Harvard Medical School/Harvard School of Dental Medicine
Curriculum Vitae

Date Prepared:	8/26/2024
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Place of Birth:	Detroit, MI, USA

Education

9/1973 - 5/1977	B.S.	University of Michigan, Dearborn, MI (Chemistry)
9-1977 - 5/1979	M.S.	University of Michigan, Ann Arbor, MI (Biol. Chem.)
9/1977 - 12/1981	Ph.D.	University of Michigan, Ann Arbor, MI (Biol. Chem.) (Halvor Christensen).

Postdoctoral Training

12/1981 - 6/1982	Postdoctoral Scholar, Department of Biological Chemistry, University of Michigan, Ann Arbor, MI. (Dale Oxender).
7/1982 - 8/1985	Research Fellow in Medicine, Harvard Medical School, Research Division, Joslin Diabetes Center, Boston, MA, (CR Kahn).

Faculty Academic Appointments

9/1985 - 8/1987	Instructor in Medicine, Harvard Medical School, Boston, MA
9/1987 - 8/1992	Assistant Professor of Biochemistry in the Department of Medicine, Harvard Medical School, Boston, MA.
9/1992 - 9/2003	Associate Professor of Biological Chemistry in the Department of Medicine, Harvard Medical School, Boston, MA.
1987 - 1995	Member, Cell and Developmental Biology Graduate Program, Division of Medical Sciences, Harvard Medical School.
1993 – 1995	Member, Tri Department Program for Graduate Studies, Division of Medical Sciences, Harvard Medical School.
5/1995 - Pres	Member, PhD Program in Biological and Biomedical Sciences, Division of Medical Sciences, Harvard Medical School.
9/2003 - 2/2005	Associate Professor of Pediatrics, Harvard Medical School, Boston, MA.

3/2005- Present Professor of Pediatrics, Harvard Medical School, Boston, MA

Appointments at Hospitals/Affiliated Institutions

9/1997 - 8/2003 Senior Investigator, Research Division, Joslin Diabetes Center, Boston, MA
2/1998 - 8/2004 Associate Investigator, Howard Hughes Medical Institute.
9/2003 – Pres. Associate Scientific Staff, Dept. of Medicine, Endocrine Division, Children's Hospital Boston, Boston, MA
9/2005 - 1/2013 Investigator, Howard Hughes Medical Institute
2011 - 2016. Investigator, Shriner Hospital, Boston
9/2013 - 5/2018 Immunologist, Division of Burns, Surgery Service, Massachusetts General Hospital, Boston, MA

Other Professional Positions

2000 - Present Senior Consultant and Scientific Advisory Board Member of Housey Pharmaceutical Research Laboratories, Southfield MI

Major Administrative Leadership Positions

Local

9/1993 – 8/1999 Admissions Committee, Graduate Program in Biological and Biomedical Sciences, Harvard Medical School
9/1995 – 8/1998 Board of Trustees, Joslin Diabetes Center, Boston MA
9/1995 – 8/1998 Benefits Review Committee, Joslin Diabetes Center, Boston MA
9/1994 – 8/1996 Management Information Systems Committee, Joslin Diabetes Center, Boston MA
9/2012 – Pres. Boston Children's Hospital Promotions and Appointments Committee

National and International

9/1997 – 6/2000 Scientific Sessions Committee Member, American Diabetes Association

Committee Service

Professional Societies

1/1986 - Present Member, American Diabetes Association
1/1991 - Present Member, American Society for Biochemistry and Molecular Biology
1/1993 - Present Member, the Endocrine Society
1/1992 - Present Member, Juvenile Diabetes Foundation International

Grant Review Activities

10/1993 - 6/1996 Juvenile Diabetes Foundation
10/1992 - 6/1995 American Diabetes Association
7/1994 NIH Initial Review Group, RFA:DK-94-007: Hormonal regulation of Breast-Specific Growth Factors
10/1997 NIH Ad-hoc Physiological Chemistry Study Section
7/1999 NIH Endocrinology Study Section; Ad-hoc
10/1999 NIH Study Section, ZRG1 Endocrinology Study Section
10/2001 NIH Endocrinology Study Section; Ad-hoc
2/2002 NIH Endocrinology Study Section; Ad-hoc
10/2002 NIH Endocrinology Study Section; Ad-hoc
2/2003 NIH Endocrinology Study Section; Ad-hoc
6/2003 NIH Endocrinology Study Section; Ad-hoc

2/2004	NIH Endocrinology Study Section; Ad-hoc
10/2004-10/2007	NIH Molecular and Cellular Endocrinology Study Section; Permanent Member
7/2008	NIH Molecular and Cellular Endocrinology Study Section; Ad-hoc
2/2009	NIH Molecular and Cellular Endocrinology Study Section; Ad-hoc
9/2009	NIH Special Web Blog Study Section; Ad-hoc
6/2011	NIH Cellular and Diabetes and Obesity (CADO) Study Section; Ad-hoc
10/2012	NIH Cellular and Diabetes and Obesity (CADO) Study Section; Ad-hoc
10/2014	NIH Cellular and Diabetes and Obesity (CADO) Study Section; Ad-hoc
7/2015 – Pres	American Diabetes Association Grant Review Program
7/2016 – 7/2020	NIH Integrative Physiology of Obesity and Diabetes Study Section (IPOD); Permanent Member

Editorial Activities

1/1988 - 1/1993	Editorial Board, Journal of Biological Chemistry
1/1992 - 1/1995	Editorial Board, Diabetes
1/1994 - 1/1997	Editorial Board, Molecular Endocrinology
1/2001 - 1/2005	Journal of Physiology
1/2001 - 1/2005	Journal of Clinical Investigation
1/2006 - 1/2009	Associate Editor, Diabetes
7/2016 - pres	Associate Editor, Diabetes

Ad-hoc Editorial Roles

1/1990 – Pres.	Nature
1/1990 – Pres.	Science
1/1990 – Pres.	Nature Medicine
1/2000 – Pres.	Cell
1/2000 – Pres.	Cell Metabolism
1/2005 – Pres.	Journal of Clinical Investigation
3/2018 -	PNAS

Honors and Prizes

5/1973	William J. Branstrom Freshman Prize, University of Michigan, Dearborn, MI
5/1973	Angell Scholar, University of Michigan, Dearborn, MI
5/1977	Outstanding Senior Chemist, University of Michigan, Dearborn, MI
5/1977	B.S. with High Distinction, University of Michigan, Dearborn, MI
7/1983-6/1985	Individual National Research Service Award, National Institutes of Health
7/1985-6/1986	Mary K. Iacocca Research Fellowship, Joslin Diabetes Center, Boston, MA
10/1985	Balodimos Award, American Diabetes Association, Massachusetts Affiliate
9/1987 - 8/1990	Pew Scholar in Biomedical Sciences, The Pew Charitable Trusts of Philadelphia
5/1995	Runner-up, Excellence in Diabetes Care Research Award, Boehringer Mannheim and the Juvenile Diabetes Foundation International
10/1995	Stadie Memorial Lectureship, Regional American Diabetes Association Meeting, Thomas Jefferson University, Philadelphia, PA
5/1996	Co-Recipient, Boehringer Mannheim/Juvenile Diabetes Foundation International Diabetes Care Research Award
11/1998	University of Michigan-Dearborn Alumni of the Year, Univ of Michigan, Dearborn, MI
6/1999	Outstanding Scientific Achievement (Lilly Award), American Diabetes Association
9/2000	Dorothy Hodgkin Lecture, Brighton, England

Report of Funded and Unfunded Projects

Funding Information

Past

11/2005 – 10/2008 **Beta-cell IRS-2 function in Type-1 Diabetes Mellitus**
PI: Morris F White, Ph.D.
Agency: JDRFType: Research Award (1-2005-937)
This expired proposal investigated the role of Irs2 in NOD mice.

7/2006-6/2009 **Identification of Drugs that Promote Regeneration of Human Islets**
PI: Morris F. White Ph.D.
Agency: The Iacocca Family Foundation
Type: Research Grant
This expired project focused upon the identification of novel molecules that increase the expression and concentration of IRS2 in human beta-cells, which might promote regeneration of islets needed to prevent or cure diabetes.

4/06-3/11 **IRS-2 Function in Beta Cell Physiology**
PI: Morris F. White, Ph.D.
Agency: NIH
Type: RO1 (DK55326)
This project focuses on the role of IRS-2 in beta-cell function. We propose to disrupt IRS-2 exclusively in beta-cells or hepatocytes to determine which is most important for the development of diabetes.

2/1998- 1/2013 **Howard Hughes Medical Institute**
PI: Morris F. White Ph.D.
Agency: HHMI
Type: Investigator
HHMI supports our work on the integration of nutrient homeostasis between peripheral and central tissues. These projects draw upon the biochemical and molecular discoveries supported by the basic investigation on IRS-protein signaling, and apply the specific details to the whole animal in order to understand the molecular basis of dysregulated metabolism and it progression to diabetes. This project investigates the link between hypothalamic nutrient sensing and gene expression in the proper function of pancreatic islets, and hepatic and adipose metabolism.

10/2008-9/2012 **Irs2 signaling in neuronal degeneration and life span**
PI: Morris F. White Ph.D.
Agency: The Ellison Foundation
Type: Senior Scholar Research Award
This project focuses investigates whether neural pathways in the brain that sense nutrients are the represent the principle sites that coordinately regulate metabolic disease and the degenerative processes contributing to mortality and neurodegeneration.

9/2012 – 11/2013 **Targeted activation of Grp1 in diabetic mice**
Agency: NIH/NIGMS 3R01GM073016-07W1
Type: RO1
This sub-project focuses on the characterization of Grp1 mutant knock-in mice and it role in GLUT4 translocation during insulin stimulation.

9/2012 - 8/2014 **Neogenesis of beta cells by the IRS2-signaling cascade**
PI: Morris F. White Ph.D.
Agency: Juvenile Diabetes Foundation International

Type: Research Grant
This project investigates stem/progenitor cells that promote beta cell/islet regeneration and determine whether they can proliferate and differentiate into islets/beta cells.

9/2012-8/2014 **Career Development in Diabetes Research for Pediatric Endocrinologists**
PI: Morris F. White Ph.D.
Agency: NIH/NIDDK
Type: Training Grant
This application aims to foster the career development of a diverse and exceptionally well-trained group of pediatric endocrinologists entering the field of pediatric diabetes research through a joint institutional career development program at the Joslin Diabetes Center and Boston Children's Hospital.

07/1987 – 04/2015 **Regulating IRS1 by Ser/Thr Phosphorylation**
PI: Morris F. White Ph.D.
Agency: NIH/NIDDK 2R01DK038712-22 (White)
This project focuses on the biochemical mechanism by which Ser/Thr kinases activated by stress and inflammation regulate phosphorylation and function of IRS1 that modulate insulin signaling in liver.

7/2012 – 6/2016 **The molecular basis of insulin signal transduction**
PI: Morris F. White Ph.D
Agency: American Diabetes Association 7-12-MN-82 (White)
Type: Mentor-Based Postdoctoral Fellowship
This ADA mentor-based fellowship provides support to postdoctoral fellows focusing on basic scientific investigations on the coordinated regulation of peripheral insulin action, pancreatic beta-cell proliferation, function and survival, and the central control of nutrient homeostasis and life span.

01/2013 –12/2016 **Insulin-regulated glucose uptake**
PI: Victor Hsu, Ph.D.
Agency: American Heart Association 13SDG13920005 (Hsu)
Type: Research Grant
This sub-project to MFW focuses on generation and characterization of the Grp1 mutant transgenic mice.

04/2013 – 03/2017 **Hepatic insulin resistance and metabolic disease**
PI: Morris F. White Ph.D.
Agency: NIH/NIDDK 1R01DK098655-01 (White)
This grant investigates the relation between hepatic insulin action and mitochondrial function. Moreover, the work seeks to understand the role of FoxO1 gene regulation for mitochondrial function and NAFLD, HCC, and systemic inflammation and insulin resistance.

06/2013 - 05/2018 **Trauma Center**
PI: Ronald Tompkins, MD
Agency: NIH/NIGMS 2P50GM021700-32A1
Type: P50
Project 3: **Molecular Mechanisms in burn-induced muscle insulin resistance in mice**
PI: Morris F. White Ph.D.

This project investigates the molecular effects of burn induced trauma upon peripheral insulin sensitivity and nutrient homeostasis.

Current

08/2016 – 05/2022 **Pathogenesis of Dyslipidemia and Atherosclerosis in the Diabetic State**
PI: Sudha Biddinger
Agency: NIH/NIDDK
Type: RO1
The goal of this proposal is to determine how FMO3/TMAO contribute to atherosclerosis in the diabetic state.

07/2017 – 062021 **Hepatic insulin resistance and metabolic disease**
PI: Morris F White
Agency: NIH/NIDDK 1R01DK098655-06
Type: RO1
This project investigates the role of dysregulated secretion of follistatin and FGF21 upon the progression of systemic peripheral insulin resistance induced by hepatic insulin resistance.

09/2011 – 06/2024 **Career Development in Diabetes Research for Pediatric Endocrinologists**
PI: Morris F. White Ph.D.
Agency: NIH/NIDDK 5K12DK094721-02
Type: K12
This project aims to foster the career development of a diverse and exceptionally well-trained group of Pediatric endocrinologists entering the field of pediatric diabetes research through a joint institutional career development program at the Joslin Diabetes Center and Boston Children's Hospital.

07/2020 – 06/2025 **Regulation of hippocampal function by central and peripheral IRS signaling**
PI: Morris F. White Ph.D.
Agency: NIH/NIA 1 R01 AG067913-01
Type: RO1
This project investigates mechanisms that promote cognitive dysfunction during peripheral and central insulin resistance owing to the inactivation or dysregulation of systemic and neuronal Irs1 (insulin receptor substrate 1) and Irs2. Completion of this proposal can resolve the role of impaired peripheral insulin sensitivity and associated metabolic sequelae upon hippocampal function.

Current Unfunded Projects

Pres β-cell neogenesis
PI: Morris F. White
Agency: TBD
Type: Research Grant
This project is currently in a data collection phase to investigate how Irs2 regulates the differentiation and proliferation of stem/progenitor cells to repopulate the pancreatic islets with functional β-cells to control glucose homeostasis.

Pres Ser/Thr phosphorylation of IRS1 in metabolic regulation
PI: Morris F White
Agency: TBD
Type: Research Grant

Report of Local Teaching and Training

Teaching of Students in Courses

1987-1993	Metabolism and Function in Human Organ Systems, New Pathway Project in General Medical Education, Harvard Medical School; Tutor, 1987-1993; 8 first year medical students; 5 hrs contact time/week; 3 hrs/week preparation (14-week course).
1989-1993	Metabolism and Function in Human Organ Systems, New Pathway Project in General Medical Education, Harvard Medical School; Lecturer; 150 medical students; 5 hrs contact time/week; 40 hrs preparation; 14-week course.
1994-2001	BCMP 207 Molecular Approaches to Drug Action and Design, Division of Medical Sciences, Harvard Medical School; Lecturer, 1994-2001; 15-30 DMS graduate students; 12 hours of contact time; 40 hrs preparation; small group tutorials.
1995-1996	Chemistry and Biology of the Cell, Harvard Medical School; Lecturer;150 medical students; 3 hours of contact time per week and 40 hours of preparation.
1997-1998	HST 146 Intensive in Intermediary Metabolism, HMS-MIT course; Tutor and Lecturer; 30 first year graduate students; 4 hours of contact time and 20 hours of preparation.
1998	BBS Minisymposium, “Chewing the Fat: Molecular Mechanisms in Metabolic Diseases.” Harvard Medical School; 100 graduate students; Two hours of contact time and five hours of preparation.
1998-pres	Overview of drug discovery in diabetes and insulin action; Department of Pharmaceutical Sciences, Northeastern University; Lecturer; 35 graduate students; 2 hrs contact time; 8 hrs preparation; 1 lecture.
1999-2000	Chemistry and Biology of the Cell, Harvard Medical School; Tutor; 8 medical students; 5 hrs contact time/week; 3 hours of preparation/week; 10-week course.

Laboratory and Other Research Supervisory and Training Responsibilities

Predoctoral Trainees

Trainee	Training Period				Prior Academic Degree			Project Title	Subsequent/Current Position
	Deg	Start	End	Support	Deg	Year	Institution		
Myers M	MD PhD	1990	1998	Training Grant; HMS	AB	1992	Princeton University	Insulin Signaling Mechanism	Professor, Dept of Integrative Physiology and Medicine, Univ of Mich
Yenush L	PhD	1992	1998	NIH Training Grant; HMS	BA	1992	Wheaton College	Insulin Signaling Mechanism	Assoc Prof, Dept. of Biotechnology, School of Agricultural Engineering, Polytechnic Univ of Valencia, Spain
Smith-Hall J	PhD	1994	1998	NIH Training Grant; HMS	BS; MS	1992 1994	Hanover College, Hanover, IN (BS); Ball State, OH (MS)	IRS-3 Signaling	Unknown
Aguirre V	MD PhD	1995	2000	NIH Training Grant; HMS	BS	1995	St. Mary's University, San Antonio, TX	Serine Phosphorylation of IRS-1	Assitant Professor, UT Southwestern
Fisher T	PhD	1998	2003	NIH Training Grant;RO1 HMS	BA	1998	UC Berkely	IRS-2 Signaling in Hepatocytes	Scientific Writer, Ferring Rersearch Institute, San Diego CA.

Giraud J	PhD	2000	2005	NIH Training Grant;RO1 ADA	BS	1998	University of Massachusetts	Ser/Thr Phosphorylation of IRS1	Hospitalist.
Tseng Y	MD	2004	2009	HHMI Med Student Award	BS	2004	Cornell University, NY (BS); University of Cambridge, UK (M.Ph.)	Phospho-serine/threonine signaling in IRS-2	Medical Student, HMS/MIT HST Program

Postdoctoral Trainees, Harvard Medical School

Trainee	Training Period				Prior Academic Degree			Project Title	Subsequent/Current Position
	Deg	Start	End	Support	Deg	Year	Institution		
Jon Backer	PostDoc	1988	1991		MD		Harvard Medical School	Insulin receptor signaling and internalization; PI3 kinase	Professor and Chair of Pharmacology, Einstein College of Medicine, New York, NY
Montserrat Miralpeix	PostDoc	1989	1991		PhD			Alternative substrates for the insulin receptor	Scientist, Almirall Lab, Spain
Peter Wilden	PostDoc	1989	1991		PhD		University of Iowa	Insulin Receptor structure and function	Assistant Professor, Univ. of Missouri
Xiao-Jian Sun	PostDoc	1989	1995		PhD		Shainghi University	Insulin receptor substrates, pp185, Irs1 and Irs2	Assistant Professor, Department of Medicine, Univ. of Chicago, IL
Hiromasa Miyaji	PostDoc	1993	1994		MD			Protein/Protein interactions	Staff Scientist, Kyowa Hakko Kogyo Co., Ltd., Japan
Osamu Ishibashi	PostDoc	1993	1995		MD, PhD			Irs1 binding proteins	Assoc Prof. Graduate School of Life and Environmental Sciences, Osaka Prefecture University
Ping Shi	PostDoc	1993	1995		PhD			Insulin receptor function	Not on file
Tomoichero Asano	PostDoc	1993	1995		PhD			IRS binding proteins	Professor, Biomedical Chemistry, University of Hiroshima
Delores Bernal	PostDoc	1994	1995		PhD			Human Irs2 cloning and sequence.	Professor, Department of Biochemistry and Molecular Biology, Universidad de Valencia

Jose Sanchez	PostDoc	1994	1996		PhD			Construction of floxed Irs2 alleles; Irs2 knockout	Research Fellow, Spanish Ministry of Education, Spain
Sebastian Pons	PostDoc	1994	1997		PhD			55 kDa regulatory subunit of the PI 3-kinase.	Research Fellow, Univ. of Complutense, Madrid, Spain
Svante Nogren	PostDoc	1995	1997		MD, PhD			Insulin Receptor structure and function	Research Fellow, Huddige Hospital, Stokholm, Sweden
Chatterjee A	PostDoc	1997	1998	NIH RO1	PhD	1997	Tufts University	Production and validation of Antibodies to IR	Associate registered patent agent; Gowlings' . Vancouver,CA. Bar Admit 2003(MA) 2006(BC)
Niederfellner G	PostDoc	1995	1999	NIH RO1	PhD	1995	University of Regensburg, Germany	Structure and Function of PIN-1	Research Scientist, Eli Lilly & Co., Germany
Withers D	PostDoc	1997	1999	NIH RO1	MD PhD	1996	Barts Hospital Med. Royal Postgrad Med School, London	Physiological Aspects of IRS-2 Knock-Out Mice	Professor of Diabetes and Endocrinology , Dept of Med; MRC Senior Clinical Fellow
Burks D	PostDoc	1994	2000	NIH Training Grant; HMS	PhD	1990	Vanderbilt University	IRS-2 Knock-Out Mice; Fertility	Prof and Head of the Laboratory of Molecular Endocrinology and Director, Centro de Investigación Principe Felipe in Valencia, Spain.
Brazil D	PostDoc	1997	2000	NIH RO1	PhD	1996	University College, Dublin, Ireland	IGF Signaling in the Brain	College Lecturer, Dept. of Medicine, University College, Dublin, Ireland
Uchida T	PostDoc	1997	2000	NIH RO1	MD PhD	1997	Kobe University School of Medicine, Kobe, Japan	IRS-4 Structure and Function	Assistant Professor, University of Kobe, Japan
Zanella C	PostDoc	1997	2001	HHMI(2/98-9/99; NIH NRSA	PhD	1997	University of Vermont	Insulin Signaling Mechanism	Manager, External Relations Program Office Novartis Innstitutes for BioMedical Research, Boston MA
Schubert M	PostDoc	1999	2001	NIH RO1	MD	1998	Cologne Medical School	Brain IRS-2 Function	Asst. Prof, Dept of Medicine Univ. zu Koeln, Cologne, Germany

Ye J	PostDoc	1999	2001	HHMI(12/98-5/00); NIH RO1	PhD	1998	SUNY at Buffalo, NY	-Cell Function	Fund Raising Dept., Children's Hospital Boston, MA
Romoser V	PostDoc	2000	2001	NIH RO1	PhD	1999	University of Rochester, NY	Gene ExpressionAnalysis	Family Responsibilities
Liangyou Rui	PostDoc	1999	2002	NIH RO1; NIH NRSA	PhD	1998	University of Michigan Medical School	Inflammatory Effects upon Insulin Signaling	Prof, Molecular and Integrated Physiology, Univ of Mich Medical School
Hennige A	PostDoc	2000	2002	NIH RO1; German Diabetes Fund	MD	1998	Eberhard-Karls-Universitaet Medical School, Tuebingen	-Cell Function in IRS-2 Transgenic Mice	Lecturer, Department of Internal Medicine , University of Tuebingen, Tuebingen, Germany
Lin X	PostDoc	1999	2003	HHMI(3/99-6/00); NIH RO1; NIH NRSA	PhD	1999	Mt. Sinai School of Medicine, NY	Role of IRS-2 in -Cells	Research Associate, Mayo Clinic, Rochester, MN
Kushner J	PostDoc	1999	2003	NIH RO1; NIH NRSA; KO8; CHB funds	MD	1994	Albany Medical College	PDX1, PTP1B, PTEN and CYCLINS in -cell function	Assistant Professor of Pediatrics , Children's Hospital, University of Pennsylvania
Lee YH	PostDoc	2000	2003	NIH RO1	PhD	1998	Seoul National University	Serine Phosphorylation of IRS-1 and the Role of JNK	Asst. Prof, Chungbuk National University, South Korea
Park S	PostDoc	2002	2003	NIH RO1	PhD	1994	Ohio State University	Role of GLP-1 upon IRS-2 Function	Professor, Hoseo University, South Korea
Farhang-Fallah J	PostDoc	2002	2005	NIH RO1	PhD	2002	University of Toronto, Canada	Effects of IL6 up Nutrient Homeostasis	Research Scientist, Immuno/Microbiol. Sanofi Pasteur, Toronto
Giraud J	PostDoc	2005	2005	ADA Mentor Award	MD/PhD	2005	Harvard Medical School	Ser Phosphorylation of IRS1 in cells	Hospital and Internal Medicine, Clinician Wayne UNC Health Care, Goldsboro, NC
Haas M	PostDoc	2002	2006	NIH RO1	PhD	2002	University of Ohio Medical School	Ser phosphorylation of Irs1 and Irs2	Scientist, DecImmune, Boston MA

Dunn S	PostDoc	2003	2006	ADA Mentor Award	PhD	2002	Ph.D. Cambridge Univ Wolfson Coll, UK	Serine Phosphorylation of IRS-2	Scientific Writer, Knowledgepoint 360, London, UK
Yi X	PostDoc	2003	2007	NIH RO1	MD PhD	1998	Tongji Medical University Wuhan/Shanghai Medical Univ., Shanghai	Retinal Photoreceptor Function and Survival	Resident in Internal Medicine, UNC; Attending Physician, St. Joseph's Hospital, Syracuse, NY.
Dong X C	PostDoc	2003	2008	HHMI(2/03-7/07); NIH K99	PhD	2003	Ohio State University	Physiology of IRS1 and IRS2 in liver metabolism	Professor, Dept. of Biochem, Indiana School of Medicine
Copps K	PostDoc	1999	2015	HHMI(9/99-3/01); NIH RO1	PhD	1999	Baylor College of Medicine	Role of IRS-1 in mouse metabolism	Instructor, BCH
Taguchi A	PostDoc	2000	2011	HHMI(1/01-6/02); NIH RO1; Japan Fund; Ellison	PhD	2000	Osaka Graduate School of Medicine, Osaka, Japan	Central Control of Nutrient Homeostasis	University of Miyazaki, Japan
Guo S	PostDoc	2004	2009	NIH RO1; JDRF	PhD	1995	Beijing University China	Gene Expression and Reg. in Liver by insulin	Associate Prof, Texas A&M
Norquay L	PostDoc	2004	2009	HHMI(1/04-10/09)	PhD	2004	University of Manitoba	-Cell Regeneration in type 1 diabetes	Staff Scientist, Pfizer Laboratories, Groton CT.
Hanser (Fidyk) N	PostDoc	2005	2016	HHMI(9/05-1/06); NIH RO1; NRSA	PhD	2005	Cornell University	Regulation of IRS1 by SER(P); phospho specific mAb production	Unknown
Rozzo A	PostDoc	2006	2012	NIH RO1	PhD	2003	Baylor University	-cell regeneration; confocal microscopy	Laboratory Manager, Neurology, Boston Childrens Hospital

D'Aquino K	PostDoc	2006	2013	NIH RO1; NRSA	PhD	2006	MIT, Cambridge, MA	Irs2 reg by Tyr phosph; KRLB domain interactions	Scientist, CVM Janssen Research & Development Spring House, PA 19477
Sadagurski M	PostDoc	2006	2012	NIH RO1; Ellison Fund	PhD	2006	Tel Aviv University	Irs2 in neuronal function; huntington disease	Assistant Prof. Wayne State University, Detroit MI
Long Y-C	PostDoc	2007	2009	HHMI	PhD	2007	Karolinska Univ Stockholm	Insulin-like signaling in muscle	Associate Prof., Dept. Biochem., Yong Loo Lin School of Medicine, National University of Singapore
Cheng Z	PostDoc	2007	2012	NIH RO1; ADA Mentor Award	PhD	2006	Peking University	Mitochondrial function in diabetes	Assistant Prof. Human Nutrition, University of Florida, Gainsville.
Cormier J	PostDoc	2009	2011	NIH Endocrine Training Grant	PhD	2009	Univ. of Mass., Amherst	-cell regeneration in murine models of diabetes	Scientist, Cell Signaling
Stohr, O	PostDoc	2012	—	ADA Mentor Award	PhD	2012	Univ. of Cologne	Mechanisms of insulin resistance in genetic mouse models	Postdoctoral Research Fellow, CHB
Yu, Y	PostDoc	2012	—	JDRF	PhD	2012	Shanghai Inst for Biol Sci, Chinese Acad of Sci	-cell regeneration in murine models of diabetes	Postdoctoral Research Fellow, CHB
Plessmann,A	Postdoc	2013	2014	Germany Diabetes Research Foundation	MD	2012	Medical University of Vienna, Austria	Insulin resistance and hepatic insulin action during RYGB	Postdoctoral Research Fellow, CHB
Tao,Rongya	Postdoc	2014	—	NIH RO1;	PhD	2009		Insulin.IGF signaling in brain and liver	Staff Scientist, Boston Childrens Hospital

Formal Teaching of Peers (e.g., CME and other continuing education courses)

2/1987-2/1994	The Endocrine Society postgraduate course Instructor, Endocrine Investigation; 100 M.D.'s, Ph.D.'s, and M.D., Ph.D.'s; 20 contact hours.
2/2000	The Endocrine Society postgraduate course Instructor, Endocrine Investigation; 100 M.D.'s, Ph.D.'s, and M.D., Ph.D.'s; 20 contact hours.
5/2002	Member, Study Section Boundary Team, Endocrinology, Metabolism and Reproductive Sciences (EMRS) Steering Committee to create and define new study sections for a newly constituted EMRS Integrated Review Group (IRG); Ad Hoc.

Local Invited Presentations

2002	Brigham and Women's Endocrine Grand rounds, Invited Speaker
2006	Boston Children's Hospital Grand Rounds, Invited Speaker
2008	Massachusetts General Hospital, Winter Seminar, Boston, MA, January 30. Invited Speaker
9/2009	Longwood Metabolism Seminar, Joslin Diabetes Center, Sept 17, Invited Speaker
10/2009	BIDMC Endocrine Grand Rounds, BIDMC, Oct, 23, Invited Speaker
2/2018	BIDMC Endocrine Grand Rounds, BIDMC, Oct, 23, Invited Speaker
1/2019	BWH/BCH Joint Endocrine Grand Rounds, Jan, 9, Invited Speaker

Regional, National and International Invited Teaching and Presentations

Regional

1988	Joslin International Symposium on Diabetes, Boston, MA, Invited Speaker
10/2013	Joslin Diabetes Center 2013 International Symposium in honor of C. Ronald Kahn, MD; Boston, MA; Oct. 30-Nov. 2; Invited Speaker.

National

1984	Gordon Conference on Hormone Action, Invited Speaker
1988	Gordon Conference on Protein Kinases, Session Chairman, "Signal transmission mediated by protein tyrosine kinase," Invited Speaker.
1989	Gordon Conference on Molecular Pharmacology, Invited Speaker
1991	Keystone Conference Symposium: "Diabetes and Insulin Action", Invited Speaker.
1991	International Diabetes Association, Washington, D.C.: Invited Speaker on "Signal transduction."
1992	American Diabetes Association: Invited Speaker on "Signal Relays"
1992	Endocrine Society Annual Meeting: Keynote speaker on "Growth Factor and Signal Transduction."
1992	Gordon Conference on Protein Kinases, Invited Speaker
1992	FASEB Summer Conference on Receptors and Signal Transduction, Copper Mountain, CO. July 12-17: Invited Speaker on "SH2 domains and intracellular signals from membrane receptors."
1992	Gordon Conference on Peptide Growth Factors, Invited Speaker
1992	Biennial Growth Symposium, American Society of Animal Science, Pittsburgh, PA Aug 8-11: Invited Speaker on "Current Aspects in Regulation of Protein and Fat Deposition."
1993	Gordon Conference on Second Messengers and Protein Phosphorylation, Invited Speaker
1993	FASEB Summer Conference on Protein Kinases, Copper Mountain, Colorado, July 18-19: Invited Speaker on "IRS-1 in Insulin Receptor Signaling."
1993	Gordon Conference on Hormone Action, Invited Speaker
1993	Annual Scientific Meeting of NAASO on Obesity and Its Complications: Cellular Mechanisms, Milwaukee, WI. October 17-20: Invited Speaker.

1993 APS Conference on Signal Transduction and Gene Regulation, San Francisco, CA., November 17-20: Invited Speaker.

1994 Keystone Symposium on "Molecular Mechanisms Common to Types I and II Diabetes" and "The Adipose Cell", Park City, Utah, January 14-20: Invited Speaker.

1994 Endocrine Society, Introduction to Molecular and Cellular Research Course, January 21-26: Invited Speaker.

1994 American Diabetes Association, New Orleans, LA. June 11-14: Invited speaker for the Council on Molecular, Cellular and Biochemical Aspects of Diabetes.

1994 Endocrine Society Annual Meeting, Anaheim, CA. June 15-18: Invited Speaker.

1994 Gordon Conference on Second Messengers and Protein Phosphorylation, Invited Speaker

1994 The New York Academy of Sciences, "Receptor Activation by Antigens, Cytokines, Hormones and Growth Factors Conference," Orlando, FL. October 21-25: Invited Speaker.

1995 Gordon Conference on Molecular Basis of Cell Proliferation, Invited Speaker

1995 ASBMB Symposia on "Determinants of specificity of growth factor signaling," Lake Tahoe, CA, October 13-16.: Invited Speaker.

1996 Keystone Symposia on Signal Transduction Through Tyrosine Kinases, Taos, NM, March 27- April 2. Invited Speaker.

1996 Gordon Conference on Second Messengers and Protein Phosphorylation, Invited Session Chairman

1997 Insulin Resistance Meeting. Maui, Hawaii, February 22-25;Invited Speaker.

1997 Michigan Diabetes Research and Training Center Winter Symposium. Ann Arbor, MI, March 15; Keynote Speaker.

1997 Kern Aspen Lipid Conference. Aspen, Colorado. August 15-18; Invited Speaker.

1997 ASMB Satellite Symposium. Seattle, Washington. August 20-24; Invited Speaker.

1997 Update in the Management of Diabetes, Insulin Resistance and Obesity. Buffalo, New York. October 4; Invited Speaker.

1997 IBC's Second International Conference on Insulin Resistance. Philadelphia, Pennsylvania. October 6-7; Invited Speaker.

1997 American Pancreatic Association Annual Meeting, Chicago, Illinois. November 4-8; Keynote Speaker.

1998 Keystone Symposium on Specificity in Signal Transduction. Lake Tahoe, Nevada. March 1-7; Invited Speaker.

1998 Gordon Conference on Second Messengers and Protein Phosphorylation, Invited Session Chairman

1998 American Diabetes Association, Chicago, IL. June 11-14: Invited speaker for the Council on Molecular, Cellular and Biochemical Aspects of Diabetes.

1998 Krebs 80 Symposium, Alta, UT. September 11-13; Invited Speaker.

1998 University of Michigan-Dearborn Natural Sciences Colloquium. October 2; Invited Speaker

1998 Diabetes Mellitus: From Patients to Genes and Back. The Joslin Diabetes Center 100th Symposium, Boston, MA. October 21-24; Invited Speaker.

1998 American Diabetes Association Research Symposium on MODYs as Paradigm of the Pathogenesis of Type 2 Diabetes, Scottsdale, AZ. November 6-8: Invited Speaker.

1998 The University of Michigan, Department of Biological Chemistry Graduate Student Awards Presentation Invited Speaker

1998 FASEB Summer Conference on Protein Kinases and Phosphorylation. Snowmass Village, CO. July 24-29: Invited Speaker.

1998 Molecular Regulation of Metabolism in Health and Disease. Johns Hopkins University School of Medicine, Baltimore, Maryland. June 11-12; Invited Speaker.

1999 American Society for Biology Molecular and Biochemistry, October 22-25; Taos, NM. Session Chair.

1999	Keystone Symposia, February 16-22; Taos, NM. Invited Speaker.
2000	The Endocrine Society Meeting, March 3-6; San Diego, CA. Invited Speaker.
2000	Second annual Piero P. Foa Lecture. March 9; Wayne State University, Detroit, MI. Invited Speaker.
2000	The American Society for Biochemistry and Molecular Biology: Boston, MA. June 4. Keynote Lecturer.
2000	Gordon Conference on Second Messengers and Protein Phosphorylation, Invited Session Chairman
2000	The American Diabetes Association Scientific Sessions. June 10-11; San Antonio, Texas. Session Chair
2001	Conference on Tyrosine Phosphorylation and Cell Signaling, May 16-20; Cold Spring Harbor, New York. Session Chair
2001	Gordon Conference on Second Messengers and Protein Phosphorylation, Conference vice chair
2001	NIH Beta Cell Conference, November 26-28; Bethesda, Maryland. Invited Speaker.
2001	Keystone Symposium Diabetes Mellitus: Molecular Mechanisms, Genetics and New Therapies, Jan. 10-16; Keystone, Colorado. Invited Speaker
2002	Second International Workshop on Insulin Resistance, Feb. 10-12; San Diego, California. Keynote Speaker
2002	The Association for Research in Vision and Opthamology (ARVO), May 5-9; Fort Lauderdale, Florida. Invited Speaker
2002	Gordon Conference on Second Messengers and Protein Phosphorylation, Conference Chair
2002	Federation of American Societies for Experimental Biology (FASEB) Summer Research Conferences, June 29- July 3; Salt Lake City, Utah. Invited Speaker
2002	Society for the Study of Reproduction, July 27-31; Baltimore, Maryland. Invited Speaker
2002	Gordon Conference on Hormone Action, Invited Speaker
2002	Levine Symposium, Oct. 14-16; Anaheim, California. Invited Speaker
2003	Keystone Symposium on □-cell function, Feb. 11-14; Keystone, CO. Invited Speaker
2003	Pediatric Academic Society Annual Meeting, May 2-4; Seattle, WA. Invited Speaker
2003	American Diabetes Association Scientific Sessions, June 13-16; New Orleans, LA. Invited Speaker
2003	Endocrine Society Meeting, Jun. 18-22; Philadelphia, PA. Invited Speaker.
2004	American Diabetes Association 65th Scientific Sessions, June 4-8; Orlando, FL: Invited Speaker.
2004	Gordon Conference on Second Messengers and Protein Phosphorylation, Invited Speaker.
2004	JDRF – Regeneration of Beta Cell Function August 16-18, 2004: Invited Speaker
2004	Inflammation, Diabetes and Cardiovascular Disease: Emerging Science and Clinical Implications; American Diabetes Association Oct 1: Invited Speaker
2005	Keystone Symposium on Diabetes Mellitus: Molecular Mechanisms, Genetics and New Therapies; Keystone, CO January 27- February 2; Invited Speaker
2005	Novo Nordisk: Diabetes Summit 2005; Dallas, TX March 31- April 3; Invited Speaker
2005	MetroHealth Research Festival 2005: Cleveland, OH September 30th; Invited Speaker
2006	National Therapeutic Expert Forum for Diabetes: Atlanta GA, February 23-25; Invited Participant
2006	14th Annual Diabetes Conference, University of Illinois College of Medicine: Rockford IL: March 8; Keynote Speaker
2006	PTEN Pathways Meeting: Cold Spring Harbor Laboratories Long Island, NY March 15-19, Invited Speaker
2006	ADA Scientific Sessions, Washington DC, June 9-13; Invited Speaker
2006	HHMI Scientific Meeting, Chevy Chase, MD, Sept 10-13; Speaker

2007	Keystone Symposia, Diabetes: Molecular Genetics, Signaling Pathways and Integrated Physiology, Keystone CO, January 14-19 Invited Speaker
2007	ADA Scientific Sessions, Chicago Ill., June 21-25
2007	FASEB Summer Research Conference, Glucose Transport Biology, Snowmass CO, August 4-9, Invited Speaker
2007	ARVO New Frontiers in Retinal Diseases: Linking Genetics to Molecular Pathways and Therapeutic Strategies, Monterey CA, August 22-24, Invited Speaker
2007	University of California, San Francisco, Seminars in Biomedical Science. San Francisco, CA September 25-27, Invited Speaker.
2007	HHMI/NIH Research Scholars Seminar, October 1-2, Bethesda, MD Invited Speaker.
2007	University of Michigan, Michigan Diabetes Research and Training, Pfizer Visiting Professor of Diabetes, Ann Arbor, MI November 6-9. Invited Speaker
2007	HHMI Scientific Meetings, Janelia Farms Research Campus, Ashburn VA, November 11-14. Invited Speaker
2008	University of Pennsylvania, Fall Seminar Series. Philadelphia PA January 14-15. Invited Speaker
2008	University of Michigan, Marilyn H. Vincent Professorship in Diabetes Research Event. Ann Arbor MI. March 24. Invited Speaker
2008	Keystone Symposium. Metabolic Pathways of Longevity, Copper Mountain, CO. March 30-April 4. Invited Speaker
2008	FASEB, MARC Genomics Symposium on Obesity, San Diego CA.April 4-8. Invited Speaker
2008	ADA Scientific Sessions, New Orleans, Lo. June 2008; Session Chair
2010	UTSW Diabetes Center, Dallas TX., Mar 4, Invited Speaker
2010	International Endocrine Society (ICE2010), Kyoto, Japan, Mar. 25-28, Invited Speaker
2010	New Inroads to Child Health (NICHe) conference, Sweden, May 21-23, Invited Speaker
2010	Gordon Conference on Lipids, Invited Speaker
11/2010	Univ of Chicago Diabetes Center, Chicago IL, Nov 16, Invited Speaker
9/2011	Brandies University, Sept 2, Genetics Training Grant Symposium, Invited Speaker
1/2012	Keystone Symposium: Emerging Molecular Mechanisms for the Pathogenesis of Diabetes, Santa Fe, NM. Jan 28-Feb 2. Invited Speaker
5/2012	Cold Spring Harbor Asia Conference on Liver Metabolism, Disorders and Cancer; Suzhou, China; May 21-25; Invited Speaker
6/2012	American Diabetes Association Scientific Sessions, Philadelphia, PA, June 8-19; Invited Speaker.
6/2012	Endocrine Society Scientific Sessions, Houston TX, June 23-26; Invited Speaker
7/2012	Metabolism and Cardiovascular, Novartis, Boston MA, July 17; Invited Speaker
7/2012	Glucose Transporter Conference 2012 (RSG1 Foundation), Orlando Fla; Invited Speaker
5/2013	The Mayo Clinic Robert and Arlene Kogod Center on Successful Aging; Rochester, MN; Apr 8; Seminar Speaker.
5/2013	The 6th annual Henry L. Brasza Lecture in Diabetes; Detroit, MI; Apr 10; Seminar Speaker
5/2013	Indiana University School of Medicine, Dept. of Biochemistry & Molecular Biology; Indianapolis, IN; Apr. 22; Seminar Speaker.
7/2013	FASEB Science Research Conference 'Glucose transport: Gateway for metabolic systems Biology', Snowmass Village, Colorado; July 14-19; Invited Speaker
1/2014	Keystone Symposium: Diabetes, Vancouver, CA Jan 15-20 Organizer and Invited Speaker
7/2015	The Intersection of Metabolic and Neurocognitive Dysfunction, NIH, Building 31, 6th Floor, Bethesda, MD; July 16-17th, Invited Speaker.
4/2016	TA&M University Obesity Research Symposium, College Station; Keynote Speaker
11/2016	Stephan Fajans Lectureship in Diabetes Research, Ann Arbor MI; Invited Speaker.
6/2017	Iconoclasm Meeting. Rancho Santa Fe, CA; June 8; Invited Speaker

7/2017	FASEB on Glucose Transport: Gateway to Metabolic Systems Biology. Snowmass Village, CO; Invited Speaker and Session Chair.
11/2017	Einstein-Mt Sinai Diabetes Research Center, Bronx, NY; Invited Speaker.
3/2018	Pennington Biomedical Research Center, Baton Rouge, LA; Invited Speaker
6/2017	Iconoclasm meeting (Annual ADA Satellite Meeting), San Diego, CA; Invited Speaker.
12/2017	Departments of Physiology & Endocrinology, University of Illinois at Chicago, Chicago, IL; Invited Speaker.
6/2018	ADA's 78th Scientific Sessions, Orlando FL; Invited Speaker and Session Chair.
11/2018	Harold Hamm Diabetes Center Research Symposium, Oklahoma City, OK. Nov 11; Invited Speaker
1/2020	Keystone Symposium: Diabetes, Santa Fe, NM Jan 15-20 Invited Speaker
12/2020	Department of Biochemistry and Molecular Biology Indiana University School of Medicine, Dec 2020, Invited Speaker
1/2021	Keystone Symposium: Diabetes Keystone CO Jan 15-20 Keynote Speaker

International

1987	Society for Endocrinology (London) Symposium: Novel Aspects of Insulin Action, Invited Speaker.
1989	International Titisee Conference on Drug Action at the Molecular Level: Differences Between Agonists and Antagonists, Invited Speaker.
1991	Japan Society for Intractable Disease Symposium (Tokyo): Invited Speaker on "Hormone action and its Disorders."
1993	V. International Symposium on Insulin Receptor and Insulin Action, Munich, Germany, May 4-7: Invited Speaker on "The New Elements of Insulin Signaling: IRS-1 and Proteins with SH2 Domains."
1993	Instituto Juan March de Estudio e Investigationes, Workshop on "Signal Transduction by Growth Factor Receptors with Tyrosine Kinase Activity", Madrid, Spain, May10-12: Invited Speaker.
1993	Otsuka Five Year Plan for Elucidation of Diabetes Etiology, Second Meeting, August 27: Invited Speaker.
1994	International Institute of Genetics and Biophysics International Workshop on Signal Transduction Mechanisms, Capri, Italy, October 3-5: Invited Speaker.
1995	The Royal Society Meeting on "Current understanding of intracellular signaling pathways," London, England, July 4-5: Invited Speaker.
1994	Nara Conference on Insulin Action and Its Disorders, Nara Japan, November 11-13: Invited Session Chairman.
1994	15th International Diabetes Federation Congress, Kobe, Japan, Nov 6-11: Invited Chairman of session on "Insulin Receptor" and Invited Speaker on "Post-receptor Signal Transduction of Insulin."
1995	European Association for the Study of Diabetes/Juvenile Diabetes Foundation International Oxford Conference on New Developments of Insulin Therapy, Oxford, England, July 14-16:Invited Speaker.
1996	XIII Meeting of the Spanish Diabetes Society, Oveido, Spain, May1-4. Invited Speaker.
1996	FEBS Meeting, Symposium on "Carbohydrate Metabolism and Diabetes." Barcelona, Spain, July 7-12; Invited Speaker.
1996	75th Anniversary: Celebrating the Discovery of Insulin. Toronto, Canada, October 6-9; Invited Speaker.
1996	International Conference-Signal Transduction Mechanisms in Health and Diseases. Sponsored by the Royal Society of Edinburgh and the Caledonian Research Foundation. Edinburgh, Scotland, November 14-15; Invited Speaker.
1996	Second Krebs International Symposium. Nagoya, Japan, November 19-20; Invited Speaker.

1997	JDFI World Conference. Athens, Greece, March 16-19; Invited Speaker.
1997	IDF World Conference. Helsinki, Finland, July 20-25; Invited Speaker.
1998	VII International Symposium on Insulin Receptors and Insulin Action: Molecular and Clinical Aspects. Jerusalem, Israel. May 16-21; Invited Speaker.
2000	The Dorothy Hodgkin Lecture. March 15-17;Brighton, England. Invited Speaker.
2000	IGIS Servier Symposium. March 23-25. Nice, France. Invited Speaker.
2000	Banting and Best Diabetes Centre Scientific Day, May 12. Toronto, Canada. Keynote Speaker.
2000	43rd Annual Meeting of the Japanese Diabetes Society. May 25-27; Nagoya, Japan. Invited Speaker.
2001	The Biochemical Society Meeting, April 8-11; Bristol, England. Invited Speaker
2001	Conference on Second Messengers and Phosphoproteins, April 22-27; Melbourne, Australia. Invited Speaker
2001	VIIIth International Symposium on Insulin Receptors and Insulin Action, May 5-9; Geneva, Switzerland. Invited Speaker
2002	Workshop on Cardiovascular and Metabolic Disease, Feb. 6-9; Lausanne, Switzerland. Invited Speaker.
2002	Ernst Klenk Symposium, Feb. 17-19; Cologne, Germany. Invited Speaker.
2002	Signaling the Future Biochemistry Centenary Symposium, Sep. 3-6; Liverpool, England. Invited Speaker
2003	8th International Diabetes Federation Congress, Aug. 23-29; Paris, France. Invited Speaker
2003	Arolla Conference, August 17-27; Arolla, Switzerland. Session Chair
2003	6th World Conference on Inflammation; Aug. 3-7; Vancouver, Canada; Invited Speaker.
2004	Keystone Symposium on Diabetes and obesity Banff, Alberta, Canada March 4-10, 2004: Invited Speaker
2004	1st Upstate Cell Signaling Symposium Dundee, UK June 6-9: Invited Speaker
2004	12th International Conference on Second Messenger Phosphoproteins Montreal August 3-7, 2004; Invited Speaker
2004	Ovarian Workshop Vancouver, BC July 29-31, 2004: Invited Speaker
2004	International Endocrine Society; Aug 31- Sept 2; Lisbon Portugal: Invited Speaker
2004	9th International Symposium on Insulin Receptors and Insulin Action; October 14-17; Nice, France: Invited Speaker
2005	2nd Russell Berrie International Symposium: Tel Aviv, Israel September 19- September 21; Invited Speaker
2006	International Symposium of Kobe University 21st COE Program on Signal Transduction: Kobe Japan, February 9-11: Invited Speaker
2006	Peking University Diabetes Forum, Beijing China, May 9-15, Invited Speaker
2006	New Perspectives in Diabetes Mellitus, Salamanca Spain, September 20-25; Invited Speaker
2006	Programming Pancreatic Beta Cells, FEBS Workshop, Barcelona Spain, October 15-23; Invited Speaker
2006	19th World Diabetes Congress, IDF, Cape Town South Africa,December 3-7; Invited Speaker
2007	Xth International Symposium on Insulin Receptors and Insulin Action, Stockholm Sweden, May 2-6; Invited Speaker
2008	Keystone Symposium, Molecular Control of Adipogenesis and Obesity, Banff Alberta Canada. Feb 19 – 24. Invited Speaker
2012	European Association for the Study of Diabetes 48th Annual Meeting, Berlin, Germany; Oct 1-5; Invited Speaker
2013	Seoul International Congress of Endocrinology and Metabolism; Seoul, South Korea; May 2-5; Invited Speaker.

2013 DZD Diabetes Research School; Barcelona, Spain; Nov 6; Invited Speaker.
2013 XII International Symposium on Insulin Receptors and Insulin Action; Nov 7-9; Invited Speaker.
2015 Summer School on Diabetes and Metabolism Sept 8-11, Gl. Avernaes, Helnaesvej 9, DK-5631 Ebberup, Denmark.
2017 IR2017: International Symposium on Insulin Receptor and Insulin Action. Nice, France; Invited Speaker and Session Chair.
2018 DZD Diabetes Research School, Berlin Germany; Invited Speaker
2019 New Concepts in Translational Diabetes Research, Mar 16, Schloss HohenkammerHan, Germany; Invited Speaker
2019 Yogesh Patel lecture, May23, McGill University Health Centre, Montreal, CA; Invited Speaker

Report of Technological and Other Scientific Innovations

Kahn, C.R., White, M.F., Rothenberg, P.L. Isolated DNA encoding an insulin receptor substrate. US patent No: 5,620,200. Filed 10/15/92. Issued 11/9/93.
Kahn, C.R., White, M.F., Rothenberg, P.L. Insulin receptor substrate. US patent No: 5,621,075.Filed 07/21/93. Issued 04/15/97.
White, Morris, F. Nucleic acid encoding pp60^{PIK} and the methods of making pp60PIK. US Patent No: 5,650,293. Filed 06/10/94. Issued 07/22/97.
White, M.F., Sun, X.J., Pierce, J.H. DNA encoding an insulin receptor substrate. US Patent No: 5,858,701. Filed 10/03/94. Issued 01/12/99.
Housey, GM, White MF, Irs modulators. US Patent No. 20,060,241,030. Filed: 12/312003. Issued:

Report of Scholarship

Complete List of Published Work in MyBibliography:
https://www.ncbi.nlm.nih.gov/myncbi/morris.white.1/bibliography/public/

Peer reviewed publications in print or other media (Google H-index 137)

Original Research Investigations

1. Lawrence KE, White MF, Potts RA, Bertrand RD. Cold-vapor determination of mercury. Analytical Chem 1980; 52(8):1391-1392.

2. Gazzola GC, Dall'Asta V, Franchi-Gazzola R, White MF. The cluster tray method for rapid measurement of solute fluxes in adherent cultured cells. Analytical Biochem 1981; 115:368-374.

3. White MF, Gazzola GC, Christensen HN. Cationic amino acid transport into cultured animal cells. I. Influx into cultured human fibroblasts. J Biol Chem 1982; 257:4443-4449.

4. White MF, Christensen HN. Cationic amino acid transport into cultured animal cells. II. Transport system barely perceptible in ordinary hepatocytes but active in hepatoma cell lines. J Biol Chem 1982; 257:4450-4457.

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6. White MF, Christensen HN. Simultaneous regulation of amino influx and efflux by system A in the hepatoma cell HTC. J Biol Chem 1983; 258:8028-8038.

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13. White MF, Werth DK, Pastan I, Kahn CR. Phosphorylation of the solubilized insulin receptor by the gene product of the rous sarcoma virus, pp60src. J Cell Biochem 1984; 26(3):169-179.

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Narrative Report

Overview

My work on insulin signaling began in the summer of 1982 as a postdoctoral fellow with CR Kahn. My work has been supported continuously by NIH grants since 1987. Shortly after the discovery the insulin receptor substrates in 1985 (1) my research has focused upon the IRS1 (2) and IRS2 (3) branches of the insulin/IGF signaling cascades and the role these pathways play in insulin action and metabolic disease. The analysis of the IR•IRS cascades provides a rich experimental platform to investigate the role of insulin/IGF signaling in classical target tissues (liver, muscle and adipose), as well as newer sites of insulin action—including the CNS, pancreatic beta cells, endothelial cells, the cardiovascular system, and certain cancers. In 2000, we showed that serine 307 in rodent IRS1 is phosphorylated during physiologic stress and was associated with reduced insulin signaling. Since that time, serine 307 phosphorylation has been extensively investigated, and our knock-in experiments reveal its complex regulatory role. IRS2 plays a key role in beta cell function providing a common ground to understand the connection between type 1 and type 2 diabetes—which continues to be an active and important area of investigation in my laboratory. IRS2 plays an important role in the CNS, where it modulates lifespan, peripheral nutrient homeostasis, and neurodegeneration. Irs2 also plays a role in the regulation of energy balance and its deletion in the CNS leads to weight gain. An ongoing project in the laboratory investigates the hypothesis that ‘hepatokine dysregulation’ owing to hepatic insulin resistance promotes peripheral insulin resistance and progressive systemic metabolic disease. This is an innovative

departure from the usual hypothesis that glucose intolerance and diabetes caused by liver-specific insulin resistance is restricted to the hepatocyte. To accomplish our goals, we modify our liver-specific Irs1/Irs2 knockout mice using germline cre intercrosses or adeno-associated viruses to increase or decrease FoxO expression to regulate hepatokines, Fst (follistatin) and Fgf21 (fibroblast growth factor 21). Moreover, we utilize our unique library of Irs antibodies to interrogate phospho-S/Ts in IRS1 and/or IRS2 that might regulate insulin signaling in various tissues (4). We use these innovative reagents in this new proposal.

I have trained over 40 postdoctoral fellows and 6 graduate students—many of whom have gone on to independent faculty positions. I am experienced in the guidance and evaluation of contemporary research required to ensure the development of a diverse and highly trained workforce in metabolic investigation. I have mentored MD/Ph.D. students (MG Myers, Michigan; V Aguirre) who have established independent academic research laboratories. I have mentored K12 (Jake Kushner Baylor College of Medicine) or K99 (Charlie Dong, IU) scholars who have developed NIH-supported research laboratories at academic institutions in the USA. I am committed to the successful development of new faculty and to the dissemination of our ideas, unique mouse models, and reagents to investigate novel mechanism directed toward the cure of human diseases such as diabetes, neurodegeneration, and cancer. This body of work and practical experience qualifies me as a Professor at Harvard Medical School; and co-PI of our intuitional NIH K12 award for Career Development in Diabetes Research for Pediatric Endocrinologists.

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The identification of pp185 and the molecular cloning of IRS1 and IRS2.

This work was conducted between 1985-1995 and was supported initially by an NIH FIRST award and the Mary K. Iacocca Research Fellowship (Joslin Diabetes Center, Boston, MA). Using newly develop antibodies against phosphotyrosine I showed that a protein other than the insulin receptor itself was tyrosine phosphorylated immediately after insulin stimulation (1). This protein, originally called pp185, is probably the first report of a 'cellular' substrate for any receptor tyrosine kinase. The phosphorylation of pp185 was shown to require the NPEY-motif in the juxtamembrane region of the insulin receptor. This was the first evidence that tyrosine phosphorylation of a putative substrate rather than autophosphorylation of the receptor kinase might be essential for signal transduction (3). Based on these discoveries, we purified pp185 from rat liver (4), and isolated its cDNA. The new protein was called IRS1 (2), which revealed the first signaling scaffold that couples an activated insulin receptor tyrosine kinase to downstream signaling proteins. These papers established the general paradigm for insulin/IGF signaling. This work defined the major theme of my research on insulin action and the work of many others around the world for the past 20 years.

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Activation of the phosphatidylinositol 3'-kinase by IRS-1

These papers describe the association between the phosphatidylinositol 3'-kinase and IRS-1. Backer et al. shows that IRS-1 mediates insulin stimulation of the phosphatidylinositol 3'-kinase in cells, and tyrosyl phosphorylated IRS-1 or peptides containing phosphorylated YXXM motifs based upon IRS-1 sequences activate Ptdlns 3'-kinase in a test tube (1,2). This discovery established that the binding between tyrosyl phosphorylated IRS-1 and 85 kDa regulatory subunit of the phosphatidylinositol 3'-kinase is a critical step for insulin action. Subsequent work in our laboratory and around the world confirms that the insulin-stimulated tyrosine phosphorylation of IRS1 and its binding to PI3K is a major mechanism of insulin action.

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IRS2 is essential for islet/β-cell homeostasis

When it became clear that disruption of IRS-1 in mice does not cause diabetes we began to search for a second mechanism of insulin action. Four years after the cloning of IRS1, Dr. Sun purified and cloned IRS2, which also mediates insulin/IGF action in many tissues—including pancreatic β-cells (1). Three years later, we discovered that the disruption of IRS-2 in mice impairs both peripheral insulin signaling and pancreatic β-cell function (2). Follow-up experiments confirmed that IRS2 was required for β-cell homeostasis and tissue-specific IRS2 deletion causes β-cell failure. This discovery was a catalyst to change previous thinking in the diabetes research field by showing how the dysregulation of the IRS2 branch of insulin signaling promotes glucose intolerance and life-threatening diabetes by a combination of peripheral insulin resistance and pancreatic β-cell failure (3). Drugs that increase IRS2 in pancreatic islets might provide a rational strategy to treat diabetes (4)

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IRS2 modulates lifespan and neurodegeneration

During the past decade we investigated Irs1 and Irs2 signaling in the CNS (1,2,3,4). When we started it was known that reduced insulin-like signaling extends the life span of C. elegans and Drosophila. We discovered that in mice less insulin receptor substrate–2 (Irs2) signaling throughout the body or just in the brain extended life span up to 18% (1). This was remarkable because the long-lived mice displayed characteristics of the metabolic syndrome—overweight, hyperinsulinemia, and peripheral glucose intolerance. Thus Irs2 signaling in aging brains can promote healthy metabolism, attenuate meal-induced oxidative stress, and extend the lifespan of overweight and insulin-resistant mice.

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Hepatic insulin signaling

Our decade long theme investigating hepatic insulin signaling has turned to the extrahepatic effects of hepatic insulin resistance upon systemic nutrient homeostasis (1,2,4). Excess HGP (hepatic glucose production) is an important aspect of diabetes modeled in our laboratory by genetic inactivation of hepatic insulin receptor substrates—Irs1 and Irs2 (LDKO-mice) (1,2). Inactivating hepatic transcription factor FoxO1 in LDKO-liver (LTKO-mice) improves nutrient homeostasis and hepatic mitochondrial function (2,3). Unexpectedly, FoxO1 deletion from the insulin resistant hepatocytes also restores insulin sensitivity in WAT (white adipose tissue) depots and restores insulin suppression of HGP. To understand this heterologous dysregulation, we found that the FoxO1-dependent hepatokine Fst (follistatin) mediates peripheral insulin resistance (5). Knockdown of Fst in LDKO-liver re-sensitized WAT and normalized HGP, whereas expression of Fst in LTKO-liver produced an LDKO-like phenotype, including unsuppressed HGP. Serum Fst increases in insulin-insufficient and obese mice and was reduced following therapeutic gastric bypass surgery in obese patients with diabetes. We are currently investigating the role of TGFβ signaling in metabolic regulation and whether inhibition of Fst function might be a useful for diabetes therapy.

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