This conference addresses mechanisms that may extend the period of good health, thereby delaying the onset of age-associated diseases and extending longevity. The focus is to highlight cutting-edge advances in aging research, novel technologies and potential therapeutic interventions. Included are talks on mechanisms of aging in a wide range of established and non-traditional animal models with the key objective being to enhance understanding of the basic biology behind experimental and lifestyle manipulations thought to have direct translational application to human aging. The conference will focus on topics not covered at previous Keystone Symposia meetings on aging biology and will specifically examine both the fundamental mechanisms involved in the aging process, as well as interventions and potential therapeutics that may delay aging and the onset of age-associated diseases. The overall goal is to forge a deeper understanding of the complex, multifactorial aging process. Discussions of novel interventions and/or therapeutics that appear to slow aging processes will, in turn, guide the field toward facilitating extended periods of good health and prolonging lifespan in humans.

Session Topics:

• Communicating to Save Thyself: Is a Single Signaling Path the Answer?
• Good Fat, Bad Fat, Brown Fat, White Fat…..
• Trash Removal: Is Enhanced Proteostasis the Way Forward in Aging
• Powerhouse of the Cell: Manipulating Energy in Aging
• Changing What and How We Eat and its Impact upon Healthspan
• Swords, Targets and Cell Death: Combatting Senescence
• A View from Above: Aging at the Top of the Food Chain
• Drugging Aging – Interventions to Extend Human Health and Lifespan

Scholarship Application & Discounted Abstract Deadline: December 12, 2017
Abstract Deadline: January 10, 2018
Discounted Registration Deadline: February 13, 2018

Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Meeting Hashtag: #KShealthspan
www.keystonesymposia.org/18D3
SUNDAY, APRIL 15
Arrival and Registration

MONDAY, APRIL 16
Welcome and Keynote Address
* Rochelle Buffenstein, Calico Life Sciences LLC, USA
  C. Ronald Kahn, Joslin Diabetes Center and Harvard Medical School, USA
  Controlling Metabolism during Aging, Role of Insulin and Adipose Depots

Communicating to Save Thyself: Is a Single Signaling Path the Answer?
* Rochelle Buffenstein, Calico Life Sciences LLC, USA
Holly M. Brown-Borg, University of North Dakota School of Medicine, USA
  Growth Hormone Signaling and Longevity
Dana L. Miller, University of Washington, USA
  Fasting Protects against Hypoxia-Induced Protein Aggregation by Inducing Non-Canonical Insulin Signaling
Reinhold G. Erben, University of Veterinary Medicine Vienna, Austria
  Role of the Klotho/FGF23 Signaling Axis in Aging
Paul L. Fox, Lerner Research Institute, USA
  Short Talk: Glutamyl-Prolyl tRNA Synthetase Is a Critical mTORC1-S6K1 Target Determining Adiposity and Lifespan in Mice
Christopher G. Proud, South Australian Health & Medical Research Institute, Australia
  Short Talk: Regulation of the Elongation Phase of Protein Synthesis Enhances Translation Accuracy and Lifespan

Poster Session 1

Good Fat, Bad Fat, Brown Fat, White Fat....
* Colin Selman, University of Glasgow, UK
Elisabetta Mueller, New York University, USA
  Transcriptional Control of Adipocyte Function in Aging
Barbara Cannon, Stockholm University, Sweden
  Environmental Temperature and Longevity
John Speakman, Institute of Genetics and Developmental Biology, CAS, China
  Does Dietary Protein Content Leverage Total Food Intake and Hence Drive Obesity?
Susanne Klaus, German Institute of Human Nutrition, Germany
  Mitochondrial Uncoupling, Diet, and Aging in Mice

TUESDAY, APRIL 17
Trash Removal: Is Enhanced Proteostasis the Way Forward in Aging
* David Gems, University College London, UK
  Rochelle Buffenstein, Calico Life Sciences LLC, USA
  Extreme Longevity in Naked Mole-Rats Is Associated with Upregulated Proteostasis

Martin S. Denzel, Max Planck Institute for Biology of Aging, Germany
  Forward Genetic Approaches Reveal Multi-Layered Regulation of the Hexosamine Pathway that Modulates Protein Quality Control
Karyn L. Hamilton, Colorado State University, USA
  Contribution of Changes in Cell Proliferation to Proteostasis in Long-Lived Models
Louis R. Lapierre, Brown University, USA
  A Novel and Druggable Modulator of HLH-30/TFEB, Autophagy and Lifespan
Fabian Finger, University of Cologne, Germany
  Short Talk: Food Perception through a Pair of Olfactory Neurons Triggers Rewiring of Organismal Proteostasis
Mario Ost, German Institute of Human Nutrition, Germany
  Short Talk: Elevated FGF21 during Aging Is Required to Preserve Hepatic Proteostasis and Metabolic Health

WEDNESDAY, APRIL 18
Changing What and How We Eat and its Impact upon Healthspan
* Holly M. Brown-Borg, University of North Dakota School of Medicine, USA
Colin Selman, University of Glasgow, UK
  The Influence of Genetic Background on the Metabolic Responsiveness to Dietary Restriction in Mice
Matthew Piper, Monash University, Australia
  The Role of Amino Acid Balance in Lifespan and Health in Drosophila
Samantha Marie Biet, University of Sydney, Australia
  The Role of Amino Acid Balance in Lifespan and Health in Drosophila

Olga Spadaro, Yale University, USA
  Short Talk: Caloric Restriction in Humans Inhibits Inflammation: Insights from CALERIE-II
YongTian Liang, Free University of Berlin & Charité, Germany
  Short Talk: Spermidine and Dietary Restriction Converging on Mitochondrial Metabolism in a Model of Cognitive Aging
Poster Session 3

Swords, Targets and Cell Death: Combating Senescence
*Martin S. Denzel, Max Planck Institute for Biology of Aging, Germany
Judith Campisi, Buck Institute for Research on Aging, USA
Cellular Senescence: A Double-Edged Sword
Manlio Vinciguerra, International Clinical Research Center, Czech Republic
Epigenetic Links between Senescence and Cancer Stemness
Nathan K. LeBrasseur, Mayo Clinic, USA
Senolytic Mechanism to Extend Healthspan
Anil Bhushan, University of California, San Francisco, USA
Short Talk: Eliminating Senescent Beta Cells Prevents Type 1 Diabetes

THURSDAY, APRIL 19

A View from Above: Aging at the Top of the Food Chain
*Susanne Klaus, German Institute of Human Nutrition, Germany
Riikka Hamalainen, University of Eastern Finland, Finland
Mitochondrial DNA Mutagenesis and Aging
P. Eline Slagboom, Leiden University, Netherlands
Three Generations of Human Top Survivors: What Have We Learned
Maiken Nedergaard, University of Copenhagen, Denmark
The Gymphatic System
Alexander Bürkle, University of Konstanz, Germany
Biomarkers of Human Aging – The EU FP7 MARK-AGE Project and Beyond
Pénélope Andreux, Amazentis, Switzerland
Short Talk: Orally Administered Urolithin A Is Safe and Modulates Muscle and Mitochondrial Biomarkers in Elderly
Ian R. Lanza, Mayo Clinic College of Medicine, USA
Short Talk: Therapeutic Potential of Dietary Omega-3 Fatty Acids in Aging Skeletal Muscle

Workshop
*Karyn L. Hamilton, Colorado State University, USA
David A. Ferenbach, University of Edinburgh, UK
The Impact of a Young Circulation on Renal Injury and Fibrosis in Aged Mice
Zoe E. Gillespie, University of Saskatchewan, Canada
Metformin Treatment and Amino Acid Restriction Induce Progerin Degradation in Hutchinson-Gilford Progeria Syndrome Fibroblasts
Samir Morsli, University of Sheffield, UK
Establishing a Model of Stress-Induced Senescence in Zebrafish Larvae
Teresa G. Valencak, University of Veterinary Medicine, Vienna, Austria
Becoming Obese and Hyperthermic en miniature in Ames Dwarf Mice (Prop1 df/df)
Reza Esmaillie, University of Cologne, Germany
Dissecting the Role of Hypoxia-Signaling in Extracellular Matrix Formation of the Nematode

Johannes Grillari, BOKU - University of Natural Resources and Applied Life Sciences Vienna, Austria
Extracellular Vesicles and their miRNA Cargo in Aging and Age-Associated Diseases
Irina G. Shabalina, Stockholm University, Sweden
Upregulated Cytochrome b5 May Rescue Normal Androgen Production in Mitochondrial Respiratory Chain Deficient Leydig Cells from Prematurely Aging Mice
Asael Roichman, Bar Ilan University, Israel
SIRT6 Controls Energy Metabolism to Regulate Lifespan and Healthspan

Drugging Aging - Interventions to Extend Human Health and Lifespan
*Nathan K. LeBrasseur, Mayo Clinic, USA
Andrew Phillips, C4 Therapeutics, USA
Targeted Protein Degradation
David Gems, University College London, UK
What Is an Anti-Aging Drug?
Pedro Beltran, UNITY Biotechnology, USA
Senolytic Drugs: From Mutant Mice to Human Clinical Trials

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

FRIDAY, APRIL 20

Departure