Kazuhiko Yamada, MD, PhD. Prepared 2025

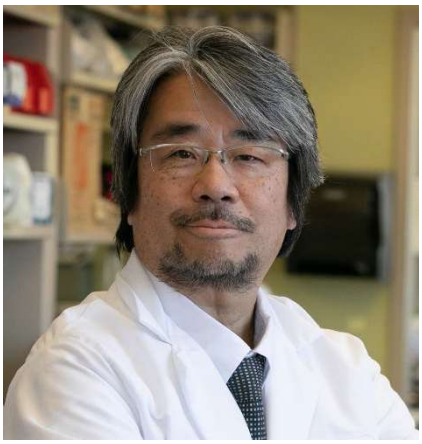
Academic title:

Professor (tenure), Department of Surgery, The Johns Hopkins School of Medicine

Margery K. and Thomas Pozefsky Professor in Kidney Transplant Surgery,

The Johns Hopkins University Medicine

Director of Xenotransplantation at The Johns Hopkins Hospital.



Education and Career Path:

Dr. Yamada began his journey as a board-certified urologist in Japan. He joined the Transplantation Biology Research Center (TBRC) at Massachusetts General Hospital (MGH), where he conducted both allogeneic and xenogeneic transplantation projects in 1994. His academic journey continued at Harvard Medical School (HMS), where he held positions as an Instructor of Surgery, Assistant Professor of Surgery, and Associate Professor of Surgery. **In 2015,** Dr. Yamada joined the Columbia Center for Translational Immunology (CCTI) at **Columbia University Medical Center (CUMC), where he served as Professor in Surgery and Medicine (with tenure) and Director of Surgical Research.**

In August 2022, he made a significant move to Johns Hopkins University, where he currently holds the prestigious position of (1) Professor (tenure), Department of Surgery, and (2) Margery K. and Thomas Pozefsky Professor in Kidney Transplant Surgery, The Johns Hopkins University Medicine, and serves as (3) the Director of Xenotransplantation at The Johns Hopkins Hospital.

NIH Grants and Industry Funding:

Dr. Yamada has been awarded numerous NIH grants, totaling over $29 million as either a Principal Investigator (PI) or Project Leader (PL). Most recently, Dr. Yamada received a NIH grant, $5.1 million over 5 years (September 2025- August 2030).

Additionally, he received $21.4 million in industry funding between 2022 and 2024, and $2.4 million in 2024-2026. With the new research projects, we will perform the critical preclinical work in animals "definitive study" that the FDA has requested before the first "clinical trials" (IND) of genetically modified pig kidney xenografts in humans can begin at JHU.

Transplantation Translational Research:

With expertise in transplantation translational research, Dr. Yamada has conducted over 1,000 cases of allogeneic and xenogeneic kidney, thymus, islet, and heart transplantation in both miniature swine and non-human primates. His work delves into mechanisms of transplant tolerance and innovative strategies for inducing tolerance across both allogeneic and xenogeneic barriers in large animal models. Dr. Kazuhiko Yamada's work continues to advance the field of transplantation, and his expertise is invaluable in the pursuit of innovative solutions for patients in need of organ transplants.

1. Composite Vascularized Organs for the induction of tolerance:

Dr. Yamada's groundbreaking research includes the development of composite vascularized organs as well as isolated vascularized thymic grant for the induction of tolerance:

Thymo-kidneys: These organs emphasize the importance of pre-vascularization in successful transplantation tolerance.

Islet-kidneys (composite IK): Demonstrating the same principle, these composite organs play a crucial role in achieving transplantation success.

Vascularized Thymic lobe transplant: While thymokidney strategy is only applicable for kidney recipients, strategy of vascularized thymic lobe transplantation with solid organs such as kidneys and hearts induces transplant tolerance of any co-transplanted orangs.

Intra-bone bone marrow transplant: This strategy minimizes the early loss of transplanted bone marrows and allowed >2 months chimerism in pig to baboon xenotransplant model.

2. Xenotransplantation Milestones/Notable Achievement:

In 2003, Dr. Yamada performed the first pig-to-primate kidney xenotransplant using genetically modified alpha-gal knockout (GaIT-KO) pig kidneys.

He extended the vascularized thymus (VT) transplantation model to pig-to-baboon xenotransplantation.

Remarkably, this approach achieved longer than 6 months normal creatinine levels with pig-specific unresponsiveness and the emergence of new thymic emigrants from the co-transplanted donor VT graft.

More recently, Dr. Yamada achieved "Consistent long-term survival in consecutive cases of life-supporting porcine kidney xenotransplantation using 10GE source pigs in baboons" ***(original article accepted by Nature Communications)*** *. These data provide critical supporting evidence for the safety and feasibility of clinical kidney xenotransplantation (KXTx) and* ***resulted in FDA clearance of the first-ever human clinical trial of a xeno-organ.***

Other Notable Achievement:

Dr. Yamada has published over 200 peer-reviewed articles in American and European journals.

His mentorship has also impacted fellow researchers, with more than 10 young fellows receiving Congress awards, including a mentor/mentee award from the Transplantation Society.