

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY

INVITED TALK

**“ACCELERATING NEXT-GENERATION THERAPIES THROUGH
GENERATION OF TISSUE-MIMETIC MICROENVIRONMENTS”**

DR. A. J. MELLOTT

CEO, & Co-Founder, Ronawk
Overland Park, Kansas, USA

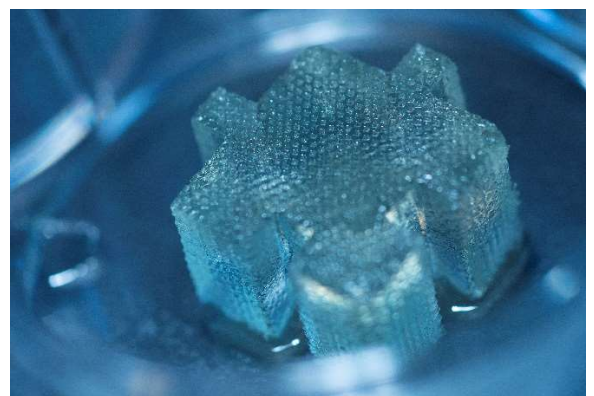


APRIL 24TH 2024, Wednesday



10.30 - 11.30 AM

VENUE: Seminar Hall of MSV
Block (Level2), Biomedical
Technology Wing, SCTIMST



BIOBLOCKS

ALL ARE CORDIALLY INVITED

Title: Accelerating Next-Generation Therapies Through Generation of Tissue-Mimetic Microenvironments

Abstract

We live in a 3D world, and so do our cells. Yet, for nearly 70 years, we have grown cells on flat hard plastic surfaces. Interestingly, the surfaces of organs and tissues in the human body are contoured and sophisticated. Different tissues have different mechanical as well as osmotic properties that contribute both to the structure and function of the tissue. So, it begs the question: “Why do we grow cells on flat plastic surfaces?” A better question is “What if we could grow cells in formats that facilitate the generation of native environments?” Can a tissue-mimetic microenvironment yield high-quality cells with stable phenotypes? Can cells maintain function better in an environment that mimics their native environment? These are the questions we ask at Ronawk. Ronawk’s Bio-Block Universe™ sits at the precipice of biotechnology. The future of next generation therapies is not only about inventing them but manufacturing them in a better way. We deploy innovative tissue engineering strategies and findings in epigenetics to guide our thinking and have developed a state-of-the-art Bio Factory™. Ronawk’s technology enables cells to generate tissue-like microenvironments that produce healthy cells and subsequent biologics which can be captured for therapeutic applications. Ronawk’s Bio-Blocks™ enable cells to generate tissue-like microenvironments that accelerate research in regenerative medicine, wound healing, hearing restoration, vaccine production, liver disease treatment, and remediation of neuromuscular degeneration. By designing a system that allows for consistent, repeatable, and scalable experiments, Ronawk is driving research forward across multiple disciplines.

A.J. Mellott, Ph.D.

CEO, & Co-Founder,

[Ronawk](#)

Overland Park, KS, USA



Speaker Biography

Dr. Mellott graduated with his doctorate in Bioengineering in 2014 from the University of Kansas. His graduate work focused on developing novel tissue engineering strategies for restoring hearing, which culminated in the awarding of his first patent. His postdoctoral work focused on the use of biomaterials to manipulate the extracellular environment to influence the behavior of different cell types within the central nervous system. Through his postdoctoral work, he gained significant insights into how different structures and microgeometries affect cell behavior, which enabled him to generate the hypotheses that lead to the development of the Bio-Block™ technology. In 2015, he accepted a faculty position with the Department of Plastic Surgery at the University of Kansas Medical Center and founded the Repair, Reconstruction, and Regeneration (R3) lab.

His research group applied what they learned from the underlying mechanisms of cell behavior to evaluate the effectiveness of wound dressings and therapies in wound healing applications. Dr. Mellott's work has since yielded multiple patents and publications and provided him with a wealth of knowledge on how cells behave in multiple environments.

In 2019, he co-founded Ronawk™, to utilize biofabrication techniques such as additive manufacturing (3D Printing), to develop technology platforms to accelerate cell expansion for translational research applications. In 2020, Dr. Mellott left the University of Kansas Medical Center to assume the role of CEO at Ronawk and expedite Ronawk's growth.

In five short years, Ronawk has grown to a team of approximately 15 full-time employees and has raised over \$8.5 M USD in equity funding and has been awarded \$2.1 M in grant money. Additionally, the company has generated over \$1 M in revenue. The company continues to grow and develop tissue-mimetic technologies that enhance the production of human, animal, and plant cells for generating different types of biologics. These biologics are being used in the development of organs, therapies to restore hearing, and strategies to enhance wound healing.

In 2023, Dr. Mellott Co-Founded STELLα, A Ronawk Company, which is a contract research organization (CRO) that helps other biotech startups generate critical data for SBIR/STTR grant submissions and investor pitches to raise capital. In the alignment with Ronawk's mission of accelerating next-generation therapies, STELLα seeks to foster a collaborative and vibrant biotech ecosystem within Great Plains Region by enabling the founding and growth of new biotech startups.