

## **Nir Barzilai, M.D. - Curriculum Vitae**

### **Albert Einstein College of Medicine**

Belfer Building, Suite 701  
1300 Morris Park Avenue  
Bronx, NY 10461

### **CURRENT HOSPITAL AND ACADEMIC APPOINTMENTS**

Chair: The Ira and Ingeborg Rennert Chair for Aging Research

Director: Institute for Aging Research, Albert Einstein College of Medicine; Bronx, NY  
Director: Animal Physiology Core of the NIH funded Diabetes Research and Training Center

Professor: Department of Medicine and Molecular Genetics, Albert Einstein College of Medicine

The Ingeborg and Ira Leon Rennert Chair of Aging Research

Clinical : Co-Director: Diabetes Clinic; Montefiore Medical Center; Bronx NY, Attending Physician Medicine and Endocrinology: Jacobi Hospital; Weiler Hospital; Bronx, NY. Albert Einstein College of Medicine

### **PREVIOUS APPOINTMENTS**

1993-94 Instructor of Medicine: Division of Endocrinology; Diabetes Research Center; Albert Einstein College of Medicine; Bronx, NY

1994-99 Assistant Professor of Medicine: Divisions of Endocrinology and Geriatrics; Diabetes Research Center; Albert Einstein College of Medicine

2002- 04 Associate Professor of Medicine and Molecular Genetics: Albert Einstein College of Medicine

### **CERTIFICATION AND LICENSURE**

1989 Board Certification Internal Medicine; Israel

1995 Board Certification Internal Medicine; US

1996 Board eligible Endocrinology and Metabolism; US

## **EDUCATION**

- 1978-85 Technion, Faculty of Medicine (7 year accelerated MD program)
- 1979 Summer student: Neoplastic Biochemistry, Department of Pharmacology; Baylor College of Medicine; Houston, TX
- 1980 Clerkship: Baragwanath Hospital, Department of Pediatrics; Soweto, South Africa.
- 1980 Clerkship: Charles Johnson Memorial Hospital; Medical Clinics and Community Health projects (the creation of a nutritional village); Kwazulu Homeland, South Africa
- 1981 Summer student: Glucose Transport Systems, National Institutes of Health (NIDDK); Bethesda, MD
- 1982-85 Doctoral research project: Glucose and Insulin Metabolism in Endocrinopathies: Hyperthyroidism, Cushing's, Obesity, Acanthosis Nigricans. Technion.
- 1985 M.D. Technion-Israel Institute of Technology; Haifa, Israel.

## **POSTGRADUATE TRAINING**

- 1984-85 Internships: Rambam Medical Center; Technion; Haifa, Israel  
The Royal Free Hospital; London, England
- Research: Glucose and Insulin Metabolism in Liver Cirrhosis; Department of Liver Diseases; Royal Free Hospital; London, England
- 1985-90 Resident Internal Medicine and Geriatrics: Department of Internal Medicine; Hadassah Hospital; Hebrew University; Jerusalem, Israel
- Research: Hepatic Glucose Production in Aging; Hadassah Hospital
- 1987-88 Resident: West Haven VA Hospital; Yale University; New Haven, CT  
Elective in endocrinology
- Research: Glucose Metabolism after Mixed Meal, Mechanism of Action of New and Old Oral Hypoglycemic Agents; Division of Diabetes and Metabolism; Yale University
- 1988-90 Senior Resident and Chief of Metabolic Unit: Hadassah Hospital
- 1989-90 Instructor of Internal Medicine: Hebrew University

- 1990-92 Fellow in Endocrinology and Metabolism: New York Hospital and Sloan Kettering Hospital; Cornell University Medical College; New York, NY.
- Research: Cloning of a G-Protein Related Receptor from the VIP-Secretin Family; Division of Molecular Medicine; Cornell University Medical College  
Senior Fellow in Endocrinology and Metabolism: Albert Einstein College of Medicine; Bronx, NY.
- 1992-94 Research: Metabolic Control of Hepatic Glucose Metabolism; Division of Endocrinology; Albert Einstein College of Medicine

### **RELATED MEDICAL TRAINING**

- 1974-76 Instructor, Chief Instructor of Medics: Israeli Army School of Military Medicine
- 1977-85 Chief Medic: Israeli Defense Forces Special Services: (War decorated; Reserve duty), Israel
- 1979-83 Head of Intensive Care Unit nursing team: Rambam Medical Center; Haifa, Israel
- 1979-84 Chief Medic: Israeli medical team to aid Cambodian refugees; Cambodia's border
- 1985 Underwater Physiology and Hyperbaric Medicine; Naval course; Israel
- 1985-90 Physician: Israeli Navy (Reserve duty)
- 1987 Israeli Army School of Military Medicine; Captain's Course (graduated first in class)

### **PROFESSIONAL SOCIETY MEMBERSHIP**

The Gerontological Society of America  
American Federation of Aging Research  
American Diabetes Association  
American College of Physicians

### **HONORS AND AWARDS**

- 1979-85 Medical School Dean's List
- 1985-86 Fellowship Training Award to the Royal Free Hospital, London, England

1987-88 American Physicians Fellowship, Inc. for Medicine in Israel;  
Israel-America Friendship League Fellowship Award; Yale University, CT

1993-94 Juvenile Diabetes Foundation International Fellowship Award

1994-95 Resnick Gerontology Center Award

1994-95 American Federation for Aging Research (AFAR) Award

1994-99 Clinical Investigator Award (NIH)

1995 Distinguished Service Award from the American Diabetes Association

1997-0 Paul Beeson Physician Faculty Scholars in Aging Research Award

1998-03 First Award (R29; NIH)

2000-03 The Ellison Medical Foundation Senior Award

2003 Nathan W. Shock Award Lecture

2010 Irving S. Wright Award of Distinction in Aging Research Award

## **PRIMARY RESEARCH INTERESTS**

- Biology of Aging: Evaluation of the mechanics of the aging process at the physiological and cellular level in laboratory models. Focus on nutrient sensing pathways implicated in harmful effects of excess nutrients, and effects of caloric restriction on longevity.
- Energy Metabolism in Aging: Pathways regulating insulin action and body fat distribution. Recent focus on hypothalamic pathways.
- Searching for Longevity Genes: Examination the genetic and phenotypic characteristics of surviving into the 11<sup>th</sup> decade of life in selected of families of genetically homogenous Ashkenazi Jews. Characterization of the biology and outcomes associated with longevity genes.

## **ACTIVE RESEARCH GRANT PARTICIPATION**

**R01 AG18381-03 (Barzilai)**

09/01/05-08/31/10  
\$250,000/ Yr 1

Dysregulation of Glucose Homeostasis in Aging

The goal of this project is to identify pathways that protect from the deterioration in insulin action and from the changes in body fat distribution. Specifically, IGF-1 in the brain modulates these in a positive way while IGF binding protein 3 regulates these, independently in opposite way. The central pathways will be discovered.

**PO1 AG021654-01 (Barzilai, Program Director)** 04/01/07-03/31/12  
 Roles of Genes in Exceptional Longevity of Humans \$1,418,473/yr

**PO1 (Barzilai, Project Leader)** 12/01/05-11/30/10  
 \$243,330 Project 2: Yr 1

**PO1 (Barzilai, Administrative Core)** \$1199,330 Admin. Core Yr 1  
 Administrative Core Director

Our long-term objectives are to identify genes which contribute to exceptional longevity in humans and to establish a prospective study that will validate and support causation between these genes, age-related diseases and longevity. We aim: to discover 'hallmark' genes for exceptional longevity, and their target 'killing' genes (P#1). To discover genotypes for exceptional longevity in humans in the GH/IGF pathway (P#2). To support a causative role of distinct genetic and biochemical markers for exceptional longevity in the prevention of cardio-vascular diseases (CVD; Project#3). To support a causative role of distinct genetic and biochemical markers for exceptional longevity in the prevention of cognitive decline (Project#4).

**NIH 1T32 AG023475 (Barzilai, PI)** 05/01/04-04/30/09  
 National Research Service Award Institutional \$1,718,473 Total project  
 direct costs  
 Research Training Grant \$363,557  
 Training in Aging Research

**PO1 AG021654-01 (Barzilai, Program Director)** 1/01/03-12/31/08  
 \$1,423,350 Yr 1  
 Excess Nutrients and the Metabolic Syndrome of Aging

The major goal is to implicate nutrient sensing pathways such as the hexosamine biosynthetic pathway (HBP) in the harmful effects induced by excess nutrients. Activation of the HBP leads to insulin resistance, endothelial dysfunction, and induce the expression of fat & endothelial-derived peptides that have roles in thrombosis and inflammation.

**PO1 AG021654-01 (Barzilai, Project Leader)** 03/01/03-12/31/08  
 \$192,330 Project 2: Yr 1

**PO1 AG021654-01 (Barzilai, Administrative Core)** 03/01/03-12/31/08  
 Administrative Core Director \$79,330 Admin. Core Yr 1

**NIH R01 AG18381 (Barzilai)** 09/01/00-08/31/10 2.4  
 Dysregulation of Glucose Homeostatis in Aging \$194,905

The effects of IGF-1 and its binding proteins on body fat distribution and on peripheral and hepatic insulin action and secretion will be delineated on aging animals.

**NIH R01 AG-18728-02A1 (Shuldiner)**  
Longevity Genes in Founder Populations  
Subcontract from University of Maryland

07/15/01-06/30/08 N/A  
\$104,252 Yr 1

Development of the Genotypic analysis of longevity in very old populations. No overlap with the present application. If the present application is funded, effort in this R01 will be lowered to 10%.

**NIH-AG028872 (Bergman, PI)**

06/01/07-05/31/12

A Systems Methodology for the Biology of Aging (**Barzilai 5%**)

\$422,062

We expect this research to have a profound impact on morbidity and enhance the quality of life for the elderly.

**American Federation of Aging Research (Barzilai, PI)**

10/07-9/09

The role of longevity genes in Frailty"

\$182,000 Total direct costs

The genetic basis for why some Centenarians are frail and other is quite intact.

**NIH DK20541 (Fleischer)**

02/01/08-01/31/13 1.2

Diabetes Research and Training Center

\$1,250,000

Animal Physiology Core (Barzilai)

\$154,480

**PO1 AG03949 (Lipton)**

07/01/04 - 06/30/09

\$1,623,350 Yr 1

The Einstein Aging Study Neurological decline of aging

The goal is to determine the prevalence and mechanisms for the decline in cognitive function in population- based study in the Bronx, NY. Dr. Barzilai will provide for the biological and genetic data that will predict cognitive decline.

#### **PREVIOUS GRANT SUPPORT (ENDED WITHIN PAST 5 YEARS)**

**Ellison Medical Foundation (Barzilai)**

01/01/01-12/31/04

Identification of Longevity Genes in Founder Populations

\$150,000 Yr 1

**Beeson Scholar Award (Barzilai)**

07/01/97 - 06/30/00

American Federation for Aging Research

\$141,662 Yr 1

The Contribution of Fat Mass to Age-Dependent Dysregulation of Peripheral and Hepatic Glucose Metabolism

**NIH R29 AG15003 (Barzilai)**

09/30/97 - 08/31/02

Dysregulation of Glucose Homeostatis in Aging

\$76,666 Yr 1

<b>Albert Einstein College of Medicine (Barzilai)</b> RFA-Collaborative Disease Specific Research Project Searching for Longevity Genes in the Ashkenazi Jews.	06/01/98-05/31/00 \$107,000 Yr 1
<b>American Federation of Aging Research (Barzilai)</b> Searching for Longevity Genes in the Historically Unique Jewish Ashkenazi Population.	01/01/98-12/31/00 \$140,000 Yr 1
<b>NIH Subcontract to Beth Israel (Perls)</b> Deaconess Medical Center This was an R21 Linkage Grant proposal for a Program Project grant.	08/01/99-07/31/00 \$22,968 Yr 1

### **INSTITUTIONAL/CENTER (AECOM) GRANTS**

5P60 DK20541 Diabetes Research and Training Center: Investigator

Pyrosequencing Instrument (PSQ HS96): Investigator

1U01 DK48349 Diabetes Prevention Trial: Investigator

General Clinical Research Center/ CTSA

### **MENTOR ON TRAINING GRANTS**

2000-2003 Mentor on K30 Award-Masters in Clinical Investigation

2002-2007 Lead Mentor on a K12 Award- Preparation for Clinical Investigator Award

2003-2008 T 32 Mentor on National Institute of Aging Training Grant

2003- Summer student in aging for high school and college students

2006-2013 T32 PI on National Institute of Aging Training Grant

2006- AECOM Aging Mentorship Program

2006 Head of the advisory committee and mentor for Medical Scientist Pathway in residency in the Department of Medicine

2006- Mentor for PhD training in Clinical Sciences

### **OTHER PROFESSIONAL ACTIVITIES/ ACADEMIC ADVISORY**

- 1998- American Diabetes Association Professional Education Workshop (National): Task Force for development of regional post-graduate education initiative
- 1995- American Diabetes Association (Eastern Region): Chairman of the Scientific Committee
- 1992- American Diabetes Association (National): Council of Nutritional Sciences and Metabolism.
- 1999- Advisor for the National Institute of Aging Panel on Exceptional Longevity
- 2003- Longitudinal Data on Aging Working Group of the National Institute of Aging
- 2007 Advisor for the Supercentenarians Research foundation
- 2007 Advisory Board for SIRA (Aging Center) in UCSD.
- 2006- Yale Pepper Center
- 2007- Program Advisory Committee of Beeson Career Development Award

## **TEACHING AND OTHER INSTITUTIONAL ACTIVITIES**

- 1993-07 Teaching Obesity in the course on Endocrinology and Metabolism for second year Medical Students
- 1998-07 Teaching Leptin Pathways in the course on Molecular Foundation of Medicine for first year Medical Students
- 2000- General Clinical Research Center Advisory Board, Albert Einstein College of Medicine
- 2001 Teaching Aging in the course on Molecular Foundation of Medicine for first year Medical Students
- 2002 Mentor on Institutional K12
- 2008- Professors Promotion Committee

## **SYMPOSIA ACTIVITY: ORGANIZING AND MODERATING**

American Diabetes Association NY State Affiliate Meeting (The Harold Rifkin Open Meeting); 'Diabetes in the Elderly'; April 1996; New York, NY



American Diabetes Association NY State Affiliate Meeting (The Basic Science Friedman Symposium); 'IGF and Glucose Metabolism'; November 1996; New York, NY

Gerontological Society of America; 'Diabetes in the Elderly: From Theory to Practice--A Multidisciplinary Approach'; November 1996; Washington, DC

American Diabetes Association NY State Affiliate Meeting (The Harold Rifkin Open Meeting); 'Can Type II Diabetes Mellitus Be Prevented?'; May 1997; New York, NY

American Diabetes Association NY State Affiliate Meeting (The Basic Science Friedman Symposium); 'The Molecular Action of Current and Future Anti-Diabetic Drugs'; November 1997; New York, NY

Gerontological Society of America; 'The Rationale and Means by which Diabetes in Aging may be Prevented'; November 1997; Cincinnati OH; The Gerontologist, 37:89

American Diabetes Association Eastern Region (The Harold Rifkin Open Meeting); with promotion and publication in Hippocrates Magazine; 'The Role of Fat in Diabetes'; May 1998; New York, NY

Continuing Medical Education Program: 'Diabetes, Insulin Resistance and Obesity--New Molecular Targets for Therapy'; May 1998; Dead Sea, Israel

American Diabetes Association Eastern Region Affiliate Meeting, (The Basic Science Friedman Symposium); 'Mechanisms involved in the syndrome of insulin resistance'; November 1998; New York, NY

Gerontological Society of America; 'In What Ways is Diabetes in the Elderly Different From That of Middle-age?'; November 1998; Philadelphia, PA

Gerontological Society of America; 'New Insights on the Biology of Longevity'; November 1998; Philadelphia, PA

American Diabetes Association Eastern Region Affiliate Meeting (The Harold Rifkin Open Meeting); 'The Prevention of Diabetes Macrovascular Disease'; April 1999; New York, NY

American Diabetes Association Eastern Region Affiliate Meeting (The Basic Science Friedman Symposium); 'The Role of Leptin in Obesity and Diabetes'; November 1999; New York, NY

Gerontological Society of America; 'New Insights on the Treatment of Elderly Diabetic Patients'; November 1999; San Francisco, CA

American Diabetes Association Eastern Region (The Harold Rifkin Open Meeting); 'Using Outcomes Research to Improve Diabetes Care'; April 2000; New York, NY

American Diabetes Association Eastern Region Affiliate Meeting, (The Basic Science Friedman Symposium); 'Recent Advances in Diabetes Complications'; October 2000; New York, NY

Gerontological Society of America; 'New Insights on the Patho-Physiology, Diagnosis and Treatment of the Elderly Diabetic Patient'; November 2000; Washington, DC

American Association Eastern Region Affiliate Meeting (the Harold Rifkin Open Meeting); 'Insulin Secretion and Action in Type 2 Diabetes: New Approaches and Methods of Treatment'; May 2001; New York, NY

American Diabetes Association Eastern Region Affiliate Meeting (The Basic Science Friedman Symposium); 'The Biology of Fat and its Impact on Metabolism'; October 2001; New York, NY

Gerontological Society of America; 'New Focus on the Patho-Physiology and Treatment of the Elderly Diabetic Patient'; November 2001; Chicago, IL

American Diabetes Association Eastern Region Affiliate Meeting (The Basic Science Friedman Symposium); 'The Biology of Impaired Glucose Homeostasis: Lessons from the Past and the Promise of Cure Ahead'; October 2002; New York, NY

Gerontological Society of America; 'Causes and Treatment of the Metabolic Syndrome of Aging'; November 2002; Boston, MA

American Association Eastern Region Affiliate Meeting (the Harold Rifkin Open Meeting); 'Recent Developments in Childhood and Adolescent Diabetes'; April 2003; New York, NY

American Association Eastern Region Affiliate Meeting (the Harold Rifkin Open Meeting) 'Recent Developments in Childhood and Adolescent Diabetes.' April 2003, NY, NY

American Diabetes Association Eastern Region Affiliate Meeting, (The basic science Friedman Symposium). "The vascular Biology of Diabetes".' October 2003. NY, NY

Gerontological Society of America. 'Excess nutrients and the 'metabolic syndrome of aging'.' November 2003, San Diego. CA.

Gerontological Society of America Presidential Symposium. 'Early origins of age-related disease' November 2003, San Diego. CA.

Gerontological Society of America Presidential Symposium. 'New insights to the biology of aging muscle and fat. November 2003, San Diego. CA.

Searching for Human Longevity Genes. December 2003. Maagan Israel

American Diabetes Association Eastern Region Affiliate Meeting, (the Harold Rifkin Open Meeting). "'The vascular Biology of Diabetes".' April 2004. NY, NY

American Diabetes Association Eastern Region Affiliate Meeting, (The basic science Friedman Symposium). "'Food for Thoughts: GI hormones and neural regulation of Energy Metabolism".' November 2004. NY, NY.

Gerontological Society of America Presidential Symposium. 'The paradox of the insulin signaling pathway and longevity November 2004, Washington. DC.

Potential Etiological Mechanisms in Achieving Exceptional Longevity. Gerontological Society of America. 'Comparative Longevity: From Lower Species to Human Centenarians' November 2004, Washington. DC

American Diabetes Association Eastern Region Affiliate Meeting, (the Harold Rifkin Open Meeting). "'Diabetes in Pregnancy".' April 2005. NY, NY

American Diabetes Association Eastern Region Affiliate Meeting, (The basic science Friedman Symposium). "'The role of genes and the environment in diabetes and obesity"'. November 2005. NY, NY.

Co-organizer of an Einstein / AFAR Mini-symposium on 'Aging, genome maintenance and metabolism'. December 2007 NY. NY

Co-PI on The Keystone Symposium on Metabolic Pathways of Longevity. April 2008 Colorado

#### **ADVISORY BOARD/ CONSULTANT**

1996-2006 Bristol-Myers –Squibb; City, NJ

1998-2007 Merck; National Diabetes Board

2000 Novartis Pharmaceuticals Corporation; East Hanover, NJ

2001-2003 Emisphere; City, NY.

2001-2003 Roch; NJ, CA, and Basel, Switzerland

2000-2004 Abbott Laboratories, Abbott Park, Chicago IL.

2000-2002 Eli Lilly IN

2002-2007	Pfizer CT
2005-present	Oramed Pharmaceuticals'
2008-present	Merck; National US Board

## **EDITORIAL BOARD**

- American Journal of Physiology Endocrinology & Metabolism
- Board of Contributing Editors- SAGE KE (<http://sageke.sciencemag.org>)
- Diabetes
- Journal of Gerontology-Medical Science
- Guest Editor of Mechanism of Aging and Development (2004 Special Issue)

## **REVIEWER**

- Journal of Clinical Investigation
  - Nature
- Journal of Clinical Endocrinology and Metabolism
- Journal of Biological Chemistry
- Diabetes
- International Journal of Obesity
  - Aging Cell
- Journal of Endocrinology and Metabolism

## **POST-DOCTORAL FELLOWS AND MENTORED FACULTY:**

1994-96	Suzane Raghavan MD. Currently Associate Professor. Department of Pediatrics (Endocrinology) at University of Indiana.
1994-97	Swati Banerjee MD. Currently Assistant Professor. Director: Division of Pediatric Endocrinology at University of California, San Francisco.

- 1997-2002 Patricia Vuguin MD. Currently Associate Professor. Department of Pediatrics (Endocrinology) and the Diabetes Research and Training Center at Albert Einstein College of Medicine. Recipient of Masters in Clinical Investigation.
- 1997-99 Li She MD, MS. Pfizer laboratories, Groton CT.
- 1997-99 Gaurev Gupta MD. Currently Assistant Professor. Department of Medicine (Geriatrics) at South Western University in Dallas, TX.
- 1999-01 Ilan Gabriely MD. Currently Assistant Professor. Department of Medicine at Albert Einstein College of Medicine, Bronx, NY.
- 2001-05 Gil Atzmon PhD. Currently Assistant Professor. Department of Medicine and Molecular Genetics at the Albert Einstein College of Medicine, Bronx, NY.
- 2001-05 Rahdika H. Muzmudar MD. Currently Associate Professor. Department of Pediatrics (Endocrinology) at the Albert Einstein College of Medicine, Bronx, NY.
- 2003-06 Meredith Hawkins MD. Currently Professor. Department of Medicine (Endocrinology) and the Diabetes Research and Training Center. Mentor, Paul Beeson Physician Faculty Scholars in Aging Research.
- 2002- Francine H. Einstein MD. Currently Assistant Professor. Department of Obstetrics & Gynecology and Women's Health (Maternal-Fetal Medicine). Mentor for the Society for Maternal-Fetal Medicine Career Development Award.
- 2003-04 Leigh Ettinger MD, Thesis Advisory Committee and Mentor (K12)
- 2003- Joe Vergase M.D.; Co-Mentor (with R. Lipton), K-Paul Beeson Physician Faculty Scholars in Aging Research.
- 2006- Sigal Fishman MD, Visiting Research Associate from Tel Aviv Sourasky Medical Center Department of Medicine (Gastroenterology).
- 2006- Elina Jerchow MD. Clinical Instructor. Department of Medicine (Allergy/Immunology) at the Albert Einstein College of Medicine, Bronx, NY.
- 2006- Collette Knight MD. Assistant Profesor. Department of Medicine (Endocrinology) at the Albert Einstein College of Medicine, Bronx, NY.
- 2006- Reid Thompson, Co-Mentor (with J Greally) Thesis Advisory Committee MD/PhD Student Program at the Albert Einstein College of Medicine, Bronx, NY.

## **INVITED SPEAKER (SELECTED FROM 2000)**

1. The patho-physiology of body fat distribution. The American Society of Hypertension January 2000, Laragh Conference. FL.
2. Regulation of Body Fat Distribution. Key note speaker. International Medical-Nutrition 2000. April 2000. Haifa, Israel.
3. Caloric Restriction and the Metabolic Syndrome. FASEB Symposia on Caloric Restriction: Effects on Body Composition, Insulin Signaling and Aging. April 2000. San Diego. CA.
4. The Role and Treatment of Insulin Resistance in Diabetes of Older Adults. The American Geriatric Society. May 2000, Nashville TN.
5. Insulin Resistance with Aging. Medical/Endocrine Grand Rounds. May 2000. UCLA, CA.
6. Pathophysiology of Diabetes in Aging American Association of Clinical Pharmacology . November 2000. Boston, MA.
7. The Relationship between Fat Tissue and Metabolic Syndrome X. Pediatrics Update Conference. November 2000. Danbury, CT.
8. Visceral Obesity: Evaluation, Risk and Treatment. American Heart Association Symposia on the Cardiovascular Metabolic Syndrome. November 2000. New Orleans. LA.
9. How Does Visceral Fat Affect Systemic Glucose Homeostasis? Frontiers in Diabetes Research. Columbia University College of Physician and Surgeons. November 2000. New York, NY.
10. Genetic Transfer of Longevity and its Biomarkers. Gerontological Society of America. November 2000. Washington, DC.
11. Impaired Insulin Action with Aging. Diabetes & Aging NIDDK/NIA. February 2001. Washington DC
12. New insights on the Biology of Longevity. February 2001. Medical Grand Rounds at NY Medical College, Valhalla, NY.
13. Biological Markers for Longevity. April 2001. NIH Workshop: Functional Senescence. Louisville, KY.
14. Building Bridges between Basic and Clinical Research. May 2001. The Annual Paul Beeson Aging Research Meeting. Hutchinson Island, FL.

15. Molecular Physiology of Aging. May 2001. American Geriatric Society Annual Meeting- Basic Science Update. Chicago, IL.
16. Longevity and the Cardiovascular System. May 2001. Grand Rounds for the Department of Cardiovascular Medicine. The Mayo Clinic; Rochester, MN.
17. The Regulation of Body Fat Distribution and Insulin Action with Aging. May 2001. Division of Endocrinology, Diabetes and Metabolism. The Mayo Clinic; Rochester, MN.
18. Insulin Action in Aging. May 2001. The Heinrich-Heine-University; Düsseldorf, Germany
19. Caloric Restriction and Aging. May 2001. German Diabetes Association. Aachen, Germany.
20. Bridging between Basic and Clinical Research. The Beeson meeting. June 2001. FL.
21. Building Bridges between Geriatrics & Internal Medicine: Endocrinology and Geriatrics. Geriatric Education Retreat (Hartford Foundation) August 2001. Jasper, Canada.
22. Searching for Longevity Genes in Founder Population. Biology Marine Laboratories and the Ellison Medical foundation. August 2001. Woods Hole, MA.
23. Pathophysiology of Diabetes in the Elderly. University of Michigan CME course on Diabetes in the Elderly. September 2001. Ann Arbor, MI.
24. New Insights on the Biology of Longevity. University of Michigan Institute of Gerontological Research. September 2001. Ann Arbor, MI.
25. Longevity Genes: from Primitive Organisms to Man. Genetics of Longevity across Species. National Institute of Aging and The American Federation of Aging Research. October 2001. Tucson, AZ.
26. Centenarians and their Offspring do not Develop Insulin Resistance. Gerontological Society of America. November 2001. Chicago, IL.
27. Fat vs. Nutrients in Caloric Restricted Animals: A Unifying Hypothesis. Visiting Professor at the Aging Center. University of Texas Health Science Center. December 2001. San Antonio, TX.
28. National Institute on Aging. Exploratory Projects for Longitudinal Genetic Epidemiologic Studies on Aging. January 2002. San Francisco, CA.
29. Clinical Markers for Human Longevity. International Health Policy Research and Ecole Libre Hautes Etudes. February 2002. The New School. New York, NY.

30. Role of Body Fat Distribution in Obesity-Associated Metabolic Abnormalities. Presidential Lecture Symposium: Translating the Genome-Physiology and Pathophysiology of Obesity. FASEB meeting. April 2002. New Orleans, LA.
31. New insights into Longevity. Medical Grand Rounds. Cornell University Medical College. July 2002. New York, NY.
32. Body Fat Distribution and Insulin Action. Nonalcoholic Steatohepatitis Meeting. American Association for the Study of Liver Disease (AASLD). September 2002. Atlanta, GA.
33. Nutrients Sensing and the Metabolic Syndrome of Aging. NIA co sponsored workshop: Current Perspectives on the Mechanism of Caloric Restriction. October 2002. Bandera, TX.
34. Metabolic Syndrome and Longevity. New York University-Adult/Pediatric Endocrine Seminar. November 2002. New York, NY.
35. Does the Brain Lead the Metabolic Decline of Aging? Can Aging be Reversed?: From Basic Science to Clinical Arena. Association for Research in Nervous and Mental Disease. December 2002. New York, NY.
36. Insulin Resistance in Aging. Annual Rocky Mountain Geriatric Conference. March 2003. Breckenridge, CO.
37. New Insights on the Biology of Longevity. Columbia University Grand Rounds. April 2003. New York, NY.
38. New Insights on the Metabolism of Aging and Longevity. Grand Rounds - the NIDDK/NIH. May 2003. Bethesda, MD.
39. Caloric Restriction and Cellular Fuel Sensing. 2003 Pennington Scientific Symposium on Mechanism and Retardation of Aging. May 2003. Baton Rouge, LA.
40. Visceral Fat in the Development of Diabetes. Current Issues Special Session in the American Diabetes Association 63<sup>rd</sup> Scientific Sessions. June 2003. New Orleans, LA.
41. Nathan W. Shock Award Lecture. 1st annual Nathan Shock Aging Symposium. September 2003. Towson, MD.
42. Nutrient Sensing and Age-Related Diseases. International Association of Biomedical Gerontology 10th Congress. September 2003. Cambridge, England.
43. Diabetes in Old Age. Scientific symposium in diabetology. 50<sup>th</sup> Anniversary of the Israel Diabetes Association. October 2003. Jerusalem, Israel.



44. The Paradox of Insulin Action and Longevity. NIA-Longevity Consortium. November 2003. Santa Monica, CA.
45. Key Note Speaker. The Voyage to Old Age: Searching for Human Longevity Genes. December 2003. Maagan, Israel.
46. Why did Moses live to be 120? Soretsky Hospital Grand Rounds. December 2003. Tel Aviv University. Tel Aviv, Israel.
47. New Insights on Longevity. Medical Grand Rounds. Ben Gurion University. December 2003. Beer Sheva, Israel.
48. Insights on Biology of Longevity. Combined Diabetes and Geriatric Centers Grand Rounds. University of Washington. February 2004, Seattle, WA.
49. Visceral vs. Subcutaneous Fat. Integrative Role of Fatty Acids in Metabolic Regulation: Implications for Obesity and Diabetes. American Diabetes Association. April 2004. Newport, RI.
50. Biology of Longevity. Visiting Professor at University of Texas in San Antonio. April 2004. San Antonio, TX.
51. Comparative Longevity: Pathophysiology of Aging in Mammals. 2nd International Conference on Functional Genomics of Aging. April 2004. Crete, Greece.
52. Genetic Insights on Longevity. Beeson Symposium at the ASG Meeting: Modulating Factors on Longevity. May 2004. Las Vegas, NV.
53. Debate: Does Obesity and Leptin Resistance Really Matter in the Elderly? Endocrinology Aging Interest Group at ENDO 04. June 2004. New Orleans, LA.
54. . Aging and Longevity. ENDO 04. June 2004. New Orleans, LA.
55. Why did Methuselah Live to be 969? Visiting Professor LSU. June 2004. New Orleans, LO
56. What Went Wrong on the Road to Longevity? The NIA Summer Institute for Aging Research. July 2004. Wye, MD.
57. Newer Insights on Exceptional Longevity. KMA Annual meeting. September 2004. Louisville, KY.
58. Comparative Longevity: From Lower Species to Human Centenarians. Symposium on Potential Etiological Mechanisms in Achieving Exceptional Longevity. Gerontological Society of America. November 2004. Washington, DC.

59. Human Centenarians. Symposium on the Paradox of Insulin Signaling Pathway and Longevity. Gerontological Society of America. November 2004. Washington, DC.
60. Mechanisms for Exceptional Longevity. Grand Round Department of Epidemiology. Columbia University. December 2004, NY. NY.
61. Grand Rounds, Endocrinology. The Mayo Clinic. January 2005. Rochester, MN.
62. Course in Gerontology. University of St. Louis. January 2005. Washington, DC.
63. Grand Rounds, Dept. of Neurology. University of Pennsylvania. January 2005. Philadelphia, PA.
64. Grand Rounds, Kronos Institute and University of Arizona. February 2005. Phoenix ,AZ.
65. Grand Rounds, Pierce Lab. Yale University. February 2005. New Haven, CT.
65. Key note speaker at Technion Faculty of Medicine and Rambam Hospital. March 2005. Haifa, Israel.
66. Key note speaker at Sociedad Argentina de Endocrinologia y Metabolismo. April 2005. Buenos Aires, Argentina.
67. Grand Rounds,. Department of Humans Genetics. Mt. Sinai Hospital. April 2005. New York, NY.
68. Grand Rounds, Department of Cardiology. Yale University. February 2005. New Haven, CT.
69. Key Note Speaker. Department of Medicine Annual retreat. Mt. Sinai Hospital. May 2005. New York, NY.
70. Medical School Rounds. Technion. July 2005, Haifa, Israel
71. Plenary Session American Society of Human Genetics, October 2005 Salt Lake City, UT
72. Intensive Board Review and Update in Geriatric Medicine CME. September 2005, New York, NY.
73. Friedman Symposium, American Diabetes Association, Eastern Region. November 2005 New York, NY
74. Grand Round Dept of medicine. January 2006 Springfield IL.
75. 3<sup>rd</sup> International Conference on Functional Genomics and Aging. March 2006 Palermo

Italy.

76. The Fisher Visiting professorship. The 3 UCLA campuses. May 2006. Los Angeles CA.
77. American Aging Association meeting. June 2006. Symposium on the Metabolic Syndrome. Boston MA.
78. XIV International Symposium on "ATHEROSCLEROSIS" June 2006, Rome, Italy
79. American Diabetes Association Meeting June 2006. Longevity and Insulin Signaling symposium. Washington DC.
80. Ground Round. Institute of Nutrition. University of Alabama Birmingham. September 2006 Birmingham Alabama.
81. Symposium Guest Speaker. WFUHS Translational Research in Aging Symposium. "Nutrient sensing and the metabolic syndrome of aging" 2006 NC.
82. International GH/IGF meeting. Keynote Address. November 2006 Kobe Japan.
83. Key Note: 3 rd Meeting of the International Chair on Cardiometabolic risk, December 2006 New York.
84. Grand Round-Endoicrine: UCSC January 2007, San Francisco.
85. Key note: Heads of the Israeli Insurance Company and Banks. Until 100 like 20: Genetics, long term saving, and what comes in between. January 2007. Herzelia Israel
86. Grand Round-Endoicrine: University of Chicago February 2007, Chicago IL.
87. International Pre Diabetes Symposium April 2007. Barcelona Spain.
88. Harvard/Paul F. Glenn Aging Symposium. Novel Human Longevity genes. May 2007. Boston MA.
89. Plenary lecture on a FASEB National Institute of Aging & UAB's Clinical Nutrition Research Center symposium on. "Body Weight, Adiposity, Energetics, & Longevity Conference" August 2007, CA
90. Swedish Royal Academy of Sciences "BIOLOGY OF AGEING" symposium September 2007. Stockholm. Sweden.
91. Stem Cell Summit at Harvard. "Stem cell and aging" October 2007 Boston MA.
92. Key Note at the Danish Endocrine Society to invite you to give a similar seminar at

- the annual meeting of our Society to be held January 2008. in Aarhus Denmark
93. Plenary Speaker at the Israeli Gerontological Society. February 2008 Tel Aviv Israel
  94. The Kroc family (founders of McDonalds) visiting professorship at Stanford University School of Medicine. March 2008 CA
  95. Plenary lecture on The Keystone Symposium on Metabolic Pathways of Longevity. April 2008 Colorado.
  96. Plenary Speaker at the Israeli Endocrinology Society. April 2008 Tel Aviv Israel
  97. Strategies to prevent age-related diseases through human genetics. The 80<sup>th</sup> birthday of Dr. Jim Watson: TO WHAT AGE SHOULD WE BE EXPECTED TO WORK?, 2008 The Banbury Center, Cold Spring Harbor Laboratory. NY
  98. Plenary lecture at the 10th European Congress of Endocrinology, May 2008, Berlin, Germany.
  99. Key Note. Retreat for the New PI, Institutes of Genetics, and of Aging, of the CIHR (Canadian Institutes of Health Research). November 2008 Toronto Canada
  100. New insight on the genetics of human longevity, Molecular Seminar, Dept of Biology, McGill University November 2008, QC Canada.
  101. Key Note. Longevity Consortium Symposium November 2008, Washington DC
  102. Longer Life Foundation's Visiting Scholar. Grand Round at Washington University. November 2008. St. Louis MI.
  103. "The decline in nutrient sensing mechanisms during mammalian aging". Gordon Conference on Biology of Aging. Venture CA February 2009.
  104. "Insulin resistance in aging". Keystone Symposia: Complications of Diabetes and Obesity. Vancouver Canada February 2009
  105. "IGF signaling and aging humans". Gordon Conference on Insulin-Like Growth Factors In Physiology & Disease Venture CA March 2009
  106. Symposium on Insulin resistance and Aging. The 3rd International Congress on PREDIABETES and the METABOLIC SYNDROME, April 2009, Nice France
  107. Grand Round: Central control of peripheral glucose metabolism Department of Cellular and Structural Biology UTHSCSA San Antonio TX April 2009.
  108. Invited speaker for the ASBMB 2009 Annual Meeting. April 2009, New Orleans, LO

109. Grand Round: Genetic basis for aging and longevity. Pennington Biomedical Research Center April 2009, New Orleans, LO
110. International symposium on diabetes. Regulation of insulin action through the hypothalamus. Nanjing China May 2009.
111. Aging and Healthy Lifespan Conference at Harvard Medical School. “Novel Pathways for Healthy and Exceptional Longevity in Humans.” Harvard MA October 2009
112. Life Science Summit Strategy to develop drugs to preserve cognitive function with aging. LI, NY October 2009.
113. Grand Round: Department of Gerontology. Role of pituitary in aging. Leiden Netherlands October 2009
114. Grand Round: Aging Center. Role of genes in life span of humans. Groningen, Netherlands October 2009
115. Combined vision on elderly. ( Hosted by Insurance Company)—“Pension, Social security, progress in medicine and aging. “Future of Gerontology research and life span”. Tel Aviv Israel, October 2009

**NATIONAL INSTITUTE OF HEALTH ADVISORY PANELS, ADVISORY BOARD, WORKSHOPS AND STUDY SECTIONS**

1. Workshop on Centenarians Cell/DNA Bank and Genotyping; December 1997; The National Institute of Aging; Washington, DC
2. Workshop on Genetic Epidemiology of Age-Related Survival Outcomes; April 1998; The National Institute of Aging; Washington, DC
3. Workshop on Metabolic Regulation and Aging; May 2000; The National Institute of Aging.; Galveston, TX
4. Centenarian Study Group; May 2000; Santa Monica, CA
5. Advisory Panel on Exceptional Longevity (APEL); July 2000; The National Institute of Aging; Washington, DC
6. Advisory Panel on Diabetes and Aging; February 2001; NIA/NIDDK; Washington, DC
7. American Federation of Aging Research Study Section; 2001-2004;
8. Reviewer for the Wellcome Trust; 2001; London, England

9. Study section site visits; April - November, 2003; The National Institute of Aging
10. Longitudinal Data on Aging (LDA) Working Group; December 2003
- 11. Aging Systems and Geriatrics (ASG) Study Section (2003-2008)**
12. Workshop on adipose tissue secretory function and its role in obesity-associated comorbidities; sponsored by numerous NIH institutes, centers and offices; 2003
13. Report to the National Advisory Council on Aging; NIH; February 2004
14. Report to the national Advisory Council on Aging. NIH; February 2004
15. NIA P01-Longevity Consortium (2004-2009)
16. Advisory Board for University of Louisiana program Project on aging; 2005
17. Advisory Board for Yale Pepper center; 2005
18. Progra Advisory Program Committee for The Beeson CDA 2006
19. NIH Workshop on Systems Biology of Human Aging. Washington DC 2006
20. NIA's CALERIE exploratory workshop with a working title "Growth Factors; cell proliferation, differentiation, and turnover; cell signaling." Washington DC 2006
21. Animal Models of Comorbidities of Aging" workshop. Washington DC 2007
22. P01 review Washington DC 2007
23. Executive committee and Group leader in Biology of Aging Program (BAP) Summit workshop on September, 2008 Gaithersburg, MD
24. Advisory Board for the Pepper Center, Wake Forest NC
25. 2009/10 ZRG1 Center for Scientific Review Special Emphasis Panel
26. Review leader for PPG: Insulin and IFG-1 Signaling Effects on Mouse Lifespan
27. ARRA REVISION I (Challenge grants) 2009
- 28. Biological Aging Review Committee 2009**
29. System Biology of Aging. Santa Barbara NM. August 2009

**30.** Epigenetic Regulation of Aging & Functional Consequences – NIA September 2009

**PATENT ISSUE**

- 1) PCT/US2004/00876: Biological Markers for Longevity and Diseases, uses thereof; filed 3/20/03.
- 2) PCT/US2007/526-1: Anti-hyperglycemic agent Humanin uses thereof; filed 4/07

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