

# *Washington, D.C. Declaration on the Human Exposome*

## **Establishment of a Global Consortium**

### **DECLARATION**

**We, the undersigned participants of the *Exposome Moonshot Forum* held in Washington, D.C. in May 2025, representing diverse stakeholders from academia, government, industry, healthcare, media, and civil society, are:**

**RECOGNIZING** that a wide range of burdensome diseases are linked to environmental exposures—including physical, chemical, biological, dietary, lifestyle, social and other factors—and can be influenced by gene-environment interactions;

**UNDERSTANDING** that integrating the Human Exposome—defined as the integrated compilation of all physical, chemical, biological, and psychosocial influences that impact biology throughout one’s lifecourse— into health research represents a critical frontier in health; Such requires a research program aiming to enable a comprehensive and discovery-driven approach to the study of these environmental determinants of human health;

**PROCLAIMING** that an initiative focused on environmental and lifestyle factors, complementary to the Human Genome Project completed nearly a quarter century ago, will revolutionize our understanding of human health and disease through an understanding of our genome and exposome;

**APPRECIATING** the convergence of advanced and emerging technologies, which now make this discovery-driven initiative feasible;

**ACKNOWLEDGING** the challenges and the necessity of addressing the ethical, legal, and social aspects associated with the systematic analysis of the human exposome.

**WE HEREBY DECLARE** our intent to establish a coordinated Global Human Exposome Initiative with the following objectives:

1. To set the foundation for a human exposome initiative;
2. To systematically characterize the exposures that impact human health across the lifecourse;
3. To develop methodologies and technologies that enable comprehensive, accessible, and ethically sound exposure assessment;
4. To elucidate the mechanisms by which environmental and lifestyle factors interact with genetic predispositions to shape health trajectories;
5. To translate exposome research into actionable strategies for health promotion, disease prevention, early intervention, personalized treatment, resilience and survivorship;
6. To strengthen human health, wellbeing and longevity by understanding population and individual-level differences in environmental health risks, and ensuring that solutions are relevant, applicable, beneficial, and accessible to all.

**WE INTEND** to advance the Global Human Exposome Initiative through:

- Transdisciplinary collaboration across scientific disciplines, sectors, and national boundaries;
- Development and implementation of best practices, standardized protocols and study designs, ontologies, and reporting standards to enhance reproducibility;

- Establishment of a FAIR (Findable, Accessible, Interoperable, and Reusable) data infrastructure with appropriate safeguards for privacy and security;
- Ethical, legal and social frameworks that ensure responsible research practices, accountability, and distribution of benefits across all populations;
- Public engagement and education to enhance awareness and understanding of the exposome and its implications for health, the biomedical sciences and the economy;
- Sustainable and coordinated governance structure to support enduring, long-term research, implementation and innovation regardless of project funding cycles;
- Investment in interdisciplinary education curriculums and workforce development to equip the next global generation of professionals focused on exposomics;
- Support for innovation that translate exposome findings into environmental monitoring and disease surveillance systems, diagnostic tools, health technologies, and public health interventions.

**WE WILL ENGAGE** with research institutions, industrial and commercial firms, healthcare systems, and civil society organizations to join this effort by committing resources, expertise, support and leadership to this transformative public health initiative.

**WE INTEND TO ESTABLISH** a governance structure for the Global Human Exposome Initiative that ensures the requisite scientific expertise and inclusive participation throughout the world and that provides mechanisms for collaboration, coordination, accountability, integration and impact assessment.

**WE AGREE** that the Global Human Exposome Initiative will lead to transformative advances in understanding environmental health risks, and will provide improved tools for disease prevention, diagnostics, treatment, improvement of wellbeing, health and survivorship, ultimately improving health and wellbeing for both current and future generations.

**TODAY, WE HEREBY** launch the Global Human Exposome Initiative with a bold and ambitious agenda for the next quarter of the 21<sup>st</sup> century — complementing our understanding of the genome with equally comprehensive knowledge of the exposome. This endeavor is visionary and collaborative in scope, global in scale, and committed to delivering enduring impact on science, policy, society and human wellbeing.

*Adopted in Washington, DC, on 15<sup>th</sup> of May, 2025*