

CURRICULUM VITAE: John W. Baynes**ADDRESS:**

(Office)
 Department of Exercise Science
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EDUCATION

<u>Institution</u>	<u>Major</u>	<u>Date</u>	<u>Degree</u>
Loyola College	Chemistry	9/58-6/62	B.S.
Marshall University	Chemistry	9/67-6/69	M.S.
Johns Hopkins Univ.	Physiological Chemistry	9/68-2/73	Ph.D.
Univ. Pittsburgh	Biochemistry	2/73-9/73	Postdoctoral
Univ. Minnesota	Laboratory Medicine	9/73-8/76	M.S./Postdoc

PROFESSIONAL APPOINTMENTS

1976-1980	Assistant Professor Department of Chemistry and Biochemistry The University of South Carolina, Columbia, SC
1980-1986	Associate Professor, University of South Carolina
1986-	Professor, University of South Carolina
1986-	Carolina Distinguished Professor
1988-1989	Visiting Professor (Sabbatical Leave). Department of Pathology and Diabetes Research and Training Center Washington University School of Medicine, St. Louis, MO
1991-1996	Director, Medical Biochemistry, USC School of Medicine
1991-1995	Chair, Department of Chemistry and Biochemistry, USC
1995-	Associated Faculty, School of the Environment, USC
Spring, 1996	Visiting Professor (Sabbatical Leave), Department of Pharmacology Medical University of South Carolina, Charleston, SC
May, 1996	Visiting Professor, Dept. of Biochemistry, University of Modena, Italy.
Summer, 2006	Visiting Professor, Sch. of Biol. Sci., Queen's University, Belfast, NI
May, 2006	Carolina Distinguished Professor Emeritus.
July, 2007	Research Professor, Dept. of Exercise Science, USC

RESEARCH ACTIVITIES

- 1967-1968 Masters research in Organic Chemistry with Dr. Arthur R. Lepley at Marshall University. Studies of alkylation reactions initiated by interaction of organometallics and alkylhalides. Reaction products were isolated and characterized, leading to proof of a free radical mechanism for the reactions.
- 1968-1973 Ph.D. research in Biochemistry with Dr. Edward C. Heath at Johns Hopkins University. Studies on the biosynthesis of glycoproteins with emphasis on the role of lipid intermediates in the enzymatic glycosylation of mammalian glycoproteins (1-3). These were among the earliest studies on the dolichol pathway and led to characterization of mannose-P-dolichol and oligosaccharide pyrophosphoryl glycolipid intermediates involved in glycoprotein biosynthesis.
- 1973-1975 Postdoctoral studies in Clinical Chemistry at the University of Minnesota Hospitals, including both formal classroom instruction in Laboratory Medicine and practical rotations in Divisions of Clinical Chemistry, Endocrinology, Enzymology and Immunology.
- 1974-1976 Postdoctoral research with Dr. Finn Wold, Department of Biochemistry, University of Minnesota, on the role of carbohydrates in the clearance of glycoproteins from the circulation. These studies with isozymes of RNase (4,5) represent the earliest published work on the high-mannose oligosaccharide receptor in hepatic non-parenchymal cells.
- 1976-present Research at the University of South Carolina on:
- (1) studies on the role of glycation of proteins and subsequent Maillard or browning reactions of glycated proteins in the development of pathology in diabetes and aging;
 - (2) studies on the role of reactions between protein and lipid peroxidation products in the pathogenesis of atherosclerosis and chronic inflammatory diseases;
 - (3) general role of oxidative stress and oxidative chemical modifications of proteins in aging and disease;
 - (4) studies on mitochondrial dysfunction in diabetes and obesity, including succination of thiol groups in protein by fumarate; and
 - (5) studies on the role of gut barrier function in development of cachexia in colon cancer cachexia.

TEACHING ACTIVITIES

1. Chemistry 101: Introductory Chemistry for Health Science Majors (lecture & laboratory)
2. Chemistry 102: Organic and Biological Chemistry for Health Science Majors (lecture & lab)
3. Chemistry 340: Physical Chemistry for Students of the Biological Sciences (lecture & lab)
4. Chem. 650/651: Medical Biochemistry, including Clinical Correlations Conferences

GRADUATE STUDENT AND POSTDOCTORAL TRAINING

1. Ph.D. Students

	<u>Year</u>	<u>Name</u>	<u>Thesis Subject</u>
1)	1981	Robert W. Thornburg	Catabolism of Immune Complexes in the Rat
2.)	1981	Lee A. Henderson	Application of Residualizing Labels for Studies on Plasma Protein Catabolism
3)	1983	Albert S. Eble	Nonenzymatic Glucosylation and Glucose-dependent Crosslinking of Protein
4)	1984	Jeffrey L. Strobel	Synthesis and Evaluation of ¹²⁵ I-Residualizing Labels for Studies on Plasma Protein Catabolism
5)	1984	Nancy G. Watkins	Specificity of Nonenzymatic Glycosylation of RNase
6)	1985	Carolyn I. Neglia-Fisher	Characterization of Glycated Proteins by NMR Spectroscopy
7)	1987	Clifford J. Hull	Studies on Glycation and Crosslinking of Lysozyme by Glucose
8)	1988	Janet L. Maxwell	Synthesis and Evaluation of Fluorescent and Large Glycoconjugate Residualizing Labels
9)	1988	Jeffery K. Weis	Tissue Sites of IgM Catabolism in the Rat
10)	1990	John A. Dunn	Characterization and Quantification of Carboxymethyl-lysine and -hydroxylysine in skin collagen
11)	1991	Daniel G. Dyer	Characterization and Quantification of Pentosidine in Tissue Proteins in Diabetes and Aging
12)	1991	Thomas G. Huggins	Measurement of o-Tyrosine and Dityrosine in Oxidized Proteins and in Lens Proteins with Age
13)	1992	Zissis C. Chronos	Cellular Sites of Catabolism of IgM in the Liver
14)	1992	Kevin J. Knecht	Maillard Reaction Products in Plasma and Urine: Their Significance in Diabetes and Aging
15)	1993	James A. Blackledge	Mechanism of Crosslinking of Proteins by Glucose: Trapping of Intermediates with Aminoguanidine
16)	1995	Mary Wells-Knecht	Formation of Oxidation and Glycooxidation Products during the Maillard Reaction: Relevance to Diabetes and Aging
17)	1995	David V. Zyzak	Studies on the Maillard Reaction: Mechanism of the Fructosamine Assay, Decomposition of Amadori Adducts on Protein, and Reaction of 3-Deoxy-glucosone with Arginine Residues on Protein
18)	1995	Min-Xin Fu	Role of Oxidation in the Chemical Modification of Proteins by Carbohydrates and Lipids in Aging, Diabetes and Atherosclerosis
19)	1996	Sharanya Reddy	N ^ε -(carboxymethyl)lysine is a dominant advanced glycation end-product antigen in tissue proteins.

- 20) 1996 John E. Litchfield The Role of Carbohydrate Autoxidation in the Maillard Reaction
- 21) 1999 Joelle M. Onorato Mechanism of Action of Pyridoxamine, an Inhibitor of Lipoxidation Reactions
- 22) 2000 Mark A. Sochaski Development of Gas Chromatography - Mass Spectrometry Assay for Simultaneous Measurement of Methionine and Methionine Sulfoxide
- 23) 2003 Thomas O. Metz Mechanism of Action of Pyridoxamine, an Inhibitor of Advanced Glycation and Lipoxidation Reactions, in Animal Models of Diabetes
- 24) 2006 Jonathan WC Brock Site Specificity of Glycooxidative and Oxidative Damage to Protein *in vitro* and *in vivo*
- 25) 2006 Elizabeth K. O'Keeffe Plasma Biomarkers of Diabetes and Nephropathy
- 26) 2008 Matthew Blatnik Succination of Protein Thiols *in vitro* and *in vivo*

2. M.S. Students

- 1) 1984 Alan D. Morris Synthesis and Characterization of Amadori Compounds formed between Glucose and Lysine
- 2) 1985 Susan G. Cady Identification of Fibroblasts as the Major Site of Albumin Catabolism in Muscle and Skin
- 3) 1989 Jeffrey S. Patrick Age-dependent Changes in Glycation and Carboxymethylation of Lysine Residues in Lens Proteins
- 4) 1991 John M. Richardson Autoxidative Glycosylation of Protein by Ascorbic Acid
- 5) 1992 David V. Zyzak Decomposition of Amadori Compounds under Physiological Conditions
- 6) 1992 Tammy H. Boles Measurement of Maillard Reaction Products in Tissue Proteins of the Mouse, Rat and Guinea Pig
- 7) 1997 C. Wesley Fountain Glycation and Carboxymethylation of Red Cell Membrane Lipids and Proteins
- 8) 2000 David L. Price Metal-Chelating Activity of Inhibitors of Advanced Glycation Reactions.
- 9) 2002 Yuping Wang Detection and Assay of Sulfhydryl AGEs in Tissue Proteins
- 10) 2002 Della M. Smith Measurement of Fructoselysine in Tissue Protein
- 11) 2002 Nadja Alt Chemical Modification of Muscle Proteins in Diabetes (University of Dresden, Germany)
- 12) 2003 Gina M. Iacovella Dicarbonyl Intermediates in AGE Formation
- 13) 2005 Maxcy L. Stroman Mechanism of Action of Pyridoxamine

3. Postdoctoral Fellows and Visiting Scientists (visit ≥ 3 months) (since 1996)

1993-96	Dr. Mahtab U. Ahmed	Univ. of Dhaka, Bangladesh, Sabbatical Leave
1994-97	Dr. Elisabeth Brinkmann	Technical University of Berlin
1995-97	Dr. Min Xin Fu	University of South Carolina
1995-98	Dr. Jesus Requena	University of Santiago, Spain
1995-98	Dr. Thorsten Degenhardt	University of Heidelberg, FRG
1996	Dr. Reinald Pamplona	Visiting Professor, University of Lleida, Spain
1997	Dr. David Riba	Visiting Scientist, University of Lleida, Spain
1997-98	Mr. Michael Jahn	Visiting Scientist, University of Bayreuth, FRG
1998	Ms Nicole Verzijl	Visiting Scientist, TNO Prevention and Health Foundation, The Netherlands
1999-2000	Dr. David Slatter	University of Bristol, UK
2000-	Dr. Mark Chachich	University of South Carolina, USA
2000	Dr. Vladimir Jakus	Comenius Univ., Bratislava, Slovak Republic
2000-	Dr. Andrzej Januszewski	Univ. Wroclaw, Poland (Fulbright Fellow)
2001	Dr. Veronika Faist	Visiting Scientist, Food Science, Christian Albrechts Univ., Kiel, Germany
2001-2002	Dr. Lutz Gotze	Univ. of Rostock, Germany
2001-2002	Ms. Nadja Alt	Visiting Scientist, Food Science, Univ. of Dresden, Germany
2002	Ms. Wendela Greven Ms. Femke Waanders	Student Trainees, University of Groningen, The Netherlands
2002	Prof. Jennifer M. Ames	Sabbatical Leave, Department of Food BioSciences, University of Reading, UK
2001-2003	Dr. Ryoji Nagai	Dept Biochem, Kumamoto Univ. Sch of Med
2003-2006	Dr. Normal Frizzell	Dept. Ophthalmology, Queens Univ., Belfast, NI
2004	Dr. Merlin Thomas	Dept. Nephrology, Univ. Melbourne, Australia
2005	Ms. Nynke den Hollander	Student Trainee, University of Groningen, NL
2006	Dr. Ryoji Nagai	Visiting Scholar, University of Kumamoto
2006	Dr. Josephine Glenn	Visiting Trainee, Queens University, Belfast
2007-08	Dr. Jonathan Brock	Postdoctoral Fellow
2008-09	Dr. Mathur Rajesh	Research Assistant Professor
2008	Dr. Norma Frizzell	Research Assistant Professor
2009	Dr. Maria Lima	Postdoctoral Fellow

4. Undergraduate Research: Sixteen undergraduate science students have conducted Senior Research or Honors Thesis Research under my supervision.

ADMINISTRATIVE SERVICE (since 1990, plus Chairs)

1. Departmental and College

- a. Department Chair (1991-95)
- b. Director, Medical Biochemistry (1991-96)
- c. Mass Spectrometry Committee (Chair, 1985-)
- d. Executive Committee (2001-03)

2. Medical School (1991-1996)

- a. Executive Committee (1991-96)
- b. Basis Sci. Advisory Comm. (91-96)
- c. Strategic Planning Committee (91-96)
- d. Problem Based Learning (1998-2003)

3. University

- a. Grievance Committee (1984-87, Chair, 1985-86)
- b. Health Professions Advisory Committee (1980-84, Chair 1983-84)
- c. Institutional Grant Review panels for American Cancer Society, Biomedical Research Support Grant, Research and Productive Scholarship, and Venture Fund
- d. Management Committee, South Carolina Cancer Center (1991-97)
- e. Search Committees for Provost (1991-92) and Dean, School of Medicine (1994-95)
- f. Research Advisory Committee (1995-98) & Faculty Senate Steering Committee (2000-01)
- g. University Committee on Tenure and Promotion (1999-2002; Chair 2000-2001)
- h. University Biomedical Research Infrastructure Steering Committee (2003-04; Co-Chair)

4. State

- a. Leader, South Carolina Biomedical Research Infrastructure Network (2001-2004)
- b. Councilor, South Carolina Academy of Science (2004-2007)
- c. Leader, South Carolina, IDeA Network for Biomedical Research Excellence (2005-2006)

AWARDS AND RECOGNITION

- 1967 Bronze Star, U.S. Army, Meritorious Service
- 1969-73 NIH Predoctoral Fellowship, Department of Physiological Chemistry, Johns Hopkins University School of Medicine
- 1973-75 Postdoctoral Fellowship, Department of Laboratory Medicine and Pathology, University of Minnesota School of Medicine
- 1976 American Cancer Society Postdoctoral Fellowship
- 1982-87 Research Career Development Award, NIH
- 1985 Recipient of John Colwell Award from the South Carolina Affiliate, American Diabetes Association for Outstanding Contributions to Diabetes Research
- 1986- Recipient of Carolina Research Professorship (Carolina Distinguished Professor)
- 1986-94 NIH MERIT Award, Research Program on "Glycation of Protein in Diabetes"
- 1987 Recipient, Combined Basic and Clinical Science Research Award, University of South Carolina School of Medicine
- 1991- Section Editor, Glycosylation of Amino Acids, *Amino Acids*
- 1993-95 Member, Editorial Board, *Diabetes*
- 1994-02 NIH MERIT Award, Research Program on "Glycation of Protein in Diabetes"
- 1994 "Pearls of Wisdom" lecturer, USC School of Medicine
- 1995-98 Member, External Advisory Committee, Department of NMR and Medical Spectroscopy, Fox Chase Cancer Center, Philadelphia, PA
- 1996 Russell Research Award in Science and Engineering, USC
- 1997- Member, Scientific Advisory Board, BioStratum, Inc.
- 1997-02 Editorial Board, *Journal of Biological Chemistry*
- 1998 Recipient, Combined Basic and Clinical Science Research Award, University of South Carolina School of Medicine
- 1998-01 Member, Medical Science Review Committee, Complications Group, Juvenile Diabetes Foundation International
- 1998-2003 Councilor and Member of the Advisory Board, The Oxygen Society
- 1999- Member, Editorial Board, *Biogerontology*
- 2001- Leader, South Carolina Biomedical Research Infrastructure Network (NIH)
- 2002 University of South Carolina Trustees Professorship
- 2002-07 NIH MERIT Award, Research Program on "Glycation of Protein in Diabetes"
- 2003 Turner Lectureship Awardee, University of Oklahoma School of Medicine
- 2004 Chair, 8th International Symposium on the Maillard Reaction, Charleston, SC
- 2004 Governor's Award for Excellence in Scientific Research, State of South Carolina
- 2004 South Carolina Chemist Award, SC Affiliate, American Chemical Society
- 2005-06 Member, Editorial Board, *Journal of Biological Chemistry*
- 2006-08 Member, Editorial Board, *Journal of Experimental Diabetes Research*
- 2006-08 International Fellowship (summer sabbaticals), Queen's University, Belfast, NI

PROFESSIONAL ACTIVITIES (last 10 years)

- 1999 Invited Speaker, Symposium on Aging and Clinical Laboratory Medicine,” Satellite meeting of the 17th International and 13th European Congress of Clinical Chemistry, Sassari, Sardinia, Italy
- 1999 Invited Speaker, Symposium on “Biochemistry & Cell Biology of Glycation,” Grasmere, England
- 1999 Invited Speaker, Gordon Conference on Atherosclerosis, New Hampshire
- 1999 Member, NIH Site Visit Team, Program Project on Biomedical Applications of Mass Spectrometry, Washington University, St. Louis
- 1999 Member, NIH Special Emphasis Review Panel, Novel Therapies for Treatment of Diabetic Complications, Bethesda, MD
- 1999 Member, NIH Site Visit Team, Program Project on Oxidative Stress in Atherosclerosis, University of Iowa, at Bethesda, MD
- 1999 *Ad Hoc* Member, NRSA Fellowship Review Panel, NIH, Bethesda
- 1999 Member, NIH Special Emphasis Review Panel, Diabetes Centers of Excellence, Bethesda, MD
- 2000 Invited Speaker, Symposium on Advanced Glycation End-Products, Jena, FRG
- 2000 Invited Speaker, Satellite Symposium on "Non-enzymatic Glycation and Oxidative Stress in Diabetes", Prague, Czech Republic (presentation cancelled for personal reasons)
- 2000 Invited Speaker, International Congress for Eye Research, Santa Fe, NM
- 2001 Member, Scientific Organizing Committee and Invited Speaker, International Congress of Biomedical Gerontology, Vancouver, BC
- 2001 Invited participant, Conference on “Strategies for Engineering Negligible Senescence” Maximum Life Foundation, Los Angeles
- 2001 Invited Speaker and Session Chair, European Society for the Study of Diabetes, Glasgow
- 2001 Member, Scientific Organizing Committee and Plenary Speaker, International Symposium on the Maillard Reaction and Satellite Symposium on Biomedical Applications of the Maillard Reaction, Kumamoto, Japan
- 2001 Member, NIDDK Site Visit Team,” Pathobiology of Macrovascular Disease in Diabetes”, Seattle, WA
- 2002 Member, JDRF Program Project Review Team, “Oxidative Stress, AMPK, and Diabetic Cardiovascular Disease”, Miami, FL
- 2002 Invited Speaker, Annual Meeting of Australian Diabetes Society, Melbourne
- 2002 Invited Speaker, Southeastern Lipid Research Conference, Callaway Gardens, GA
- 2002 Invited Speaker, European Workshop on Recent Advances in Melanoidin Research, Madrid, Spain

- 2002 Invited Speaker, Japanese Maillard Society, Sendai, Japan
- 2003 Invited Speaker, NIDDK-EDIC 20th Anniversary Symposium on “Diabetes: Bench to Bedside and Back.” NIH, Bethesda, MD
- 2003 Invited Speaker, Conference on “Diet and Optimum Health”, Linus Pauling Institute and Oxygen Club of California. Portland, OR
- 2003 Invited Speaker, 2nd International Symposium on Advanced Glycation End-Products. Jena, Germany
- 2003 Invited Speaker, Symposium on The Enzymatic Defense against Glycation in Health, Disease and Therapeutics. The Biochemical Society, Essex, England
- 2003 Invited Speaker, 8th Diabetic Neuropathy Satellite Symposium to the Internal Diabetes Federation Congress. Saint Malo, France
- 2003-2006 External Reviewer, Division of Research, Kuwait University, Safat, Kuwait
- 2004 Member, NIH Site Visit, Biomedical Mass Spectrometry Facility, Washington University, St. Louis
- 2004 Member, NIH Review Panel, Roadmap Initiatives, Bethesda
- 2004 Invited Speaker, Satellite Symposium on Advanced Glycation End-Products, Annual Meeting of the European Association for the Study of Diabetes, Munich
- 2004 Chair, Organizing Committee, 8th International Symposium on the Maillard Reaction, Charleston, SC
- 2004 Invited Speaker, Rachmiel Levine Symposium on Current Therapies for Treatment of Diabetes and Its Complications, City of Hope, Los Angeles
- 2004 External Review Committee, Diabetes Research Programs, Div. of Endocrinology, Dept. of Medicine, Oklahoma University Health Sciences Center
- 2004 NHLBI External Review Panel: Evaluation of Intramural Research Programs, Bethesda
- 2005 Invited Speaker, Nestlé Workshop on Healthy Aging, Lausanne
- 2005-2006 Member, Editorial Board, Journal of Biological Chemistry
- 2005 External Reviewer, Irish Health Board, Dublin
- 2005 External Reviewer, NIH, Metabolism Study Section
- 2006- Member, Editorial Board, *Experimental Diabetes Research*
- 2006 Invited Speaker, American Diabetes Association, Symposium on Advanced Glycation End Products and Diabetic Complications: Insights into New Mechanisms and New Therapeutic Targets. Cambridge, MA.
- 2006 Invited Speaker, Member of Scientific Committee, COST-IMARS Workshop on “Thermally processed Foods: Possible Health Implications, Naples, IT, May
- 2006 Invited Speaker, American Chemical Society Symposium on “Protein Damage by Oxidants and Electrophiles”, San Francisco, September
- 2006 Invited Speaker and Chair, Southeastern Regional American Chemical Society

- Symposium on “Chemistry of Aging”, Augusta, GA, November.
- 2006 Member, NIH Special Emphasis Review Panel, Program Project Review on Dyslipidemia in Diabetes, Bethesda, MD, December.
- 2007 Plenary Speaker, Research Day Symposium, Touro University, Vallejo, CA, March.
- 2007 Grant Review Committee, Irish Health Board, Dublin, IE, April.
- 2007 Invited Speaker, German Diabetes Association, Symposium on Oxidative Stress and the role of the Mitochondrion, Hamburg, FRG, May.
- 2007 Invited Speaker, 9th International Symposium on the Maillard Reaction, Munich, FRG, September.
- 2007 Invited Speaker, Workshop on “Protein Oxidation and Modification – Mechanisms, Measurement and Biological Consequences”, Washington, DC, November.
- 2008 Plenary Speaker, SC INBRE Research Symposium, Charleston, SC, January.
- 2008 Grant Review Committee, Irish Health Board, Dublin, IE, April.
- 2008 Invited Speaker, Australian Atherosclerosis Society, Sydney, AU, October.
- 2008 Keynote Speaker, COST Action Committee (European Union), Meeting on Thermally Processed Foods: Possible Health Implications, Smolenice, Slovak Republic
- 2008-09 External Reviewer, Health Research Council of New Zealand
- 2009 Plenary Speaker, Annual Meeting of South Carolina Junior Academy of Science, Columbia, SC
- (2009) Member, External Review Group for evaluation of Challenge Grant applications, NIH

GRANT SUPPORT (Direct Costs only, since 1999)

- 1994-1999 NIH-AG-11472: "Lipoprotein Oxidation in Atherosclerosis and Aging," (PI: S. R. Thorpe, \$496,210). Role: Co-Principal Investigator
- 1994-1999 NIH-DK-19971: MERIT Award, "Glycation of Protein in Diabetes." (\$762,373). Role: Principal Investigator
- 1996-2001 NIH Program Project: Etiology of Cardiovascular Disease in Diabetes Mellitus. Role: Consultant and Co-Director of Analytical Core Laboratory (grant awarded to researchers at Medical University of South Carolina with sub-contract to our laboratory (total 5-year sub-contract direct costs, \$450,000)
- 1997-1998 Venture Fund, University of South Carolina: Purchase of Multi-Well ELISA Plate Reader (\$10,000). Role: Principal Investigator
- 1997-1999 Industrial Contract: BioStratum, Inc.: Evaluation of Pyridoxamine as an Inhibitor of Nephropathy in the Streptozotocin-induced Diabetic Rat. Role: Principal Investigator (\$120,000 Costs)
- 1997-1998 NSF Shared Instrumentation Grant: Upgrade of Data System for High Resolution Mass Spectrometer (\$64,000). Role: Principal Investigator
- 1998-2001 American Diabetes Association: Mechanism of AGE-induced Endothelial Barrier Dysfunction in Diabetes. Role: Assoc. Invest. PI: Dr. Matthew Wolf, Dept. Pharmacology & Physiology, USC School of Medicine (\$225,000)
- 1999-2001 Juvenile Diabetes Association: Effect of Antioxidants and ACE Inhibitors on Formation of AGEs and Development of Diabetic Complications. Role: Co-Investigator. PI: Dr. Suzanne R. Thorpe. (\$180,000)
- 1999-2002 NIH-DK-19971: MERIT Award Extension, "Glycation of Protein in Diabetes." (\$420,000). Role: Principal Investigator
- 1999-2004 Industrial Contract: BioStratum, Inc.: Evaluation of Pyridoxamine as an Inhibitor of Nephropathy in the Obese, Non-diabetic, Zucker Rat. Role: Principal Investigator (\$100,000)
- 2000-2003 Juvenile Diabetes Foundation: Role of Lipoxidation in the Pathogenesis of Diabetic Complications. Role: Principal Investigator (\$550,000)
- 2001 Purchase of Quadrupole-Time-of-Flight Mass Spectrometer, South Carolina Research Institute, National Institutes of Health, and other sources (\$250,000)
- 2001 Purchase of Micromass Quattro Liquid Chromatograph-Mass Spectrometer, Juvenile Diabetes Research Foundation and University of South Carolina (\$220,000)
- 2001 Sponsor for Dr. Andrzej Janusewski, Wroclaw, Poland, Fogarty International Program, Visiting Scholar Fellowship Grant
- 2001-2004 Leader, South Carolina Biomedical Research Infrastructure Network, NIH IDeA grant (total costs: \$8,300,000, including supplements in 2002 and 2003)
- 2002-2007 NIH-DK-19971: MERIT Award: "Glycation of Protein in Diabetes." (\$1,125,000). Role: Principal Investigator

- 2003-2004 SBIR Grant with Dr. Paul Voziyan, Vanderbilt University, for Application of Pyridoxamine for Treatment of Kidney Stones. \$10,000 (subcontract)
- 2003-2005 JDRF - 1-2002-812: Immune mechanisms of micro/macrovacular disease in Type 1 diabetes. PI: Dr. Maria Lopes-Virella, Medical University of South Carolina; subcontract Co-PI: Suzanne R. Thorpe; John W. Baynes, Consultant; \$164,607 total costs.
- 2004-2005 Leader, South Carolina Biomedical Research Infrastructure Network, NIH IDeA grant (\$250,000)
- 2004-2009 JDRF-4-2004-804: JDRF Center Grant: Reactive Oxygen Species and the Pathogenesis of Diabetic Complications. PI: Michael Brownlee, Albert Einstein College of Medicine, NY; subcontract to Suzanne R. Thorpe, Director, Analytical Biochemistry Core; John W. Baynes: Consultant; \$247,500, total costs.
- 2004-2005 STTR Grant with InLight Solutions/VeraLight: Non-invasive Skin Spectroscopy for Diabetes Screening (PI: Dr. Edward L Hull, InLight Solutions/VeraLight, Inc. Co-PI: John W. Baynes; subcontract: \$78,008.
- 2004-2009 Centers of Economic Excellence Program, sponsored by SC State Lottery Commission, Co-PI with Dr. Richard Schnellman, Medical University of South Carolina, \$6,000,000 for Endowed Chair in Drug Development
- 2005-2010 Leader, South Carolina IDeA Network for Biomedical Research Excellence (SC-INBRE) (\$12,500,000)
- 2007-2011 NIH-DK-19971-31-34: MERIT Award: Glycation of Protein in Diabetes. (\$1,480,000 Total Costs) Role: Principal Investigator
- 2008-2012 NIH-CA-121249-01: Cachexia in $Apc^{Min/+}$ mice: The role of IL-6. Role: Co-PI @ . PI: Dr. James A Carson (\$900,000 Direct Costs)

REFEREED PUBLICATIONS

1. Baynes, J.W., Hsu, A-F. and Heath, E.C. (1973) The role of mannosylphosphoryldihydro-polyisoprenol in the synthesis of mammalian glycoproteins. *J. Biol. Chem.* **248**:5693-5704.
2. Hsu, A-F., Baynes, J.W. and Heath, E.C. (1974) The role of dolichol-oligosaccharide as an intermediate in glycoprotein biosynthesis. *Proc. Natl. Acad. Sci. (USA)* **71**:2931-2935.
3. Baynes, J.W. and Wold, F. (1976) Effect of glycosylation on the *in vivo* circulating half-life of ribonuclease. *J. Biol. Chem.* **251**:6016-6024.
4. Brown, T.L., Henderson, L.A., Thorpe, S.R. and Baynes, J.W. (1978) The effect of mannose-terminal oligosaccharides on the survival of glycoproteins in the circulation. *Arch. Biochem. Biophys.* **188**:418-428.
5. Day, J.F., Thorpe, S.R. and Baynes, J.W. (1979) Nonenzymatically glucosylated albumin: *In vitro* preparation and isolation from normal human serum. *J. Biol. Chem.* **254**:595-597.
6. VanZile, J.A., Henderson, T.L., Baynes, J.W. and Thorpe, S.R. (1979) [³H]-Raffinose, a novel radioactive label for determining organ sites of catabolism of proteins in the circulation. *J. Biol. Chem.* **254**:3547-3553.
7. Day, J.F., Thornburg, R.W., Thorpe, S.R. and Baynes, J.W. (1979) Nonenzymatic glucosylation of rat albumin: studies *in vitro* and *in vivo*. *J. Biol. Chem.* **254**:9394-9400.
8. Guthrow, C.E., Morris, M.A., Day, J.F., Thorpe, S.R. and Baynes, J.W. (1979) Enhanced nonenzymatic glucosylation of human serum albumin in diabetes mellitus. *Proc. Natl. Acad. Sci (USA)* **76**:4258-4261.
9. McFarland, K.F., Catalano, E.W., Day, J.F., Thorpe, S.R. and Baynes, J.W. (1979) Nonenzymatic glucosylation of serum proteins in diabetes mellitus. *Diabetes* **28**:1011-1014.
10. Day, J.F., Ingebretsen, C.G., Ingebretsen, W.R., Baynes, J.W. and Thorpe, S.R. (1980) Nonenzymatic glucosylation of serum proteins and hemoglobin: response to changes in blood glucose levels in diabetic rats. *Diabetes* **29**:524-527.
11. Morrone, S., Penchev, P.G., Baynes, J.W. and Thorpe, S.R. (1981) Studies *in vivo* of the tissue uptake, cellular distribution and catabolic turnover of exogenous glucocerebrosidase in the rat. *Biochem. J.* **194**:733-742.
12. Baynes, J.W. and Thorpe, S.R. (1981) Identification of the sites of albumin catabolism in the rat. *Arch. Biochem. Biophys.* **206**:372-379.
13. Henderson, L.A., Baynes, J.W. and Thorpe, S.R. (1982) Identification of the sites of IgG catabolism in the rat. *Arch. Biochem. Biophys.* **215**:1-11.
14. Murtiashaw, M.H., Young, J.E., Strickland, A.L., McFarland, K.F., Thorpe, S.R. and Baynes, J.W. (1983) Measurement of nonenzymatically glucosylated serum protein by an improved thio-barbituric acid assay. *Clin. Chim. Acta* **130**:177-187.
15. Eble, A.S., Thorpe, S.R. and Baynes, J.W. (1983) Non-enzymatic glucosylation and glucose-dependent crosslinking of protein. *J. Biol. Chem.* **258**:9406-9412.
16. Rush, J.S., Thorpe, S.R. and Baynes, J.W. (1983) A rapid, micro-modification of the quantitative immunoprecipitation assay. *J. Immunol. Methods* **62**:247-255.

17. Murtiashaw, M.H., Thorpe, S.R. and Baynes, J.W. (1983) Determination of the specific activity of NaB³H₄. *Anal. Biochem.* **135**:443-446.
18. Neglia, C.I., Cohen, H.J., Garber, A.R., Ellis, P.D., Thorpe, S.R. and Baynes, J.W. (1983) NMR Investigation of nonenzymatic glucosylation of protein: model studies using RNase A. *J. Biol. Chem.* **258**:14279-14283.
19. Murtiashaw, M.H., Baynes, J.W. and Thorpe, S.R. (1983) Albumin catabolism in diabetic rats. *Arch. Biochem. Biophys.* **225**:256-262.
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PATENTS

6,730,686, to USCRF, May 4, 2004: Method for Inhibiting Oxidative Modification of Proteins

6,740,668, to USCRF, May 25, 2004: Method for Inhibiting Diabetic Complications

CONSULTING (2003-2009)

Amcyte, Inc.

BioStratum, Inc.

Clarus Ventures LLP

Coca-Cola Company

Corn Refiners Association

InLight Solutions / VeraLight, Inc.

Mallinckrodt-Baker, Inc.

SEMINARS [in addition to presentations at national and international meetings (2004-2009)]

<u>Institution</u>	<u>Location</u>	<u>Department</u>
Baker Heart Institute	Melbourne, AU	Diabetes Research
East Carolina University	Greenville, NC	Biochem. & Molec. Biol.
Nestle Research	Lausanne, SW	Food Science
Osaka University	Osaka, JP	Biochemistry
Pacific Northwest National Lab.	Richland, WA	Mass Spectrometry
Pennington Biomedical Rsch Ctr	Baton Rouge, LA	Physical Activity & Health
Queens University	Belfast, NI	Food Research
University College	Dublin, IE	Conway Institute
University of Groningen	Groningen, NL	Clin Chem & Lab Med
University of Maastricht	Maastricht, NL	Cardiovascular Institute
University of Melbourne	Melbourne, AUS	Medicine
University of Oklahoma	Oklahoma City, OK	Medicine & Biochemistry
University of South Carolina	School of Medicine	Basic Sciences
Western Carolina University	Culowhee, NC	Chemistry