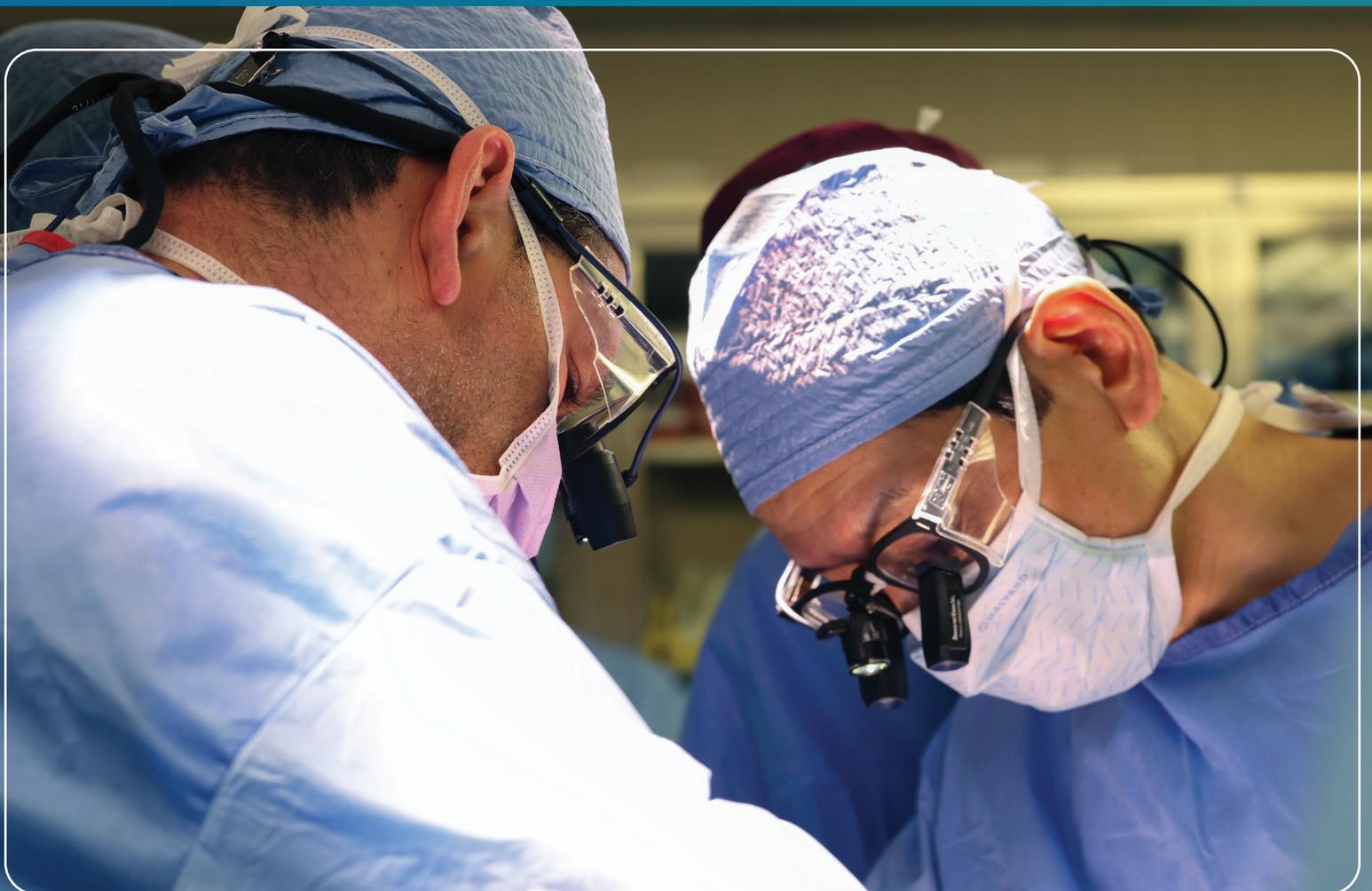


# Richard Slayman Clinical Xenotransplantation Workshop

May 31 – June 1, 2025



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## Welcome letter

Welcome to Boston for the Richard Slayman Clinical Xenotransplantation Workshop, a landmark event honoring the legacy of Richard Slayman—the first person to receive a genetically modified pig kidney transplant. His courage and pioneering spirit continue to inspire our collective efforts to advance xenotransplantation from experimental therapy to clinical reality.

This workshop—the first of its kind—brings together leading experts across kidney, heart, liver, and other organ and cell xenotransplantation to share unpublished data, discuss regulatory pathways, explore immune mechanisms and clinical challenges, address infectious risks, and highlight patient perspectives.

Given the nature of the unpublished data being presented, we kindly ask all participants to respect the confidentiality of the information shared. We encourage open, thoughtful discussion while maintaining a collegial atmosphere grounded in mutual respect and scientific integrity.

We extend our sincere gratitude to our sponsors, whose generous support has made this gathering possible, and to the patients and families whose bravery drives this work forward. We also thank the organizing committee for their dedication in bringing this vision to life.

Thank you for joining us for this important event. We look forward to meaningful discussions, new collaborations, and continued progress—ensuring that Richard Slayman's legacy leads to lasting impact for patients worldwide.

**Leonardo Riella MD PhD and Tatsuo Kawai MD PhD**  
**On behalf of Richard Slayman Clinical**  
**Xenotransplantation Workshop Organizing Committee**

## Organizing committee

We extend our deepest gratitude to the Organizing Committee for their vision, leadership, and dedication in making this inaugural workshop possible.

A special thank you to Stacy Jean-Claude, Melissa Fay, Laura Kupferberg and Samantha Odai for their tireless support in coordinating logistics, developing this brochure, and ensuring every detail came together seamlessly.

We are also grateful to the Scientific Steering Committee, whose guidance shaped the content and direction of the program:

**Joren C. Madsen, MD, DPhil**  
*Director, MGH Transplant Center*  
Paul S. Russell/Warner-Lambert Professor of Surgery  
Massachusetts General Hospital  
Harvard Medical School

**Richard N. Pierson III, MD**  
*Scientific Director of the Center for Transplantation Sciences*  
Professor of Surgery  
Massachusetts General Hospital  
Harvard Medical School

**Tatsuo Kawai, MD, PhD**  
*Director, Legorreta Center for Clinical Transplant Tolerance*  
Professor of Surgery  
Massachusetts General Hospital  
Harvard Medical School

**Leonardo V. Riella, MD, PhD**  
*Harold and Ellen Danser Endowed Chair in Transplantation*  
Medical Director, Kidney Transplant Program  
Massachusetts General Hospital  
Harvard Medical School

# Institutional milestones

**1980**

World's first known clinical use of a monoclonal antibody (OKT3) in transplantation

**1983**

New England's first successful liver transplant

**1986**

New England's first successful pancreas transplant

**1991**

New England's first successful small bowel transplant

**1998**

New England's first clinical trial of tolerance induction for renal transplant patients with multiple myeloma

**1995**

New England's first and only live donor lung transplant program

**1993**

New England's first successful combined heart-liver transplant

**2008**

World's first successful tolerance induction in HLA-mismatched renal transplant recipients

**2022**

Launch of the kidney transplant access program to address health disparities

**2023**

Launch of the world's first center for clinical transplant tolerance

**2025**

MGH's second successful kidney xenotransplant into a living human

**2025**

FDA approves world's first pilot study of kidney xenotransplantation in humans

**2024**

World's first successful kidney xenotransplant into a living human

# Confidentiality

This workshop is designed as a secure forum for the exchange of unpublished data, early clinical experience, and candid discussion among leaders in xenotransplantation. To preserve the integrity of this environment and protect the interests of all participants:

## Confidentiality

All scientific presentations, discussions, and workshop materials are strictly confidential. Recording, photography, and dissemination of data or content outside of this meeting are not permitted.

## Transcription

With the consent of speakers, the workshop discussions will be transcribed for internal reference and documentation. These transcripts will not be published or distributed publicly.

By participating, you agree to uphold these standards and help maintain an environment of trust and scientific integrity.

# 1<sup>st</sup> Richard Slayman Clinical Xenotransplantation Workshop

**May 31–June 1, 2025**

**Simches Research Center 3110 | Mass General Hospital | Boston, MA**

## Workshop objectives

- Promote collaboration by sharing of unpublished data in clinical xenotransplantation to catalyze rapid progress
- Foster a better understanding of the regulatory landscape of xenotransplantation and trial-specific endpoints
- Provide a platform for discussion about patient education and involvement in clinical xenotransplantation trials
- Highlight potential pathways for future research funding in clinical and translational xenotransplantation

# Workshop agenda

## Day 1 | Saturday, May 31, 2025

### 8–8:15 a.m.

#### Welcome and Opening Remarks

*Leo Riella and Tatsuo Kawai (MGH)*

Overview of workshop goals

### 8:15–10:15 a.m.

#### Session 1A: Preclinical and Decedent Kidney Xenotransplantation Updates

*Moderators: Andrew Adams and David Sachs*

- David Cooper (Revivacor, 10GE): Advances in non-human primate (NHP) kidney models
- Kazuhiko Yamada (Revivacor, 10GE): 10GE Revivacor kidneys in NHP
- Tatsuo Kawai (eGenesis, 3KO+7HTGs): Insights from NHP models with 7 human transgenes
- Greg Nowak (Columbia, GTKO+Thymokidney): NHP studies by the Columbia team
- Robert Montgomery (NYU decedent model)

### 10:15–10:45 a.m.

#### Discussion

### 10:45–11 a.m.

#### Break

### 11 a.m.–12:30 p.m.

#### Session 1B: Living Human Kidney Xenotransplantation Updates

*Moderators: Chris Larsen and Nahel Elias*

- Leo Riella (MGH): Insights from MGH human experience
- Robert Montgomery (NYU): Lessons from NYU human experience
- Thiago Borges (MGH): Immune profiling in human kidney xenotransplantation
- Brendan Keating (NYU): Integrative multi-omic profiling in xenotransplantation NYU experience

### 12:30–1:45 p.m.

#### Lunch break

### 1:45–2:30 p.m.

#### Session 1C: Physiology of Kidney Xenotransplantation and Crossmatch Testing

*Moderator: Vineeta Kumar (UAB)*

- Vasishta Tatapudi (NYU), Massimo Mangiola (NYU) and Leo Riella (MGH)

### 2:30–3 p.m.

#### Session 1D: Liver Xenoperfusion

*Moderators: Ben Cosimi and Shoko Kimura*

- Alexander Sagar (UPenn): Extra-corporeal cross-circulation using transgenic porcine livers in the decedent model

### 3–3:15 p.m.

#### Break

### 3:15–4:15 p.m.

#### Session 1E: Industry Panel and Regulatory Perspectives

*Moderator: David Cooper (MGH)*

- Mike Curtis, PhD (eGenesis)
- Erik Berglund, MD PhD (ChoironeX)
- David Ayares, PhD (Revivacor)

### 4:15–5:15 p.m.

#### Session 1F: Patient and Family Perspectives

*Moderators: Macey Levan (NYU) and Win Williams (MGH)*

### 6:30–9:30 p.m.

#### Group Dinner

*Reserved for invited external speakers and participants*

## Day 2 | Sunday, June 1, 2025

**8–8:10 a.m.**

### Welcome and Opening Remarks

Joren Madsen (MGH) and Richard Pierson (MGH)

**8:10–10:30 a.m.**

### Session 2A: Preclinical and Human Heart Xenotransplantation Updates

Moderators: Joren Madsen and Richard Pierson (MGH)

- Muhammad Mohiuddin (UMaryland, 10GE): Lessons from NHP heart models
- Richard Pierson (MGH, Revivicor 10GE and eGenesis): Insights from NHP models
- Bruno Reichart (University of Munich): Preclinical orthotopic heart transplantation: lessons learned from the clinic
- Nader Moazami (NYU): Experience from decedent heart xenotransplants
- John and David Cleveland (USC): Cardiac xenotransplantation as a bridge to allotransplant in infants with critical congenital heart disease
- Bartley Griffith (UMaryland): First-in-human heart xenotransplantation outcomes

**10:30–10:45 a.m.**

### Break

**10:45 a.m.–12:15 p.m.**

### Session 2B: Decoding the Immune Landscape in Xenotransplantation: Mechanisms, Matching, and Multi-Omics Insights

Moderators: Seth Lederman (Tonix) and Ivy Rosales (MGH)

- Megan Sykes (Columbia): Thymo kidney - immune focus
- Joe Tector (Miami): SLA editing in xenotransplantation
- Alex Loupy (Paris): Multiomics Paris experience
- Bob Colvin (MGH): From Allo to Xeno: Mechanistic Insights from Comparative Pathology

**12:15–12:30 p.m.**

### Session 2C: Infection Perspective

Jay Fishman (MGH)

PERV inactivation and infection risk monitoring

**12:30–12:45 p.m.**

### Session 2D: NIH's Role and Research Opportunities

Stuart Sweet (NIAID)

NIH funding priorities and opportunities to support xenotransplantation research

**12:45–12:50 p.m.**

### Closing Remarks

Leo Riella and Tatsuo Kawai (MGH)



Photo credits: Michelle Rose/Massachusetts General Hospital

# Patient and family perspectives

## In Honor of Richard “Rick” Slayman

A pioneer. A patient. A partner in progress.



“Leaving the hospital today with one of the cleanest bills of health I’ve had in a long time is one I wished would come for many years. Now it’s a reality and one of the happiest moments of my life. I consented to this transplant not only for me, but for the medical progress that may help others.”

**Richard Slayman**

On March 16, 2024, Richard “Rick” Slayman made history as the first living person to receive a genetically modified pig kidney transplant. His decision to undergo this groundbreaking procedure was not made for himself alone—but for the hope that it would advance science and pave the way for others with kidney failure.

Following the surgery, Rick recovered remarkably well. His dialysis catheter was removed, his blood work remained stable, and he was able to produce urine consistently. Just eighteen days after the transplant, Rick was discharged home off dialysis, feeling stronger than he had in years.

Rick’s legacy extends beyond a single medical milestone. He showed the world what it means to be brave, generous, and forward-looking. This workshop is dedicated to his memory—with gratitude, admiration, and deep respect. We also extend our heartfelt thanks to his family, whose unwavering support made this journey possible.

We further honor the extraordinary courage of other xenotransplant recipients and their families, who made history through their trust in science and their hope for the future: Mr. David Bennett Sr., Mr. Lawrence Faucette, Mrs. Lisa Pisano, Mrs. Towana Looney, and Mr. Timothy Andrews. Their bravery continues to illuminate the path forward for patients around the world.

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“...Rick was a kind-hearted man with a quick-witted sense of humor who was fiercely dedicated to his family, friends, and co-workers. We are extremely grateful to his care team across Massachusetts General Hospital [...] who truly did everything they could to help give Rick a second chance. Their enormous efforts leading the xenotransplant gave our family seven more weeks with Rick, and our memories made during that time will remain in our minds and hearts.”

**Family of Mr. Richard Slayman**

## Tim Andrews



“As soon as I woke up after the surgery, the cloud of dialysis disappeared. I felt re-energized and revitalized. It was a miracle. The magnitude of what these doctors and nurses accomplished is unbelievable and I want to thank them for giving me a new lease on life.”

“But this transplant isn’t about me. It’s about all the people who I met at the dialysis clinic, and I saw what they were going through. There are more than 500,000 people on dialysis, and I want to inspire them to never give up hope because that’s what this transplant provides. It’s a glimmer of hope.”

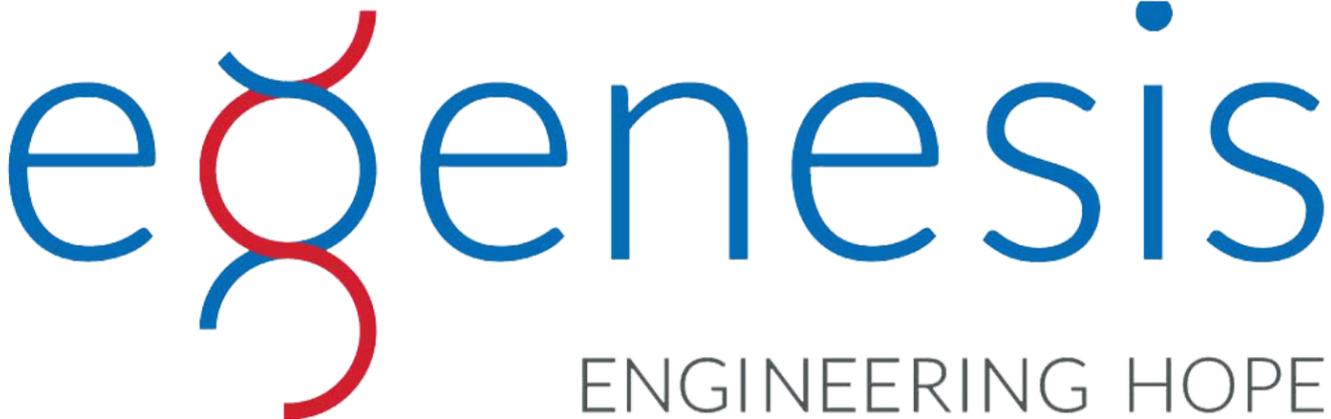
**Tim Andrews**

- Discharged home on day seven after transplant
- Off dialysis for the first time in over two years
- Hemodialysis line removed
- All electrolytes remained stable; good urine output.
- Discharged with creatinine 1.7 mg/dL
- Fourth person in the world, and only one currently living, with a genetically edited pig kidney
- Supported by his wife, Karen, at discharge (photo)



# Sponsors and acknowledgments

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**Massachusetts General Hospital**

Founding Member, Mass General Brigham

Transplant Center

Visit our website:

**[MassGeneral.org/Transplant](https://www.massgeneral.org/transplant)**