Optimal Aging
Through Research

Making Connections: From Cells to Societies

This Continuing Educational activity is jointly sponsored by The Annenberg Center for Health Sciences at Eisenhower and The Gerontological Society of America.

Biological Sciences Program

The 2014 conference theme challenges researchers to present their best evidence on aging-related connections they investigate. Learn more about GSA’s Biological Sciences Program at geron.org/biological

Thank You to Our Biological Sciences Program Sponsors

Funding for this conference was made possible, in part by 1 R13 AG047033-01 from the National Institute on Aging. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government.
Making Connections: From Cells to Societies

Followed by reception.

Presentations:
- George Sutphin, Jackson Lab

Chairs:
- Featuring Junior Investigators

Symposium:
- ESPO/Biological Sciences
- 4:30 pm–5:30 pm

Tentative Program

From the Basic Biology of Aging to Healthspan Interventions

WEDNESDAY, NOVEMBER 5
8:00 AM–5:00 PM
International Conference: The Second Law of Thermodynamics and the Etiology of Biological Aging
No fee but registration online or onsite is required.

The Second Law may explain the fundamental stochastic cause of biological aging. Briefly stated: energy tends to dissipate unless restrained. Biomolecular constraints consist mostly of chemical bonds—a condition vital to maintain molecular structure, function, and life. Eventually bonds fail, energy spreads, and unrepaired dysfunctional molecules accumulate resulting in aging changes at higher levels of organization. Molecules in repair, synthesis, and maintenance systems suffer the same fate as do other complex molecules. Longevity determinants, unlike the catabolic processes of aging, are anabolic processes and are governed by the genome. Longevity determinants, and age-associated diseases, will not be emphasized. The conference is sponsored by the Glenn Foundation for Medical Research and organized by L. Hayflick, University of California, San Francisco, and W. Bortz, Stanford University.

3:00 PM–5:00 PM
ESPO/Biological Sciences Symposium: Late Breaking News Featuring Junior Investigators

Chairs: Rochelle Buffenstein, UTHSCSA; George Sutphin, Jackson Lab

Presentations:
- Alzheimer-Induced Changes in Biomarkers in the Human Lateral Geniculate Nucleus, Elizabeth Couser, University of Maryland
- Age-Related Alterations in the Renin-Angiotensin System and Systemic Chronic Inflammation Mediate Mitochondrial Dysfunction in Aging, Tyesha Burks, Johns Hopkins
- Differential Nutrient Extraction with Acarbose Treatment, Rachel Brewer, UAB
- Increased Senescent Cell Burden Hinders Stem Cell Transplantation Success in Skin, Allyson Palmer, Mayo Clinic

THURSDAY, NOVEMBER 6
8:00 AM–9:30 AM
The Collapse of Proteostasis: The Why, Where, and How
Chair: Ladora Thompson, University of Minnesota

Presentations:
- The Role of Protein Damage in Age-Related Muscle Weakness, Ladora Thompson, University of Minnesota
- Selective Autophagy in the Fight Against Proteotoxicity in Aging, Ana Maria Cuervo, Albert Einstein
- High-Throughput Genetic Screens to Define Mechanisms of Neurodegenerative Diseases, Aaron Gitler, Stanford University

10:00 AM–11:30 AM
Presidential Symposium
Reverse Translation: New Molecular Insights from Large Cohort Studies for the Development of Therapeutic Interventions to Prevent Age-related Mobility Loss
Chair: Roger Fielding, Tufts University

Presentations:
- Integrating Knowledge Gained from Health ABC, Life, and the Baltimore Longitudinal Study, Roger Fielding, Tufts University
- Muscle, Fat and Bone in Health ABC: A Molecular Epidemiology Triangle, Tamara Harris, NIA
- Physiological Domains Important to Losing Mobility During Aging, Luigi Ferrucci, NIA
- Physical Activity, Exercise and Healthy Aging: Bridging Mechanisms and Practice, Bret Goodpaster, Florida Hospital & Sanford Burnham Medical Research Institute

11:45 AM–2:45 PM
Poster Session
Mechanisms of Aging (32 Posters)

FRIDAY, NOVEMBER 7
8:00 AM–9:30 AM
The Geroscience Interest Group (GSIG) — NIH Cross-Institute Round Table
Chair: Felipe Sierra, NIA

The GSIG is a collaborative effort across several NIH Institutes to support the development of new tools, models and paradigms that address the basic biological underpinnings of age-associated diseases. The session will focus on approaches and priorities in geroscience being implemented in different NIH Institutes. Round table participants include: Alison Deckhut, NIAID; Francesca Macchiarini, NIAID; Lisa Postow, NHLBI; Grace Shen, NEI; Julia Rowland, NC; and Aaron Pawlik, NIDDK

1:00 PM–2:30 PM
President’s Opening Plenary Session
Keynote Speaker: Francis Collins, MD, PhD

3:00 PM–4:30 PM
Exercise is Regenerative Medicine: Effects on Mitochondrial Function
Chair: Marcas Bamman, University of Alabama, Birmingham

Presentations:
- Exercise is Regenerative Medicine: Restoring Myogenic and Mitochondrial Function in Aging and Parkinson’s Disease, Marcas Bamman, University of Alabama, Birmingham
- Systemic Benefits of Exercise on Mitochondrial Function in Aging, Mark Tarnopolsky, McMaster University
- Exercise as the Cure for What AGES Us, Kevin Conley, University of Washington

Sessions listed below have been organized by the GSA Biological Sciences section; this is a preview to the wide range of biological science sessions that will take place during GSA’s Annual Scientific Meeting.
FRIDAY, NOVEMBER 7 (cont.)

10:00 AM–1:00 PM
Poster Session
Biomarkers of Aging and Age-Related Disease (25 Posters)

11:30 AM–12:30 PM
BS Section Business Meeting and Award Presentation

1:00 PM–2:30 PM
Geroscience — Aging Biology as the Common Risk Factor for Chronic Diseases
Chair: Felipe Sierra, NIA

Presentations:
- Common Pathways to Aging: Psychological Stress, Physiological Stress, and Indices of Cellular Aging, Elissa Epel, University of California at San Francisco
- Dramatic Epigenomic Changes in Human Cellular Senescence Presage Aging and Cancer, Shelley Berger, University of Pennsylvania
- Biodemographic Model for Analyses of Genetic Effects on Physiological Dysregulation in Aging, Konstantin Arbeev, Duke University

Co-sponsored by the Division of Aging Biology, NIA, the Alliance for Aging Research, the American Aging Association, and the American Federation for Aging Research (AFAR).

3:00 PM–4:30 PM
GSA Fellows Symposium: Physical Function Across the Translational Continuum
Chair: Helen Lach, Saint Louis University School of Nursing
Co-Chair: Elena Volpi, University of Texas Medical Branch

Presentations:
- Biological Mechanisms and Disease States that Drive Functional Decline, Jeremy D. Walston, Johns Hopkins University
- Interventions to Improve the Physical Function of Older Adults, Stephen B. Kritchevsky, Wake Forest School of Medicine
- Neighborhood Social Factors and Physical Function in Older Mexican, Kyriakos S. Markides, University of Texas Medical Branch
- Physical Function Across the Translational Continuum, Kevin J. Mahoney, Boston College

5:00 PM–6:30 PM
Vincent Cristofalo “Rising Star” Award in Aging Research Lecture
The late Vincent Cristofalo devoted his professional career equally to two pursuits: doing aging research, and encouraging younger scientists to investigate important problems in the biology of aging. Vince set an example of wise leadership, sophisticated judgment, and solid accomplishment that remain an inspiration to all who knew him. The American Federation for Aging Research established the Vincent Cristofalo “Rising Star” Award in Aging Research in his honor.

Calorie Restriction, Where Are We Now?
Rafael de Cabo, PhD, Senior Investigator, Mechanisms and Interventions of Aging Section, Laboratory of Experimental Gerontology, National Institute on Aging, National Institutes of Health

Irving S. Wright Award of Distinction Lecture
The Irving S. Wright Award of Distinction is named in honor of the founder of the American Federation for Aging Research (AFAR) and is intended to honor exceptional contributions to basic or clinical research in the field of aging by members of the scientific community. This award is given by AFAR, and, the recipient of this award gives a lecture at GSA’s Annual Scientific Meeting.

Translating Research to Improve Health of Aging Populations
Terrie Fox Wette, MS, PhD, Dean, School of Public Health, Brown University

Followed by reception sponsored by AFAR.

SATURDAY, NOVEMBER 8

8:00 AM–9:30 AM
Searching for Drugs that Slow Aging: Prediction, Screens, and Rodent Tests
Chair: Richard Miller, University of Michigan

Presentations:
- NIA’s Intervention Testing Program (ITP): Current Status and Future Plans, Richard Miller, University of Michigan
- ITP for Worms: Picking and Prioritizing Drugs to Promote Healthy Aging, Monica Driscoll, Rutgers University
- Can Short-Term Tests Identify Longevity Drugs?, Joe Baur, University of Pennsylvania

10:00 AM–11:30 AM
Robert W. Kleemeier Award Lecture
The Kleemeier Award is given annually to a member of The Gerontological Society of America in recognition for outstanding research in the field of gerontology.

Growth Hormone and Aging: Surprising Benefits of Endocrine Defects
Andrzzej Bartke, PhD, Southern Illinois University, School of Medicine

11:45 AM–2:45 PM
Poster Session
Interventions to Prevent Age-Related Decline (11 Posters and Late-Breaking Abstracts)

1:00 PM–2:30 PM
Inflammation and Aging
Chair: George Taffet, Baylor College of Medicine

Presentations:
- Aging, Adipose Tissue Inflammation, and Cellular Senescence, James Kirkland, Mayo Clinic
- Inflammatory Phenotype Changes in the Brain with Alzheimer’s Disease and Vascular Dementia, Donna Wilcock, University of Kentucky
- Prostaglandin-related Muscle Inflammation in Older Individuals: Influence of Exercise and COX Inhibiting Drugs, Todd Trappe, Ball State University

Be a part of the program; look for more information this summer at geron.org/biological
SATURDAY, NOVEMBER 8 (cont.)

3:00 PM–4:30 PM
Emerging Mechanisms & Interventions
Chair: Rafael de Cabo, NIA
Presentations:
• Epigenetic Memory of Hydrogen Sulfide Declines with Age in C. Elegans, Dana Miller, University of Washington
• Role of Mitochondrial Metabolism in Immune Aging, Marcia Haigis, Harvard University
• Making Connections: From Stress Resistance to a Longer Health Span, Tom Johnson, University of Colorado

5:00 PM–6:30 PM
Risk Factors for Susceptibility to Dysfunction in the Elderly
Chair: Charlotte Peterson, University of Kentucky
Presentations:
• Transcriptomics of Aging and Related Diseases, Jingzhong Ding, Wake Forest University
• Altered Susceptibility to Drug Hepatotoxicity in Ageing, Sarah Hilmer, University of Sydney
• Lifelong CMV Infection, Aging and Protective Immunity: Basic Mechanisms and Clinical Implications, Ben Zaniello, University of Washington

The National Institute on Aging is hosting two special sessions at the GSA Annual Scientific Meeting in honor of its 40th anniversary:
• From Cells to Society: NIA at 40—Past, Present, and Future
• Federal Aging Research and Funding Opportunities: NIA at 40 Years

Be a Part of the Program
GSA will begin accepting abstracts for the Late Breaker Poster Session this July. Postdoctoral fellows, graduate students, and junior faculty working in the biological sciences are urged to submit abstracts that report on the newest, most pressing, and previously unreported results in aging research. Deadline to submit is September 9, 2014. Look for more information this summer at geron.org/biological

Minority Investigator Travel Awards are Available
The Biological Sciences section has received NIA funds to support the travel of a contingent of researchers to GSA’s 2014 Annual Scientific Meeting. Five travel awards are designated to provide support for minority investigators. All participants will be required to submit abstracts by September 9 and present posters at the meeting. For more information, visit geron.org/awards

Note earlier dates this year!

GSA 2014 ANNUAL SCIENTIFIC MEETING
NOVEMBER 5–9, 2014
WASHINGTON, DC

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