

Plenary Speaker: Mauro Ferrari, Ph.D.

“Lost in Translation: A Tragedy of our Times”

ABSTRACT: The time required for translation into clinical use of a medical discovery or invention (say, a new drug or device) is estimated to be between 10-17 years, at a cost of \$ 2-3 Billion. Thus, the vast majority of discoveries that could potentially benefit patients never makes it to the clinic. These are not scientific failures, in most cases, they are process failures. The measure of the tragedy associated with these process failures is evident upon considering, for instance, that the average life expectancy of a cancer patient from the time of discovery of metastases is about 18-24 months. The cost and timelines associated with clinical translation drive the price of the newest generation drugs and devices to unsustainable levels, even for the small fraction of the world population that lives in countries that can afford them now. Failures in medical translation are a true tragedy of our times.

In this talk, I will report of our experience at Houston Methodist, aimed at improving the process of clinical translation of leading-edge medical discoveries. We found that it is essential to establish core GMP/GLP facilities, competitively allocate funds for the cost of preclinical and early-stage clinical trials, and develop new professional education degree programs for clinical translation. I will illustrate with examples drawn from our portfolio: Novel contrast agents for the early detection of neurodegenerative diseases; Neurorehabilitation devices; Injectable nano-particle generators for metastatic cancer; Nanofluidics implants for long-term delivery of drugs and cell transplantation; T-Cell clonality diagnostics for the selection of transplant recipients; Novel cardiovascular intervention devices, among others.



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Mauro Ferrari, Ph.D. is President and CEO of Houston Methodist Research Institute, where he directs more than 2,300 employees and credentialed clinicians engaged in basic science and over 1,000 clinical research protocols in cancer, cardiovascular diseases, neurology, and many others domains of medicine. He also serves as Executive Vice President of the Houston Methodist Hospital System, recently recognized by U.S. News and World Report as one of the top twenty hospitals in the USA. Concurrently, Dr. Ferrari serves as Senior Associate Dean and Professor of Medicine at Weill Cornell Medical School in Manhattan, New York. His laboratory develops new drugs for cancer.

He is recognized as the pioneer of nanomedicine and transport oncophysics. He was the principal architect of the Cancer Nanotechnology Plan at the National Cancer Institute of the USA (2003-2005), which is the largest nanomedicine research program to date, worldwide. He has published over 500 scientific articles, 7 books, and is inventor of over 50 patents issued in the USA and internationally. Dr. Ferrari is a Fellow of AIMBE, AAAS (Biological Sciences), and ASME. He has won numerous scientific awards and recognitions, including the Founders' Award from the Controlled Release Society, the Blaise Pascal Medal from the European Academy of Sciences, the Aurel Stodola Medal from ETH Zurich. Dr. Ferrari is a Foreign Member of the Italian National Academy of Sciences (Accademia dei Quaranta), a Member of the European Academy of Sciences, and a Corresponding Member of the Pontifical Academy for Life, by appointment of Pope Francis. Born in Italy, Dr. Ferrari holds a degree in Mathematics from the Università di Padova, Masters and Ph.D. degrees in Mechanical Engineering from the University of California, Berkeley, and attended medical school at the Ohio State University. Dr. Ferrari holds honorary faculty positions at several universities in the USA and internationally. He has received honorary doctorates in biotechnology, electrical engineering, and letters (theology). His prior employment includes tenured faculty positions in Engineering at the University of California, Berkeley, in Engineering and Medicine at the Ohio State University, and the University of Texas M.D. Anderson Cancer Center and Health Sciences Center in Houston, Texas.