

Researchers offer cohesive framework for evaluating biomarkers of aging

August 31 2023



Credit: CC0 Public Domain

"Aging" can refer to different processes, making it difficult to define a single and highly generalizable molecule or method to measure aging processes. In turn, there are molecular, biological, functional, clinical, and phenotypic biomarkers of aging that lack consistency.

Researchers at Brigham and Women's Hospital, a founding member of the Mass General Brigham health care system, who lead the [Biomarkers of Aging Consortium](#) collaborated with experts in aging across the world to systematically adapt and extend existing frameworks to classify

biomarkers of aging and their clinical applications.

"As insights into the fundamental biology of aging expand, our work provides a robust framework for the classification and evaluation of biomarkers while documenting challenges and future directions in the field," said study author Jesse Poganik, Ph.D., of the Division of Genetics at the Brigham.

Through classifying advantages and limitations of different biomarkers, the team also compiled a list of criteria that allow researchers to determine if a candidate [biomarker](#) might be feasible, valid, and useful for a particular context or application. Examples of key criteria for evaluation include age-sensitivity and generalizability across cell types. Their work has been published in the journal *Cell*.

"Once validated across different populations and settings, advanced omic biomarkers will equip us with powerful tools to monitor [healthy aging](#), screen for diseases of aging, and identify longevity interventions," said study author Mahdi Moqri, Ph.D., also of the Division of Genetics.

The authors also reviewed processes to validate these biomarkers analytically, through reproducible lab measurements, and clinically, through outcomes observed in human research. Finally, they review key challenges for biomarkers to be used clinically, such as differentiating those that assess [chronological age](#) from those used to measure rate of aging. They offer a novel framework to prepare a biomarker to advance towards clinical use.

"The ability to quantify biological age and determine how it is affected by interventions is a major advance in the field," said Vadim Gladyshev, Professor of Medicine, the corresponding author of the article. "It is also critical to define the terms at the heart of what we study, including aging, [biological age](#), biomarker of aging, etc., which may lay the foundation

for future advances." Poganik, Moqri, and Gladyshev are leaders at the Biomarkers of Aging Consortium.

More information: Vadim N Gladyshev, Biomarkers of Aging for the Identification and Evaluation of Longevity Interventions, *Cell* (2023).

[DOI: 10.1016/j.cell.2023.08.003](https://doi.org/10.1016/j.cell.2023.08.003).

[www.cell.com/cell/fulltext/S0092-8674\(23\)00857-7](https://www.cell.com/cell/fulltext/S0092-8674(23)00857-7)

Provided by Brigham and Women's Hospital

Citation: Researchers offer cohesive framework for evaluating biomarkers of aging (2023, August 31) retrieved 2 May 2024 from <https://medicalxpress.com/news/2023-08-cohesive-framework-biomarkers-aging.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.