, L. A., Dennihy, D. T., and Avruch, J. (1979) Purification of a hepatic 123,000 dalton hormone-stimulated 32P-peptide and its identification as ATP-citrate lyase. *J. Biol. Chem.* 254: 8052-
11. Avruch, J., Witters, L. A., Alexander, M. C., Kowaloff, E. M., and Palmer, J. L. (1979) Insulin-stimulated protein phosphorylation: A progress report. *Proc. 10th International Congr. Diabetes Federation* 500: 185-190.
12. Witters, L. A. and Vogt, B. (1981) A new method for the isolation of rat liver acetyl-CoA carboxylase. *J. Lipid Res.* 22: 364-369.
13. Segre, G. V., Perkins, A. S., Witters, L. A., and Potts, J. T. Jr. (1981) Metabolism of parathyroid hormone by isolated rat Kupffer cells and hepatocytes. *J. Clin. Invest.* 67: 449-457.
14. Witters, L. A. (1981) Insulin stimulates the phosphorylation of acetyl-CoA carboxylase. *Biochem. Biophys. Res. Comm.* 100: 872-878.
15. Witters, L. A., Friedman, S. A., and Bacon, G. W. (1981) Microsomal acetyl-CoA carboxylase: evidence for association of enzyme polymer with liver microsomes. *Proc. Natl. Acad. Sci. USA* 78: 3639-3643.
16. Witters, L. A., Friedman, S. A., Tipper, J. P., and Bacon, G. W. (1981) Regulation of acetyl-CoA carboxylase by guanine nucleotides. *J. Biol. Chem.* 256: 8573-8578.

17. Avruch, J., Alexander, M. C., Palmer, J. L., Pierce, M. W., Nemenhof, R. A., Blackshear, P. J., Tipper, J. P., and Witters, L. A. (1982) The role of insulin-stimulated protein phosphorylation in insulin action. *Fed. Proc.*41: 2629-2633.
18. Tipper, J. P. and Witters, L. A. (1982) In vitro phosphorylation and inactivation of rat liver acetyl-CoA carboxylase purified by avidin-affinity chromatography. *Biochim. Biophys. Acta* 715: 162-169.
19. Ingebritsen, T. S., Blair, J., Guy, P., Witters, L. A., and Hardie, D. G. (1983) The protein phosphatases involved in cellular regulation. 3. Fatty acid synthesis, cholesterol synthesis and glycolysis/gluconeogenesis. *Eur. J. Biochem.* 132: 275-281.
20. Holland, R., Witters, L. A., and Hardie, D. G. (1983) The effect of glucagon on acetyl-CoA carboxylase phosphorylation in hepatocytes. In: *Int. Symp. on Isolation, Characterization and Use of Hepatocytes*, R. A. Harris and N. W. Cornell (eds.), Elsevier Biomedical, New York, pp. 585-590.
21. Witters, L. A., Tipper, J. P., and Bacon, G. W. (1983) Stimulation of site-specific phosphorylation of acetyl coenzyme A carboxylase by insulin and epinephrine. *J. Biol. Chem.* 258: 5643-5648.
22. Tipper, J. P., Bacon, G. W., and Witters, L. A. (1983) Acetyl-CoA carboxylase protein kinase: isolation of two cAMP-independent kinases identical to casein kinase I and casein kinase II. *Arch. Biochem. Biophys.* 227: 386-396.
23. Holland, R., Witters, L. A., and Hardie, D. G. (1984) Glucagon inhibits fatty acid synthesis in isolated hepatocytes via phosphorylation of acetyl-CoA carboxylase by cyclic AMP-dependent protein kinase. *Eur. J. Biochem.* 140: 325-333.
24. Witters, L. A., Vater, C. E., and Lienhard, G. (1985) Phosphorylation of the glucose transporter in vitro and in vivo by protein kinase C. *Nature* 315: 777-778.
25. Witters, L. A. and Bacon, G. W. (1985) Protein phosphatases active on acetyl-CoA carboxylase phosphorylated by casein kinase I and II and the cAMP-dependent protein kinase. *Biochem. Biophys. Res. Comm.* 130: 1132-1138.
26. Blackshear, P. J., Witters, L. A., Girard, P. R., Kuo, J. F., and Quamo, S. N. (1985) Growth factor-stimulated protein phosphorylation in 3T3-L1 cells. *J. Biol. Chem.* 260: 13304-13315.
27. Glynn, B. P., Colliton, J. W., McDermott, J. M., and Witters, L. A. (1985) Assay of protein kinase C with an N-bromosuccinimide-cleavage fragment of histone H-1. *Biochem. J.* 231: 489-492.
28. Witters, L. A., Colliton, J. W., McDermott, J. M., Zhang, F., and Glynn, B. P. (1986) Regulation of adipocyte metabolism by insulin and phorbol esters: potential role of protein kinase C. In: *Mechanisms of Insulin Action*, P. Belfrage (ed.), Elsevier Press, pp. 229-237.
29. Blackshear, P. J., Wen, L., Glynn, B. P., and Witters, L. A. (1986) Protein kinase C-stimulated phosphorylation in vitro of a Mr 80,000 protein phosphorylated in response to phorbol esters and growth factors in intact fibroblasts. *J. Biol. Chem.* 261:1459-1469.
30. Blackshear, P. J., Wen, L., Nemenoff, R., Gunsalus, J. R., and Witters, L. A. (1986) Growth factor activation of protein kinase C-dependent and independent pathways of protein phosphorylation in fibroblasts. Relevance to activation of protein kinase C in neuronal tissues. In: *Prog. Brain Res.*, G. H. Gispén and A. H. Routtenberg (eds.), Elsevier Sci. Pub., Amsterdam, Chapter 16, pp. 183-195.

31. Glynn, B. P., Colliton, J. W., McDermott, J. M., and Witters, L. A. (1986) Phorbol esters, but not insulin, promote depletion of cytosolic protein kinase C in rat adipocytes. *Biochem. Biophys. Res. Comm.* 135: 1119-1125.
32. Witters, L. A. (1986) Protein kinases and phosphatases active on acetyl-CoA carboxylase. *Adv. Prot. Phosphatases* 3:201-224.
33. Witters, L. A. and McDermott, J. M. (1986) Regulation of acetyl-CoA carboxylase by ADP-ribosylation. *Biochemistry* 25:7216-7220.
34. Witters, L. A., Mendel, D. W., and Colliton, J. W. (1987) Modulation of acetyl-CoA carboxylase by inhibitors of IMP dehydrogenase. *Arch. Biochem. Biophys.* 252:130-135.
35. Allard, W. J., Gibbs, E. M., Witters, L. A., and Lienhard, G. E. (1987) The glucosetransporter in human fibroblasts is phosphorylated in response to phorbol ester but not in response to growth factors. *Biochim. Biophys. Acta* 929:288-295.
36. Witters, L. A. and Watts, T. D. (1988) An autocrine factor from Reuber hepatoma cells that stimulates DNA synthesis and acetyl-CoA carboxylase: Characterization of biologic activity and evidence for a glycan structure. *J. Biol. Chem.* 263: 8027-8036.
37. Evans, J. L. and Witters, L. A. (1988) Quantitation by immunoblotting of the in vivo induction and subcellular distribution of hepatic acetyl-CoA carboxylase. *Arch. Biochem. Biophys.* 264: 103-113.
38. Witters, L. A., Watts, T. D., Daniels, D. L., and Evans, J. L. (1988) Insulin stimulates the dephosphorylation and activation of acetyl-CoA carboxylase, *Proc. Natl. Acad. Sci. USA* 85: 5473-5477.
39. Witters, L. A., Watts, T. D., Gould, G. W., Lienhard, G. E., and Gibbs, E. M. (1988) Regulation of protein phosphorylation by insulin and an insulinomimetic oligosaccharide in 3T3-L1 adipocytes and Fao hepatoma cells. *Biochem. Biophys. Res. Comm.* 153, 992-998.
40. Vivier, P. M., Dietrich, A. J., and Witters, L. A. (1988) Management of elevated cholesterol levels by New Hampshire primary care physicians: Report of a survey. *Family Practice* 27, 167-172.
41. Evans, J. L., Quistorff, B., and Witters, L. A. (1989) Zonation of hepatic lipogenic enzymes identified by dual digitonin pulse perfusion. *Biochem. J.* 259:821-829.
42. Bianchi, A., Evans, J. L., Watts, T. D. and Witters, L. A. (1990) Identification of an isozymic form of acetyl-CoA carboxylase. *J. Biol. Chem.*, 265, 1502- 1508.
43. Iverson, A.J., Nordlund, A-C., and Witters, L.A. (1990), Immunologic Analysis of acetyl-CoA carboxylase mass, tissue distribution and subunit composition, *Biochem. J.*, 269, 365-371.
44. Evans, J.L., Quistorff, B. and Witters, L.A. (1990), Hepatic zonation of acetyl-CoA carboxylase activity, *Biochem. J.*, 270, 665-672.
45. Witters, L.A. and Watts, T.D. (1990), Yeast acetyl-CoA carboxylase: in vitro phosphorylation by mammalian and yeast protein kinases, *Biochem. Biophys. Res. Comm.*, 169, 369-376.
46. Bianchi, A., Quistorff, B. and Witters, L.A. (1990), Hepatic Zonation of Insulin-Stimulated Tyrosine Phosphorylation, *FEBS Lett.*, 269, 435-439.
47. Witters, L.A. (1990), Protein phosphorylation and dephosphorylation, *Current Opinion in Cell Biology*, 2 (No. 2), 212-220.
48. Quistorff, B. Rømer, P. Evans, J.L. and Witters, L.A. (1991) In: *Regulation of Hepatic Function: Metabolic and Structural Interactions*, Alfred Benzon Symp. No. 30, (eds: N Grunnet and B. Quistorff), Munksgaard, Copenhagen, 50-67.

49. Witters, L.A. , Nordlund, A.-C. And Marshall, L. (1991) Reversible Inhibition of Cellular Acetyl CoA Carboxylase by ATP Depletion: Evidence for the Involvement of the 5'-AMP-Stimulated Protein Kinase, *Biochem.Biophys. Res. Comm.*, 181, 1486-1492.
50. Bianchi, A., Evans, J.L., Nordlund, A.-C., Watts, T. D., and Witters, L. A. (1991) Acetyl-CoA carboxylase in Reuber hepatoma cells: covariation of enzyme activity, insulin regulation and neutral lipid content, *J. Cell. Biochem.*, 48, 86- 97.
51. Lynch, C. J., McCall, K. M., Billingsley, M. L., Hreniuk, S. P., Martin, L. F., Witters, L. A., and Vannucci, S. J. (1992) Pyruvate carboxylase in obesity. *Am. J. Physiol.* 262: E608-E618.
52. Louis, N. and Witters, L.A. (1992), Glucose regulation of acetyl-CoA carboxylase in hepatoma and islet cells, *J. Biol. Chem.*, 267, 2287-2293.
53. Witters, L.A. and Kemp, B.E. (1992) Insulin activation of acetyl-CoA carboxylase accompanied by inhibition of the 5'-AMP-activated protein kinase, *J. Biol. Chem.*, 267, 2864-2867.
54. Quistorff, B, Katz, N. and Witters, L.A. (1992) Hepatocyte Heterogeneity in the Metabolism of Fatty Acids: Discrepancies in the Hepatic Zonation of Acetyl-CoA Carboxylase, *Enzyme*, 46, 59-71.
55. Spencer, E.B., Bianchi, A., Widmer, J. and Witters, L.A. (1993) Brain acetyl-CoA carboxylase: Identification of the brain isozyme and studies of its regulation during development and altered nutrition, *Biochem. Biophys. Res. Comm.*, 192, 820-825.
56. Witters, L.A., Christiansen, A. Fassihi, K., King, A. N., Widmer, J. and Quistorff B. (1993) Application of Dual-Digitonin Pulse Perfusion to the Study of Hepatic mRNA Zonation, *Biochem. J*, 294, 809-812.
57. Saddik, M., Gamble, J., Witters, L.A. and Lopaschuk, G.D. (1993) Acetyl-CoA Carboxylase Regulation of Fatty Acid Oxidation in the Heart, *J. Biol. Chem.*, 268, 25836-25845.
58. Kinlaw, W. B., Tron, P., and Witters, L. A. (1993) Thyroid hormone and dietary carbohydrate induce different hepatic zonation of both "spot 14" and acetyl-coenzyme-A carboxylase: a novel mechanism of coregulation. *Endocrinology* ,133:645-50.
59. Witters, L. A., Gao, G. Kemp, B.E. and Quistorff, B. (1994) Hepatic 5'-AMP- Activated Protein Kinase: Zonal Distribution and Relationship to Acetyl-CoA Carboxylase Activity in Varying Nutritional States, *Arch. Biochem. Biophys.*, 308, 413-419.
60. Witters, L.A., Widmer, J., King, A.N., Fassihi, K. and Kuhajda, F. (1994) Identification of Human Acetyl-CoA Carboxylase Isozymes in Tissue and in Breast Cancer Cells , *Int. Biochem.*, 26: 589-594.
61. Mitchellhill, K.I., Stapleton, D.A., Gao, G., House, C., Michell, B., Witters, L.A. and Kemp, B.E. (1994) Mammalian AMP-activated Protein Kinase Shares Structural and Functional Homology with the Catalytic Domain of Yeast snf1 Protein Kinase, *J. Biol. Chem.*, 269, 2361-2364.
62. McMillin, J.B., Wang, D., Witters, L.A. and Buja, L.M. (1994) Kinetic Properties of Carnitine Palmitoyltransferase I in Cultured Neonatal Rat Cardiac Myocytes, *Arch Biochem. Biophys.*, 312, 375-384.
63. Lopaschuk, G.D., Witters, L.A., Itoi, T., Barr, R. and Barr, A. (1994) Acetyl CoA Carboxylase Involvement in the Rapid Maturation of Fatty Acid Oxidation in the Newborn Rabbit Heart, *J. Biol. Chem.*, 269, 25871-25878.
64. Stapleton, D. A., Gao, G., Michell, B., Widmer, J., Mitchellhill, K, Teh, House, C.M. , Witters, L.A. and Kemp, B.E. (1994) Mammalian 5'-AMP-activated protein kinase

- non-catalytic subunits are homologs of proteins that interact with the yeast SNF1 protein kinase, *J. Biol. Chem.*, 269, 29343-29346.
65. Gao, G., Widmer, J., Stapleton, D. A., Teh, T., Cox, T., Kemp, B.E. and Witters, L.A. (1995) The Catalytic Subunit of the 5'-AMP-activated Protein Kinase: cDNA Cloning and mRNA Distribution, *Biochim. Biophys. Acta.*, 1266, 73- 82.
 66. Stapleton, D., Mitchelhill, K., Gao, G., Widmer, J., Michell, B., Teh, T., House, C.M., Fernandez, S.C., Cox, T. , Witters, L.A. and Kemp, B.E. (1996), A Mammalian AMP-Activated Protein Kinase Subfamily, *J. Biol. Chem.*, 271, 611-614.
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 70. Saha, A.K., Vavvas, D., Kurowski, T.G., Apazidis, A., Witters, L.A., Shafrir, E. and Ruderman, N.B. (1996) A Malonyl CoA-Citrate Fuel Sensing and Signaling Mechanism in Skeletal Muscle: Its Link to the Glucose-Fatty Acid Cycle, *Am. J. Physiol*, 272, E641-648.
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 74. Milgraum, L.A., Witters, L.A., Pasternack, G.R. and Kuhajda, F.P. (1997), Enzymes of Fatty Acid Synthesis Pathway are Highly Expressed in *In Situ* Breast Carcinoma, *Clin. Cancer Res.*, 3, 2215-2120.
 75. Roche, E., Assimacopoulos-Jeannet, F., Witters, L.A., Perruchoud, B., Yaney, G., Corkey, B., Asfari, M. and Prentki, M. (1997) Induction by Glucose of Genes Coding For Glycolytic Enzymes in a Pancreatic Beta-Cell Line (INS-1), *J. Biol. Chem.*, 272, 3091-3098.
 76. Stapleton, D, Woolatt, E., Mitchelhill, K.I., Nicholl, J.K., Fernandez. C.S., Michell, B.J., Witters, L.A., Power, D.A., Sutherland, G.R. and Kemp, B.E. (1997), AMP-activated protein kinase isoenzyme family: subunit structure and chromosomal location, *FEBS Lett.* 409, 452-456..
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