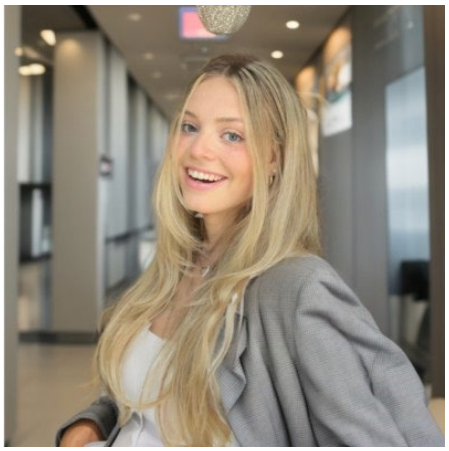
Pitch Summaries

3-D Tissue Fibrosis Model

Presented by **Liora Altman-Sagan, MS**



The Garlick Lab at Tufts University School of Dental Medicine is developing a novel 3-D model of tissue fibrosis. This model enables researchers and clinicians to better understand fibrosis and evaluate new therapies for a broad range of skin diseases driven by fibrotic processes. Tissue fibrosis affects millions of people worldwide and results in tissue scarring, leading to loss of organ function and life-threatening diseases of the lung, GI tract, liver, and skin. More than 30% of patients with diffuse scleroderma die within 10 years of diagnosis—the highest mortality rate of any autoimmune disease—and there is currently no cure. There is an urgent need to develop effective new treatments.

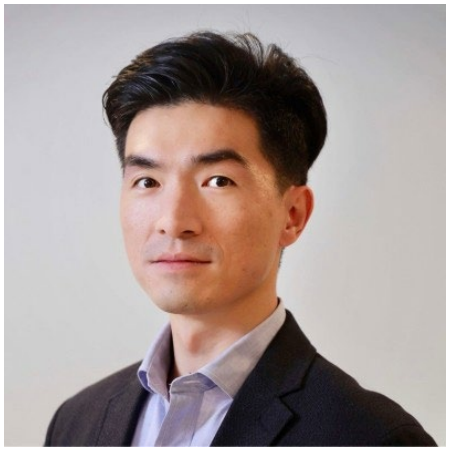
Eye Care

Presented by **Camille André, PharmD, PhD**

In 2024, Elton John shared, *"I can't see anything, I can't read anything, I can't watch anything."* Sadly, his experience reflects a far broader clinical problem. Millions of people develop bacterial keratitis each year—a severe corneal infection that can rapidly lead to permanent blindness. Current antibiotics often fail because they do not prevent bacteria from attaching to the corneal surface, allowing infection to progress or reoccur. We have identified corneal surface molecules that multidrug-resistant *S. aureus* exploits to establish infection. By targeting these interactions, we aim to block infection at its earliest step, shifting care from treatment to true prevention of vision loss.

Daybreak Pharmaceuticals

Presented by **Kevin Bian, PhD**



Chemotherapy can shrink tumors initially, but many cancers eventually develop ways to survive it. When that happens, treatments stop working and patients are left with few options. Our innovation targets a previously unrecognized survival system that cancer cells use to adapt and become resistant. By blocking this system, we restore chemotherapy sensitivity and help prevent resistance from emerging. Because treatment resistance drives most cancer deaths and currently has no direct therapeutic solution, our first-in-class approach aims to enhance the effectiveness of existing therapies across a wide range of cancers

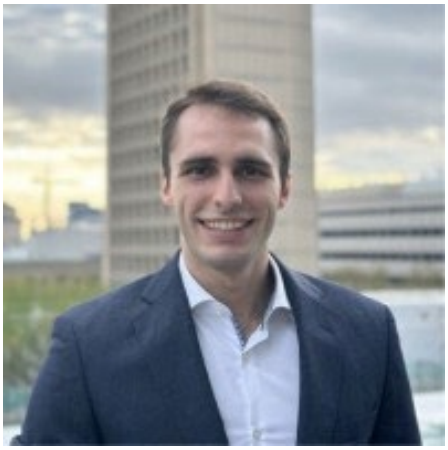
Halo-Sense Neo

Presented by **Inbar Chityat, MS**

In the NICU, medically fragile premature infants rely on continuous monitoring to survive, yet standard adhesive sensors can damage their underdeveloped skin, increase the risk of infection, and interfere with parent–infant bonding. We are developing a fully contactless vital-sign monitoring system that mounts directly above isolettes and fuses radar, video, and AI. This platform is designed to deliver precise vital-sign measurements and robust motion detection in motion-rich neonatal environments while eliminating the iatrogenic harm caused by adhesive sensors. By making monitoring safer and more humane, we aim to transform how hospitals detect clinical instability—starting with neonates and ultimately extending across the lifespan.

PolyCoarct

Presented by **Francesc Canalejo Codina, PhD**



Aortic coarctation and pulmonary artery stenosis are congenital narrowing of major arteries that affect more than 50,000 patients each year. Both conditions share a fundamental structural challenge: growth mismatch. The current standard of care requires repeated interventions throughout childhood. Although stents have emerged as a promising therapeutic option, existing devices are not designed to accommodate growth. PolyCoarct is a pediatric bioresorbable stent engineered to provide temporary vessel support, allow for natural growth, and then gradually resorb, leaving behind a remodeled artery. Our goal is to enable durable repair through a single, minimally invasive intervention.

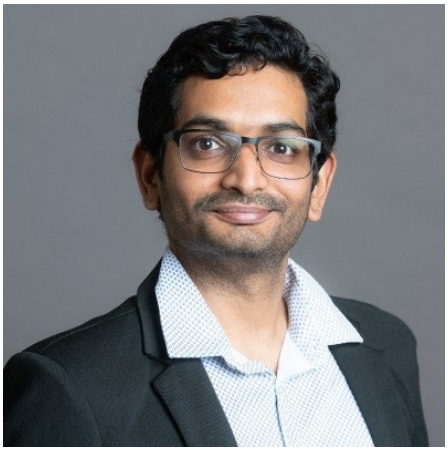
SalivaSens

Presented by **Atul Sharma, PhD**

SalivaSens is developing SensiFloss, a noninvasive, saliva-based hormonal tracking platform for women navigating perimenopause—a 5- to 15-year transition that affects millions of women between the ages of 40 and 55. Hormonal fluctuations during this period can contribute to anxiety, mood changes, sleep disturbances, cognitive decline, weight gain, and metabolic disorders, yet most women lack objective tools to track and interpret these biological changes. SensiFloss integrates hormone sensing into a simple daily oral care routine, providing real-time results and longitudinal insights through a mobile app. By giving women timely, actionable information, SensiFloss empowers them to proactively manage symptoms before they escalate.

Neurapsyc

Presented by **Pranay Srivastava, PhD**



Stroke affects more than 12 million people worldwide each year, and over 7 million Americans are living as stroke survivors. While many regain mobility during rehabilitation, progress often declines once structured therapy ends and nearly half receive no home therapy after discharge. Neurapsyc is developing a lightweight wearable that provides real-time, leg-specific movement cues during at-home walking. The system supports walking retraining in daily life, promoting safer mobility and reducing the risk of falls. The goal is to support long-term recovery and sustained independence for a growing population of individuals with neurological impairments.

SonoImmune Track

Presented by **Tao Sun, PhD**

We are developing engineered immune cells that can be visualized in real time using standard clinical ultrasound and/or MRI. By labeling macrophages with lipid-shelled microbubbles, each cell becomes an acoustically active contrast agent detectable by both ultrasound and MRI. After systemic injection, these cells migrate to sites of brain inflammation or tumors, enabling clinicians to monitor immune-cell trafficking and persistence in vivo. This platform addresses a major limitation in cell-based immunotherapy: the lack of practical methods to verify target engagement and biodistribution of therapeutic cells.