Aging in America

America’s population is aging dramatically. More than 10,000 of the 78 million Baby Boomers are turning 65 every day.\(^1\) Approximately 20% of the population will be 65 years of age and older by 2030.\(^2\)

Care for older adults with multiple conditions accounts for 66% of health care spending. Experts predict that health care costs will increase 25% by 2030, primarily due to this population aging. Spending for Medicare alone will jump by more than 60% in the next 10 years, from $555 billion in 2011 to $903 billion by 2020.\(^3\)

This aging population poses unique scientific, medical and societal challenges that must be met if people are to live long, healthy, and productive lives.

What is AFAR?

The American Federation for Aging Research (AFAR) is a national non-profit organization founded in 1981. Its mission is to support and advance healthy aging through biomedical research. AFAR invests in medical research to advance a better understanding of how aging processes increase our vulnerabilities to diseases as we age.

AFAR has awarded approximately $160 million in grants to more than 3,200 talented scientists and trainees. It funds scientists at all stages of their careers, providing grants which range from $7,500 to $220,000. AFAR identifies and supports cutting-edge research and encourages physicians to address the needs of older adults. AFAR provides opportunities for scientific exchange and collaborations, and updates the public on significant medical findings.

Aging and Disease

Age is a major risk factor for several physically, mentally, and economically devastating diseases typical of old age. Science provides the tools to uncover the connections between aging and illness. AFAR funds research projects which examine the impact of aging on the development and progression of diseases such as cancer.

Cancer

- Cancer is a group of diseases characterized by out of control cell growth
- Over 40% of the population will be diagnosed with cancer during their lifetime\(^4\)
- Estimated that there will be over 1.6 million new cases of cancer in 2013
- Age is the most important risk factor for cancer\(^5\); 53% of cases appear in people over 65\(^6\)
- Cancer is the second leading cause of death in people over 65\(^7\)
- Nearly 70% of cancer deaths occur in people over 65\(^8\)
AFAR’s Grants to Cancer Research

- Over $3.7 million has been awarded to 70 scientists conducting cancer-related research at 51 institutions in 21 states.

AFAR Grantees conducting noteworthy Cancer Research

- **Judith Campisi, PhD**: Professor, Buck Institute for Research on Aging
  AFAR Research Grant Recipient, 1990

- **Sandy Chang, MD, PhD**: Associate Professor of Laboratory Medicine and Pathology; Associate Director, Molecular Diagnostics Laboratory, Yale University
  AFAR Beeson Scholar, 2004

- **Vera Gorbunova, PhD**: Professor of Biology, University of Rochester
  AFAR Research Grant Recipient, 2005
  Led study on the cellular mechanisms that make blind mole rats cancer resistant, with the goal of developing methods to activate similar mechanisms in humans. The study was published in Nature in 2012.

- **Arti Hurria, MD**: Associate Professor of Medical Oncology; Director, Cancer and Aging Research Program, City of Hope
  AFAR Beeson Scholar, 2005
  AFAR/Merck Junior Investigator Award in Geriatric Clinical Pharmacology, 2001

- **Christopher Y. Park, MD, PhD**: Assistant Member, Sloan-Kettering Institute for Cancer Research
  AFAR Research Grant Recipient, 2011

- **Norman Sharpless, MD**: Professor of Medicine and Genetics; Director, Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill
  AFAR Beeson Scholar, 2003

“We need research that tells us why cancer is more prominent in older people, whether cancer behaves differently in the young and the old, and whether the treatment should be different for the different age groups.”

—Dr. Richard J. Hodes, Director of the National Institute on Aging (NIA)
Aging & Cancer | AFAR Funded Research Projects

Judith Campisi, PhD: Cellular Aging and Protoncogene Expression, Boston University (1990)

Richard M. Cawthon, MD, PhD: Genetic Variation at Antioxidant Loci, Ae Upon Diagnosis of First Tumor, and Human Longevity, University of Utah (1995)

Sandy Chang, MD, PhD: Telomere Induced Genomic Instability in Premature Aging, MD Anderson Cancer Center (2004)

Lynn Chien, MD: Tumor Necrosis Factor Receptor Subtype-Specific Signaling in Vascular Smooth Muscle Cells, Duke University Medical Center (2001)

Michael Dobryansky, PhD: Angiogenesis and Prognosis of Colorectal Cancer, New York University School of Medicine (1997)

James W. Gaubatz, PhD: DNA Repair of Proto-Oncogenes During Aging, University of South Alabama (1987)

Vera Gorbunova, PhD: Changes in the levels of DNA double-strand break repair proteins during aging and cellular senescence, University of Rochester (2005)

David A. Goukassian, MD, PhD: The Effect of Aging on DNA Repair and Mutation Rate: Modulation by DNA Oligonucleotide Therapy, Boston University (2000)

Claudia Gravekamp, PhD: A Syngeneic Mouse Tumor Model to Develop Cancer Vaccines for the Elderly, Cancer Therapy and Research Center (2000)

Cary P. Gross, MD: The Impact of Comorbidity on Older Cancer Patients, Yale University (2004)

Vijay Hegde, PhD: Human ribosomal protein S3 (hS3): roles in accelerated aging and tumorigenesis by blocking DNA repair in vivo, Pennington Biomedical Research Center (2008)


Arti Hurria, MD: Can Geriatric Assessment Predict Oncology Outcomes?, City of Hope (2005)

Heidi D. Klepin, MD, MS: Minimizing Physical Function Decline in Older Adults Receiving Chemotherapy, Wake Forest University (2011)

Felice LePar, MD: Older Cancer Patients’ Attitudes Toward Participation in Research, University of Pennsylvania (2001)

Marco Marcelli, MD: Establishment of an Experimental Model to Study the Development of Hormone Unresponsive Prostate Cancer, Baylor College of Medicine (1993)

Raul Mostoslavsky, MD, PhD: SIRT6, a chromatin regulator of glucose homeostasis and genomic stability, Massachusetts General Hospital (2009)

Tung Hoang Ngo, PhD: Effect of Dietary Fat on Androgen-Independent Prostate Tumor Growth in Scid Mice, Western University College of Medicine (2003)
Mohammed Zeeshan Ozair, MD, PhD: Analysis of Neural Stem Cell migration towards Brain Tumors by in vivo phage display, Harvard Medical School (2004)

Neha Parikh, PhD: Effects of aging on tumorigenesis induced by p53 deletion and Ras activation in mice, Baylor College of Medicine (2009)

Christopher Y. Park, MD, PhD: The roles of p53-interacting chromatin modifying complexes in human cellular aging, Memorial Sloan-Kettering Cancer Center (2011)


Maricarmen Planas-Silva, PhD: Estrogen Receptor Expression and Function in the Aging Mammary Gland, Penn State University (2001)

Marc Poitras, PhD: Molecular mechanisms of Tankyrase1-induced telomere elongation, New York University School of Medicine (2003)

Pearl H. Seo, MD, MPH: PPARgamma: Biomarker for Breast Cancer in Older Women, Duke University Medical Center (2005)

Norman Sharpless, MD: The Role of the Tumor Suppressor P16 ink4a in mammalian aging, University of North Carolina (2003)

Junko Takeshita, MD, PhD: Oxidative Damage of DNA: Mechanisms for Carcinogenesis, Washington University (2001)

Kelly Trevino, MD: Anxiety With Cancer in the Elderly (ACE): A Cognitive-Behavioral Intervention, Assistant Professor of Psychology In Medicine, Weill Medical College of Cornell University (2014)

Kun-Chih Kelvin Tsai, PhD: Heterotypic interactions between stress-induced prematurely senescent stroma and neighboring epithelial cells in aging and cancer, Harvard Medical School (2004)

Roy Verdery, MD, PhD: Role of Lipoproteins in Production of Tumor Necrosis By Monocyte- Macrophage, Wake Forest University (1989)

Qi-hui Zhai, MD, MSC: Tumor Necrosis Factor in Cerebral Ischemia in Aged Rat, Medical College of Ohio (1997)