

April 10, 2024

CURRICULUM VITAE

Robert John Smith

Place of Birth: Elyria, OH, USA

Education:

1969	B.A.	University of Pennsylvania (Biochemistry Major)
1971	B.M.S.	Dartmouth Medical School (with Honors)
1973	M.D.	Harvard Medical School

Postdoctoral Training:

Internship and Residency:

1973-1974	Intern in Medicine, Duke University Medical Center
1974-1975	Junior Assistant Resident, Internal Medicine, Duke University Medical Center

Fellowships:

Summer 1969	Research Associate in Biochemistry, Department of Nutrition and Food Science, Massachusetts Institute of Technology, Cambridge
Summer 1971	Research Associate in Endocrinology, Dartmouth Medical School, Hanover, NH
1972	AMA Goldberger Research Fellowship in Nutrition, Republic of Zaire (now Democratic Republic of the Congo)
1975-1977	Clinical Associate, Endocrine Section, Metabolism Branch, National Cancer Institute, Bethesda, MD
1977-1978	Investigator, Endocrine Section, Metabolism Branch, National Cancer Institute, Bethesda, MD
1979	Endocrine Clinical Fellow, Joslin Diabetes Center, Peter Bent Brigham Hospital, Boston, MA

Military Service:

1972-1999	U.S. Public Health Service, Surgeon (Lieutenant Commander) Active Duty 1972-1973, 1975-1978, Inactive Reserves 1978-1999
-----------	---

Licensure and Certification:

1977-1978	Virginia Medical License
1976-	Board Certification in Internal Medicine
1978-	Massachusetts Medical License (inactive status 2011-present)
1983-	Board Certification in Endocrinology and Metabolism
2001-	Rhode Island Medical License

Academic Appointments:

1978-1982	Instructor in Medicine, Harvard Medical School
1982-1990	Assistant Professor of Medicine, Harvard Medical School
1990-2000	Associate Professor of Medicine, Harvard Medical School
2000-2006	Adjunct Associate Professor of Medicine, Harvard Medical School
2000-2020	Professor of Medicine, Alpert Medical School of Brown University
2015-2020	Professor of Health Services, Policy and Practice, School of Public Health, Brown University
2020-	Professor of Medicine Emeritus, Alpert Medical School of Brown University

Hospital or Affiliated Institution Appointments:

1978-1981	Investigator, Joslin Research Laboratory
1981-2000	Senior Investigator, Joslin Research Laboratory
1978-1982	Junior Associate in Medicine, Brigham and Women's Hospital
1982-1999	Associate Physician, Brigham and Women's Hospital
1984-2000	Head of Metabolism Section, Joslin Research Laboratory
1985-2000	Associate Medical Staff, Joslin Clinic
1986-1997	Active Provisional Staff, Department of Medicine, New England Deaconess Hospital
1987-1999	Assistant Director of Research, Joslin Diabetes Center
1990-1991	Acting Director of Research, Joslin Diabetes Center
1995-2001	Medical Staff, Beth Israel-Deaconess Medical Center
1999-2000	Associate Director of Research, Joslin Diabetes Center
1999-2006	Consultant, Brigham and Women's Hospital
2000-2006	Consultant, Joslin Diabetes Center
2000-2011	Director of the Division of Endocrinology, Brown Medical School and the Lifespan Rhode Island Academic Medical Center (Rhode Island Hospital and the Miriam Hospital)
2000-2011	Founding Director, the Hallett Center for Diabetes and Endocrinology, Brown Medical School and Rhode Island Hospital
2001-2012	Medical Staff, Providence Veterans Administration Medical Center
2011-2020	Research Division Staff, Providence Veterans Administration Medical Center

2011-2020 Research Staff, Ocean State Research Institute, Providence
Veterans Administration Medical Center

Other Professional Positions:

1978-1979 Research Associate, Howard Hughes Medical Institute at Harvard
Medical School
1979-1986 Associate Investigator, Howard Hughes Medical Institute at
Harvard Medical School
Jan-Jun 2000 Visiting Professor, Department of Clinical Biochemistry,
University of Cambridge, United Kingdom
Jan-Jun 2000 By-Fellow, Churchill College, University of Cambridge, United
Kingdom

Hospital and Health Care Organization Service Responsibilities:

1982-1985 Diabetes Attending and Consultant, Brigham and Women's
Hospital
1986-1997 Attending Physician, Diabetes Treatment Unit, Joslin Diabetes
Center and New England Deaconess Hospital
1995-1997 Diabetes Attending and Consultant, New England Deaconess
Hospital
1997-2000 Endocrinology Attending and Consultant, Joslin Clinic and Beth
Israel-Deaconess Medical Center
2000-2011 Endocrinology Attending and Consultant, Rhode Island Hospital
and The Miriam Hospital
2001-2011 Medical Practice in Diabetes and Endocrinology, the Hallett
Center, Rhode Island Hospital
2001-2011 Endocrinology Attending and Consultant, Providence Veterans
Administration Hospital

Major Committee Assignments:

Affiliated Institution:

1981-1990 Safety and Facilities Management Committee, Professional
Research Staff Representative, Joslin Diabetes Center
1983-1984 Diabetes Task Force, Member, Brigham and Women's Hospital
1986-1990 Professional Advisory Council, Elected Research Staff
Representative, Joslin Diabetes Center
1986-1995 Committee on Professional Staff Evaluation, Alternate Member,
New England Deaconess Hospital
1988-1991 Board of Trustees, Elected Research Staff Representative, Joslin
Diabetes Center
1988-2000 Finance Committee, Professional Research Staff Representative,
Joslin Diabetes Center

1988-1990, 1996-1999 1990-2000	Joint Conference Committee, Elected Research Staff Representative, Joslin Diabetes Center NIH Diabetes and Endocrinology Research Center, Executive Board Member, Joslin Diabetes Center
1990-1991, 1996-2000 2000-2003	Senior Management Team, Professional Research Staff Representative, Joslin Diabetes Center Clinical Research Center Planning Committee, Lifespan Rhode Island Academic Medical Center
2000-2003	Department of Medicine Research Committee, Lifespan Rhode Island Academic Medical Center
2001-2003	Department of Medicine Website Committee, Lifespan Rhode Island Academic Medical Center
2002-2003	Director, Department of Medicine Research Committee, Lifespan Rhode Island Academic Medical Center
2002-2006	Curriculum Committee, Department of Medicine Internal Medicine Residency Program, Brown Medical School
2002-2006	Pharmaceutical Relationship Policy Committee, Department of Medicine, Brown Medical School
2003	Planning Committee, 11 th Annual Research Celebration, Lifespan Rhode Island Academic Medical Center
2003-2008	Internal Advisory Committee, COBRE Center for Cancer Research Development at Rhode Island Hospital
2003-2004	LCME Task Force and Institutional Setting Subcommittee, Brown Medical School
2003-2006	Brown University Ship Street Biomedical Research Building Committee
2004-2008 2005-2006	Brown University Medical Faculty Executive Committee Vice-President, Brown University Medical Faculty Executive Committee
2005-2006 2006-2007	Associate Dean for Science Action Group, Brown University Chair, Brown University Medical Faculty Executive Committee
2006-2009 2007-2008	Department of Medicine Faculty Promotions Committee Past-Chair, Executive Committee Member, Brown University Medical Faculty Executive Committee

National/International:

Multiple Years	Grant Reviewer: National Institutes of Health, Department of Agriculture, Veterans Administration, Medical Research Council (United Kingdom), other agencies
1993-2000	External Reviewer, John Sealy Memorial Endowment Fund for Biomedical Research, University of Texas, Galveston
1994-1997 1997-1999	Annual Meeting Steering Committee, The Endocrine Society Scientific Committee, 5th International Symposium on Insulin- Like Growth Factors

1999-2002	Co-Chair, Executive Committee and Local Organizing Committee, First Joint Meeting of the Growth Hormone Research Society and The International Society for IGF Research
2001-2004	Special Programs Committee, The Endocrine Society
2003-2004	Planning Committee for NIH Symposium on Insulin Therapy in Critical Illness
2004-2006	Chair, Clinical Endocrinology Update Committee, The Endocrine Society
2007-2009	Planning Committee, Fifth Joint Meeting of the Growth Hormone Research Society and The International Society for IGF Research
2009-2010	Co-Chair, Joint Endocrine Society and American Diabetes Association Working Group on Individualizing Therapy in Type 2 Diabetes
2009-2011	Co-Chair, Gordon Research Conference on Insulin-like Growth Factors
2010-2011	Planning Committee, Joint Endocrine Society, American Diabetes Association, and European Association for the Study of Diabetes Conference on Individualizing Approaches to Obesity and Type 2 Diabetes
2011-2013	Chair, Gordon Research Conference on Insulin-like Growth Factors
2011-2012	Ad Hoc Member, FDA Endocrinologic and Metabolic Drugs Advisory Committee
2012-2013	Planning Committee, International Conference on Obesity, Diabetes and Cancer: The Role of Insulin and Insulin-like Growth Factors
2012-2016	Standing Member, U.S. FDA Endocrinologic and Metabolic Drugs Advisory Committee
2013-2014	Ad Hoc Chair, U.S. FDA Endocrinologic and Metabolic Drugs Advisory Committee
2014-2016	Chair, U.S. FDA Endocrinologic and Metabolic Drugs Advisory Committee
2016	Ad Hoc Member, FDA Bone, Reproductive and Urologic Drugs Advisory Committee
2017	Ad Hoc Member, FDA Pharmacy Compounding Advisory Committee

Major Administrative Responsibilities:

1981-1983	Director, Longwood Area Diabetes/Metabolism Seminar Series
1984-1990	Chairman, Animal Care Committee, Joslin Diabetes Center
1984-2000	Head of Metabolism Section, Joslin Diabetes Center
1986-1990	Coordinator, Fifth Floor Renovation, Joslin Diabetes Center
1986-1995	Nuclear Regulatory Commission Institutional License Holder and Director of Radiation Program, Joslin Research Laboratory
1987-2000	Assistant Research Director, Joslin Diabetes Center

1988	Co-Chair, International Symposium on Insulin Action, Joslin Diabetes Center
1990-1991	Acting Research Director, Joslin Diabetes Center
1996-1997	Director, Enrichment Program, Joslin Diabetes Center
1997-1998	Co-Chair, Scientific Symposium Commemorating 100 th Anniversary of Joslin Diabetes Center
1999-2000	Associate Research Director, Joslin Diabetes Center
2000-2011	Director, Division of Endocrinology, Brown University School of Medicine and the Lifespan Rhode Island Academic Medical Center (Rhode Island Hospital and the Miriam Hospital)
2000-2011	Director of the Hallett Center for Diabetes and Endocrinology, Brown University School of Medicine and Rhode Island Hospital

Professional Societies:

1978-2011	American Federation for Clinical Research, Member
1979-1990	Tissue Culture Association, Member
1981-2014	American Association for the Advancement of Science, Member
1982-2011	American Society of Biological Chemistry and Molecular Biology, Member
1982-	American Diabetes Association, Member
1986-	The Endocrine Society, Member (1994-1997, Annual Meeting Steering Committee) (2001-2004, Special Programs Committee) (2004-2007, Chair, Clinical Endocrinology Update)
1988-2005	American Society for Parenteral and Enteral Nutrition, Member
1988-2012	American Society for Clinical Investigation, Member
1995-	International Society for Insulin-like Growth Factor Research, Founding Member
1999-2001	Growth Hormone Research Society, Member
2008-2009	American Society of Human Genetics, Member

Community Service Related to Professional Work:

1990-1996	Board of Directors, The Brookline Foundation
1991-1993	President, The Brookline Foundation
1993-1995	Chairman, Board of Directors, The Brookline Foundation
1995-1997	Director, National Youth Leadership Forum Program at Joslin Diabetes Center
2001-2003	Board of Directors, New England Chapter-Rhode Island Branch, Juvenile Diabetes Research Foundation International
2002-2019	Diabetes Professional Advisory Council, Rhode Island Department of Health
2004-2007	Providence Professional Advisory Council, American Diabetes Association
2004-2019	Chair, Diabetes Professional Advisory Council, Rhode Island Department of Health

2005-2009-	Medical Research Grant Committee, the Rhode Island Foundation Chair, Medical Research Grant Committee, the Rhode Island Foundation
2010	Co-Chair, TCOYD (Taking Control of Your Diabetes) Conference and Health Fair, Providence, RI
2012	Planning Committee, World Diabetes Day, Rhode Island Department of Health

Editorial Boards:

1993-1996	Endocrinology
1994-2005	Journal of Parenteral and Enteral Nutrition
1999-2005	Co-Editor, Joslin's Diabetes Mellitus
2001-2006	Journal of Biological Chemistry
2001-2011	Journal of Growth Hormone and IGF Research
2004-2007	Endocrinology
2004-	UpToDate
2007-	Acta Diabetologica
2008	Editor, Metabolic Disease Section, Andreoli and Carpenter's Cecil Textbook of Medicine, 8 th Edition
2011-2014	Endocrinology
2011-	Associate Editor, Journal of Growth Hormone and IGF Research
2012-	Journal of Hepatobiliary Surgery and Nutrition

Awards and Honors:

1971	B.M.S. with Honors from Dartmouth Medical School
1972	AMA Goldberger Fellowship Research Award
1972-1978	NIH Costep Fellowship Award
1990	Elected to American Society for Clinical Investigation
1995	Harvard Division of Medical Ethics Responsible Conduct of Research Award
1999	Outstanding Science Award of the 9 th Beijing International Symposium on Parenteral and Enteral Nutrition (oral presentation by postdoctoral fellow Yilei Mao).
2007	Dean's Teaching Excellence Award, The Warren Alpert Medical School of Brown University
2007	Taft Honorary Lectureship of the Endocrine Society of Australia
2007	Honorary Professor, Luzhou Medical University, Luzhou, China
2007-2010	Honorary President of The Affiliated Hospital of Luzhou Medical University, Luzhou, China (October 2007-September 2010)
2009	Certificate of Recognition for Exemplary Teaching, Endocrine Sciences, Alpert Medical School of Brown University
2015	Master of Arts Ad Eundem, Brown University

Publications: (Peer-Reviewed)

1. Downing SJ, Phang JM, Kowaloff EM, Smith RJ. Proline oxidase in cultured mammalian cells. *J Cell Physiol* 1977; 91:369-376.
2. Smith RJ, Downing SJ, Phang JM. Enzymatic synthesis and purification of L-pyrroline-5-carboxylic acid. *Anal Biochem* 1977; 83:170-176.
3. Smith RJ, Phang JM. Proline metabolism in cartilage: The importance of proline biosynthesis. *Metabolism* 1978; 27:685-694.
4. Smith RJ, Phang JM. The importance of ornithine as a precursor for proline in mammalian cells. *J Cell Physiol* 1979; 87:475-482.
5. Smith RJ, Reddi AH, Phang JM. Changes in proline synthetic and degradative enzymes during matrix-induced cartilage and bone formation. *Conn Tissue Res* 1979; 27:275-280.
6. Phang JM, Downing SJ, Yeh GC, Smith RJ, Williams JA. Stimulation of the hexose monophosphate pentose pathway by pyrroline-5-carboxylate in human fibroblasts. *Biochem Biophys Res Commun* 1979; 87:363-370.
7. Smith RJ, Phang JM, Downing SJ, Lodato RF, Aoki TT. Pyrroline-5-carboxylate synthase activity in mammalian cells. *Proc Natl Acad Sci* 1980; 77:5221-5225.
8. Smith RJ, Lodato RF, Valle D, Kazakis A. Mutant Chinese hamster fibroblasts resistant to azetidine carboxylic acid: two distinct mechanisms. *Biochem Biophys Res Commun* 1981; 99:789-795.
9. Lodato RF, Smith RJ, Valle D, Phang JM, Aoki TT. Regulation of proline biosynthesis: the inhibition of pyrroline-5-carboxylate synthase activity by ornithine. *Metabolism* 1981; 30:908-913.
10. Phang JM, Downing SJ, Yeh GC, Smith RJ, Williams JA, Hagedorn CA. Stimulation of the hexosemonophosphate-pentose pathway by pyrroline-5-carboxylate in cultured cells. *J Cell Physiol* 1982; 110:255-261.
11. Smith RJ, Koenig RJ, Binnerts A, Soeldner JS, Aoki TT. Regulation of hemoglobin A_{1c} formation in human erythrocytes in vitro. *J Clin Invest* 1982; 69:1164-1168.
12. Buchanan JM, Smith ML, Smith RJ. Regulation of nucleotide and pentose synthesis in resting and stimulated 3T6 fibroblasts. *Adv Enz Reg* 1982; 20:135-152.
13. Moore TJ, Peterson LM, Harrington DP, Smith RJ. Successful arterial embolization of an insulinoma. *JAMA* 1982; 248:1353-1355.

14. Kapadia CR, Muhlbacher F, Smith RJ, Wilmore DW. Alterations in glutamine metabolism in response to operative stress and food deprivation. *Surg Forum* 1982; 33:19-21.
15. Souba WW, Kapadia CR, Smith RJ, Wilmore DW. Glucocorticoids alter amino acid metabolism in visceral organs. *Surg Forum* 1983; 34:74-77.
16. Muhlbacher F, Kapadia CR, Colpoys MF, Smith RJ, Wilmore DW. Effects of glucocorticoids on glutamine metabolism in skeletal muscle. *Am J Physiol* 1984; 247:E75-E83.
17. Smith RJ. A radioisotopic assay for pyrroline-5-carboxylate synthase activity. *Enzyme* 1984; 31:115-121.
18. Lodato RF, Smith RJ, Valle DL, Crane K. Mutant cell lines resistant to azetidine-2-carboxylic acid: Alterations in the synthesis of proline from glutamic acid. *J Cell Physiol* 1984; 119:137-143.
19. Smith RJ, Larson S, Stred SE, Durschlag RP. Regulation of glutamine synthetase and glutaminase activities in cultured skeletal muscle cells. *J Cell Physiol* 1984; 120:197-203.
20. Johnson DJ, Kapadia CR, Jiang ZM, Colpoys MF, Smith RJ, Wilmore DW. Branched-chain amino acid supplementation fails to reduce posttraumatic protein catabolism. *Surg Forum* 1984; 35:102-105.
21. Kapadia CR, Colpoys MF, Jiang ZM, Johnson DJ, Smith RJ, Wilmore DW. Maintenance of skeletal muscle intracellular glutamine during standard surgical trauma. *J Parent Ent Nutr* 1985; 9:583-589.
22. Souba WW, Smith RJ, Wilmore DW. Glutamine metabolism by the intestinal tract. *J Parent Ent Nutr* 1985; 9:608-617.
23. Hulton N, Johnson DJ, Smith RJ, Wilmore DW. Hormonal blockade modifies post-traumatic protein catabolism. *J Surg Res* 1985; 39:310-315.
24. Souba WW, Smith RJ, Wilmore DW. Effects of glucocorticoids on glutamine metabolism in visceral organs. *Metabolism* 1985; 34:450-456.
25. Smith RJ, Panico KA. Automated analysis of o-phthalaldehyde derivatives of amino acids in physiological fluids by reverse phase high performance liquid chromatography. *J Liq Chromat* 1985; 8:1783-1795.
26. Beguinot F, Kahn CR, Moses AC, Smith RJ. Distinct biologically active receptors for insulin, insulin-like growth factor I and insulin-like growth factor II in cultured skeletal muscle cells. *J Biol Chem* 1985; 260:15892-15898.

27. Durschlag RP, Smith RJ. Regulation of glutamine production by skeletal muscle cells in culture. *Am J Physiol* 1985; 248:C442-C448.
28. Koenig RJ, Smith RJ. L6 cells as a tissue culture model for thyroid hormone effects on skeletal muscle metabolism. *J Clin Invest* 1985; 76:878-881.
29. Johnson DJ, Pressler VM, Colpoys MF, Smith RJ, Wilmore DW. Insulin-ketone interaction: A possible mechanism for post-injury branched-chain amino acid anticatabolic properties. *Surg Forum* 1985; 36:54-56.
30. Johnson DJ, Jiang ZM, Colpoys MF, Kapadia CR, Smith RJ, Wilmore DW. Glutamine infusion supports plasma amino acid metabolism during simulated stress. *Current Surgery* 1986; 43:31-34.
31. Johnson DJ, Jiang ZM, Colpoys MF, Kapadia CR, Smith RJ, Wilmore DW. Branched chain amino acid uptake and muscle free amino acid concentrations predict postoperative muscle nitrogen balance. *Ann Surg* 1986; 204:513-523.
32. Johnson DJ, Brooks DC, Pressler VM, Hulton NR, Colpoys MF, Smith RJ, Wilmore DW. Hypothermic anesthesia attenuates postoperative proteolysis. *Ann Surg* 1986; 204:419-429.
33. Smith RJ. The role of skeletal muscle in interorgan amino acid exchange. *Fed Proc* 1986; 45:2172-2176.
34. Beguinot F, Kahn CR, Moses AC, Smith RJ. The development of insulin receptors and responsiveness is an early marker of differentiation in the muscle cell line L6. *Endocrinology* 1986; 18:446-455.
35. O'Dwyer ST, Hwang TL, Smith RJ, Wilmore DW. Preservation of small bowel mucosa using glutamine-enriched parenteral nutrition. *Surg Forum* 1986; 37:56-58.
36. Koltun WA, Madara JL, Smith RJ, Kirkman RJ. Metabolic aspects of small bowel transplantation in inbred rats. *J Surg Res* 1987; 42:341-347.
37. Wang PH, Smith RJ. Augmentation of the effects of insulin and insulin-like growth factors I and II on glucose uptake in cultured skeletal muscle cells by sulfonylureas. *Diabetologia* 1987; 30:797-803.
38. Jacobs DO, Evans DA, O'Dwyer ST, Smith RJ, Wilmore DW. Disparate effects of 5-fluorouracil on the ileum and colon of enterally fed rats with protection by dietary glutamine. *Surg Forum* 1987; 38:45- 47.

39. Jacobs DO, Evans DA, Mealy K, O'Dwyer ST, Smith RJ, Wilmore DW. Combined effects of glutamine and epidermal growth factor on the rat intestine. *Surgery* 1988; 104:358-364.
40. Ziegler TR, Smith RJ, O'Dwyer ST, Demling RH, Wilmore DW. Increased intestinal permeability associated with infection in burn patients. *Arch Surg* 1988; 123:1313-1319.
41. Manson JM, Smith RJ, Wilmore DW. Growth hormone stimulates protein synthesis during hypocaloric parenteral nutrition: role of hormonal-substrate environment. *Ann Surg* 1988; 208:136-142.
42. Beguinot F, Smith RJ, Kahn CR, Maron R, Moses AC, White MF. Phosphorylation of the insulin-like growth factor I receptor by the insulin receptor tyrosine kinase in intact cultured skeletal muscle cells. *Biochemistry* 1988; 27:3222-3228.
43. O'Dwyer ST, Michie HM, Ziegler TR, Revhaug A, Smith RJ, Wilmore DW. A single dose of endotoxin alters intestinal permeability in healthy humans. *Arch Surg* 1988; 123:1459-1464.
44. Wang XD, Jacobs DO, O'Dwyer ST, Smith RJ, Wilmore DW. Glutamine-enriched parenteral nutrition prevents mucosal atrophy following massive small bowel resection. *Surg Forum* 1988; 39:44-46.
45. Bessey PQ, Jiang ZM, Johnson DJ, Smith RJ, Wilmore DW. Posttraumatic skeletal muscle proteolysis: The role of the hormonal environment. *World J Surg* 1989; 13:1-7.
46. O'Dwyer ST, Smith RJ, Hwang TL, Wilmore DW. Maintenance of small bowel mucosa with glutamine enriched parenteral nutrition. *J Parent Ent Nutr* 1989; 13:579-585.
47. Ferrari-Baliviera E, Mealy K, Smith RJ, Wilmore DW. Tumor necrosis factor induces adult respiratory distress syndrome. *Arch Surg* 1989; 124:1400-1405.
48. Condorelli G, Formisano P, Villone G, Smith RJ, Beguinot F. Insulin and insulin-like growth factor I (IGF I) stimulate phosphorylation of a Mr 175,000 cytoskeleton-associated protein in intact FRTL5 cells. *J Biol Chem* 1989; 264:12633-12638.
49. Alexandrides T, Moses AC, Smith RJ. Developmental expression of receptors for insulin, insulin-like growth factor I (IGF-I) and IGF-II in rat skeletal muscle. *Endocrinology* 1989; 124:1064-1076.
50. Beguinot F, Kahn CR, Moses AC, White MF, Smith RJ. Differentiation-dependent phosphorylation of a 175,000 molecular weight protein in response to insulin and insulin-like growth factor-I in L6 skeletal muscle cells. *Endocrinology* 1989; 125:1599-1605.

51. Wang, PH, Moller D, Flier JS, Nayak RC, Smith RJ. Coordinate regulation of glucose transporter function, number, and gene expression by insulin and sulfonylureas in L6 rat skeletal muscle cells. *J Clin Invest* 1989; 84:62-67.
52. Alexandrides TK, Smith RJ. A novel fetal IGF I receptor: Mechanism for increased IGF I and insulin-stimulated tyrosine kinase activity in fetal muscle. *J Biol Chem* 1989; 264:12922-12930.
53. Ziegler TR, Smith RJ, Jacobs DO, Helton WS, O'Dwyer ST, Wang XD, Wilmore DW. Glutamine metabolism and intestinal failure. *Korean J Nutr* 1989; 22:1017-1020.
54. Lowe DK, Benfell K, Smith RJ, Jacobs DO, Murawski B, Ziegler TR, Wilmore DW. Glutamine-enriched parenteral nutrition is safe for normal humans. *Surg Forum* 1989; 40:9-11.
55. Helton WS, Smith RJ, Rounds J, Wilmore DW. Glutamine prevents pancreatic atrophy and fatty liver during elemental feeding. *J Surg Res* 1990; 48:297-303.
56. Helton S, Jacobs DO, Bonner-Weir S, Bueno R, Smith RJ, Wilmore DW. Effects of glutamine-enriched parenteral nutrition on the exocrine pancreas. *J Parent Enter Nutr* 1990; 14:344-352.
57. Lowe DK, Benfell K, Smith RJ, Jacobs DO, Murawski B, Ziegler TR, Wilmore DW. The safety of glutamine-enriched parenteral nutrient solutions in humans. *Am J Clin Nutr* 1990; 52:1101-1106.
58. Ziegler TR, Benfell K, Smith RJ, Young LS, Brown E, Ferrari-Baliviera E, Lowe DK, Wilmore DW. Safety and metabolic effects of L-glutamine administration in humans. *J Parent Ent Nutr* 1990; 14:137S-146S.
59. Scheltinga M, Young L, Benfell K, Bye R, Ziegler TR, Santos A, Smith RJ, Antin J, Schloerb P, Wilmore DW. Glutamine-enriched intravenous feeding attenuates fluid expansion following a standard stress. *Ann Surg* 1991; 214:385-395.
60. Goodyear LJ, Hirshman MF, Smith RJ, Horton ES. Glucose transporter number, activity, and isoform content in plasma membranes of red and white skeletal muscle. *Am J Physiol* 1991; 261:E556-E561.
61. MacDonald RS, Steel-Goodwin L, Smith RJ. The influence of dietary fiber on insulin receptors in rat intestinal mucosa. *Ann Nutr Metab* 1991; 35:328-338.
62. Giorgino F, Chen JH, Smith RJ. Changes in tyrosine phosphorylation of insulin receptors and a 170,000 molecular weight nonreceptor protein in vivo in skeletal muscle of streptozotocin-induced diabetic rats: effects of insulin and glucose. *Endocrinology* 1992; 130:1433-1444.

63. Ziegler TR, Young LS, Benfell K, Scheltinga M, Hortos K, Bye R, Morrow FD, Jacobs DO, Smith RJ, Antin JH, Wilmore DW. Clinical and metabolic efficacy of glutamine-supplemented parenteral nutrition following bone marrow transplantation. *Ann Int Med* 1992; 116:821-828.
64. Abbott AM, Bueno R, Pedrini MT, Murray JM, Smith RJ. Insulin-like growth factor I receptor gene structure. *J Biol Chem* 1992; 267:10759-10763.
65. Giorgino F, Almahfouz A, Smith RJ. La fosforilazione in vivo del recettore insulinico e del suo principale substrato cellulare (IRS-1) e alterata in modelli animali di diabete mellito: Il ruolo regolatorio della insulinemia. *Il Diabete* 1992; 4 (Suppl 1):153-156.
66. Giorgino F, Almahfouz A, Goodyear LJ, Smith RJ. Glucocorticoid regulation of insulin receptor and substrate IRS-1 tyrosine phosphorylation in rat skeletal muscle in vivo. *J Clin Invest* 1993; 91:2020-2030.
67. Koltun WA, Smith RJ, Loehner D, Durdey P, Coller JA, Murray JJ, Roberts PL, Veidenheimer MC, Schoetz DJ. Alteration in intestinal permeability after intestinal ileal pouch-anal anastomosis. *Dis Colon Rec* 1993; 36:922-926.
68. Alexandrides TK, Chen JH, Bueno R, Giorgino F, Smith RJ. Evidence for two insulin-like growth factor I receptors with distinct primary structure that are differentially expressed during development. *Regul Pept* 1993; 48:279-290.
69. Mantell MP, Almahfouz A, Ziegler TR, Smith RJ, Rombeau JL. Regulation of the intestinal insulin-like growth factor-I (IGF-I) action pathway after massive small bowel resection and IGF-I administration. *Surg Forum* 1993; 44:1-4.
70. Giorgino F, Almahfouz A, Smith RJ. Fosforilazione in tirosina del recettore insulinico e del substrato cellulare IRS-1 "in vivo": Alterazioni in stati di insulino-resistenza. *Giornale Ital di Diabetologia* 1993; 13:251-258.
71. Condorelli G, Bueno R, Smith RJ. Two alternatively spliced forms of the human insulin-like growth factor I receptor have distinct biological activities and internalization kinetics. *J Biol Chem* 1994; 269:8510-8516.
72. Pedrini MT, Giorgino F, Smith RJ. cDNA cloning of the rat IGF I receptor: Structural analysis of rat and human IGF I and insulin receptors reveals differences in alternative splicing and receptor-specific domain conservation. *Biochem Biophys Res Commun* 1994; 202:1038-1046.
73. Condorelli G, Tocchetti GC, Androozzi F, Caiola A, Crescenzi E, Beguinot F, Smith RJ. Functional importance of insulin-like growth factor I receptor COOH-terminal region tyrosine phosphorylation sites. *Frontiers in Endocrinol* 1994; 9:373-376.

74. Giorgino F, Smith RJ. Insulin-like growth factor-I (IGF-I) action and signal transduction pathways in skeletal muscle cells. *Frontiers in Endocrinol* 1994; 9:365-371.
75. Zhang W, Frankel WL, Adamson WT, Roth JA, Mantell MP, Almahfouz A, Bain A, Ziegler TR, Smith RJ, Rombeau JL. Insulin-like growth factor-I (IGF-I) improves mucosal structure and function in transplanted rat small intestine. *Transplantation* 1995; 59:755-761.
76. Goodyear LJ, Giorgino F, Sherman LA, Carey J, Smith RJ, Dohm GL. Insulin receptor phosphorylation, insulin receptor substrate-1 phosphorylation, and phosphatidylinositol 3-kinase activity are decreased in intact skeletal muscle strips from obese subjects. *J Clin Invest* 1995; 95:2195-2204.
77. Goodyear LJ, Giorgino F, Balon TW, Condorelli G, Smith RJ. Effects of contractile activity on tyrosine phosphoproteins and phosphatidylinositol 3-kinase activity in rat skeletal muscle. *Am J Physiol* 1995; 268:E987-E995.
78. Giorgino F, Smith RJ. Dexamethasone enhances insulin-like growth factor-I effects on skeletal muscle cell proliferation: Role of specific intracellular signaling pathways. *J Clin Invest* 1995; 96:1473-1483.
79. Ziegler TR, Almahfouz A, Pedrini MT, Smith RJ. A comparison of rat small intestinal insulin and IGF receptors during fasting and refeeding. *Endocrinology* 1995; 136:5148-5154.
80. Mantell MP, Almahfouz A, Ziegler TR, Roth JA, Zhang W, Adamson WT, Frankel W, Bain A, Chow JC, Smith RJ, Rombeau JL. Resection-induced colonic adaptation is augmented by IGF-I and is associated with upregulation of colonic IGF-I mRNA. *Am J Physiol* 1995; 269:G974-G980.
81. Adamson WT, Lew JJ, Smith RJ, Rombeau JL. Intraluminal delivery of insulin-like growth factor I augments post-resection intestinal adaptation while avoiding systemic absorption. *Surg Forum* 1995; 46:184-187.
82. Napoli R, Cittadini A, Chow JC, Hirshman MF, Smith RJ, Douglas PS, Horton ES. Chronic growth hormone treatment in normal rats reduces post-prandial skeletal muscle plasma membrane GLUT1 content, but not glucose transport or GLUT4 expression and localization. *Biochem J* 1996; 315:959-963.
83. Hansen H, Svensson U, Zhu J, Laviola L, Giorgino F, Wolf G, Smith RJ, Riedel H. Interaction between the Grb10 SH2 domain and the insulin receptor carboxyl terminus. *J Biol Chem* 1996; 271:8882-8886.
84. Chow JC, Ling PR, Qu Z, Laviola L, Ciccarone A, Bistrian BR, Smith RJ. Growth hormone stimulates tyrosine phosphorylation of JAK2 and STAT5, but not IRS-1 or SHC

- proteins in liver and skeletal muscle of normal rats in vivo. *Endocrinology* 1996; 137: 2880-2886.
85. Lew JI, Zhang W, Koide S, Smith RJ, Rombeau JL. Glutamine improves cold-preserved small bowel graft structure and function following ischemia and reperfusion. *Transplantation Proc* 1996; 28:2605-2606.
 86. Qu Z, Ling PR, Chow JC, Burke PA, Smith RJ, Bistrrian BR. Determinants of plasma levels of insulin-like growth factor-1 and albumin and their hepatic mRNAs: The role of dietary protein content and tumor necrosis factor in malnourished rats. *Metabolism* 1996; 45:1273-1278.
 87. Ziegler TR, Mantell MP, Almahfouz A, Chow JC, Rombeau JL, Smith RJ. Gut adaptation and the insulin-like growth factor system: Regulation by glutamine and IGF-I administration. *Am J Physiol* 1996; 271:G866-G875.
 88. Cittadini A, Grossman JD, Napoli R, Katz SE, Strömer H, Smith RJ, Clark R, Morgan JP, Douglas PS. Growth hormone attenuates early left ventricular remodeling and improves cardiac function in rats with large myocardial infarction. *J Am Coll Cardiol* 1997; 29:1109-1116.
 89. Laviola L, Giorgino F, Chow JC, Baquero JA, Hansen H, Ooi J, Zhu J, Riedel H, Smith RJ. The adapter protein Grb10 associates preferentially with the insulin receptor as compared with the IGF-I receptor in mouse fibroblasts. *J Clin Invest* 1997; 99:830-837.
 90. Giorgino F, Pedrini MT, Matera L, Smith RJ. Specific increase in p85 α expression in response to dexamethasone is associated with inhibition of insulin-like growth factor-I stimulated phosphatidylinositol 3-kinase activity in cultured muscle cells. *J Biol Chem* 1997; 272:7455-7463.
 91. Qu Z, Chow JC, Ling PR, Ziegler TR, Bistrrian BR, Smith RJ. Tissue-specific effects of chronic dietary protein restriction and gastrostomy on the insulin-like growth factor-I pathway in the liver and colon of adult rats. *Metabolism* 1997; 46:691-697.
 92. Porch JV, Jain K, Reilly A, Valdez C, Mazariegos M, Ziegler TR, Solomons N, Smith RJ. Relationships between physical activity, IGF-I concentrations, and body composition in elderly Guatemalan females. *Am J Clin Nutr* 1997; 66:874-879.
 93. Chow JC, Condorelli G, Smith RJ. Insulin-like growth factor-I receptor internalization regulates signaling via the Shc/MAP kinase pathway, but not the insulin receptor substrate-1 pathway. *J Biol Chem* 1998; 273:4672-4680.
 94. Qu Z, Ling PR, Chow JC, Smith RJ, Bistrrian BR. Effects of dietary protein and tumor necrosis factor on components of the insulin-like growth factor-1 pathway in the colon and small intestine in protein-depleted rats. *Metabolism* 1998; 47:345-350.

95. Ziegler TR, Mantell MP, Chow JC, Rombeau JL, Smith RJ. Intestinal adaptation after partial small intestinal resection: Differential changes in growth and IGF system mRNAs in jejunum vs. ileum. *Endocrinology* 1998; 139:3119-3126.
96. McCowen KC, Chow JC, Smith RJ. Leptin signaling in the hypothalamus of normal rats in vivo. *Endocrinology* 1998; 139:4442-4447.
97. Wang PH, Almahfouz A, Giorgino F, McCowen KC, Smith RJ. In vivo insulin signaling in the myocardium of streptozotocin-diabetic rats: Opposite effects of diabetes on insulin stimulation of glycogen synthase and c-fos. *Endocrinology* 1999; 140:1141-1150.
98. Giorgino F, Logoluso F, Davalli AM, Napoli R, Laviola L, Hirshman MF, Horton ES, Weir GC, Smith RJ. Islet transplantation restores normal levels of insulin receptor and substrate tyrosine phosphorylation and phosphatidylinositol 3-kinase activity in skeletal muscle and myocardium of streptozocin diabetic rats. *Diabetes* 1999; 48:801-812 .
99. Mao Y, Ling PR, Fitzgibbons TP, McCowen KC, Frick GP, Bistrrian BR, Smith RJ. Endotoxin-induced inhibition of growth hormone receptor signaling in rat liver in vivo. *Endocrinology* 1999; 140:5505-5515.
100. Giorgino F, de Robertis O, Laviola L, Montrone C, Perrini S, McCowen KC, Smith RJ. The sentrin-conjugating enzyme mUbc9 interacts with GLUT4 and GLUT1 glucose transporters and regulates transporter levels in skeletal muscle cells. *Proc Natl Acad Sci* 2000; 97:1125-1130.
101. Rasmussen SK, Lautier C, Hansen L, Echwald SM, Hansen T, Ekstrom CT, Urhammer S, Borch-Johnsen K, Grigorescu F, Smith RJ, Pedersen O. Studies of the variability of the genes encoding the IGF-1 receptor and its ligand in relation to type 2 diabetes mellitus. *J Clin Endocrinol Metab* 2000; 85:1606-1610.
102. Yoshihashi H, Maeyama K, Kosaki R, Ogata T, Tsukahara M, Goto Y, Hata J, Matsuo N, Smith RJ, Kosaki K. Imprinting of human GRB10 and its mutations in two patients with Russell-Silver syndrome. *Am J Hum Genet* 2000; 67:476-482.
103. McCowen KC, Ling PR, Ciccarone A, Mao Y, Chow JC, Bistrrian, BR, Smith RJ. Sustained endotoxemia leads to marked down-regulation of early steps in the insulin signaling cascade. *Crit Care Med* 2001; 29: 839-846.
104. Ling PR, Smith RJ, Mueller C, Mao Y, Bistrrian BR. Inhibition of interleukin-6-activated janus kinase/signal transducers and activators of signaling but not mitogen-activated protein kinase signaling in liver of endotoxin-treated rats. *Crit Care Med* 2002; 30: 202-211.
105. Giovannone, B, Lee E, Laviola L, Giorgino F, Cleveland, KA, Smith RJ. Two novel proteins that are linked to insulin-like growth factor-I (IGF-I) receptors by the Grb10 adapter and modulate IGF-I signaling. *J Biol Chem* 2003; 278: 31564-31573.

106. Ling PR, Mueller C, Smith RJ, Bistrrian, BR. Hyperglycemia induced by glucose infusion causes hepatic oxidative stress and systemic inflammation, but not STAT3 or MAP kinase activation in liver in rats. *Metabolism* 2003; 52: 868-874.
107. Abuzzahab MJ, Schneider A, Goddard A, Grigorescu F, Lautier C, Keller E, Kiess W, Klammt J, Kratzsch J, Osgood D, Pfaffle R, Ralle K, Seidel B, Smith RJ, Chernausek SD. IGF-I receptor mutations resulting in intrauterine and postnatal growth retardation. *N Engl J Med* 2003; 349: 2211-2222.
108. Fanning PJ, Emkey G, Smith RJ, Grodzinsky AJ, Szasz N, Trippel SB. Mechanical regulation of mitogen-activated protein kinase signaling in articular cartilage. *J Biol Chem* 2003; 278: 50940-50948.
109. Ling PR, Smith RJ, Kie S, Boyce P, Bistrrian B. Effects of protein malnutrition on IL-6-mediated signaling in the liver and the systemic acute response in rats. *Am J Physiol* 2004; 287: R801-R808.
110. Sciamanna CN, Gifford DR, Smith RJ. Design and acceptability of patient-oriented computerized diabetes care reminders for use at the point of care. *Med Inform Internet Med* 2004; 29: 157-168.
111. Mori K, Giovannone B, Smith RJ. Distinct Grb10 Domain requirements for effects on glucose uptake and insulin signaling. *Mol Cell Endocrinol* 2005; 230: 39-50.
112. Ling PR, Smith RJ, Bistrrian BR. Hyperglycemia enhances the cytokine production and oxidative responses to a low but not high dose of endotoxin in rats. *Crit Care Med.* 2005; 33:1084-1089.
113. Dufresne AM, Smith RJ. The adapter protein GRB10 is an endogenous negative regulator of insulin-like growth factor signaling. *Endocrinology* 2005; 146: 4399-4409.
114. Raile K, Klammt J, Schneider A, Keller A, Laue S, Smith R, Pfaffle R, Kratzsch J, Keller E, Kiess W. Clinical and functional characteristics of the human Arg59Ter insulin-like growth factor 1 receptor (IGF1R) mutation: implications for a gene dosage effect of the human IGF1R. *J Clin Endocrinol Metab* 2006; 91: 2264-2271.
115. Ling PR, Smith RJ, Bistrrian BR. Acute effects of hyperglycemia and hyperinsulinemia on hepatic oxidative stress and the systemic inflammatory response in rats. *Crit Care Med* 2007; 35: 555-600.
116. Lautier C, Goldwurm S, Durr A, Giovannone B, Tsiaras WG, Pezzoli G, Brice A, Smith RJ. Mutations of the GIGYF2 (TNRC15) gene at the PARK11 locus in familial Parkinson's disease. *Am J Hum Gen* 2008; 82: 822-833.
117. Giovannone B, Tsiaras WG, de la Monte S, Klysik J, Lautier C, Karashchuk G, Goldwurm S, Smith RJ. GIGYF2 gene disruption in mice results in neurodegeneration and altered insulin-like growth factor signaling. *Hum Mol Gen* 2009; 18: 4629-4639.

118. Ramsey SE, Engler PA, Harrington M, Smith RJ, Fagan MJ, Stein MD, Friedmann P. Brief alcohol intervention among at-risk drinkers with diabetes. *Subst Abuse* 2010; 4: 1-8.
119. Smith RJ, Nathan DM, Arslanian SA, Groop L, Rizza RA, Rotter JL. Individualizing therapies in type 2 diabetes mellitus based on patient characteristics: What we know and what we need to know. *J Clin Endocrinol Metab* 2010; 95: 1566-1574.
120. Eckel RH, Kahn SE, Ferrannini E, Goldfine AB, Nathan DM, Schwartz MW, Smith RJ, Smith SR. Obesity and type 2 diabetes: What can be unified and what needs to be individualized? *J Clin Endocrinol Metab* 2011; 96: 1654-1663.
121. Eckel RH, Kahn SE, Ferrannini E, Goldfine AB, Nathan DM, Schwartz MW, Smith RJ, Smith SR; Endocrine Society; American Diabetes Association; European Association for the Study of Diabetes. Obesity and type 2 diabetes: What can be unified and what needs to be individualized? *Diabetes Care* 2011; 34: 1424-1430.
122. Malandrino N, Wu WC, Taveira TH, Whitlatch H, Smith RJ. Association between red blood cell distribution width and macrovascular and microvascular complications in diabetes. *Diabetologia* 2011; 55: 226-235.
123. Morita M, Ler LW, Fabian MR, Siddiqui N, Mullin M, Henderson VC, Alain T, Fonseca B, Karashchuk G, Bennett CF, Kabuta T, Higashi S, Larsson O, Topisirovic I, Smith RJ, Gingras AC, Sonenberg N. A novel 4EHP-GIGYF2 translational repressor complex is essential for mammalian development. *Mol Cell Biol* 2012; 32: 3585-3593.
124. Cousens LP, Su Y, McClaine E, Li X, Terry F, Smith RJ, Lee J, Martin W, Scott DW, De Groot AS. Application of IgG-derived natural Treg epitopes (IgG Tregitopes) to antigen-specific tolerance induction in a murine model of type 1 diabetes. *Journal Diabet Res* 2013; 2013: 17 pages. doi:10.1155/2013/621693.
125. Zullo A, Dore DD, Daiello L, Baier RR, Gutman R, Gifford DR, Smith RJ. National trends in treatment initiation for nursing home residents with diabetes mellitus, 2008-2010. *J Amer Med Dir Assoc* 2016 17: 602-608. doi: 10.1016/j.jamda.2016.02.023.
126. Zullo AR, Dore, DD, Gutman, R, Mor V, Smith RJ. National glucose-lowering treatment complexity is greater among nursing home residents than community-dwelling adults. *J Am Geriatr Soc* 2016; 64: e233-e235. doi: 10.1111/jgs.14485.
127. Zullo AR, Dore DD, Gutman R, Mor V, Alvarez CA, Smith RJ. Metformin Safety Warnings and Diabetes Drug Prescribing Patterns for Older Nursing Home Residents. *J Am Med Dir Assoc*. 2017 Oct 1; 18(10): 879-884.e7. doi: 10.1016/j.jamda.2017.05.020.

128. Scotina AD, Zullo, AR, Smith RJ, and Gutman R. Approximate bayesian bootstrap procedures to estimate multilevel treatment effects in observational studies with application to type 2 diabetes treatment regimens. *Stat Meth in Med Res* 2020 Nov;29 (11): 3362-3380. doi: 10.1177/0962280220928109.
129. Zullo AR, Smith RJ, Gutman R, Kohler B, Duprey MS, Berry SD, Munshi MN, and Dore DD. Comparative safety of dipeptidyl peptidase-4 inhibitors and sulfonylureas among frail older adults. *J Am Geriatr Soc*. 2021 Oct; 69 (10): 2923-2930. doi: 10.1111/jgs.17371.
130. Zullo AR, Duprey MS, Smith RJ, Gutman R, Berry SD, Munshi MN, Dore DD. Effects of dipeptidyl peptidase-4 inhibitors and sulfonylureas on cognitive and physical function in nursing home residents. *Diabetes Obes Metab* 2022 Feb; 24(2): 247-256. doi: 10.1111/dom.14573.

Books, Book Chapters, and Review Articles:

1. Scriver CR, Phang JM, Smith RJ. Disorders of proline and hydroxyproline metabolism. In: Stanbury JB, Wyngaarden JB, Fredrickson DS, eds. *The Metabolic Basis of Inherited Disease*. 5th Edition. New York: McGraw-Hill, 1981; 360-381.
2. Cahill GF Jr., Aoki TT, Smith RJ. Amino acid cycles in man. In: Estabrook, R, ed. *Current Topics in Cellular Regulation*, 18. New York: Academic Press, 1981; 389-400.
3. Smith RJ, Aoki TT. The effect of ketone bodies on alanine metabolism in cultured rat skeletal muscle. *Proceedings of the International Symposium on Metabolism and Clinical Implications of Branched Chain Amino Acids and Ketoacids*. In: Walser M, Williamson JR, eds. *Metabolism and Clinical Implications of Branched Chain Amino and Ketoacids*. *Developments in Biochemistry* 18. New York: Elsevier/North Holland, 1981:271-276.
4. Cahill GF Jr, Aoki TT, Smith RJ. Glucagon and amino acid metabolism. In: Lefebvre PJ, ed. *Glucagon I. Handbook of Experimental Pharmacology*, Vol 66/I. Berlin: Springer-Verlag, 1983; 399-417.
5. Smith RJ, Dluhy RG, Williams GH. Endocrinology. In: Vandam, LD, ed. *To Make the Patient Ready for Anesthesia*. 2nd Edition. Menlo Park: Addison-Wesley, 1983; 115-151.
6. Wilmore DW, Brooks DC, Muhlbacher F, Kapadia CR, Aoki TT, Smith RJ. Altered amino acid concentrations and flux following traumatic injury. In: Blackburn GL, Grant JP, Young VR, eds. *Amino Acids: Metabolism and Medical Applications*. Boston: John Wright, PSG, 1983; 387-395.

7. Smith RJ. Regulation of protein degradation in differentiated skeletal muscle cells in monolayer culture. In: Intracellular Protein Catabolism. Progress in Clinical and Biological Research. Volume 180. Khairallah EA, Bond JS, Bird JWC, eds. New York: Alan R. Liss, 1984; 633-635.
8. Smith RJ. Hypoglycemia. In: Marble A, et al., eds. Joslin's Diabetes Mellitus. 12th Edition. Philadelphia: Lea and Febiger, 1985; 867-881.
9. Wilmore DW, Souba WW, Bessey PQ, Aoki TT, Smith RJ. Pathophysiology of trauma. In: Larsson J, Lewis DH, eds. Significant Surgical Pathophysiological Problems in the Severely Traumatized Patient, Second Tore Nilson Symposium, Acta Chir Scand, Suppl 522, 1985.
10. Brennan MF, Cerra F, Daly JM, Fisher JE, Moldawer LL, Smith RJ, Vinnars E, Wannemacher R, Young VR. Report of a research workshop: Branched-chain amino acids in stress and injury. J Parent Ent Nutr 1986; 10:446-452.
11. Wilmore DW, Smith RJ, O'Dwyer ST, Jacobs DO, Ziegler TR, Wang XD. The gut--a central organ following surgical stress. Surgery 1988; 104:917-923.
12. Smith RJ, O'Dwyer ST, Wang XD, Wilmore DW. Glutamine nutrition and the gastrointestinal tract. In: Report of Eighth Ross Conference on Medical Research. 1988; 76-78.
13. Smith RJ. Biological actions and interactions of insulin and glucagon. In: DeGroot LJ, et al., eds. Endocrinology. 2nd Edition. Orlando: Grune and Stratton, 1989; 1333-1345.
14. Smith RJ. Approach to the patient with hypoglycemia. In: Kelly WN et al., eds. Textbook of Internal Medicine. Philadelphia: JB Lippincott, 1989; 2321-2323.
15. Smith RJ. Disorders of amino acid metabolism. In: Kelley WN et al., eds. Textbook of Internal Medicine. Philadelphia: JB Lippincott, 1989; 2273-2278.
16. Smith RJ. Effects of sulfonylureas on muscle glucose homeostasis. Am J Med 1990; 89 (Suppl 2A):38S-43S.
17. Wilmore DW, O'Dwyer ST, Jacobs DO, Wang XD, Smith RJ. Nutritional support in organ failure: glutamine-supplemented nutrition supports the intestinal mucosa. Elsevier Science. 1990; 217-225.
18. O'Dwyer ST, Smith RJ, Kripke SA, Settle RG, Rombeau JL. New fuels for the gut. In: Rombeau JL, ed. Enteral and Tube Feeding, 2nd Edition. Philadelphia: WB Saunders, 1990; 540-555.
19. Durschlag RP, Smith RJ. Principles of nutritional management. In: Becker KL, et al.,

- eds. Principles and Practice of Endocrinology and Metabolism. Philadelphia: Lippincott, 1990; 1032-1038.
20. MacDonald RS, Smith RJ. The endocrinology of starvation. In: Becker KL, et al., eds. Principles and Practice of Endocrinology and Metabolism. Philadelphia: Lippincott, 1990; 1046-1049.
 21. Smith RJ. Glutamine metabolism and its physiologic importance. J Parent Ent Nutr 1990; 14:40S-44S.
 22. Smith RJ, Wilmore DW. Glutamine nutrition and requirements. J Parent and Ent Nutr 1990; 14:94S-99S.
 23. Smith RJ. Molecular biology in nutrition. Nutr Clin Prac 1992; 7:5-15.
 24. Smith RJ. Disorders of amino acid metabolism. In: Kelley WN, et al., eds. Textbook of Internal Medicine, 2nd Edition. Philadelphia: JB Lippincott, 1992; 2068-2072.
 25. Smith RJ. Approach to the patient with hypoglycemia. In: Kelly WN, et al., eds. Textbook of Internal Medicine, 2nd Edition. Philadelphia: JB Lippincott, 1992; 2108-2110.
 26. Smith RJ, Witters LA. Uncontrolled diabetes mellitus, hypoglycemia, and related forms of metabolic acidosis. In: May HL, et al., eds. Emergency Medicine, 2nd Edition. New York: John Wiley and Sons, 1992; 1260-1269.
 27. Kahn CR, Smith RJ, Chin WC. Mechanism of action of hormones that act at the cell surface. In: Wilson JD, et al., eds. Textbook of Endocrinology, 8th Edition. Philadelphia: WB Saunders, 1992; 91-134.
 28. Ziegler TR, Smith RJ, Byrne TA, Wilmore DW. Potential role of glutamine supplementation in nutrition support. Clin Nutr 1993; 12 (Suppl 1):S82-S90.
 29. Ziegler TR, Smith RJ. Parenteral nutrition in the diabetic patient. In: Rombeau JL, Caldwell MD, eds. Clinical Nutrition Vol 2: Parenteral Nutrition. Philadelphia: WB Saunders, 1993; 649-666.
 30. Smith RJ. Molecular biology and nutrition. In: Fürst P., ed. Proceedings of the Symposium on New Strategies in Clinical Nutrition, München: W Zuckschwerdt Verlag, 1993; 7-17.
 31. Smith RJ. Glutamine - a conditionally essential nutrient? In: Report of Twelfth Ross Conference on Medical Research, 1993; 46-51.

32. Condorelli G, Smith RJ. Two alternatively spliced forms of the IGF I receptor have distinct biological activities and hormone-induced internalization rates. *Exp Clin Endocrinol* 1993; 101 (Suppl 2):95-97.
33. Smith RJ, Giorgino F, Almahfouz A, Goodyear LJ, Wang PH. Tyrosine phosphorylation and expression of insulin receptors and receptor substrates in rat skeletal muscle and myocardium in vivo. *Exp Clin Endocrinol* 1993; 101 (Suppl 2):144-146.
34. Goodyear LJ, Smith RJ. Exercise and diabetes. In: Kahn CR, et al., eds. *Joslin's Diabetes Mellitus*. 13th Edition. Philadelphia: Lea and Febiger, 1994; 451-459.
35. Durschlag RP, Smith RJ. Principles of nutritional management. In: Becker KL, et al., eds. *Principles and Practice of Endocrinology and Metabolism*. 2nd Edition. Philadelphia: Lippincott, 1995; 1148-1155.
36. MacDonald RS, Smith RJ. The endocrinology of starvation. In: Becker KL, et al., eds. *Principles and Practice of Endocrinology and Metabolism*. 2nd Edition. Philadelphia: Lippincott, 1995; 1164-1169.
37. Smith RJ. Approach to the patient with hypoglycemia. In: Kelly WN, et al., eds. *Textbook of Internal Medicine*, 3rd Edition. Philadelphia: Lippincott-Raven, 1996; 2166-2168
38. Smith RJ. Disorders of amino acid metabolism. In: Kelley WN, et al., eds. *Textbook of Internal Medicine*, 3rd Edition. Philadelphia: Lippincott-Raven, 1996; 2271-2276
39. Smith RJ, Chow JC. The molecular biology of enteral nutrition and the gut. In: Rombeau JL, et al., eds. *Clinical Nutrition: Enteral and Tube Feeding*, 3rd Edition. Philadelphia: W.B. Saunders, 1996; 138-154.
40. Giorgino F, Laviola L, Montrone C, de Robertis O, McCowen K, Smith RJ. The carboxy-terminal domain of the GLUT4 glucose transporter interacts with a novel E2 ubiquitin-conjugating enzyme identified by two-hybrid cloning. *Exp Clin Endocrinol Diab* 1996; 104 (Suppl 2):29-31.
41. Smith RJ, Chow JC, Condorelli G. Tyrosine phosphorylation of Shc, but not IRS-1, requires IGF-I receptor internalization. *Exp Clin Endocrinol Diab* 1996; 104 (Suppl 2):42.
42. Smith RJ. Glutamine-supplemented nutrition. *J Parent Ent Nutr* 1997; 21:183-184.
43. Kahn CR, Smith RJ, Chin WC. Mechanism of action of hormones that act at the cell surface. In: Wilson JD, et al, eds. *Williams Textbook of Endocrinology*, 9th Edition. Philadelphia: WB Saunders, 1998; 95-143.

44. McCowen K, Smith RJ. Diabetes mellitus (a) Classification and chemical pathology. In: Sadler M, et al., eds. Encyclopedia of Human Nutrition. London: Academic Press, 1998; 508-516.
45. Smith RJ, McCowen KC, Mao Y, Ling PR, Ciccarone A, Hirshman MF, Hayashi T, Bistran BR. Endotoxin-induced resistance in insulin and growth hormone tyrosine kinase pathways *in vivo*. VII International Symposium on Insulin Receptors and Insulin Action 1998; 151-152.
46. Giorgino F, de Robertis O, Laviola L, Montrone C, McCowen K, Perrini S, Smith RJ. The ubiquitin-conjugating enzyme Ubc9 interacts with GLUT4 and GLUT1 glucose transporters and enhances insulin stimulation of glucose transport in L6 skeletal muscle myoblasts. VII International Symposium on Insulin Receptors and Insulin Action 1998; 131-132.
47. Mao Y, Ling PR, McCowen KC, Ziegler TR, Bistran BR, Smith RJ. Molecular mechanisms of growth hormone resistance in catabolic states. Growth Hormone IGF Res 1999; 9:348-349.
48. Mao Y, Smith RJ. Anabolic hormone resistance in critical illness: present and future. Clin J Prac Surg 1999; 19(8):492-493. (In Chinese)
49. Smith RJ. Disorders of amino acid metabolism. In: Kelley WN, et al., eds. Textbook of Internal Medicine, 4th Edition. Philadelphia: Lippincott-Raven, 2000; 2788-2793.
50. Durschlag RP, Smith RJ. Principles of nutritional management. In: Becker KL, et al., eds. Principles and Practice of Endocrinology and Metabolism. 3rd Edition. Philadelphia: Lippincott, 2001; 1226-1233.
51. MacDonald RS, Smith RJ. The endocrinology of starvation. In: Becker KL, et al., eds. Principles and Practice of Endocrinology and Metabolism. 3rd Edition. Philadelphia: Lippincott, 2001; 1247-1251.
52. Smith RJ. Diabetes mellitus: a 2003 perspective. Med Health RI. 2003; 86: 92-95.
53. McCowen KC, Smith RJ. Insulin-like growth factors. In: Kahn CR, et al., eds. Joslin's Diabetes Mellitus. 14th Edition. Philadelphia: Lea and Febiger, 2005; 169-178.
54. Chernausek SD, Abuzzahab MJ, Kiess W, Osgood D, Schneider A, Smith RJ. IGF resistance: the role of the type 1 IGF receptor. In: Carel J-C et al., eds. Deciphering Growth. Series: Research and Perspectives in Endocrine Interactions. Berlin: Springer-Verlag, 2005; 121-130.
55. McCowen K, Smith RJ. Diabetes mellitus (a) Classification and chemical pathology. In: Sadler M, et al., eds. Encyclopedia of Human Nutrition. 2nd Edition. London: Academic Press, 2005.

56. Smith RJ, McLean M. Managing high blood glucose levels in coronary care. *Int Med J* 2008; 38: 305-306.
57. Hamdy O, Smith RJ. Obesity. In: Andreoli L et al., eds. *Andreoli and Carpenter's Cecil Essentials of Medicine*. 8th Edition. Philadelphia: Elsevier, 2010; 630-634.
58. Gopalakrishnan G, Smith RJ. Disorders of lipid metabolism. In: Andreoli L et al., eds. *Andreoli and Carpenter's Cecil Essentials of Medicine*. 8th Edition. Philadelphia: Elsevier, 2010; 643-650.
59. Smith RJ. Genetic markers in diabetes mellitus: the need and promise for specific drug therapies in defined subtypes of diabetes patients. *Therapy* 2010; 7: 309-312.
60. Engler PA, Ramsey SE, Smith RJ. Alcohol use of diabetes patients: the need for assessment and intervention. *Acta Diabetol* 2010; June 8 (Epub Ahead of Print).
61. Malandrino N, Smith RJ. Personalized medicine in diabetes. *Clin Chem* 2011; 57: 231-240.
62. Akanji AO, Smith RJ. The IGF system, metabolic syndrome and cardiovascular disease risk. *Metab Syndr Rel Dis* 2011; 10: 3-13.
63. Smith RJ. Perspective: Nutrition and metabolism in hepatocellular carcinoma. *Hepatobiliary Surg Nutr* 2012; 2: 89-96. DOI: 10.3978/j.issn.2304-3881.2012.11.02.
64. Smith RJ, Hiatt WR. Two new drugs for homozygous familial hypercholesterolemia: managing benefits and risks in a rare disorder. *JAMA Intern Med* 2013; 173: 1491-1492. doi: 10.1001/jamainternmed.2013.6624.
65. Smith RJ. Endocrine pancreas and fuel metabolism. In: Laufgraben ML, Gopalakrishnan G, eds. *Tarascon Adult Endocrinology Pocketbook*. Jones and Bartlett Learning LLC, 2013; 253-256.
66. Hiatt WR, Kaul S, Smith RJ. Cardiovascular safety of diabetes drugs: Insights from the rosiglitazone experience. *N Eng J Med* 2013; 369: 1285-1287. doi: 10.1056/NEJMp1309610.
67. McCowen K, Smith RJ. Diabetes mellitus (a) Classification and chemical pathology. In: Sadler M, et al., eds. *Encyclopedia of Human Nutrition*. 3rd Edition. Oxford: Elsevier, 2013; Vol 2; 17-24. doi.org/10.1016/B978-0-12-375083-9.00072-6.
68. Hiatt WR, Smith RJ. Assessing the clinical benefits of lipid-disorder drugs. *N Eng J Med* 2014; 370: 396-399. doi: 10.1056/NEJMp1313866.

69. Bhatt, HB, Smith RJ. Fatty liver disease in diabetes mellitus. *Hepatobiliary Surg Nutr*. 2015; 4: 101-108.
70. Smith RJ. Diabetes mellitus, hypoglycemia. In: Andreoli L et al., eds. *Andreoli and Carpenter's Cecil Essentials of Medicine*. 9th Edition. Philadelphia: Elsevier, 2015; 657-674.
71. Hamdy O, Smith RJ. Obesity. In: Andreoli L et al., eds. *Andreoli and Carpenter's Cecil Essentials of Medicine*. 9th Edition. Philadelphia: Elsevier, 2015; 675-682.
72. Gopalakrishnan G, Smith RJ. Disorders of lipid metabolism. In: Andreoli L et al., eds. *Andreoli and Carpenter's Cecil Essentials of Medicine*. 9th Edition. Philadelphia: Elsevier, 2015; 689-697.
73. Everett BM, Smith RJ, Hiatt WR. Reducing LDL with PCSK9 inhibitors – the clinical benefit of lipid drugs. *N Eng J Med* 2015; 373: 1588-1591. doi: 10.1056/NEJMp1508120.
74. Smith RJ, Goldfine AB, Hiatt WR. Evaluating the cardiovascular safety of new medications for type 2 diabetes: time to reassess? *Diabetes Care* 2016; 39: 738-742. doi: 10.2337/dc15-2237.
75. Smith RJ. Diabetes mellitus, hypoglycemia. In: Andreoli L et al., eds. *Andreoli and Carpenter's Cecil Essentials of Medicine*. 10th Edition. Philadelphia: Elsevier, 2022; 662-677.

Corporate Authorship or Multicenter Trials:

1. Bypass Angioplasty Revascularization Investigation 2 Diabetes Study Group. Baseline characteristics of patients with diabetes and coronary artery disease enrolled in the Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) trial. *Am Heart J*. 2008; 156: 528-536.
2. Pop-Busui R, Lu J, Lopes N, Jones TL; BARI 2D Investigators. Prevalence of diabetic peripheral neuropathy and relation to glycemic control therapies at baseline in the BARI 2D cohort. *J Peripher Nerv Syst*. 2009; 14: 1-13.
3. BARI 2D Study Group, Frye RL, August P, Brooks MM, Hardison RM, Kelsey SF, MacGregor JM, Orchard TJ, Chaitman BR, Genuth SM, Goldberg SH, Hlatky MA, Jones TL, Molitch ME, Nesto RW, Sako EY, Sobel BE. A randomized trial of therapies for type 2 diabetes and coronary artery disease. *N Engl J Med*. 2009; 360: 2503-2515.
4. Singh PP, Abbott JD, Lombardero MS, Sutton-Tyrrell K, Woodhead G, Venkitachalam L, Tsapatsaris NP, Piemonte TC, Lago RM, Rutter MK, Nesto RW; Bypass Angioplasty Revascularization Investigation 2 Diabetes Study Group. The prevalence and predictors of an abnormal ankle-brachial index in the Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) trial. *Diabetes Care*. 2011; 34: 464-467.

Patents:

United States:

1. Patent No. 4,857,555. Method of Treating Catabolic Dysfunction. Issued August 15, 1989.
2. Patent No. 5,039,704, Reissue No. 35,233. Method of Treating Catabolic Dysfunction. Issued August 13, 1991.
3. Patent No. 5,397,803. Use of Glutamine to Reduce Rate of Pathogenic Microorganism Infection. Issued March 14, 1995.
4. Patent No. 5,607,975. Method of Treating Catabolic, Gut-Associated Pathological Processes and Impaired Host Defenses. Issued March 4, 1997.
5. Patent No. 5,684,045. Method of Treating Pancreatic Atrophy. November 4, 1997.
6. Patent No. 5,763,485. Method of Treating Catabolic, Gut-Associated Pathological Processes and Impaired Host Defenses. Issued January 9, 1998.

Foreign:

1. Australian Patent No. 599335. Method of Treating Catabolic Dysfunction.
2. Canadian Patent No. 1,285,491. Method of Treating Catabolic Dysfunction. Issued July 2, 1991.
3. European Patent No. EP0238553. Method of Treating Catabolic Dysfunction. Granted July 5, 1997.
4. European Patent No. EP0401056. Glutamine in the Treatment of Impaired Host Defenses. Granted December 11, 1997.
5. Israeli Patent No. 94549. A Pharmaceutical Composition Containing Glutamine or an Analogue Thereof. Granted November 11, 1996.
6. Japanese Patent No. 2138859. Method of Treating Catabolic Dysfunction. Granted August 24, 1998.
7. South Korean Patent No. 178799. Pharmaceutical Composition for Increasing the Activity of the Immune System. Granted November 25, 1998.
8. Portuguese Patent No. 94223. Method of Treating Catabolic Gut-Associated Pathological Processes and Impaired Host Defenses. Granted January 15, 1997.

9. South African Patent No. 90/4151. Method of Treating Catabolic Gut-Associated Pathological Processes and Impaired Host Defenses.
10. Japanese Patent No. 3,068,644. Pharmaceutical Composition for Treating Catabolic, Gut-Associated Pathological Processes and Impaired Host Defenses. Granted May 9, 2000.
11. Japanese Patent (Application No. 2000-38890). A Pharmaceutical Composition for Treating Pancreatic Atrophy. Decision to grant August 16, 2000.
12. Japanese Patent (Application No. 2000-38891). A Pharmaceutical Composition for Treating Compromised Immune Function. Decision to grant August 16, 2000.
13. Japanese Patent (Application No. 2000-38896). A Pharmaceutical Composition for Promoting the Recovery of an Animal Being Treated by Bone Marrow Transplantation. Decision to grant August 16, 2000.
14. Canadian Patent No. 2,075,055. Method of Treating Catabolic, Gut-Associated Pathological Processes and Impaired Host Defenses. Granted January 15, 2002.

University and Hospital Teaching:

Graduate Medical Courses/Seminars/Invited Teaching Presentations:

1978-1982	Lectures on diabetes for endocrinology fellows and house staff, Brigham and Women's Hospital
1980	Invited Lecturer, Endocrine Lecture Series, U.S. Public Health Service Hospital, Boston, MA
1982	Invited Lecturer, Course on Regulation of Mammalian Protein Metabolism, Massachusetts Institute of Technology, Boston
1983	Invited Lecturer, Medical Residency Program Emergency Lecture Series, Brockton VA Hospital, Brockton, MA
1984-1992	Lecturer in HMS IV Emergency Medicine Course, Boston
1985-2000	Lectures to Clinical Endocrinology Fellows, Joslin Diabetes Center
1985-1996	Lecturer, Patient Education Series, Diabetes Treatment Unit, Joslin Diabetes Center and New England Deaconess Hospital
1988-1993	Lecturer, Introduction to Clinical Medicine, Brigham and Women's Hospital
2001-2011	Lecturer, Endocrine Pathophysiology, Brown Medical School
2001-2011	Medical Resident Lectures, Rhode Island Hospital
2001-2011	Medical Resident Lectures, Providence VA Hospital
2001-2007	Lecturer, Bio 201A, Brown University
2002	Lecturer, Women's Health Lecture Series, Brown Medical Residency Program
2002-2007	Lecturer, Geriatrics Fellowship Program, Brown Medical School
2002-2007	Lecturer, BI 285, Brown University

2002-2007 Lecturer, BI 283, Brown University

Continuing Medical Education Courses:

1980-1981 Lecturer in Postgraduate Endocrinology Course, Brigham and Women's Hospital

1981-1989 Lecturer in Annual Joslin Postgraduate Course on Diabetes, Joslin Diabetes Center and New England Deaconess Hospital, Boston

May 8, 1987 Lecturer in "Malnutrition for the Hospitalized Patient", New England Deaconess Hospital, Boston

May 5, 1988 Lecturer in "Malnutrition for the Hospitalized Patient", New England Deaconess Hospital, Boston

Mar 6, 1990 Lecturer in Postgraduate Course in GI Surgery, Massachusetts General Hospital, Boston

May 2, 1990 Lecturer in "Malnutrition for the Hospitalized Patient", New England Deaconess Hospital, Boston

Sep 11, 1991 Lecturer in "Hyperalimentation: A Practical Approach", New England Deaconess Hospital, Boston

Nov 6, 1992 Lecturer in "Complications of Diabetes Mellitus and Diabetic Foot Management", Joslin Diabetes Center and New England Deaconess Hospital, Boston

Sep 16, 1993 Lecturer in "Hyperalimentation: A Practical Approach", New England Deaconess Hospital, Boston

May 4, 1995 Lecturer in "Malnutrition for the Hospitalized Patient", New England Deaconess Hospital, Boston

Sep 15, 1995 Lecturer in "Hyperalimentation: A Practical Approach", New England Deaconess Hospital, Boston

Nov 15, 2000 Lecturer in Rhode Island ACP-ASIM "Internal Medicine Update", Newport, RI

Mar 23, 2002 Course Co-Director and Lecturer for "The Challenge of Managing Diabetes Mellitus, A Multidisciplinary Approach to the Diabetic Foot, Brown University, Providence, RI

May 16, 2003 Keynote Speaker, 1st Annual Update in Internal Medicine, Department of Medicine, Brown Medical School

May 5, 2004 Lecturer in Rhode Island ACP-ASIM Physicians Regional Conference, "Comprehensive Care of the Diabetic Patient, Warwick, RI

Sep 11, 2010 Lecturer in TCOYD CME Course, "It's All About Prevention: Preventing Diabetes and Preventing Complications If You Already Have It," Providence, RI

Jan 22, 2015 Diabetes Standards of Care, RI Chronic Disease Control Program, Providence, RI

Advisory and Supervisory Responsibilities in Clinical and Laboratory Setting:

1978-2018 40 Research Students, 45 Postdoctoral Research Fellows

1982-1995	Diabetes Teaching Attending, Brigham and Women's Hospital 1 month/year; average 10 hours/week teaching when on service.
1986-1997	Diabetes Teaching Attending, Joslin Diabetes Center and New England Deaconess Hospital 1 month/year; average 10 hours/week teaching when on service.
1989-1990	Preceptor, Introduction to the Clinic, Brigham and Women's Hospital
1997-2000	Endocrinology Teaching Attending, Joslin Diabetes Center and Beth Israel-Deaconess Medical Center 1 month/year; average 15 hours/week teaching when on service.
2000-2009	Director, Endocrinology Fellowship Program, Brown University School of Medicine and the Lifespan Rhode Island Academic Medical Center (Rhode Island Hospital and the Miriam Hospital)
2000-2011	Endocrinology Teaching Attending, Rhode Island Hospital
2001-2011	Trainer, Pathobiology Graduate Program, Brown University
2001-2011	Trainer, Molecular and Cellular Biology and Biochemistry Graduate Program, Brown University
2007-2008	Medicine Teaching Attending, Rhode Island Hospital
2011-2018	Graduate Student Thesis Advising, School of Public Health, Brown University

Corporate Advisory Experience:

1985-	Advisory work with pharmaceutical and medical device industry, including early proof-of-concept study design, preclinical studies, transition to first-in-human studies, development of pivotal trials, preparation for FDA presentations, and data management/safety boards.
-------	---