MALCOLM WATFORD

PROFESSOR
DIRECTOR, GEORGE H. COOK SCHOLARS PROGRAM
FELLOW AMERICAN SOCIETY FOR NUTRITION

Department of Nutritional Sciences
Rutgers, The State University of NJ
170 Foran Hall
School of Environmental and Biological Sciences
New Brunswick, New Jersey 08901-8525

Telephone: 848/932-6263

e-mail:Watford@aesop.rutgers.edu

CITIZENSHIP: USA/British

EDUCATION:

Trent Polytechnic Nottingham (UK)	Applied Biology	B.Sc. (Honours)	1974
Oxford University (UK)	Metabolic Regulation (Supervisors : H.A. Krebs & P. Lund)	D.Phil.	1977

Post-Doctoral

1977-1979 *Universite de Montreal*, Laboratoire de Nephrologie, Hotel Dieu Hopital (Supervisors: G. Lemieux & P. Vinay)

1979-1980 *Case Western Reserve University*, School of Medicine Department of Biochemistry (Supervisors: R.W. Hanson & M.F. Utter)

Further training

November 1995, Tracer Methodology Course, *University of Texas*, Galveston, Texas

PROFESSIONAL APPOINTMENTS:

1990-present	***Associate Professor, Professor,*** Nutritional Sciences, *Rutgers, The State University of New Jersey*
2011-present	***Director***, George H. Cook Scholars Honors Program, School of Environmental & Biological Sciences, *Rutgers University*
2004 –present	***Adjunct Investigator*****,** Centro de Biotechnologia Animal y Terapia Genica (CBATEG), *Universitat Autonoma de Barcelona*
Jan – Dec 2006	***Visiting Scientist*** (Sabbatical leave) Centro de Biotechnologia Animal y Terapia Genica (CBATEG), *Universitat Autonoma de Barcelona*

1991-1996 & 2002–2005	***Director*****,** Graduate Program in Nutritional Sciences, *Rutgers*, *The State University of New Jersey*
July 2001 & January 2003	***Visiting Scientist*****,** Department of Biochemistry & Molecular Biology, Faculty of Veterinary Medicine, *Universitat Autonoma de Barcelona*
Jan-Dec 1997	***Visiting Scientist*** (Sabbatical leave) Laboratoire de Nutrition et Securite Alimentaire, *Institut Nationale de la Recherche Agronomique*, Jouy-en-Josas, France
1982-1989	***Assistant Professor*****,** Nutrition and Biochemistry*, Cornell University*
1980-1982	***Instructor in Biochemistry*****,** *Case Western Reserve University,* School of Medicine
March/April 1982	***Visiting Instructor*** in Biochemistry, *Loma Linda University*, School of Medicine

MEMBERSHIPS (date of election)
Biochemical Society, U.K. (1976)
American Society for Nutrition (*American Society for Nutritional Sciences, American Institute of Nutrition*), (1984)
American Society for Biochemistry and Molecular Biology (1987)
American Diabetes Association (1991)
American Physiological Society (1995)
The Obesity Society (2010)

EXTERNAL PROFESSIONAL ACTIVITIES:
Member, Board of Directors, *American Society for Nutrition* (2012-14)

Nutritional Sciences Council, *American Society for Nutrition* (Chair Elect 2010-12, Chair 2012-14, Past Chair 2014-16)

Juror, Educator & Mentor Awards, *American Society for Nutrition* (2012)

Judge (Stages I-V, Semifinalist and Finalist Selection), *Siemens High School Science & Technology Competition*, 2001,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16

Committee Member, Graduate and Professional Education Committee, *American Society for Nutrition*, (2007-2009)

Energy and Macronutrient Research Interest Group, *American Society for Nutrition*, (Chair, 2008-09, Chair Elect 2007-08, Past-Chair 2009-10)

Member and Chair, Education & Mentoring Awards Nominating Committee, *American Society for Nutrition*, 2009-2011

Member, Steering Committee, Energy and Macronutrient Research Interest Group, *American Society for Nutritional Sciences* (1999-2002, 2005-2007)

Program Representative, Energy and Macronutrient Research Interest Group, *American Society for Nutritional Sciences* (2002-2003)

American Society for Nutritional Sciences (*American Institute of Nutrition*), Graduate Nutrition Education Committee (1990-94, Chair 1993-94), (1996-99, Chair 1998-99)

Member, *New Jersey Diabetes Council* (2005-2008)

EDITORIAL POSITIONS:

co-Editor in Chief, *Nutrition & Metabolism*, 2017
Member, Editorial Committee, *Annual Review of Nutrition* (2006-2018)
Associate Editor, *Animal Nutrition*, (2014-2016)
Associate Editor, Biochemical Nutrition, *Journal of Animal Science and Biotechnology* (2010-present)
Reviewing Editor, Editorial Board, *Journal of Biological Chemistry* (2009-2014)
Associate Editor, *Journal of Nutrition* (2003-2012)
Member, Editorial Board, *Journal of Nutrition* (1999-2012)
Contributing Editor, *Nutrition Reviews* (2000-2012)
Member, Editorial Board, *American Journal of Diabetes* (2004-2008)
Reviews Editor & Executive Committee member, *Biochemical Journal* (1997-1999)
Member, Editorial Board, *Biochemical Journal* (1991-1999)
Journal Club Correspondent in Metabolic Regulation, *Trends in Biochemical Sciences* (1988-1991)

Ad hoc reviewer for the following journals and publishers:

Journal of Biological Chemistry, European Journal of Biochemistry, Biochimica Biophysica Acta, Nature, Nutrition & Diabetes, Journal of Nutritional Biochemistry, Archives of Biochemistry and Biophysics, Biochemistry and Cell Biology, FEBS Letters, International Journal of Biochemistry and Cell Biology, Comparative Biochemistry and Physiology, Journal of Cellular Biochemistry, Biochemical Genetics, Analytical Biochemistry, Journal of Lipid Research, Cell Metabolism, British Journal of Pharmacology, Metabolic Engineering, Advances in Nutrition, Journal of Nutrition, American Journal of Clinical Nutrition, Nutrition Research, Amino Acids, Nutrition, Nutrition & Diabetes, Journal of Food Science, American Journal of Physiology, Physiological Genomics, Canadian Journal of Physiology and Pharmacology,

Physiologia Acta, Federation Proceedings, FASEB Journal, Obesity, Int. J. Obesity, Amino Acids, Journal of Experimental Zoology, Kidney International, Physiological Zoology, Physiological and Biochemical Zoology, Journal of Comparative Physiology, Proceedings of the Society for Experimental Biology and Medicine, Canadian Journal of Animal Science, Journal of Animal Science, Journal of Dairy Science, Trends in Biochemical Sciences, Metabolism, Pediatric Research, Journal of Gerontology, Diabetologia, Diabetes, Hepatology, Gastroenterology, *Clin. Chem. Lab. Med., J. Invest. Medicine, J. Zhejiang Univ. Science, Surgeon General's Report on Nutrition and Health* (1987-88), Neil Patterson Publishers, Oxford University Press, Wadsworth Publishing, Portland Press, Brooks/Cole, Thompson Learning, W.H Freeman & Company, Targeted Protein Database, Current BioData.

GRANT AND OTHER REVIEWING

Chair, *Special Emphasis Panel, Program Projects,* NIH/NIDDK, Washington DC, August 2017

Member, *VA Merit Review Panel, Endocrinology-A*, Dept. Veterans Affairs, Washington DC, November 2011, December 2014, June 2015

External Reviewer. *Irish Medical Research Charities Group, Cystinosis Foundation Ireland,* 2007, 2009

External Reviewer. *Centres of Research Excellence Fund*, The Royal Society of New Zealand, 2007

Member, Special Emphasis Panel, *The use of metabolomics to investigate biological pathways and networks*, NIH, 2007

External Reviewer. Promotion Committee, *United Arab Emirates University, College of Food & Agriculture,* Al Ain, United Arab Emirates. 2007

Reviewer, Research Advisory Committee, Eastern Health Child Health Program, *Janeway Children's Hospital Foundation*, St. John's, Newfoundland, Canada, 2006

Reviewer and Panel Member, *National Cattlemen's Beef Association*, Nutrition Grants, 2005

External Reviewer. *Integrative Physiology of Obesity and Diabetes (IPOD) Study Section*, NIH, 2004

External Reviewer. *Swiss National Science Foundation*, grant applications, 2004

External Reviewer. *National Research Foundation*, South Africa, Biochemistry 2004

External Reviewer. *Fonds zur Forderung der wissenschaftlicen Forschung* (Austrian Science Fund), Division of Biology and Medicine, 2000

External Reviewer. *Memorial University of Newfoundland*, Research Infrastructure Funding Program, 1998

Abstract Reviewer, *European Society of Parenteral and Enteral Nutrition*, XVII Congress, 1996, and XVII Congress, 1997

Member. *International Scientific Committee*, Centre de Recherche en Nutrition Humaine Auvergne, France, October 1997

Member. *Pathophysiological Sciences Special Emphasis Study Section*, NIH, Nov. 1996

External Reviewer. *Biochemistry Study Section*, NIH, Fall 1994

External Reviewer. *NRI/USDA grant applications*, 1994,95,96,97,99,2000,01,02,04,05

External Reviewer. *VA Medical Service*, Merit Awards, 1993, 1996, Pilot Project Awards (2002)

External Reviewer. *American Cancer Society*, grant applications, 1992

External Reviewer. *Canadian Diabetes Association*, grant applications, 1991, 1993

Ad hoc member. NIH *Study Section - General Medicine A2*, July 1991

External Reviewer. *National Science Foundation USA*, RDI grant applications, 1990, 1995, 2002, 2004

External Reviewer. *National Science Foundation, Canada*, grant applications, 1990, 93

External Reviewer. *Indiana University Diabetes Center*, Grants Committee, 1985

External Reviewer. *Medical Research Council of Canada*, grant applications, 1983-84, 1991-92, 1992-93, 1993-94

EXTERNAL EXAMINER OF Ph.D. THESES

External Examiner for *D.A.Tinker*, Ph.D. Thesis, *Memorial University of Newfoundland*, St. John's, Canada, 1994

External Examiner (Rapporteur), *Gwenaele Guihot*, These de Doctorat, *Universite Paris VII*, Jussieu, France, 1997

External Examiner (Rapporteur), *Joan Tordjman*, These de Doctorat, *Universite Paris V*, Paris, France, 2003

External Examiner, *Desmond Pink*, PhD Thesis, *University of Alberta*, Edmonton, Canada, 2005

External Examiner, *Antonio Hidalgo Barrera*, Tesis Doctoral, *Universitat Autonoma de Barcelona*, Spain, 2006

HONORS and AWARDS

1974-77	*Medical Research Council of Great Britain*, Post-Graduate Research Fellowhip
1985	*American Institute of Nutrition* travel award to attend the XIII International Congress of Nutrition, Brighton UK
1990	*National Sciences Council*, Taiwan, R.O.C., travel award to visit Taiwan
1995	Excellence in Teaching Award, Cook College, *Rutgers University*
1997	Fellowship to work in France (one year), *Institut National de la Recherche Agronomique*, Jouy-en-Josas, France
1997	Outstanding Teaching and Advising Award, Cook College Leadership Committee (Student organization), *Rutgers University*
2000	Outstanding Teaching and Advising Award, Cook College Leadership Committee (Student organization), *Rutgers University*
2001	University fellowship (one month) to work in Spain. *Autonomous University of Barcelona*
2006	Fellowship (one year) to work at the Autonomous University of Barcelona from the *Agencia de Gestio d'Ajuts Universitaris i de Recerca, Generalitat de Catalunya*
2007	Travel award to visit Taiwan, *National Science Council*, Taiwan, R.O.C.,
2008	Distinguished Visiting Lecturer Award, *Education Department of Hubei Province*, China
2008	Excellence in Nutrition Education Award for Outstanding Contributions to Teaching Nutrition, *American Society for Nutrition*
2013	Fellowship (1 week), Coordenacao de Aperfeicoamento de Pessoral de Nivel Superior (CAPES), Escola de Altos Estudos, *Federal Government of Brazil*
2016	Deans Distinguished Lecturer, "A brief history of Metabolism: From Lavoisier to the Krebs Cycles – a personal view". *School of Environmental and Biological Sciences, Rutgers University.*
2017	Fellow, *American Society for Nutrition* for distinguished career in Nutritional Sciences

TEACHING EXPERIENCE

Date	**Course**	**Title**
Rutgers University		
Spring 2015, 16, 17		Byrne Seminar "Nous n'avons plus besoin des savants – the history of the study of metabolism from Lavoisier to Seahorses and Metabolomics" (Freshman seminar)

Spring 2008	709:621	Metabolic Regulation: Insulin (graduate)
Fall 90-96,98-04, 07-17	709:553	Nutrition: A Biochemical & Physiological Basis (Macronutrient Metabolism) (graduate)
Fall 90-,96,98-05, 07-17	709:400	Advanced Nutrition I (Macronutrient Metabolism) (undergraduate)
Fall 91, & Spring 94,95,96,98,99,00,01,02, 04,05,07,08,09,10,11	709:481	Seminar in Nutrition (Metabolic Regulation – a problem based approach) (undergraduate)
Fall 90,92,	709:602	Nutrition Seminar (graduate)Spring
Spring 91,92,11-17	709:401	Advanced Nutriton II (Energy Metabolism) (undergraduate)
Spring 2011-17	709:552	Nutrition: A Biochemical & Physiological Basis (Energy Metabolism) (graduate)
Fall 95	126:401	Biotechnology Seminar (undergraduate)
Spring 96	709:255	Nutrition & Health (undergraduate)
Spring 91, 92	709:490	Experimental Animal Nutrition Laboratory (Undergraduate)
Spring 92	709:621	Nutrient-Genome Interactions (graduate)
Spring 98, 99	761:502	Mammalian Physiology (Metabolic Regulation) (graduate)

Additional Lectures in Other Courses

Spring 91,92,93,94,95,96,98,99,00, 01,02,03,04,05,06,07,08,09,10,11,12, 14,15,16,17	709:498	Diet and Disease (Inborn Errors of Metabolism) (undergraduate)
Fall 2010, Spring 2011, Fall 2012	709:255	Nutrition & Health (Alcohol) (undergraduate)
Fall 92, 94, 96,98,99,07,09	709:515	Introduction to Nutrition Research Methods (Metabolic Regulation, Protein Turnover, Stable Isotopes, Publishing) (graduate)
Spring 03, Fall 04,05		Molecular Basis of Physiology (Integrated metabolism) (graduate)
Fall 08	015:265	Nutrition for Today (Proteins) (undergraduate)
Spring 15, 16 Robert Wood Johnson School of Medicine		Energy Metabolism, Body Composition & Obesity

Spring 17	070:409	Primate Nutritional Ecology (Protein)

Cornell University

Spring 83, 84, 85, 86, 88	NS/BS 635	Mechanisms of Metabolic Regulation (graduate)
Spring 84	NS 332	Laboratory Methods in Nutrition (undergraduate)
Spring 87, 89	NS 607/BS 650	Nitrogen Metabolism (graduate)
Fall 87	BS 733	Enzyme Synthesis in Mammalian Liver (graduate)
Fall 87, Spring 88	NS 703	Graduate Seminar in Nutrition

Additional Lectures in Other Courses

1982-89	NS 636/BS636	Energy Metabolism (graduate)
1984-88	NS 331	Nutritional Biochemistry (undergraduate)

Case Western Reserve University

1979-1982 Lectures on "Metabolic Regulation" to graduate students. Small group discussions and lectures on "Amino Acid Metabolism" to medical students

Loma Linda University

1982 Graduate level course (15 lectures) "Metabolic Regulation". Lectures in "Exercise and Metabolism" to medical students

National Taiwan University (Taipei)

1990 Workshop (2 days) on Isolated Cells in Studies of Metabolic Regulation: Hepatocytes, Kidney Tubules and Enterocytes (graduate).
2007 Lectures on metabolic regulation (graduate)
2008 Lecture course (18h) on metabolic regulation (graduate)

Texas A & M University

2000 Problem based learning classes (2) on "Metabolic Regulation" to Undergraduate Biochemistry Students
2007, 2008, Lectures (2) "Regulation in Metabolism" & "Inter-organ fuel metabolism in health and disease" Graduate

China Agricultural University, Beijing, China

2008, 09, 10, 11, 12, 14,16 Intensive course (25h) on "Tissue Specific Metabolism and Metabolic Regulation" (graduate)

Wuhan Polytechnic University, Wuhan, Hubei, China,

2008 Lectures on Metabolic Regulation and Tissue Specific Metabolism (graduate)

The Chinese Academy of Sciences Graduate University, Changsha, China.

2009Lectures on Metabolic Regulation and Tissue Specific Metabolism (graduate)

Universitat Autonoma de Barcelona, Bellaterra, Spain
2009 One day minicourse "Metabolic Regulation – the basics" (graduate)
2012 Four Hour course "Metabolism" (graduate**)**
2014 Three hour course "Energy Expenditure" (graduate)

Boston University School of Medicine
2011, 13, 15, 16 Lectures on glutamine metabolism, tissue specific metabolism, and metabolic regulation. Graduate Program in Nutrition

Federal Rural University of Permanbuco, Recife, Brazil
2013 One week minicourse, Tissue specific metabolism and metabolic regulation (graduate)

PUBLICATIONS
PEER REVIEWED

1. Butler, E.J., Curtis, M.J. and **Watford, M.** (1973) The Effect of Escherichia coli Endotoxin on the Plasma Iron Concentration in the Domestic Fowl. *Res. Vet. Sci.* 15: 267-269

2. **Watford, M.,** Lund, P. and Krebs, H.A. (1979) Isolation and Metabolic Characterization of Rat and Chicken Enterocytes. *Biochem. J.* 178: 589-596

3. **Watford, M.**, Vinay, P., Lemieux, G. and Gougoux, A. (1980) The Regulation of Glucose and Pyruvate Formation from Glutamine and Citric Acid Cycle Intermediates in the Kidney Cortex of Rats, Dogs, Rabbits, and Guinea Pigs. *Biochem. J.* 188: 741-748

4. **Watford, M.,** Vinay, P., Lemieux, G. and Gougoux, A. (1980) Inhibition of Renal Gluconeogenesis and Phosphoenolpyruvate Carboxykinase Activity by 3-Mercaptopicolinate: Studies in Rat, Guinea Pig, Rabbit and Man. *Can. J. Biochem*. 58: 440-445

5. Vinay, P., Allignet, E., Pichette, C., **Watford, M.**, Lemieux, G. and Gougoux, A. (1980) Changes in Renal Metabolite Profile and Ammoniagenesis during Acute and Chronic Metabolic Acidosis in the Dog and Rat. *Kidney Int.* 17: 312-325

6. Lemieux, G., **Watford, M.**, Vinay, P. and Gougoux, A. (1980) Metabolic Changes in Skeletal Muscle during Chronic Metabolic Acidosis. *Int. J. Biochem*. 12: 75-83

7. **Watford, M.,** Hod, Y., Chiao, Y.-B., Utter, M.F. and Hanson, R.W. (1981) The Unique Role of the Kidney in Gluconeogenesis in the Chicken: The Significance of a Cytosolic Phosphoenolpyruvate Carboxykinase Activity. *J. Biol. Chem*. 256: 10023-10027

8. Ogata, K., **Watford, M.**, Brady, L.J. and Hanson, R.W. (1982) Mitochondrial Phosphoenolpyruvate Carboxykinase (GTP) and the Regulation of Gluconeogenesis and Ketogenesis in Avian Liver. *J. Biol. Chem.* 257: 5385-5391

9. **Watford, M.,** Smith, E.M. and Erbelding, E.J. (1984) The Regulation of Phosphate Activated Glutaminase Activity and Glutamine Metabolism in the Streptozotocin-Diabetic Rat. *Biochem. J.* 224: 207-214

10. **Watford, M.** (1985) Gluconeogenesis in the Chicken: The Regulation of Phosphoenolpyruvate Carboxykinase Gene Expression. *Fed. Proc.* 44: 2469-2473

11. **Watford, M.,** Erbelding, E.J. and Smith, E.M. (1987) The Regulation of Glutamine and Ketone Body Metabolism in the Small Intestine of the Long-term (40-day) Streptozotocin-Diabetic Rat. *Biochem. J.* 242: 61-68

12. **Watford, M.,** Lane, S.F. and Hogue, D.E. (1987) The Synthesis of Glucose and Ammonia by Kidney Tubules Isolated from Suckling and Early Weaned Lambs. *Comp. Biochem. Physiol.* 86B: 689-691

13. Smith, E.M. and **Watford, M.** (1988) Rat Hepatic Glutaminase: Purification and Immunochemical Characterization. *Arch. Biochem. Biophys.* 260: 740-751

14. Mapes, R.E. and **Watford, M.** (1989) Effects of Metabolic Acidosis and Diabetes on the Abundance of Specific Renal mRNAs. *Int. J. Biochem.* 21: 297-322

15. **Watford, M.** (1989) Hormonal and Nutritional Regulation of Phosphoenolpyruvate Carboxykinase mRNA levels in Chicken Kidney. *J. Nutr.* 119: 319-322

16. **Watford, M.** and Tatro, A.V. (1989) Phosphoenolpyruvate Carboxykinase of Rat Small Intestine: Distribution and Regulation of Activity and mRNA Levels. *J. Nutr.* 119: 268-272

17. Dodgson, S.A. and **Watford, M.** (1990) Differential Regulation of Hepatic Carbonic Anhydrase Isoenzymes in the Streptozotocin-Diabetic Rat. *Arch Biochem. Biophys.* 277: 410-414

18. **Watford, M.** and Smith, E.M. (1990) Distribution of Hepatic Glutaminase Activity and mRNA in Perivenous and Periportal Rat Hepatocytes. *Biochem. J.* 267: 265-267

19. Smith, E.M. and **Watford, M.** (1990) Molecular Cloning of a cDNA for Rat Hepatic Glutaminase: Sequence Similarity to Kidney-type Glutaminase. *J. Biol. Chem.* 265: 10631-10636

20. **Watford, M.** and Mapes, R.E. (1990) Hormonal and Acid-Base Regulation of Phosphoenolpyruvate Carboxykinase mRNA Levels in Rat Kidney. *Arch. Biochem. Biophys.* 282: 399-403

21. Lepine, A.J., **Watford, M.,** Boyd, R.D. and Ross, D.A. (1993) The Relationship Between Fatty Acid Oxidation and Gluconeogenesis in the Fasting Newborn Pig. *Br. J. Nutr.* 70: 81-91

22. **Watford, M.** (1993) Hepatic Glutaminase Expression: Relationship to Kidney-Type Glutaminase and the Urea Cycle. *FASEB J.* 7: 1468-1474

23. Kowalski, T.J. and **Watford, M.** (1994) Production of Glutamine and Utilization of Glutamate by Rat Subcutaneous Adipose Tissue In Vivo. *Am. J. Physiol*. 266: E151-E154

24. **Watford, M.** (1994) Glutamine Metabolism in Rat Small Intestine. Synthesis of Three-Carbon End Products in Isolated Enterocytes. *Biochim. Biophys. Acta* 1200: 73-78

25. Zhan, Z., Vincent, N., and **Watford, M.** (1994) Transcriptional Regulation of the Hepatic Glutaminase Gene in the Streptozotocin-Diabetic Rat. *Int. J. Biochem.* 26: 263-268

26. **Watford, M.,** Vincent, N., Zhan, Z., Fanelli, J., Kowalski, T.J. and Kovacevic, Z. (1994) Transcriptional Regulation of Rat Hepatic Glutaminase Expression by Dietary Protein Level and Starvation. *J. Nutr*. 124: 493-499

27. Moorman, A.F.M., de Boer, P.A.J., **Watford, M.,** Dingemanse, M.A. and Lamers, W.H. (1994) Hepatic Glutaminase mRNA is Confined to Part of the Urea Cycle Domain in the Adult Rodent Liver Lobule. *FEBS Lett.* 256: 76-80

28. Curthoys, N.P. and **Watford, M.** (1995) Regulation of Glutaminase Expression and Glutamine Metabolism. *Ann. Rev. Nutr.* 15: 133-159

29. Chung-Bok, M.I., Vincent, N., Jhala, U. and **Watford, M.** (1997) Rat Liver Glutaminase: Identification of the Full-Length Coding Sequence and Characterization of a Functional Promoter. *Biochem. J.* 324: 193-200

30. Kowalski, T.J., Wu, G. and **Watford, M.** (1997) Rat Adipose Tissue Amino Acid Metabolism In Vivo as Assessed by Microdialysis and Arterio-Venous Techniques. *Am. J. Physiol.* 273: E613-E622

31. Wu, G., Chung-Bok, M.-I., Vincent, N., Kowalski, T.J., Choi, Y-H. and **Watford, M.** (1998) Distribution of Phosphate Activated Glutaminase Isozymes in the Chicken: Absence from Liver but Presence of High Activity in Pectoralis Muscle. *Comp. Biochem. Physiol.* 120B, 285-290

32. **Watford, M.** (2000) Glutamine and Glutamate Metabolism Across the Liver Sinusoid. *J. Nutr.* 130: 983S-985S

33. **Watford, M.**, Darcy-Vrillon, B. and Duee, P.-H. (2000) Dietary Glutamine Suppresses the Appearance of Endogenous Glutamine in the Rat. *Metabolism*, 49: 141-145

34. Wu, G., Meininger, C.J., Kelly, K., **Watford, M.** and Morris, S.M. Jr. (2000) A Cortisol Surge Mediates the Enhanced Expression of Pig Intestinal Pyrroline 5-Carboxylate Synthase During Weaning. *J. Nutr.* 130: 1914-1919

35. **Watford, M.,** Chellaraj, V.C., Ismat, A., Brown, P. and Raman, P. (2002) Hepatic Glutamine Metabolism, *Nutrition,* 18:301-303

36. **Watford, M.** (2002) Net inter-organ transport of L-glutamate in the rat occurs via the plasma not via erythrocytes. *J. Nutr*. 132: 952-956

37. Patterson, B.W., Horowitz, J.F., Wu, G., **Watford, M.,** Coppack, S.W. and Klein, S. (2002) Regional Muscle and Adipose Tissue Amino Acid Metabolism in Lean and Obese Humans.

38. **Watford, M.** (2003) The Urea Cycle: Teaching intermediary metabolism in a physiological setting. *Biochem. Mole. Biol. Ed*.31, 289-297

39. **Watford, M** and Wu, G. (2005) Glutamine metabolism in uricotelic species: variation in skeletal muscle glutamine synthetase, glutaminase, glutamine content and rates of protein synthesis. *Comp. Biochem. Physiol.* 140B, 607-614

40. Ribnicky, D.M, Poulev, A, **Watford, M**, Cefalu, W.T. and Raskin, I. (2006) The effect of Tarralin, an extract of Artemisia dracunculus L., on blood glucose parameters in diabetic animal models. *Phytomedicine* 13, 550-557

41. Manso-Filho, HC., **Watford, M.** and McKeever, K.H. (2007) Novel findings regarding Glut-4 expression in adipose tissue and muscle in horses. *The Veterinary Journal* 174: 565-569

42. Wang, Y. and **Watford, M.** (2007) Glutamine, insulin and glucocorticoids regulate glutamine synthetase expression in C2C12 myotubes, HepG2 hepatoma cells and 3T3 L1 adipocytes. *Biochim. Biophys. Acta* 1770: 594-600

43. Huang, Y.-F., Wang, Y. and **Watford, M.** (2007) Glutamine directly down-regulates the level of glutamine synthetase protein in C2C12 skeletal muscle cells. *J. Nutr*. 137: 1357-1362

44. **Watford, M.** (2008) Glutamine metabolism and function in relation to proline synthesis and the safety of glutamine and proline supplementation. *J. Nutr.* 138: 2003S-2007S

45. Manso-Filho, H.C., Costa, H.E.C., Wang, Y., McKeever, K.H.and **Watford, M.** (2008) Distribution of glutamine synthetase and an inverse correlation between glutamine synthetase expression and intramuscular glutamine concentrations in the horse. *Comp. Biochem. Physiol B.* 150:326-330

46. Manso-Filho, H.C., McKeever, K.H., Gordon, M.E., Lagakos, W., Costa, H.E.C.and **Watford, M.** (2008) Changes in glutamine metabolism indicate a mild catabolic state in the transition mare. *J. Animal Sci.* 86: 3424-3431

47. Manso-Filho, H.C., Costa, H.E., Wu, G., McKeever, K.H. and **Watford, M.** (2009) Equine placenta expresses glutamine synthetase. *Vet. Res. Comm.* 33:175-182

48. Lehnhard, R., Manso-Filho, H.C., Causey, R., **Watford, M.** and McKeever, K.H. Maternal and foetal heart rates during exercise in horses. (2009) *Comp. Exercise Physiol*. 6: 43-48

49. Manso-Filho, H.C., McKeever, K.H., Gordon, M.E., Manso, H.E., Lagakos, W., Wu, G. and **Watford, M.** (2009) Developmental changes in concentrations of glutamine and other amino acids in plasma and skeletal muscle of the Standardbred foal. (2009) *J. Animal Sci.* 87: 2528-2535

50. Fang, Q., Yin, J,, Li, F., Zhang, J. and **Watford, M.** (2010) Characterization of expression of Methionine Adenosyltransferase 2β gene in skeletal muscle and subcutaneous adipose tissue from obese and lean pigs. *Mol. Biol. Reports* 37: 2517-2524

51. Manso, H.E., Manso Filho, H.C., de Carvalho, L.E. and **Watford, M.** (2012) Glutamine and glutamate supplementation maintain skeletal muscle glutamine concentrations and raise milk glutamine content in gilts. *J. Animal Sci. Biotechnol* 3(1):2. doi: 10.1186/2049-1891-3-2.

52. Santos de Aquino, R., Dutra, W.M., Manso, H.E.C.C., Manso Filho, H.C., Kutschenko, M., Nogueira, E.T. and **Watford, M.** (2014) Glutamine and glutamate (AminoGut) supplementation influences sow colostrum and mature milk composition. *LiveStock Science*,169: 112-117 http://dx.doi.org/10.1016/j.livsci.2014.07.009 1871-1413

53. de C. Marquezin, HE Manso, WM Dutra Jr, HC Manso Filho, **M Watford**, Marília LLMagalhães, DPBB de Melo & LMC Ferreira, (2014) "Avaliação dos níveis sanguíneos da glutamina, glutamato, glicose, e de proteína em leitões pré-desmamados suplementados com L-Glutamina e L-Ácido Glutâmico", foi protocolado com o número 00391-10 na *Revista Brasileira de Zootecnia.*

54. Wang, S., Thacker, P.A., **Watford, M.,** Qiao, S. (2015) Functions of antimicrobial peptides in gut homeostasis. *Curr. Prot. Pept. Sci*. 16: 582-591

55. Watford, M. (2015) Glutamine and glutamate: Non-essential or essential amino acids? *Animal Nutrition* dx.doi.org/10.1016/j.aninu.2015.08.008

56. Duan, Y., Li, F., Li, Y., Tang, Y., Liu, Y., Liu, H., Feng, Z., Anthony, T.G., **Watford, M**. and Yin, Y. (2015) Potential role of leucine and its metabolites in protein metabolism and energy production of human and animals. *Amino Acids* 46: 41-51, DOI 10.1007/s00726-015-2067-1

57. Wang, Y., Dellatore, P., Douard, V., Qin, L., **Watford, M.,** Ferraris, R.P., Lin, T. and Shapses, S.A. (2015) High fat feeding increases calcium absorption, and saturated fat but not monounsaturated fat adversely affects bone in mature female mice. *Nutr. Res.* 36:742-750

58. Cherbuy C., Vaugelade P., Labarthe S., Honvo-Houetto E., Darcy-Vrillon B., **Watford M.,** Duee, PH. (2017) The contribution of intestinal gluconeogenesis to glucose homeostasis is low in 2-day-old pigs. *J. Nutr.* 147:361-366

59. Manso Filho, H.C., Betros, C.L., Gordon, M.E., Manso, H.E.C.C.C., **Watford, M**. & McKeever, K.H. (2017) Exercise training, Glut-4 protein abundance and glutamine in skeletal muscle of mature and very old horses. *Comparative Exercise Physiology*. 13:63-69

OTHER PUBLICATIONS

1. Lund, P. and **Watford, M.** (1976) Glutamine as a Precursor of Urea. *In The Urea Cycle* (S. Grisolia, R. Baguena and F. Mayor, eds.) Wiley-Interscience, pp 479-488

2. Vinay, P., Lemieux, G., Gougoux, A. and **Watford, M.** (1978) The Metabolic Fate of Glutamine in the Renal Cell. In *Proceedings VIIth International Congress of Nephrology*, Montreal, June 1978, Les Presses de l'Universite de Montreal and S. Kargar, New York, pp 199-207

3. **Watford, M.**, Vinay, P., Lemieux, G., and Gougoux, A. (1979) The Formation of Pyruvate from Citric Acid Cycle Intermediates in Kidney Cortex. *Biochem. Soc. Trans.* 7: 753-755

4. **Watford, M.**, Hod, Y., Utter, M.F. and Hanson, R.W. (1982) Significance of the Intracellular Distribution of Phosphoenolpyruvate Carboxykinase in Acidosis. *Contributions to Nephrology*, 31: 84-87

5. **Watford, M.**, Cameron, D.K. and Hanson, R.W. (1983) Hormonal Regulation of Phosphoenolpyruvate Carboxykinase Gene Expression in Isolated Rat Hepatocytes. In *Isolation, Characterization and Use of Hepatocytes* (Harris, R.A. and Cornell, N.W., eds) Elsevier, New York, pp 579-584

6. **Watford, M.**, Erbelding, E.J., Shapiro, A.C., Zakow, A.M. and Smith, E.M. (1985) The Adaptive Response of Phosphate Activated Glutaminase in the Rat. In *Contributions to Nephrology* 47: 140-144

7. **Watford, M.**, Erbelding, E.J. and Smith, E.M. (1986) Glutamine Metabolism in Rat Small Intestine: Response to Lactation. *Biochem. Soc. Trans*. 14: 1058-1059

8. Mapes, R.E. and **Watford, M.** (1988) Acid-Base Regulation of Renal Gene Expression: Is cAMP Involved? *Contributions to Nephrology* 63: 147-155

9. **Watford, M.** (1988) What is the Metabolic Fate of Dietary Glucose? *Trends in Biochemical Sciences* 13: 329-330

10. **Watford, M.** and Smith, E.M. (1989) Regulation of Hepatic Glutaminase mRNA Levels in the Rat. *Biochem. Soc. Trans.* 17: 175

11. **Watford, M.** (1989) Does Glutamine Regulate Skeletal Muscle Protein Turnover? *Trends in Biochemical Sciences* 14: 1-2

12. **Watford, M.** (1989) Channeling in the Urea Cycle: A Metabolon Spanning Two Compartments. *Trends in Biochemical Sciences* 14: 313-314

13. **Watford, M.** (1990) Tissue-Specific Regulation of Glucokinase. *Trends in Biochemical Sciences* 15: 1-2

14. **Watford, M.** (1990) A "Swell" Way to Regulate Metabolism. *Trends in Biochemical Sciences* 15: 329-330

15. **Watford, M.** and Fried, S.K. (1991) Adipose Tissue Metabolism Can Now Be Directly Studied In Vivo. *Trends in Biochemical Sciences* 16: 201-202

16. **Watford, M.** (1991) Regulation of Expression of the Genes for Glutaminase and Glutamine Synthetase in the Acidotic Rat. *Contributions to Nephrology* 92: 211-217

17. **Watford, M.** (1991) The Urea Cycle: A Two-Compartment System. *Essays in Biochemistry* 26: 49-58

18. **Watford, M.** (1993) Long-Term Regulation of Hepatic Glutaminase and Urea Cycle Enzymes. In, *Nutrition and Gene Expression*, (Berdanier, C.D. and Hargrove, J., eds), CRC Press, pp 335-352

19. **Watford, M.** (1994) Integration of Mammalian Metabolism, In *Biochemistry* (Scrimgeour, K.G. & Moran, L.A.) Neil Patterson Publishers, Chap. 23, pp 23.1-23.29

20. **Watford, M.** (1994) Integration of Fuel Metabolism in Mammals, In *Biochemistry Resource Book*, (Moran, L.A. & Scrimgeour, K.G.) Neil Patterson Publishers Chap. 23, pp 157-162

21. Kowalski, T.J. and **Watford, M.** (1994) Glutamine Production by Adipose Tissue in Metabolic Acidosis. *Contributions to Nephrology* 110: 115-119

22. **Watford, M.** and Sklederoviz, S. (1994) “Clinical Detective Stores - Halperin & Rolleston” Can Metabolism be Understood Through the Problem Based Approach? Invited book review for *Advances in Physiological Education* 12: S137-S141

23. Chung-Bok, M.-I. and **Watford, M.** (1997) Characterization of the Rat Liver Glutaminase Promoter. *Contributions to Nephrology* 121: 43-47

24. **Watford, M.** (1998) Glutamine Metabolism in Health and Disease. in"*From Nutritional Science to Nutrition Practice for Better Global Health" Proceedings of the 16th International Congress of Nutrition.* (DW Fitzpatrick, JE Anderson, ML L'Abbe, eds), Canadian Federation of Biological Societies, Ottawa, pp 312-314.

25. **Watford, M.** (1999) Mrs. Spratt, Young Penguins and Drunken Elephants: Teaching Metabolic Regulation in Relation to Health and Disease Requires a Whole-Body Approach. *The Biochemist* 21: 35-39

26. **Watford, M.** (1999) Is there a requirement for glutamine catabolism in the small intestine? *Brit. J. Nutr.* 81: 261-262

27. Stipanuk, M.H. and **Watford, M.** (2000) Amino Acid Metabolism, in *Biochemical and Physiological Aspects of Human Nutrition* (Stipanuk, M.H. ed) Saunders, pp 233-286

28. **Watford, M.** and Goodridge, A.G. (2000) Regulation of Fuel Utilization, in *Biochemical and Physiological Aspects of Human Nutrition* (Stipanuk, M.H.ed) Saunders, pp 384-407

29. **Watford, M.** (2000) Intermediary Metabolism of Macronutrients, in *Neural Control of Macronutrient Selection*, H.-R. Berthoud and R.J. Seeley, eds. CRC Press, 131-143

30. **Watford, M.** (2000) Functional Glycerol Kinase Activity and Possibility of a Major Role for Glyceroneogenesis in Mammalian Skeletal Muscle, *Nutr. Rev.*, 58: 145-148

31. **Watford, M.** Physiological Aspects of Glutamine Metabolism II. Discussion Summary, International Symposium on Glutamine (2001) *J. Nutr.* 131: 2523S-2524S

32. **Watford, M.** (2002) Small Amounts of Dietary Fructose Dramatically Increase Hepatic Glucose Uptake Through a Novel Mechanism of Glucokinase Activation. *Nutrition Reviews*, 60, 253-257

33. **Watford, M.** (2003) Not all trauma induced muscle proteolysis is due to increased activity of the ubiquitin/proteasome system: evidence for up-regulated macrophage associated lysosomal proteolysis in a model of local trauma, *Nutrition Reviews* 61, 34-38

34. **Watford, M.** and Reeds, P.J. (2003) Glutamate metabolism in the gut, *Modern Aspects of Nutrition – Present Knowledge and Future Perspectives, Proceedings of the 17th International Congress of Nutrition*, 81-82, also published, *Forum. Nutr.* 56, 81-82

35. Brosnan, J.T. and **Watford, M.** (2004) Starvation: metabolic changes, *Encyclopedia of Life Science* (*www.ELS.net*), Nature Publishing Group,

36. **Watford, M.** (2004) The Ornithine Cycle, *Encyclopedia of Biological Chemistry,* Elsevier Science 172-177

37. **Watford, M.** (2005) Is the small intestine a gluconeogenic organ? *Nutrition Reviews* 63: 356-360

38. Stipanuk, M.H. and **Watford, M.** (2006) Amino Acid Metabolism, in *Biochemical, Physiological & Molecular Aspects of Human Nutrition* (Stipanuk, M.H. ed 2nd edition) Saunders, Chapter 14, pp 360-418

39. **Watford, M.** (2006) Regulation of Fuel Utilization in Response to Food intake, in *Biochemical, Physiological & Molecular Aspects of Human Nutrition* (Stipanuk, M.H.ed, 2nd Edition) Saunders, Chapter 16, pp 541-565

40. **Watford, M.** (2007) Lowered concentrations of branched chain amino acids lead to impaired growth and neurological problems: insights from a branched chain α-keto acid dehydrogenase complex kinase-deficient mouse model. *Nutr. Rev*. 65, 167-172

41. Fried, S.K. and **Watford, M.** (2007) Leucing weight with a futile cycle. *Cell Metabolism* 6, 155-156

42. Treberg, J., Brosnan, M.E., **Watford, M.** and Brosnan, J.T. (2010) On the reversibility of glutamate dehydrogenase and the source of ammonia in the hyperinsulinemia/hyperammonenia syndrome. *Adv. Enz. Reg.* 50, 34-43

43. **Watford, M.** and Wu, G. (2011) Protein, *Advances in Nutrition* 2: 62-63

44. **Watford, M.**, Kutschenko, M. and Nogueira, E.T. (2011) Optimal dietary glutamine for growth and development, *Revista Brasileira de Zootecnia* 40, 384-390

45. **Watford, M.** and Castell, L.M. (2012) Proline. In *A to Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance: part 32*. Philips, S., Breen, L., **Watford, M.,** Burke, L.M., Stear, S., Castell, L.M. *Brit. J. Sports Med*. 46: 454-456

46. Watford, M. and Brosnan, J.T. (2014) Hans Krebs and the foundation of the use of glutamine in clinical nutrition: A personal perspective. *Chinese Journal of Clinical Nutrition* (published in Chinese, **Hans Krebs**与谷氨酰胺在临床营养中的应用) 22:1-8

47. **Watford, M.** (2015) Starvation: Metabolic Changes. In Encyclopedia of Life Sciences (John Wiley & Sons Ltd. Chichester) DOI: 10.1002/9780470015902.a0000642.pub2

48. **Watford, M** and Castell, L.M. (2015) Proline, in Nutritional Supplements in sport, exercise and health: An A-Z guide. L.M. Castell, S.J. Stear, L.M. Burke, eds. Routledge, Taylor and Francis, London & New York, page 219

49. **Watford, M**. (2015) Suplementacao de Glutamina e Glutaminato na Nutricao Animal. (in Portuguese) in *AminoGut 10 anos*, Ajinomoto Animal Nutrition Group Technical Bulletin. Pages 23-33

BOOKS EDITED

Pegg, A.E. and **Watford, M.** (eds) (1998) *Biochemical Journal Reviews 1997*, Portland Press, London, 274 pages

Watford, M. (ed) (1999) *Biochemical Journal Reviews 1998*, Portland Press, London, 321 pages

PRESENTATIONS

Scientific Meetings (including roles as organizer and/or session chair)

1978 First International Workshop on Ammoniagenesis, Mont Gabriel, Quebec, Canada
1981 Second International Workshop on Ammoniagenesis, Athens, Greece
1983 Gesellschaft fur Biologische Chemie, Conference on "Glutamine Metabolism in Mammalian Tissues" Gottingen, West Germany
1984 Third International Workshop on Ammoniagenesis, Monterey, California
1984 American Institute of Nutrition (FASEB) Symposium "Isolated Hepatocytes in Metabolic Research", St. Louis, Missouri
1987 Fourth International Workshop on Ammoniagenesis, Caderache, France
1987 Second Meeting of the North American Society for Renal Biochemistry and Metabolism, Quebec City, Canada
1988 American Institute of Nutrition (FASEB), Poultry Nutrition Symposium, Las Vegas, Nevada
1990 Amerian Physiological Society, Comparative Physiology Symposium, Orlando, Florida
1990 Fifth International Workshop on Ammoniagenesis, Shizuoka, Japan
1990 Gesellschaft fur Biologische Chemie, Conference on "Glutamine, Glutamate and γ-Glutamyl Compounds", Titisee, West Germany
1993 Sixth International Workshop on Ammoniagenesis, Ventimiglia, Italy
1993 Twenty-Fifth Anniversary, Metabolic Research Laboratory, Oxford, England
1995 Fifth New England Animal Biotechnology Conference, Storrs, Connecticut
1996 Seventh International Workshop on Ammoniagenesis, Galway, Eire
1997 XVI International Congress of Nutrition, Symposium on "Amino Acids: Physiological and Clinical Significance", Montreal, Canada, speaker & co-chair

1997 American Physiological Society (FASEB), Symposium on "Metabolic Engineering", New Orleans, LA., organizer and chair

1998 American Association of Anatomists (FASEB), Symposium on "Glutamate and Glutamine", San Francisco, California

1998 Lankenau Medical Center, Philadelphia PA, "Potential roles of transepithelial permeability, TNF, apoptosis and remodeling in ulcerative colitis"

1998 The Biochemical Society (UK), Symposium "Teaching for Understanding: Concepts - Not Pathways", Leicester, UK

1998 International Symposium on Glutamate, Bergamo, Italy

2000 Glutamine 2000, 4th Oxford Workshop on Glutamine, Oxford, UK

2000 International Symposium on Glutamine, Sonesta Beach, Bermuda

2001 Experimental Biology 2001, American Society for Nutritional Sciences, Minisymposium "Amino Acid Metabolism", Orlando FL. Organizer and chair

2001 Experimental Biology 2001, American Society for Biochemistry and MolecularBiology, Education Symposium "Core Topics in Biochemistry Courses", Orlando, FL.

2001 XVII International Congress of Nutrition, Workshop on "Nutritional Aspects of Glutamate", Vienna, Austria

2002 Organizer and chair, "Metabolic Engineering" symposium for ASNS, New Orleans, Experimental Biology 2002

2002 Experimental Biology 2002, American Society for Nutritional Sciences, Minisymposium "Amino Acid Metabolism", New Orleans, LA. Chair

2003 Chair, Symposium on Metabolic Engineering, Inaugural Meeting, Center of Animal Biotechnology and Gene Therapy, Universidad Autonoma de Barcelona, Spain

2006 Chair, Session II, Training Program "Type 2 Diabetes in the Post-genomic era", European Network on Functional Genomics of Type 2 Diabetes (EUGENE2), Barcelona, 2006

2007 7th Amino Acid Assessment Workshop, Tokyo, Japan

2008 Chair, Symposium on Gene Therapy, , Center of Animal Biotechnology and Gene Therapy, Universidad Autonoma de Barcelona, Spain

2008 Keynote Speaker, Opening of the "Laboratorio de Technolgia de Bioativos (LABTECBIO)", Universidade Federal Rural de Pernambuco, Recife, Brazil

2008 Plenary Lecture "Amino acid Metabolism", First International Conference on Animal Nutrition and Feed Additives, Chinese Academy of Science Institute Of Subtropical Agriculture, Changsha, Hunan Province, China.

2009 "Glutamine: Essentiality and Requirements?" Ajinomoto Latina Workshop, 14th Congresso Brasileiro de Veterinarios Especialistas em Suinos, Uberlandia, Brazil

2010 Sigma Xi Symposium, Department of Animal Science, Texas A & M University, College Station, TX. "Glutamine metabolism"

2011 "Glutamine metabolism in adipose tissue: a link from obesity to inflammation" 12th International Congress on Amino Acids, Peptides and Proteins. Beijing, China

2011 "Optimal glutamine and glutamate requirements" Nutrition and Manufacturing Rations Technology Symposium, 48th Annual Meeting of the Brazilian Society for Animal Science (Sociedade Brazileira de Zootecnia), Belem, Brazil.

2011 "Adipose Tissue Glutamine Synthesis and the Development of Inflammation and Insulin Resistance" at the Functional Amino Acids in Nutrition and Health Symposium, 12th International Congress on amino acids, peptides and proteins, Beijing, China

2011 Chair and Moderator, Symposium "Recent Advances in Amino Acid Biochemistry and Nutrition", College of Animal Science, China Agricultural University, Beijing, China

2012 "Glutamine and Glutamate: non-essential or essential amino acids?" Congress, Colegio Latinoamericano de Nutricion Animal, Puerto Vallarta, Mexico

2013 Chair, "From gut to tissue microbiota: a paradigm shift for the control of insulin resistance", XII International Symposium on Insulin Receptors and Insulin Action, Barcelona, Spain

2013 "Glutamine Metabolism in Adipose Tissue: A Link from Obesity to Inflammation" 13th International Congress on Amino Acids, Peptides and Proteins, Galveston, TX

2014 "Functional Amino Acids" Congress, Colegio Latinoamericano de Nutricion Animal, Sao Paulo, Brazil

2014 "Glutamine Supplementation in the Pig during Gestation, Lactation and Neonatal Development" Annual Meeting of the Animal Nutrition Branch of the Chinese Association of Animal Sciences and Veterinary Medicine, ZhengZhou, China

2015 "Glutamate and Glutamine: Nonessential or Essential" China Engineering Science and Technology Forum: Animal Nutrition and Breeding – Environmental Control, Changsha, China

2015 "Glutamine and glutamate supplementation in domestic animal nutrition" XVII Congresso ABRAVES, Campinas, Brazil

2017 "Intestinal metabolism of amino acids" Amino Acid Nutrition and Sustainability, Ajinomoto-Eurolysine, Museum d'histoire Naturelle, Paris, France

Seminars

1983 Department of Life Sciences, Biochemistry Section, Trent Polytechnic, Nottingham, UK "PEPCK and Gluconeogenensis in the Chicken"

1983 Department of Physiology, University of Rochester, Medical School, Rochester, NY., "Glutamine Metabolism"

1984 Department of Biochemistry, Memorial University, St. John's, Newfoundland, Canada "PEPCK and Gluconeogenesis in the Chicken"

1985 Department of Physiology, Cornell University, Ithaca, NY, "Glutamine Metabolism in Diabetes"

1987 Department of Biochemistry, Charing Cross and Westminster Medical School, University of London, UK, "Glutamine Metabolism in the Diabetic Rat"

1987 Department of Physiology, School of Medicine, University of Pennsylvania, Philadelphia, PA, "Glutamine Metabolism in the Diabetic Rat"

1988 The Lankenau Medical Research Center, Philadelphia, PA "Glutamine Metabolism in the Diabetic Rat"

1988 Sandoz Research Institute, East Hanover, NJ "Glutamine Metabolism in Diabetes"

1989 Department of Pediatrics, University of Rochester, Rochester , NY "Glutamine Metabolism in Liver and Intestine During Diabetes"

1989 Metabolic Research Laboratory, University of Oxford, "Regulation of Hepatic Glutaminase Gene Expression"

1990 Department of Embryology and Anatomy, Academic Medical Center, University of Amsterdam, The Netherlands, "Regulation of Hepatic Glutaminase Gene Expression"

1990 Laboratoire d'Endocrinologie, Universite de Rouen, France, "Regulation of Hepatic Glutaminase Gene Expression"

1990 Centre de Recherches sur la Nutrition, Meudon-Bellevue, France, "Regulation of Hepatic Glutaminase Gene Expression"

1990 Institute for Medical Genetics, University of Kumamoto, Japan, "Regulation of Hepatic Glutaminase Gene Expression"

1990 Department of Veterinary Physiology, Universtiy of Osaka Prefecture, Sakei, Japan, "Regulation of Hepatic Glutaminase Gene Expression"

1990 Department of Agricultural Chemistry, National Taiwan University, Taipei, Taiwan, R.O.C., "Regulation of Hepatic Glutaminase Gene Expression"

1990 Veterans General Hospital, Taipei, Taiwan, R.O.C., "Tissue-Specific Metabolism of Glutamine during Diabetes"

1991 Centro de Biologia Molecular, Universidad Autonoma de Madrid, Spain, "Regulation of Hepatic Glutaminase Gene Expression"

1991 Departmento de Bioquimica y Biologia Molecular, Universidad de Malaga, Spain, "Regulation of Hepatic Glutaminase Gene Expression"

1991 Departmento de Fisiologia, Universitat de Valencia, Spain, "Regulation of Hepatic Glutaminase Gene Expression"

1991 Laboratory of Metabolism and Molecular Biology, NIAAA, Rockville, MD, "Regulation of Hepatic Glutamine Metabolism"

1991 Graduate Program in Animal Science, Rutgers Univesity "Regulation of Hepatic Glutaminase Gene Expression"

1992 Metabolic Discussion Group, University College, University of London, UK., "Why are there two glutaminases and since when has glutamine been an essential amino acid?"

1992 Hormone and Metabolic Research Unit, University of Louvain, Bruxelles, Belgium "Regulation of Hepatic Glutaminase Gene Expression"

1992 Department of Animal Science, Texas A & M University, College Station, Texas, "Regulation of Hepatic Glutamine Metabolism"

1992 Department of Human Ecology, University of Texas, Austin, Texas, "Regulation of Glutamine Metabolism"

1994 Department of Animal Science, Texas A & M University, College Station, Texas, "Tissue-Specific Regulation of Glutaminase Gene Expression and Glutamine Metabolism"

1994 Department of Biochemistry, Southwestern Medical Center, University of Texas, Dallas, Texas, "Tissue-Specific Regulation of Glutaminase Gene Expression and Glutamine Metabolism"

1994 Department of Physiology, University College Galway, Galway, Eire, "Tissue-Specific Regulation of Glutaminase Gene Expression and Glutamine Metabolism"

1994 Obesity Research Center, St. Luke's Roosevelt Hospital, Columbia University, New York, "Amino Acid Metabolism in Adipose Tissue in Vivo: The Use of Microdialysis"

1995 VA Medical Center, East Organge, NJ, "Glutamine Metabolism in Health and Disease"

1995 Facultat de Veterinara, Universidad Autonoma de Barcelona, Spain, "Tissue-Specific Regulation of Glutaminase Gene Expression and Glutamine Metabolism"

1995 Unite d'Ecologie et de Physiologie du Systeme Digestif, INRA, Jouy-en-Josas, France "Recents Developments in Glutamine Metabolism"

1996 College of Pharmacy, St. John's University, New York, "Recent Developments in Glutamine Metabolism"

1997 Faculte des Sciences St. Jerome, Universite Marseille III, France "Glutamine Metabolism in Health and Disease"

1997 Centre Biomedical des Cordeliers, INSERM 465, Paris, France "Rat Adipose Tissue Amino Acid Metabolism in vivo as Assessed by Microdialysis and Arterio-Venous Techniques"

1997 Department de Biochimie, Faculte de Medecine et Pharmacie de Rouen, St Etienne du Rovary, France "Tissue-Specific Regulation of Glutamine Metabolism and Glutaminase Gene Expression"

1997 Centre de Recherche sur L'Endocrinologie Moleculaire et le Developpement, CNRS, Meudon, France "Tissue-Specific Regulation of Glutamine Metabolism and Glutaminase Gene Expression"

1997 Laboratoire de Nutition et Securite Alimentaire, INRA, Centre des Recherches, Jouy-en-Josas, France "Tissue-Specific Regulation of Glutamine Metabolism and Glutaminase Gene Expression"

1998 Facultat de Veterinara, Universidad Autonoma de Barcelona, Spain "Regulation of Glutamine Metabolism"

1998 INRA Theix, France "Tissue-Specific Regulation of Glutamine Metabolism and Glutaminase Expression"

1999 Metabolic Regulation Discussion Group, University College London, UK. "Hepatic Glutamine Metabolism: Past, Present and Future"

1999 Nutrition & Food Science Research Group, Oxford Brookes University, UK. "Hepatic Glutamine Metabolism: Past, Present and Future"

2000 Graduate Program in Nutrition, Texas A & M University, College Station, Texas "Hepatic Glutamine Metabolism: Yesterday, Today and Tomorrow"

2001 Center of Animal Biotechnology and Gene Therapy, Universidad Autonoma de Barcelona, Spain "Engineering Glutamine Metabolism"

2003 U-S 530 INSERM, Universite Rene Descartes, Paris, France "Engineering Tissue-Specific Glutamine Metabolism"

2004 Department of Physiology and Biophysics, Institute of Biomedical Sciences, Sao Paulo University, Brazil "Glutamine metabolism: of mice and mares"

2004 Zootecnia Department of the Federal Rural University of Pernambuco, Recife, Brazil "Glutamine metabolism: of mice and mares"

2005 Department of Human Nutrition, University of Alberta, Canada "Glutamine metabolism: Of mice and mares"

2007 Department of Medicine, University of Maryland, Adipose Tissue Group, "Glutamine and Adipose Tissue"

2007 Department of Medicine, University of Nagoya, Nagoya, Japan, "Glutamine: Amino acid, Signal Molecule and Supplement"

2007 Department of Animal Science, National Taiwan University, Taipei, Taiwan, "Glutamine: Amino acid, Signal Molecule and Supplement"

2007 Department of Animal Science, National Ilan University, Ilan, Taiwan, "Glutamine: Amino acid, Signal Molecule and Supplement"

2007 MDS Pharma, Taipei, Taiwan, "Glutamine: Amino acid, Signal Molecule and Supplement"

2007 College of Life Sciences, National Taiwan University, Taipei, Taiwan, "An Editor's View of Writing and Publishing in the Life Sciences"

2008 College of Animal Science and Technology, China Agricultural University, Beijing, China, "An Editor's View of Writing and Publishing in the Life Sciences"

2008 Wuhan Polytechnic University, China, "Amino acid metabolism" and "An Editor's View of Writing and Publishing in the Life Sciences"

2008 The Chinese Academy of Sciences Graduate University, Institute of Subtropical Agriculture, Changsha, Hunan Province, China. "An Editor's View of Writing and Publishing in the Life Sciences"

2008 Department of Medicine, University of Maryland, Adipose Tissue Group, "Alanine Aminotransferase: What do we know?"

2009 University of Brasilia, Brazil, "An Editor's View of Writing and Publishing in the Life Sciences".

2011 "Glutamine metabolism in adipose tissue: a link from obesity to inflammation" CABTEG, Universitat Autonoma de Barcelona, Spain

2013 "Glutamine & Lipids: emerging roles in different cell types" Dept. Biology Drexel University, Philadelphia, PA

2013 "Hans Krebs and the Krebs Cycles: A personal viewpoint" Federal Rural University of Pernambuco, Recife, Brazil

2015 "Hans Krebs and the Krebs Cycles: A personal viewpoint", American Chemical Society, Princeton Chapter, Princeton NJ

2015 "Glutamine metabolism during lactation" CABTEG, Universitat Autonoma de Barcelona, Spain

2015 "Glutamine metabolism in adipose tissue: a link from obesity to inflammation" INRA, Jouy en Josas, France