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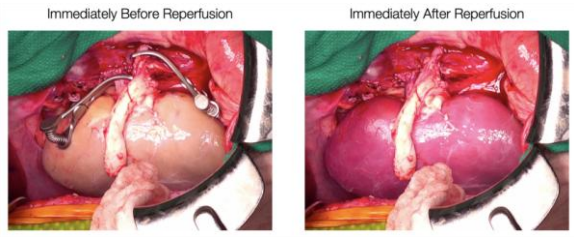
Landmark Supercooled Kidney Transplant Study Showcases ATP-Bio Innovation in Organ Preservation

MINNEAPOLIS, Minn: A groundbreaking advance in organ preservation is bringing researchers closer to a future where donor organs can be stored longer, transported farther, and made available to more patients. A landmark study presented at the American Transplant Congress featured by *MIT Technology Review* demonstrated the successful transplantation of isochoric supercooled kidneys after multiple days of cryoprotectant-free preservation below freezing, without ice formation.



Courtesy Ronald Sellers, Powell-Palm Lab, Texas A&M University

Dr. Matthew Powell-Palm

The achievement is the result of years of collaborative research across multiple institutions and industry partners, led by scientists including **Dr. Matthew Powell-Palm**, Assistant Professor of Mechanical Engineering at Texas A&M University and an investigator with the NSF Engineering Research Center for Advanced Technologies for the Preservation of Biological Systems (ATP-Bio). This multidisciplinary effort brought together expertise from researchers including Prof. Elaheh Rahbar, Prof. Kenneth Hoyt, and Prof. Jonathan Bova at Texas A&M University; Dr. Timothy Pruett at the University of Minnesota; Dr. Joshua Weiner at Columbia University; Dr. Gerald Brandacher and Prof. Byoung Chol Oh at Johns Hopkins University; and Dr. Heiko Yang at the University of Colorado Anschutz Medical Campus.

Powell-Palm's research focuses on developing advanced preservation technologies that protect organs from damage during storage. His work on supercooling and other novel preservation approaches has helped establish the scientific foundation for extending the amount of time organs remain viable outside the body—one of the most significant challenges in transplantation today.

The breakthrough reflects ATP-Bio's collaborative, interdisciplinary mission to develop next-generation technologies for preserving and transporting living biological systems. By integrating expertise across engineering, biology, medicine, and materials science, ATP-Bio researchers are advancing biopreservation solutions that could transform transplantation and bring the vision of long-term organ banking closer to reality.

Read the full *MIT Technology Review* article: Supercooled kidneys have been transplanted into pigs in a "landmark achievement".

About NSF ATP-Bio℠

NSF ATP-Bio℠ is a world-class partnership between engineering, medicine, science, education, business, and ethics at six premier research universities. It supports the crucial advancement of biopreservation technologies and enables innovation, commercialization, and diverse workforce development.

NSF ATP-Bio℠ is co-led by the University of Minnesota (UMN) and Massachusetts General Hospital (MGH). Texas A&M University and the University of California-Riverside are core collaborating institutions. The University of California-Berkeley and Carnegie Mellon University are affiliated partner institutions.

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