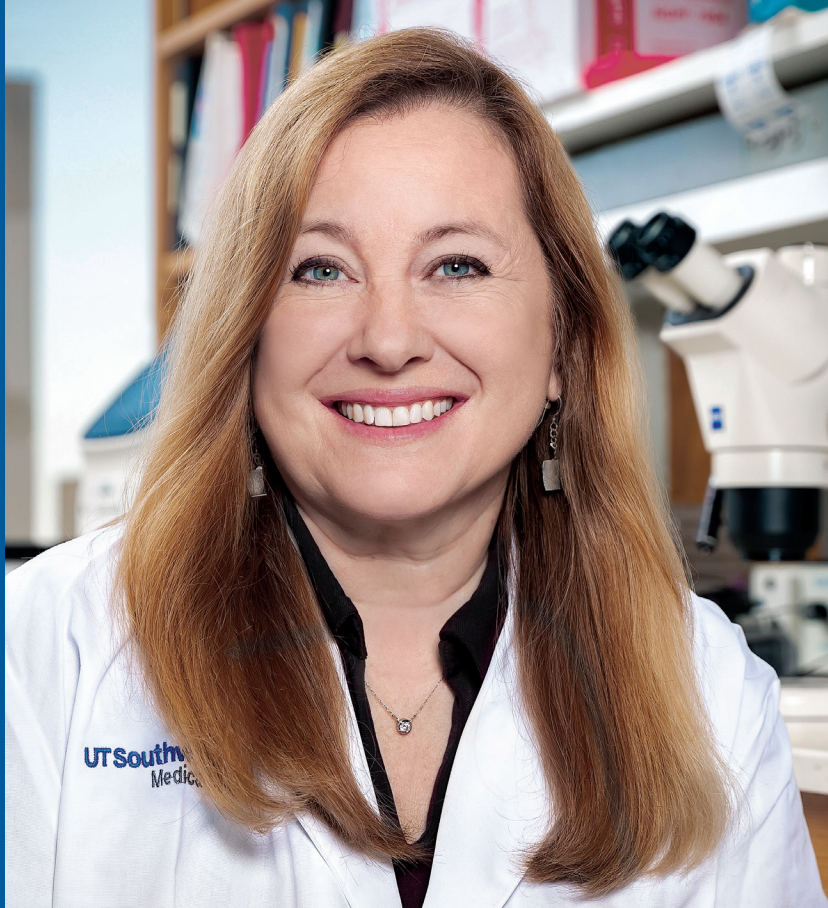




PRESIDENT'S LECTURE SERIES



Ondine Cleaver, Ph.D.

*From Tubes to Tissues: The Cellular
Choreography of Organ Formation*

Thursday, April 24, 2025

4 p.m. Lecture, Reception to Follow

Tom and Lula Gooch Auditorium

utsouthwestern.edu/pls

UTSouthwestern
Medical Center

ABOUT
THE
PRESIDENT'S
LECTURE
SERIES



The President's Lecture Series was established to recognize the importance of UT Southwestern staff in enabling the Medical Center to achieve its mission and goals. The faculty excels in education, research, and patient care only with the contributions of staff, whose work, directly and indirectly, supports faculty endeavors.

The lectures selected for this series provide an opportunity for the employees of UT Southwestern to learn more about the research discoveries, clinical advances, and other contributions of the Medical Center's most accomplished scientists, physicians, and senior leaders. Three times each academic year, leading experts present a President's Lecture, discussing in nontechnical terms the basics of their research and clinical programs and their implications for good health and medical care.

The President's Lecture Series is offered in appreciation and respect for the work and dedication of UT Southwestern staff.

Daniel K. Podolsky, M.D.

President

UT Southwestern Medical Center

ABOUT THE LECTURE



Researchers have successfully steered stem cells in the lab to form many cell and tissue types, but generating whole organs has remained a challenge, partly due to a lack of understanding about how tubular parts form, connect, and are maintained. Solving that mystery could potentially help researchers generate organs for transplant, ending critical shortages of donor organs and potentially saving the approximately 17 people who currently die each day awaiting a transplant in the U.S.

Ondine Cleaver, Ph.D., Professor of Molecular Biology, has focused her career on deciphering this conundrum, with findings over the last two decades showing the natural processes that create biological tubular structures rely on three key factors: a cell's cytoskeleton (an internal network of proteins responsible for cell movement and migration), cell shape, and correctly placed adhesions between neighboring cells. Tube-shaped structures are prominent features of many organs and tissues, including the kidneys, pancreas, lungs, most glands including breast, and the circulatory system.

During her 20-plus-year career at UT Southwestern, Dr. Cleaver has made numerous discoveries toward understanding how blood vessels and organs made of tubes and tubules form. More recently, studies from her lab have shown that blood vessels sense blood flow, which provides an essential stimulus for their maturation during development and maintains healthy function in adulthood. Absence of blood flow in engineered tissues leads to rapid regression of vessels and tissue cell death. These findings could eventually help researchers develop new treatments to improve blood flow in the heart after a heart attack and to grow organs in a lab that can readily connect to a patient's circulatory system.

"Someday we may be able to train stem cells to become tissue that we can implant into a patient, connect with their vasculature, and have it serve a vital function in their body. Our lab is working toward that goal," Dr. Cleaver said.

ABOUT THE SPEAKER



Ondine Cleaver, Ph.D., Professor of Molecular Biology, is known for her work studying the fundamental processes by which cells become specialized to form organs and tissues. Understanding these basic developmental principles is crucial to current efforts to generate bioengineered tissues. Disruptions in these processes can also lead to a wide range of diseases, from congenital malformations to cancer.

Over the last 20 years, Dr. Cleaver's research has significantly advanced our understanding of the molecular and cellular mechanisms driving blood vessel development and organogenesis. Her lab has revealed key insights into how progenitor cells assemble into functional tissues, focusing on blood vessels and organs like the pancreas, kidney, and lung.

More recently, her team has been using organoids – tiny, lab-grown versions of organs – to study how organs develop and explore ways to recreate these processes using bioengineering approaches. Her work aims to improve human health by advancing our understanding of blood vessel development, stem cell environments, and diseases like diabetes, with the ultimate goal of discovering new ways to improve tissue repair and regeneration.

Dr. Cleaver, who joined the UT Southwestern faculty in 2004, holds the Lee Fikes Chair in Biomedical Sciences and is the Director of the Genetics, Development and Disease (GDD) Graduate program. She plays major roles in the Society for Developmental Biology, including serving as Editor-in-Chief for the society journal *Developmental Biology*. Additionally, she is a former President of the North American Vascular Biology Organization.

She received her B.S. in molecular biology and B.A. in history at the University of Texas at Austin. After earning her Ph.D. in zoology from UT Austin, she completed a postdoctoral fellowship at Harvard in the laboratory of Douglas Melton, Ph.D.

ABOUT THE NEXT
SPEAKER

Thursday,
Oct 16., 2025



Saad B. Omer, M.P.H., Ph.D., M.B.B.S., is the founding Dean of the Peter O'Donnell Jr. School of Public Health. He holds the Lyda Hill Deanship of the School of Public Health. An internationally recognized epidemiologist, he is known for his evidence-based approaches to tackle community health problems and improve lives.

Dr. Omer has studied the epidemiology of respiratory viruses and worked on clinical trials to estimate the efficacy of maternal and/or infant vaccines. Dr. Omer has also helped evaluate drug regimens to reduce mother-to-child transmission of HIV and conducted several studies on interventions to increase immunization coverage.

His work has included public health preparedness strategies to effectively respond to large emerging and re-emerging infectious disease outbreaks. His recommendations have been cited in global and country-specific policies and have informed clinical practice and health legislation in several countries. Dr. Omer has published widely in peer-reviewed journals including the *New England Journal of Medicine*, *JAMA*, *The Lancet*, *Cell*, *Science*, and *Nature*. He also has written op-eds for publications such as *The New York Times*, *Politico*, and *The Washington Post*.

Over his career he has received multiple awards, including the Maurice R. Hilleman Early-Stage Career Investigator Award presented by the National Foundation of Infectious Diseases for his work on maternal immunization. He is a member of the World Health Organization Strategic Advisory Group of Experts (SAGE) on Vaccines, The Vaccine Alliance Board, the Council on Combating Antibiotic-Resistant Bacteria, and also is a fellow of the Infectious Diseases Society of America. In 2022, Dr. Omer was elected to the National Academy of Medicine.

Dr. Omer was previously the Inaugural Director of the Yale Institute for Global Health and Professor of Medicine at Yale School of Medicine. He received his medical degree from The Aga Khan University in Karachi, Pakistan, and received his M.P.H. and Ph.D. in Global Disease Epidemiology and Control from Johns Hopkins University.