



GSA 2015

Aging as a Lifelong Process

Annual Scientific Meeting ■ Nov. 18-22, 2015 ■ Orlando, FL

Walt Disney World Swan and Dolphin

BIOLOGICAL SCIENCES PROGRAM



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



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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.

Wednesday, November 18

2:30 p.m. – 4:00 p.m.

Environmental Insults in Early Life and Their Impact Upon Aging

Chair: George E. Taffet, Baylor College of Medicine

Co-Chair: Gregory Aune, University of Texas Health Science Center San Antonio

Presentations:

- The Lifelong Health Burden of Successful Childhood Cancer Treatment, *Gregory Aune, The University of Texas Health Science Center at San Antonio*
- Cardiac and Arterial Aging: Lifelong Processes, *George E. Taffet, Baylor College of Medicine*
- In Utero Diesel Exposure and Adult Heart Failure, *Michael T. Chin, University of Washington*

4:30 p.m. – 6:00 p.m.

I Got Rhythm! Circadian Rhythm and Aging in Cells, Mice, and People

Chair: Steven Cummings, California Pacific Medical Center

Discussant: Katie Stone, California Pacific Medical Center

Presentations:

- Molecular Architecture of the Circadian Clock in Mammals, *Joseph Takahashi, University of Texas Southwestern Medical Center*
- Disruption of the Muscle Clock: A Model of Aging?, *Karyn Esser, University of Kentucky*
- Health Consequences of Deteriorating Activity Rhythms With Aging, *Gregory Tranah, California Pacific Medical Center*

6:00 p.m. – 8:00 p.m.

President's Welcome Reception and Exhibit Hall Opening

Poster Session: Biology of Aging (Face-to-Face Time with Presenters 6:00 p.m. – 7:00 p.m.)

Thursday, November 19

8:30 a.m. – 10:00 a.m.

ESPO/Biological Sciences Symposium: The Fires of Aging: Aging and Energy Metabolism

Coffee and Bagels will be served at 7:30 a.m.

Chairs: Donna Holmes, University of Idaho and Jamie Justice, University of Colorado Boulder

Presentations:

- Ambient Temperature Energetic Challenge Improves Healthspan in Male C57BL/6 Mice, *Victoria Gibbs, University of Alabama at Birmingham; Daniel Smith, University of Alabama at Birmingham; David Allison, University of Alabama at Birmingham; Tim Nagy, University of Alabama at Birmingham*
- Maintenance of Glutathione Redox Status in the Naked Mole-Rat Heart Under Conditions of High Oxidative Stress, *Kelly M. Grimes, The University of Texas Health Science Center at San Antonio; Rochelle Buffenstein, The University of Texas Health Science Center at San Antonio*
- Relationships Between Blood Bioenergetic Capacity and Fat Loss After Diet and Exercise Intervention, *Daniel Tyrrell, Wake Forest School of Medicine; Manish Bharadwaj, Wake Forest School of Medicine; Cynthia Van Horn, Wake Forest School of Medicine; Barbara Nicklas, Wake Forest School of Medicine; Anthony Molina, Wake Forest School of Medicine*
- A Novel Retrograde Signaling Pathway From Mitochondria, *Erin Munkácsy, The University of Texas Health Science Center at San Antonio; Maruf H. Khan, The University of Texas Health Science Center at San*

Antonio; Jae H. Park, The University of Texas Health Science Center at San Antonio; Rebecca K. Lane, The University of Texas Health Science Center at San Antonio; Alex Bokov, The University of Texas Health Science Center at San Antonio; Chris Link, The University of Texas Health Science Center at San Antonio; Shane L. Rea, The University of Texas Health Science Center at San Antonio

- MitoQ Supplementation Improves Motor Function and Muscle Mitochondrial Health in Old Male Mice, *Jamie N. Justice, University of Colorado Boulder; Douglas R. Seals, University of Colorado Boulder; Micah L. Battson, University of Colorado Boulder; Jonathan J. Herrera, University of Colorado Boulder; Michael P. Murphy, MRC Mitochondrial Biology Unit; Rachel A. Gioscia-Ryan, University of Colorado Boulder*

10:30 a.m. – 12:00 p.m.

President's Opening Plenary Session

Keynote Speaker:
Ezekiel Emanuel, MD, PhD



12:15 p.m. – 1:15 p.m.

Poster Session: Biomarkers of Aging and Age-Associated Disease (Face-to-Face Time with Presenters 12:15 p.m. – 1:15 p.m.)

1:30 p.m. – 3:00 p.m.

Presidential Symposium: Womb to Tomb, Early Life Influences on Aging

Chair: Peter Nathanielsz, University of Wyoming

Presentations:

- Nutritional Programming: How Life in the Womb Determines our Health Span and Lifespan, *Susan Ozanne, University of Cambridge*
- Metabolic Syndrome: Early Development and Aging, *Mina Desai, University of California, Los Angeles; Michael G. Ross, University of California, Los Angeles*
- Comparative Studies That Address the Meeting Theme Aging as a Lifelong Process, *Peter Nathanielsz, University of Wyoming*

3:30 p.m. – 5:00 p.m.

Effects of Maternal Health on Lifelong Offspring Health and Lifespan

Chair: *Kevin Pearson, University of Kentucky*

Presentations:

- Mechanisms Linking the Maternal Environment to Lifelong Health, *Carmen Marsit, Dartmouth College*
- Imaging Biomarkers of Aging in Baboons, in Utero and Beyond, *Geoffrey D. Clarke, The University of Texas Health Science Center at San Antonio; Anderson Kuo, The University of Texas Health Science Center at San Antonio; Cun Li, The University of Wyoming; Peter Nathanielsz, The University of Wyoming*
- Effects of Maternal Exercise During Pregnancy on Long-Term Health Outcomes in Mouse Offspring, *Kevin Pearson, University of Kentucky*

Friday, November 20

8:00 a.m. – 10:00 a.m.

Bear, Naked, Bugs, and Turtles: Insights into Successful Aging Using a Comparative Biology Approach

Chair: *Sarah Milton, Florida Atlantic University*

Co-Chair: *Kevin C. Corbit, University of California, San Francisco*

Presentations:

- The Naked Mole-Rat; A Case of the Peter Pan Syndrome, *Miranda Orr, The University of Texas Health Science Center at San Antonio; Valentina Garbarino, The University of Texas Health Science Center at San Antonio; Angelica Salinas, The University of Texas Health Science Center at San Antonio; Rochelle Buffenstein, The University of Texas Health Science Center at San Antonio*
- Insights Into Aging From Turtles, Animals That Show Extremely Slow Aging, *Sarah Milton, Florida Atlantic University*
- Insulin Sensitivity and Growth Hormone: Lessons From Classical Models and Natural, Extreme Biology, *Kevin C. Corbit, University of California, San Francisco*

- Aging, Frailty, and the Microbiome, *Robert G. Beiko, Dalhousie University*

11:00 a.m. – 12:30 p.m.

BS Section Business Meeting and Award Presentation

(Lunch served at 11:00 a.m., presentation will begin at 11:30 a.m.)

1:00 p.m. – 2:30 p.m.

Endocrines

Chair: *Roy Smith, The Scripps Research Institute*

Presentations:

- Reversing the Negative Impact of Hormonal Changes During Aging, *Roy Smith, The Scripps Research Institute*
- Hormonal Activity in Development and Healthy Aging, *Michal Masternak, University of Central Florida*
- Sex Steroid Hormones Regulate Effects of Obesity on Alzheimer-Related Neuropathology, *Christian Pike, University of Southern California*

3:00 p.m. – 4:30 p.m.

Improved Aging via Manipulation of Diet, Hypoxia, and Gene Expression

Chair: *Benjamin Eaton, University of Texas Health Science Center at San Antonio*

Presentations:

- Resistance to Diet-Induced Metabolic Disturbances in Association with Maintenance of Memory in the Aging Lou Rat, *Pierrette Gaudreau, University of Montreal; Guylaine Ferland, University of Montreal; Oriane Lié, Université Paris Descartes; Caroline Ménard, University of Montreal*
- Continuous Glucose Monitoring With Longevity Extending Interventions, *Daniel Smith, University of Alabama at Birmingham; Samir Rana, University of Alabama at Birmingham; Victoria Gibbs, University of Alabama at Birmingham; Nathan Miyasaki, University of Alabama at Birmingham; Inga Kadish, University of Alabama at Birmingham; Thomas van Groen, University of Alabama at Birmingham; Rachel Brewer, University of Alabama at Birmingham*

- FMO-2 Increases Longevity and Improves Healthspan Downstream of Hypoxic Signaling, *Scott Leiser, University of Washington; Matt Kaeberlein, University of Washington*
- Peptides Regulate Gene Expression During Ageing, *Vladimir Khavinson, Saint Petersburg Institute of Bioregulation and Gerontology; Natalia Linkova, Saint Petersburg Institute of Bioregulation and Gerontology*
- SKN-1 and Nrf2 Couples Proline Catabolism With Lipid Metabolism During Nutrient Deprivation, *Shanshan Pang, University of Southern California; Dana Lynn, University of Southern California; Sean Curran, University of Southern California*

5:00 p.m. – 6:30 p.m.

The following awards are presented by American Federation for Aging Research, and the recipients of these awards give a lecture at GSA's Annual Scientific Meeting.

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. Cristofalo set an example of wise leadership, sophisticated judgment, and solid accomplishment that remain an inspiration to all who knew him.

Sirtuins and NAD⁺ in Aging and Diseases

*Leonard Guarente, PhD
Massachusetts Institute
of Technology*



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.

Reversing Dysfunction in Aging Tissues

Amy Wagers, PhD
Harvard University and
Harvard Stem Cell Institute



Followed by reception
sponsored by AFAR.

Saturday, November 21

8:00 a.m. – 9:30 a.m.

Metabolism, Microbes, and Immunity

Chair: Janko Nikolich-Zugich, University of Arizona College of Medicine

Presentations:

- Metabolic and Transcriptional Defects in old T Cells and Approaches to Reverse Them, Janko Nikolich-Zugich, University of Arizona College of Medicine; Kristin R. Renkema, University of Arizona College of Medicine; Jason L. Pugh, University of Arizona College of Medicine; Lydia K. Lutes, University of Arizona College of Medicine; Jennifer L. Uhrlaub, University of Arizona College of Medicine; Dragana Nikolich-Zugich, University of Arizona College of Medicine; Megan J. Smithey, University of Arizona College of Medicine; Charles D. Surh, University of Arizona College of Medicine; Emily L. Goldberg, University of Arizona College of Medicine
- Immunometabolic Control of Age-Related Inflammation, Vishwa Dixit, Yale School of Medicine
- Cells, Organs, and People Aging With HIV: Where Does it all Lead? Kevin High, Wake Forest School of Medicine

10:00 a.m. – 11:30 a.m.

Donald P. Kent and Robert W. Kleemeier Lectures

11:45 a.m. – 12:45 p.m.

Poster Session: Interventions to Prevent Age-Related Decline and Late-Breaker Abstracts (Face-to-Face Time with Presenters 11:45 a.m. – 12:45 p.m.)

1:00 p.m. – 2:30 p.m.

Immune Aging

Chair: Bonnie Blomberg, University of Miami

Presentations:

- Regulation of an Antibody/Vaccine Response With Age, Bonnie Blomberg, University of Miami; Alain Diaz, University of Miami; Maria G. Romero, University of Miami; Daniela Frasca, University of Miami
- The T Cell Receptor Repertoire in Healthy Aging, Jörg Goronzy, Stanford University; Qian Qi, Stanford University; Cornelia Weyand, Stanford University
- Inflamm-Aging and the Pulmonary Inflammatory Response, Elizabeth Kovacs, Loyola University Chicago; Luis Ramirez, Loyola University Chicago; Jill Shults, Loyola University Chicago; Joslyn Albright, Loyola University Chicago; Brenda J. Curtis, Loyola University Chicago

3:00 p.m. – 4:30 p.m.

Fondation Ipsen Longevity Prize Award Lecture

Chair: Yves Christen, Fondation Ipsen

Co-Chair: Thomas Kirkwood, Fondation Ipsen

Discussant: Caleb Finch, Fondation Ipsen

Broadening the Bestiary: What a Nontraditional Species can Contribute to Understanding Aging



Steven N. Austad, PhD
University of Alabama at Birmingham

5:00 p.m. – 6:30 p.m.

Geroscience

Chair: Felipe Sierra, National Institute on Aging

Presentations:

- Examining the Interface Between Aging and Age-Related Diseases, Laura Niedernhofer, The Scripps Research Institute; Tania Rozgaja, The Scripps Research Institute; Aditi Gurkar, The Scripps Research Institute; Xuesen Li, The Scripps Research Institute; Jing Zhou, The Scripps Research Institute; Janine Kruit, University Medical Center Groningen; Yinsheng Wang, University of California, Riverside; Paul Robbins, The Scripps Research Institute
- Genetics of Aging Phenotypes Over the Life Course: A Population Perspective, Joanne M. Murabito, Boston University
- Protein Indigestion in Aging Neurons and Neurodegenerative Disease: How do you Spell Relief? Ralph Nixon, New York University

Sunday, November 22

8:00 a.m. – 10:00 a.m.

Transposable Elements and Epigenetic Regulation of the Genome During Aging

Chairs: Stephen L. Helfand, Brown University and Gil Atzmon, University of Haifa and AECOM

Presentations:

- Retrotransposons as Agents of Somatic Diversity, Disease and Aging, *Stephen Helfand, Brown University*
- Early Life Programming of Drosophila Physiology and Lifespan, *William W. Ja, The Scripps Research Institute; Kimberley D. Bruce, The Scripps Research Institute; Sany Hoxha, The Scripps Research Institute*
- What Role Does the Environment Play in Longevity? Epigenetic Approach, *Gil Atzmon, University of Haifa and AECOM*
- Recent Results on the Epigenetic Clock, *Steve Horvath, University of California, Los Angeles*

10:00 a.m. – 11:30 a.m.

Molecular Signatures of Aging: From Bioinformatics to Translational Geroscience

Chair: Daniel Belsky, Duke University

Co-Chair: Alan A. Cohen, University of Sherbrooke

Discussant: Nir Barzilai, Albert Einstein College of Medicine

Presentations:

- Predicting Aging Patterns With Profiles of Biomarkers in Long Life Family Study Participants, *Paola Sebastiani, Boston University; Jenny Sun, Boston University; Mary F. Feitosa, Washington University; Christina Wassel, University of Pittsburgh; Amy Matteini, Johns Hopkins University; Bharat Thyagarajan, University of Minnesota; Thomas T. Perls, Boston University*
- Complex Interactions Between Inflammation and Metabolic Hormones During Aging, *Vincent Morissette-Thomas, University of Sherbrooke; Alan A. Cohen, University of Sherbrooke; Éléonor Riesco, Research Center on Aging; Luigi Ferrucci, National Institute on Aging*

- Molecular Signatures of Aging in Young Adults: Functional and Subjective Correlates, *Daniel Belsky, Duke University; David Corcoran, Duke University*
- Genetic Heterogeneity and its Role in GWAS of Human Aging and Longevity, *Anatoliy I. Yashin, Duke University; Deqing Wu, Duke University; Liubov Arbeeve, Duke University; Konstantin G. Arbeeve, Duke University; Mikhail Kovtun, Duke University; Alexander Kulminski, Duke University; Svetlana V. Ukraintseva, Duke University*
- Can Epigenetic Age Predict Future Onset of Lung Cancer? *Morgan E. Levine, University of California, Los Angeles; Devin Absher, HudsonAlpha Institute of Biotechnology; Themistocles Assimes, Stanford University; Steve Horvath, University of California, Los Angeles*

Be a Part of the Program

GSA is currently accepting abstracts for the Late Breaker Poster Sessions. 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 14, 2015. More information can be found 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 group of researchers to GSA's 2015 Annual Scientific Meeting. Five travel awards are designated to provide support for minority investigators. All participants will be required to submit abstracts by September 14, 2015 and present posters at the meeting. For more information, visit geron.org/travelawards