

Sara Ahadi, PhD

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SUMMARY

Scientific leader in aging biology and translational proteomics, with expertise building multi-omics discovery platforms integrating longitudinal profiling, plasma proteomics, imaging, and machine learning. Proven track record leading cross-functional teams and developing scalable biomarker strategies for aging clocks, early disease detection, patient stratification, and neurodegenerative disease research.

CORE EXPERTISE

- Aging Biology & Aging Clocks
- Plasma Proteomics & Biomarker Platforms
- Longitudinal Multi-Omics Profiling
- Translational Biomarker Discovery
- Machine Learning & Integrative Modeling
- Precision Health & Early Detection
- Population-Scale Human Cohort Analysis
- Scientific Leadership & Cross-Functional Team Management

PROFESSIONAL EXPERIENCE

OmicsEra | Principal Consultant, Biomarkers & Multi-Omics Strategy

2025–Present

- Advise biotech teams on experimental design, platform selection, and analytical frameworks for proteomics and multi-omics studies
- Support biological and technical evaluation of proteomics platforms, including analytical performance, reproducibility, and translational utility
- Active lead in Human Plasma Proteome Project and community efforts focused on plasma proteome harmonization, reference frameworks, and standardization

Alkahest | Associate Director, Multi-Omics & Biomarker Discovery

2021–2025

- Led a 5-member cross-functional team spanning computational biology, proteomics, and translational science supporting neurodegenerative disease programs
- Defined and executed end-to-end biomarker discovery and validation strategies using plasma proteomics, multi-omics integration, and predictive modeling
- Developed discovery-to-validation workflows for biomarker identification, targeted panel design, and high-throughput validation
- Led development of plasma proteome-based biomarkers associated with aging, neurodegeneration, and patient stratification
- Applied statistical and machine learning approaches to identify predictive and mechanistic biomarkers supporting early-stage program decisions
- Partnered with translational and research teams to prioritize biomarker strategies supporting target evaluation, patient stratification, and program decision-making

Google (Accelerated Science) | Research Fellow

2019–2021

- Led development of EyeAge, integrating CNN-based analysis of longitudinal retinal imaging with genome-wide association studies to define an organ-based aging clock
- Applied machine learning to UK Biobank and EyePACS datasets to identify imaging, molecular, and genetic biomarkers associated with aging
- Collaborated with the New York Stem Cell Foundation and external partners to apply neural network models to primary patient samples in neurodegenerative disease
- Identified predictive metabolomic and transcriptomic signatures associated with disease risk and treatment response, advancing functional multi-omics approaches for precision medicine

Stanford University | Postdoctoral Fellow, Mike Snyder Group

2015–2019

- Led landmark study defining personal aging trajectories (“ageotypes”) and molecular signatures associated with health and personal aging

- Contributed to one of the first longitudinal deep multi-omics profiling studies integrating plasma proteomics, metabolomics, transcriptomics, cytokines, microbiome, and clinical data across >1,000 human timepoints
- Developed microsampling-based multi-omics workflows enabling remote longitudinal molecular profiling and scalable precision health monitoring
- Developed integrative multi-omics analysis frameworks for systems biology, precision health, and early disease detection
- Built high-throughput DIA LC-MS proteomics pipelines enabling scalable and reproducible plasma proteome profiling in longitudinal human cohorts
- Integrated host molecular, microbiome, and immune response data to characterize dynamic responses to infection, vaccination, and environmental perturbations

SCIENTIFIC LEADERSHIP & VISIBILITY

- Invited speaker at international conferences in aging biology, proteomics, biomarker discovery, and early detection
- Reviewer for leading journals in systems biology, computational biology, proteomics, and translational medicine
- Author on multiple publications in Science, Cell, Nature, Nature Medicine, Nature Biotechnology and Nature Communications
- Active contributor to community initiatives advancing plasma proteome standardization and translational biomarker development

EDUCATION

PhD, Chemical Biology — University of California, Davis

MS, Organic Chemistry — Virginia Commonwealth University

BS, Chemistry — University of Tehran

SELECTED PUBLICATIONS

1. Kirsher, D.Y., Chand, S., Phong, A., Nguyen, B., Szoke, B.G., **Ahadi, S.**, et al. (2025). *Current Landscape of Plasma Proteomics from Technical Innovations to Biological Insights and Biomarker Discovery. Communications Chemistry.*

2. Cai, X., Geyer, P.E., Perez-Riverol, Y., Omenn, G.S., Dong, L., Winkler, R., **Ahadi, S.**, et al. (2025). *A Standardized Framework for Circulating Blood Proteomics*. *Nature Genetics*.
3. Geyer, P.E., Hornburg, D., Pernemalm, M., Hauck, S.M., Palaniappan, K., **Ahadi, S.**, et al. (2024). *The Circulating Proteome—Technological Developments, Current Challenges, and Future Trends*. *Journal of Proteome Research*.
4. Shen, X., Kellogg, R., Panyard, D.J., Bararpour, N., Castillo, K.E., **Ahadi, S.**, et al. (2024). *Multi-Omics Microsampling for the Profiling of Lifestyle-Associated Changes in Health*. *Nature Biomedical Engineering*.
5. **Ahadi, S.**, Wilson, K.A., Babenko, B., McLean, C.Y., Bryant, D., Pritchard, O., et al. (2023). *Longitudinal Fundus Imaging and Its Genome-Wide Association Analysis Provide Evidence for a Human Retinal Aging Clock*. *eLife*.
6. Lancaster, S.M., Lee-McMullen, B., Abbott, C.W., Quijada, J.V., Hornburg, D., **Ahadi, S.**, et al. (2022). *Global, Distinctive, and Personal Changes in Molecular and Microbial Profiles by Specific Fibers in Humans*. *Cell Host & Microbe*.
7. Schiff, L., Migliori, B., Chen, Y., Carter, D., Bonilla, C., **Ahadi, S.**, et al. (2022). *Integrating Deep Learning and Automated High-Content Screening to Identify Complex Disease Signatures in Human Fibroblasts*. *Nature Communications*.
8. Sailani, M.R., Metwally, A.A., Zhou, W., Schüssler-Fiorenza Rose, S.M., **Ahadi, S.**, Contrepois, K., et al. (2020). *Deep Longitudinal Multiomics Profiling Reveals Two Biological Seasonal Patterns in California*. *Nature Communications*.
9. Contrepois, K., Wu, S., Moneghetti, K.J., Hornburg, D., **Ahadi, S.**, Tsai, M.S., et al. (2020). *Molecular Choreography of Acute Exercise*. *Cell*.
10. **Ahadi, S.**, Zhou, W., Schüssler-Fiorenza Rose, S.M., Sailani, M.R., Contrepois, K., et al. (2020). *Personal Aging Markers and Ageotypes Revealed by Deep Longitudinal Profiling*. *Nature Medicine*.
11. Caltech-UW TMC, **Ahadi, S.**, et al. (2019). *The Human Body at Cellular Resolution: The NIH Human Biomolecular Atlas Program*. *Nature*.
12. Zhou, W., Sailani, M.R., Contrepois, K., Zhou, Y., **Ahadi, S.**, Leopold, S.R., et al. (2019). *Longitudinal Multi-Omics of Host–Microbe Dynamics in Prediabetes*. *Nature*.
13. Schüssler-Fiorenza Rose, S.M., Contrepois, K., Moneghetti, K.J., Zhou, W., **Ahadi, S.**, et al. (2019). *A Longitudinal Big Data Approach for Precision Health*. *Nature Medicine*.
14. Garrett-Bakelman, F.E., Darshi, M., Green, S.J., Gur, R.C., Lin, L., Macias, B.R., **Ahadi, S.**, et al. (2019). *The NASA Twins Study: A Multidimensional Analysis of a Year-Long Human Spaceflight*. *Science*.