# More Than 150 Innovators Awarded in Global Competition Seeking Solutions with the Aim to Improve Healthy Longevity

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The National Academy of Medicine (NAM), together with eight global collaborators representing over 50 countries and territories, today announced the awardees of the 2021 Healthy Longevity Catalyst Awards. These awards are part of the Healthy Longevity Global Competition, a multiyear, multistage, and multimillion-dollar international competition seeking potential breakthrough innovations aiming to extend human health and function later in life.

In the 2021 cycle of the Catalyst Awards, innovators around the world submitted more than 1,000 applications. The Catalyst Phase calls on teams and individuals from any background — from science, medicine, and health to technology, finance, social

sciences, and beyond — to submit innovative ideas with the goal of extending the human healthspan. Applications are judged primarily on novelty and innovation.

The NAM founded the competition and coordinates among a network of global collaborators, each administering a competition in their respective country or region. In parallel, the NAM also administers a U.S.-based Catalyst Award competition, for which approximately 500 innovators submitted applications in 2021. The following 25 submissions received Catalyst Awards from the NAM (principal investigators for each are listed) and were announced today at the NAM's inaugural Global Innovator Summit. Each awardee will receive $50,000 USD as seed funding to help advance their ideas:

- **Advancing Cardiovascular Monitoring: Long-Term, Accessible, Multi-Modal Soft Bioelectronics**
  Nanshu Lu, associate professor, the University of Texas at Austin
- **The Aging Exposome: Characterizing Bidirectional Effects of Exposures and Aging**
  Ram Gouripeddi, assistant professor, University of Utah
- **Automatically Refocusing Reading Glasses**
  Robert Konrad, CEO, Zinn Labs
- **Combating Arterial Aging by Engineering the Gut Virome to Transmit Equol Producing Genes**
  Justyn Jaworski, assistant professor of bioengineering, the University of Texas at Arlington

- **Community Brain Health in African American Faith-Based Organizations**
  Dean Sherzai, co-director, Healthy Minds Initiative
- **Deciphering Mechanisms of Disease Resistance and Longevity in Centenarians**
  George Murphy, associate professor of medicine, Boston University School of Medicine and co-director of the Boston Medical Center/BU Center for Regenerative Medicine (CReM)
- **Defining Drivers of Ovarian Aging to Balance the Scales toward Healthy Longevity**
  Jennifer Garrison, assistant professor, Buck Institute for Research on Aging
- **Delaying Menopause and Increasing Reproductive Longevity with Mullerian Inhibiting Substance**
  David Pepin, assistant professor, Massachusetts General Hospital
- **Designing Music-Based Interventions for Aging-Related Pain: Sonifying Body Movement Using Interactive Mobile Technology to Improve Physical and Psychological Outcomes**
  Elizabeth Murnane, assistant professor of engineering, Dartmouth College
- **Dynamic Signature of Cuffless Blood Pressure and Risk of Subclinical Brain Disease and Dementia**
  Yuan Ma, postdoctoral research fellow, Harvard T.H. Chan School of Public Health
- **Enabling Healthy Longevity by Investigating the Aging Extracellular Environment**
  Xi Ren, assistant professor, Carnegie Mellon University

- **Human Activity Recognition to Avoid Fall Related Injuries in the Older Adult Population**
  Rebecca Tarbert, director of clinical programs, ActiveProtective Technologies, Inc.
- **Identifying Predictive Biomarkers of Effective Immunity in Aging Populations**
  Wayne Koff, president and CEO, Human Vaccines Project
- **Joy for People Living with Dementia Using a Virtual Assistant**
  Lisa Fournier, project coordinator, University of Southern Indiana
- **A Multi-Sensor Wearable System with a Personalized AI and Multimodal Biofeedback to Improve Balance of Older Adults at Home**
  Alparslan Emrah Bayrak, Assistant Professor, Stevens Institute of Technology
- **A New State-wide Tele-health Model to Deliver ADRD Tele-assessment and Tailored Care Planning to Older Adults in Low-Access, High-Risk Rural Communities**
  Jenay Beer, associate professor, University of Georgia
- **A Novel Treatment for Age-Induced Loss of Muscle Strength (Frailty)**
  Stephen Meriney, professor, University of Pittsburgh
- **A Platform for Identifying Synergistic Longevity Interventions**
  George Sutphin, assistant professor, University of Arizona
- **Repurposing the Lightbulb to Support Healthy Ageing**
  Daniel Joyce, postdoctoral scholar, University of Nevada, Reno
- **The Role of Mitochondrial in Stem Cell Transplantation and Repair**

Atena Zahedi, postdoctoral fellow, Stem Cell Research Center, University of California, Irvine

- **The Role of Sirolimus in Delaying Aging and Age-Related Diseases**
  Irina Timofte, associate professor, University of Texas Southwestern
- **Toward Safe and Independent Senior Mobility: Development of a Supportive Tool to Self-Assess Driving Performance**
  Kate Hyun, assistant professor, the University of Texas at Arlington
- **Transcranial Focused Ultrasound for Enhanced Glymphatic-Based Delivery of Antibodies for Brain Imaging and Therapy**
  Muna Aryal, research associate, Loyola University of Chicago
- **Transformative Oral Drugs that Reverse Muscle Weakness and Aging in Older Adults**
  Stan Watowich, CEO and founder, Ridgeline Therapeutics
- **Unraveling the Mycobiome: Fungi as a Novel Class of Probiotics to Target Inflammaging**
  Eric Schott, co-founder and vice president of Translational Research and Operations, Solarea Bio Inc.

“I am pleased to see this global competition advance and welcome a new cohort of scientists, innovators, and entrepreneurs for their ambitious work to extend the human healthspan. This diverse and cross-disciplinary group is helping improve the physical, mental, and social well-being of people as they age,” said National Academy of Medicine President Victor J. Dzau. “We look forward to continuing our support of new researchers to the field of longevity

and stimulating breakthroughs that will impact the lives of generations to come."

Other organizations that issued Catalyst Awards today include Academia Sinica of Taiwan; Chinese Academy of Medical Sciences; Chinese University of Hong Kong and the University of Hong Kong; EIT Health of the European Union; Agency for Medical Research and Development of Japan; Ministry of Health and National Research Foundation of Singapore; National Agency for Research and Development of Chile; and UK Research and Innovation. As part of the competition's commitment to share knowledge and stimulate an entire field by not only rewarding innovative ideas but also sharing those ideas with the world, summaries of all awarded ideas are available at www.healthylongevitychallenge.org.

As Catalyst Awardees and finalists make progress on their work, they become eligible for support in the second phase of the competition, the Accelerator Phase. The three global Accelerator sponsors — Johnson and Johnson Innovation LLC, Eisai, Co., and the kENUP Foundation on behalf of the European Investment Bank — all lead their own competition and awards.

Johnson and Johnson Innovation is the first sponsor to administer Accelerator Awards through the launch of the NAM Healthy Longevity QuickFire Challenge. Four awardees of the first NAM Healthy Longevity QuickFire Challenge were announced during the inaugural Global Innovator Summit (principal investigators for each are listed). They will receive a total of up to $750,000 USD and

mentorship from experts at the Johnson and Johnson Family of Companies to further help advance their Catalyst Award-winning work:

- **Boston Children's Hospital**
  *The team at Boston Children's Hospital aims to identify actionable targets to extend longevity by intersecting genomic signatures in exceptionally long-lived species with those of long-lived humans.*

- **Byteflies**
  *Byteflies is creating a hematology-oncology-specific digital health solution with the potential to objectively track disease progression and detect treatment adverse effects such as neurotoxicity and inflammation at an early stage.*

- **Hamamatsu University School of Medicine**
  *The Hamamatsu University School of Medicine team aims to develop an innovative transdermal therapy of Alzheimer's disease with a new brain-derived peptide.*

- **SYNCSENSE**
  *With a proprietary intelligent AI-driven sensor and a VR platform, SYNCSENSE aims to transform exercise equipment into engaging and adaptive exergaming experiences that prevents and treats diseases related to physical inactivity and aging.*

Subsequent cohorts of Accelerator Awardees from competition sponsors Eisai Co., and the European Investment Bank, in partnership with kENUP Foundation, will be announced in the

future. Johnson and Johnson Innovation LLC will also announce additional QuickFire Challenges exclusive to the NAM Catalyst Award awardees in 2022 and 2023.

All 2021 awardees will be invited to attend the annual Innovator Summit in Washington, D.C., in fall 2022 to share their work with policymakers, researchers, potential investors, and fellow innovators from around the world. The next cycle of the Catalyst Phase opens in January 2022, and applications will be accepted for approximately six weeks. After a multistep review process, awardees will be announced in fall 2022.

The final phase of the global competition, the Grand Prize, will award one or more prizes of up to $5 million USD for a breakthrough innovation aiming to extend healthspan. Learn more about the NAM's Global Grand Challenge Competition here.

The Healthy Longevity Global Competition receives support from Johnson & Johnson Innovation LLC; John and Valerie Rowe; Martine Rothblatt and United Therapeutics Corp.; Anthony J. Yun and Kimberly A. Bazar; the John A. Hartford Foundation; and the Bia-Echo Foundation, in addition to commitments from the global collaborator (Catalyst Phase) and Accelerator Phase sponsor organizations.

The National Academy of Medicine, established in 1970 as the Institute of Medicine, is an independent organization of eminent professionals from diverse fields including health and medicine;

the natural, social, and behavioral sciences; and beyond. It serves alongside the National Academy of Sciences and the National Academy of Engineering as an adviser to the nation and the international community. Through its domestic and global initiatives, the NAM works to address critical issues in health, medicine, and related policy and inspire positive action across sectors. The NAM collaborates closely with its peer academies and other divisions within the National Academies of Sciences, Engineering, and Medicine.

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