

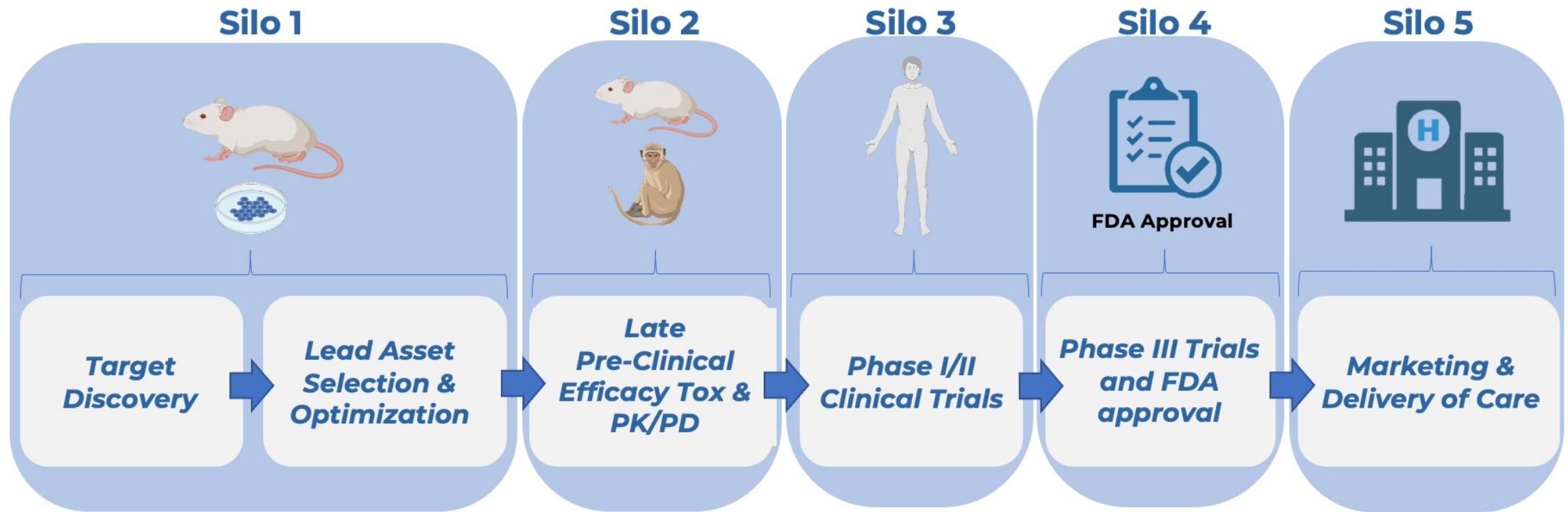
Revolutionizing the Process of
**Biomedical Innovation through
Catalytic Failure**

Yale Innovation Summit
June 1st 2023
Greg Tietjen, PhD
CEO and Co-Founder



revalia bio

The Roadblock: We don't know how to fail



Why is the process of biomedical innovation so flawed?

Time to failure is way too long (10+ years)

Consequences of failure are massive

We don't begin with the patient in mind (failure isn't useful)

Our Solution: Enabling Catalytic Failure

Isolated Donor Human Organs
have the potential to completely
disrupt the existing paradigm



**Target
Discovery**

**Lead Asset
Selection &
Optimization**

**Late
Pre-Clinical
Efficacy, Tox &
PK/PD**

**Phase I/II
Clinical Trials**

**Phase III Trials
and FDA
Approval**

**Marketing &
Delivery of Care**

How isolated human organs transform the process:

- ✓ Begin with the end in mind by starting with diseased human organs
- ✓ Reduce the time to signal in humans from 10+ years to <3 months
- ✓ Fail fast in humans without putting patients at risk

Our Inspiration:

Typically <10% of Organ Donors that pass in hospital have even a single solid organ donated

Donor families are denied the solace that the gift of donation provides



Deceased Donor Organs Don't Need to Be Transplantable to Be Transformative

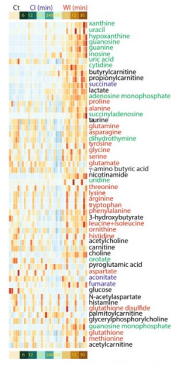
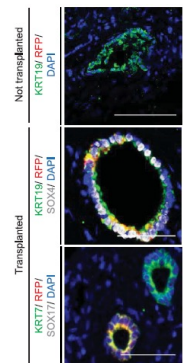
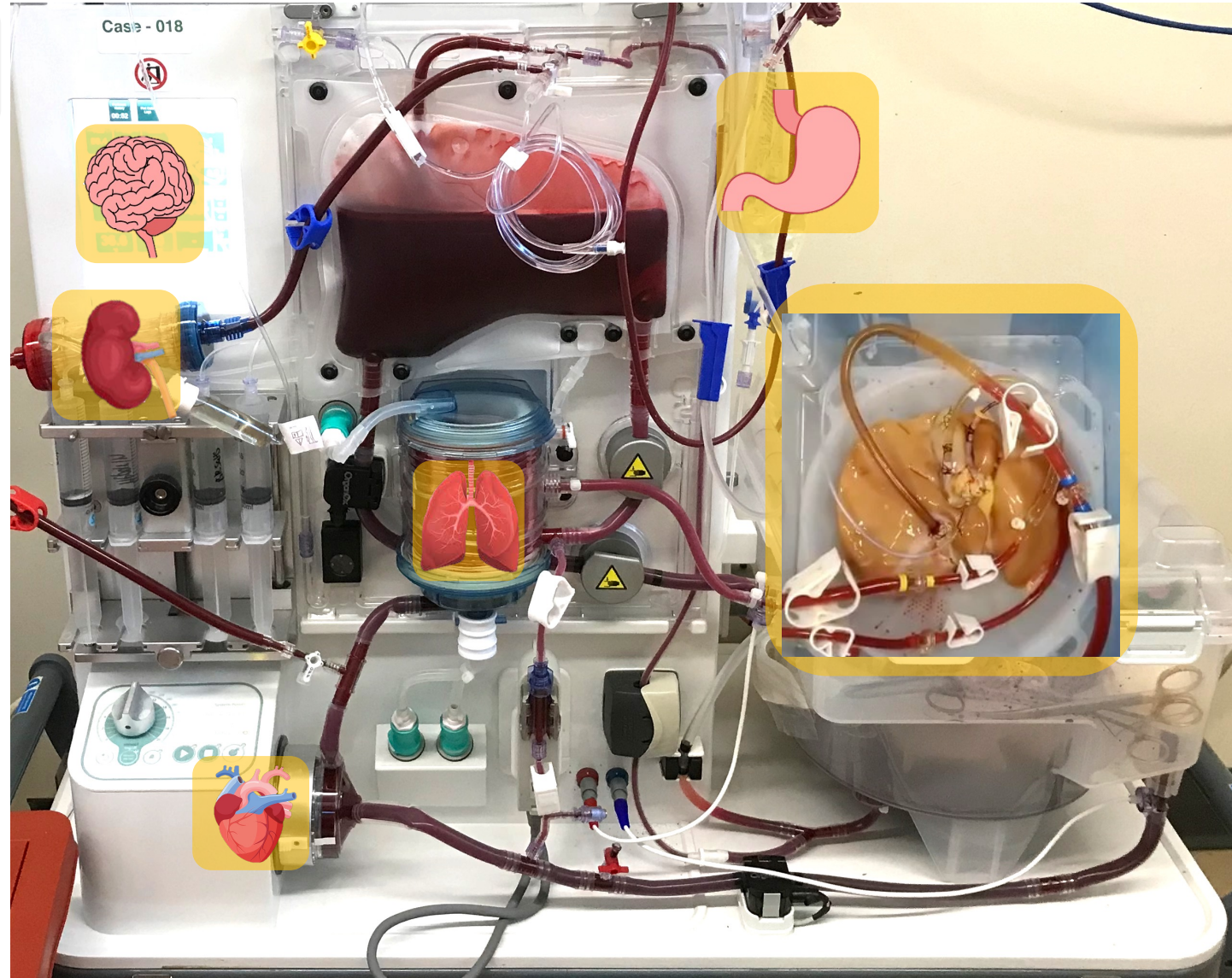
How Human Organ Trials Works:

We start with diseased human organs
(e.g. fatty livers)

We reanimate them with 'mechanical patients'
(i.e. machine perfusion)

We perfuse and evaluate organs
for up to 5 days

We digitally map organ response to stress and/or intervention
at every length scale



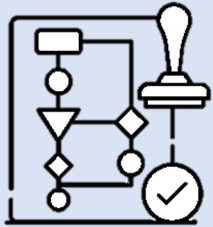
Bile pH



Nucleotides and their metabolites
Amino acids and peptides
Citric acid cycle

How We Design and Execute a Human Organ Trial:

Design



Our custom software and team of world experts **make design of complex human organ studies easy**

Execute



We then **run perfusions in cohorts of 3-10 human organs** with the potential to scale up for lead assets

Deliver



Finally we deliver **concise and actionable insights** with our custom data analytics pipelines

Which liver model would you like to study?

Which endpoints would you like to collect?

- Organ Physiology
- Histology
- Blood Gases
- Electrolytes
- Coagulation Status
- Metabolic Status
- O2 Consumption
- Bile Chemistry

Build My Protocol

Organ Maintenance Center

Scan in Samples

ISTAT Measurements

Perfusion Status

Perfusion Management

Donor Details Case Startup

siRNA details End of Case

Perfusate Samples

Case ID (OXY)

User Initials

Sample Collection Time Point (hr)

Perfusate Samples

Volume Status

Case ID (OXY)

User Initials

Sample Collection Time Point (hr)

Portal Reservoir Status

100%

Ascites Bowl Status

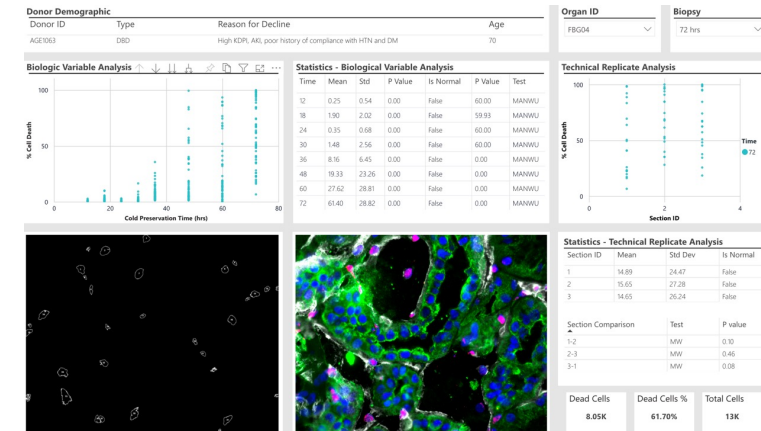
Empty

Bile Reservoir Status

Empty

Filling

Overflowing



What Human Organ Trials Can Uniquely Provide...

1. **Fill the gap** between animal studies and human clinical trials
2. Enable **unexpected discoveries** because of the inherent complexity and variability
3. Enable early-stage research to **solve late-stage bottlenecks** like scale up & delivery
4. Be a **catalyst for new technologies** across the therapeutic & diagnostic landscape

The bottleneck for Human Organ Trials has been lack of speed and scalability

Revalia was founded to overcome these final bottlenecks and unleash the full potential of Human Organ Trials

Revalia's Organ Tech Team



Peter Buniak,
Chief Technology
Officer

Flexible team model to support agile development, with ability to scale resources up and down as needed.



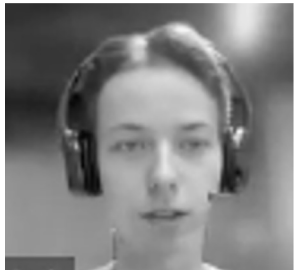
Ivan Shulak,
Solution Architect



Yurii Lampak,
Backend Developer



Taras Petryshak,
Big Data Developer



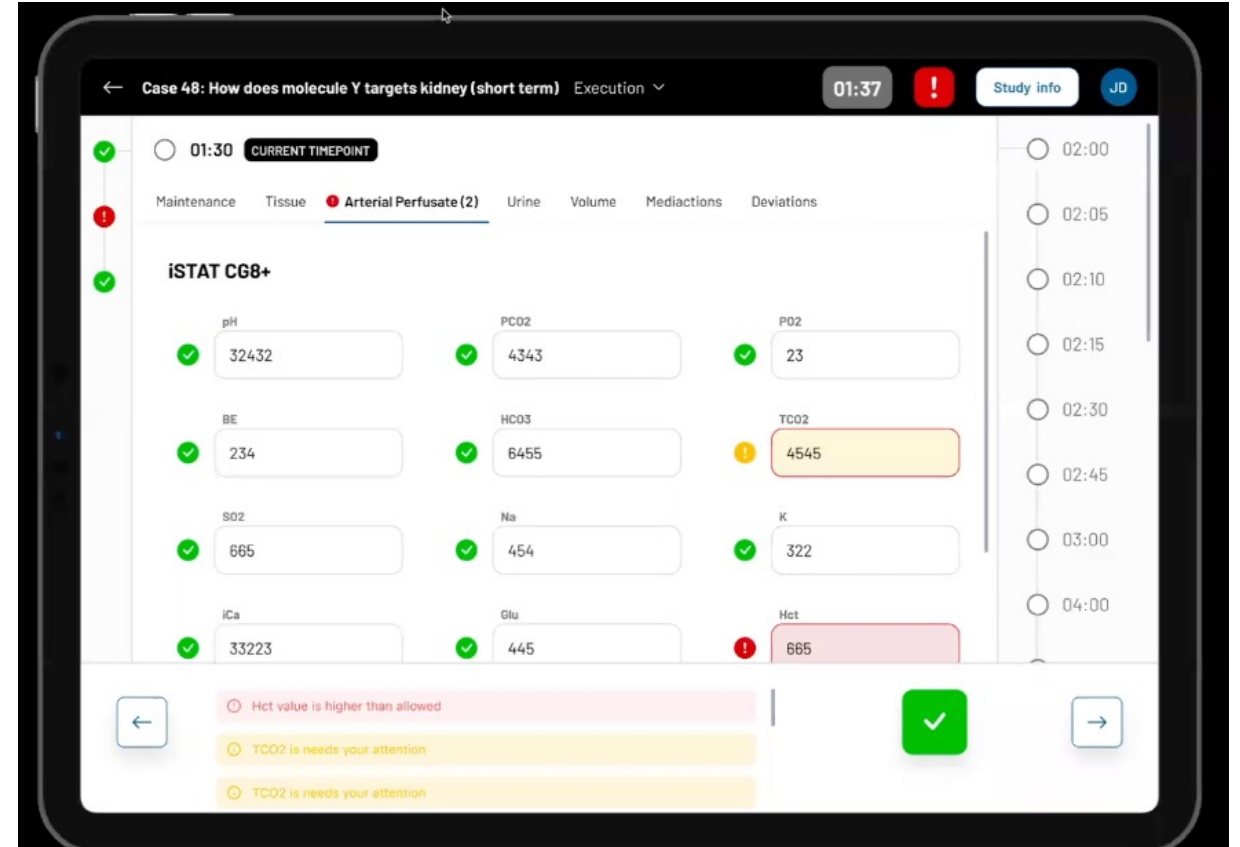
Andrii Melnychuk,
Quality Assurance



Mariam Khalimkova,
PM/ Business Analyst



Andrey Hankevych,
Team Lead



Revalia's Organ Tech Team is building a custom, full stack platform including software, hardware and analytics



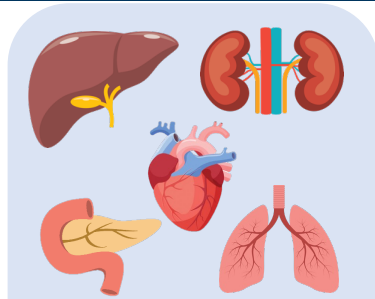
Revalia's Multi-Organ Perfusion Team



Jenna DiRito
Dir. of Perfusion Ops



Kourosh Saeb-Parsy
CSO



500+ organs of
perfusion experience



Benjamin Abram
Sr. Perfusion Specialist



Kat Nurminky
Sr. Perfusion Specialist



Kat Nurminky
Sr. Perfusion Specialist



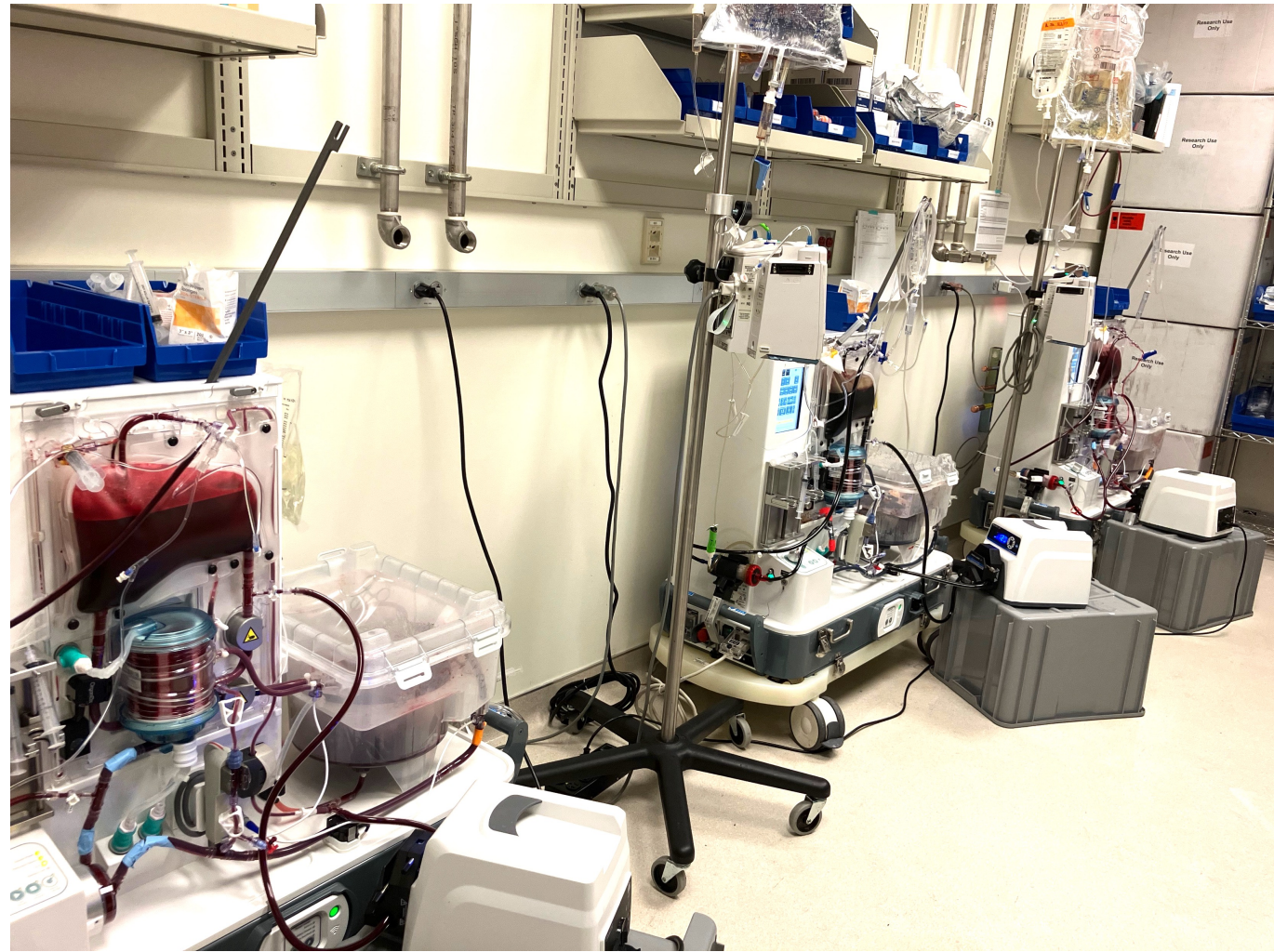
Blessing Zenick
Perfusion Specialist



CJ Arnold
Perfusion Specialist



Flor Fernandez
Yale Surgical Fellow



World's First Simultaneous
Triple Liver Perfusion



Revalia's Current Capacity & Capabilities

❖ **Research Organ Supply**

- Establishing partnerships with multiple top tier Organ Banks
- Access to 1000+ research organs per year (heart, lung, liver, kidney & pancreas)
- Initiated first-of-its-kind 'Research Exclusive Organ Donation' Program

❖ **Perfusion Capacity**

- High volume capacity for liver (5 days) and kidney (1-2 day)
- Have established a lung perfusion program for ~8 hr perfusion experiments
- Experience with heart and pancreas to establish on demand

❖ **Injury/Disease Models**

- Acute injury (hypoxia, drug induced toxicity)
- Immune injury model
- Cancer model

The Revalia Bio Leadership & Advisory Team



Greg Tietjen, PhD
Co-Founder & CEO



Jenna DiRito, PhD
Co-Founder &
Dir of Research Ops



**Kourosh Saeb Parsy,
MD, PhD**
Co-Founder & CSO



Peter Buniak, MBA
Co-Founder & CTO



Helen Hughes
Head of Resonance &
Team Culture



Shohei Koide, PhD
Co-Founder &
Scientific Advisor



Milad Alucozai, PhD
Strategic Advisor
Lead Investor



Ben Hippen, MD
Strategic/Ethical Advisor
for Donation & Transplant



Roger Ferguson
Business &
Strategic Advisor



Maria Vass, MD, PhD
Regulatory &
Clinical Trials Advisor

Our diverse team has a unique combination of expertise from human organ perfusion to drug development to managing complex data systems