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Inspiration4: Building the First Comprehensive Omics Atlas of Civilian Spaceflight

The Inspiration4 mission marked the first all-civilian spaceflight, accompanied by the most comprehensive collection of astronaut omics data to date. This talk will highlight the design and execution of biomolecular sample collection in a commercial spaceflight setting, as well as the development of a publicly available resource for the broader research community. By integrating genomics, transcriptomics, and other molecular readouts, Inspiration4 sets a precedent for how civilian missions can contribute to open science and biomedical discovery. Attendees will see how the Inspiration4 dataset establishes a new type of biomolecular resource that can be integrated into existing facility workflows and leveraged for collaborative discovery.

Speaker Bio

Dr. Eliah Overbey is a founding faculty member at the University of Austin (UATX), where she serves as Assistant Professor of Bioastronautics and is actively designing the university's inaugural space program and related curricula. She came to UATX from Weill Cornell Medicine, where she directed the development of the Space Omics and Medical Atlas (SOMA), a comprehensive, publicly accessible repository of astronaut omics data, and continues as Vice Chair of the Cornell Aerospace Medicine Biobank (CAMbank). In her role as Chief Scientific Officer at BioAstra, she leads efforts to build healthcare solutions for astronauts.

Dr. Overbey's research has centered on generating and analyzing astronaut molecular data from landmark commercial spaceflight missions, including SpaceX Inspiration4, Axiom-2, and Polaris Dawn. Looking forward, Dr. Overbey is advancing the next frontier of civilian space exploration through her work with the Space Exploration and Research Agency (SERA), where she is helping to craft an upcoming SERA mission, continuing her dedication to expanding access to spaceflight science and education.

She holds a B.S. in Computer Science from UC San Diego and earned her Ph.D. in Genome Sciences from the University of Washington.

