

THE DEPARTMENT OF PATHOLOGY AND CELL BIOLOGY
INVITES YOU TO THE

6th Annual Dr. John G. Gorman Lectureship in Transfusion Medicine

“Autoimmune Hemolytic Anemia: From Immune
Tolerance Failure to Novel Therapies”

Krystalyn E. Hudson, PhD

*Associate Professor of Pathology and Cell Biology
Co-Director, Laboratory of Transfusion Biology
Columbia University Irving Medical Center*



Lecture and Reception

Wednesday, October 22, 2025

Reception at 3:30pm and Lecture at 4:00pm

**Donald West King, M.D. Library
PH15 West, Room 1560**

Columbia University Irving Medical Center
Vagelos College of Physicians and Surgeons
630 West 168th Street

The John Gorman Lectureship in Transfusion Medicine

In the 1960-80's, John Gorman, M.D. was a Professor of Pathology at Columbia University and Director of the Blood Bank at Presbyterian Hospital. At that time, Dr. Gorman, along with his Columbia colleague, Dr. Vincent Freda in the Department of Obstetrics & Gynecology, and their collaborator, Dr. William Pollack at Ortho Diagnostics, made one of the most important medical discoveries of the 20th Century.

They discovered how to prevent Rh isoimmunization and hemolytic disease of the newborn caused by the Rh(D) blood group antigen (i.e., "Rh Disease"). By passively immunizing mothers with anti-Rh(D) antibodies, they protected them from active immunization by their fetus. Their Rh immune globulin product was approved for human use as "RhoGAM® Rho(D) Immune Globulin (human)" and manufactured by Ortho Diagnostics. Their work, resulting in the availability of this commercial product (now produced by Kedrion Biopharma), has saved thousands of lives of newborn babies and prevented countless suffering among Rh-negative mothers and their children. Similar to the Salk polio vaccine discovery, Drs. Gorman and Freda, individually, along with Columbia University as their institution, made this medical discovery available to patients without licensing fees or royalty payments. This allowed several commercial entities to develop products based on their original, pioneering work that discovered this "passive vaccine."

In 2016, the Department of Pathology & Cell Biology at Columbia University Medical Center established The John Gorman Lectureship in Transfusion Medicine to honor their former Columbia colleague. The Lectureship is a proud reminder of one of the many pioneering medical achievements originating in the Vagelos College of Physicians & Surgeons of Columbia University. In addition, in 2018, this lectureship was permanently endowed by a generous gift from Kedrion Biopharma.

The Gorman lecturers include:

2016 Glen E. Ramsey, M.D. (Northwestern University)

2017 James C. Zimring, M.D., Ph.D. (University of Virginia)

2018 Peter C. Agre, M.D. (Johns Hopkins University)

2019 Giuseppe Remuzzi, M.D. (Mario Negri Institute for Pharmacological Research, Milan, Italy)

2022 Kenneth J. Moise, Jr., M.D. (University of Texas at Austin)

2025 Krystalyn E. Hudson, Ph.D. (Columbia University)

Krystalyn E. Hudson, Ph.D.

Dr. Krystalyn E. Hudson is an Associate Professor of Pathology and Cell Biology at Columbia University and Co-Director of its Laboratory of Transfusion Biology. She earned a Ph.D. in Immunology and Molecular Pathogenesis from Emory University and completed postdoctoral fellowship training at The Scripps Research Institute. In 2019, she was recruited to Columbia from Bloodworks NW Research Institute.

Her research bridges immunology and transfusion medicine, focusing on how the immune system responds to red blood cells (RBCs). Using their innovative models of autoimmune hemolytic anemia, her group discovered a critical 3-week tolerization window for RBC-autoreactive T cells and identified a novel T cell subset that predicts tolerance failure. They also enhanced our understanding of RBC alloimmunization, particularly how preexisting antibodies modulate immune responses to subsequent transfusions. As examples, IgG subclasses and antigen density can suppress or enhance alloantibody formation, providing insights into the efficacy of Rh(D) immunoprophylaxis and informing the rational design of monoclonal antibodies for this purpose. They also uncovered a novel phenomenon in sickle cell disease, in which these patients' mature RBCs retain functional mitochondria, which may contribute to a heightened risk of alloimmunization. In addition, transfusing reticulocyte-rich RBC units, which are commonly collected from repeat volunteer blood donors, enhances alloantibody production; thus, reticulocytes are an unrecognized risk factor in transfusion immunology.

Dr. Hudson has authored >50 peer-reviewed publications, has been continuously supported by NIH grants and industry-sponsored collaborations, and has been recognized by the AABB Foundation Award for Innovative Research, the Scott Murphy Memorial Lecture, and induction into the AABB Hall of Fame. She also chairs the AABB Foundation Grant Review Committee, is an Associate Editor for Frontiers in Hematology and Frontiers in Medicine: Hematology, and is on the Editorial Board of Transfusion. Dr. Hudson teaches in Columbia's graduate student and residency programs, and mentors individuals from high school through junior faculty. Deeply committed to diversity and inclusion, she actively mentors in the Ernest E. Just Biomedical Research Scholars program and advocates for women and LGBTQIA+ individuals in STEM.