

Producing Knowledge To Cure Disease

An Interview with Kevin J. Tracey, MD, President and Chief Executive Officer, Feinstein Institutes for Medical Research

EDITORS' NOTE As President and CEO of Northwell Health's research arm, the Feinstein Institutes for Medical Research, Dr. Kevin Tracey oversees research for the health system. He is a leader in the study of the molecular basis of inflammation, bioelectronic medicine and vagus nerve stimulation. He discovered how the brain and vagus nerve control the inflammatory response to infection and injury, and invented a method to use electronic devices to replace



Kevin J. Tracey

anti-inflammatory drugs. Since 1992, he has directed the Tatyana and Alan Forman Family Laboratory of Biomedical Science in Manhasset, where in 2005 he was appointed President of the Feinstein Institutes. He lectures nationally and internationally – including the Harvey Society lecture, New York, and lectureships from Harvard, Yale, Rockefeller University, the National Institutes of Health – on inflammation, sepsis, the neuroscience of immunity, and bioelectronic medicine. He is the author of *Fatal Sequence* and more than 400 scientific publications, and an inventor with more than 100 United States patents. The recipient of numerous awards and honors, including most recently the 2023 Hans Wigzell Research Foundation's Science Prize, he holds Doctorates honoris causa from the Karolinska Institute, Stockholm, Sweden and Hofstra University, New York, and the Boston University Distinguished Alumni Award. Dr. Tracey is a Fellow in the American Association for the Advancement of Science, and a member in the American Society for Clinical Investigation, and the Association of American Physicians. He received his BS degree in chemistry, summa cum laude, Phi Beta Kappa, from Boston College and his MD from Boston University. He trained in neurosurgery from 1983 to 1992 at the New York Hospital-Cornell University Medical Center and was a guest investigator at the Rockefeller University before moving in 1992 to the Feinstein Institutes. His memberships include the American Society of Clinical Investigation (2001), the American Association of Physicians (2009), the Long Island Technology Hall of Fame (2012), Alpha Omega Alpha (2014), the American Association for the Advancement of Science (2014), and the American Institute for Medical and Biological Engineering (2020).

Will you highlight the work of the Feinstein Institutes for Medical Research?

The Feinstein Institutes for Medical Research celebrates a special focus on mission and on excellence. Recall Albert Einstein's quote, "If we knew what it was we were doing, it would not be called research, would it?" So when you think about doing research in the context of curing disease, we have to confront the reality that there is much we do not understand about many illnesses, and this puts cures out of reach. However,

at the Feinstein Institutes we, and our colleagues in science worldwide, are creating new and more powerful tools that we can use to reveal the mechanisms of disease. That is the point – to cure a disease, you need to focus on unraveling the underlying molecular mechanisms. At the beginning of the process, there are many unknowns, and you go up a lot of alleys to find out if they are, indeed, blind. But by focusing on a problem that we are trying to solve, and persisting for years or decades, my colleagues at the Feinstein Institutes bridge the knowledge gap in four important ways:

- Produce knowledge to cure disease
- Publish and share expertise with the global scientific and medical communities
- Collaborate across labs, disciplines, and with other institutions
- Deliver new discoveries to the bedside through clinical trials

Will you provide an overview of the five Institutes that make up the Feinstein Institutes for Medical Research?

The Feinstein Institutes was founded in 1999 as a research home for what was then North Shore-LIJ Health System, which grew and expanded to become Northwell Health. The Feinstein Institutes has expanded and grown to consist of approximately 100 research labs and programs, 3,000 clinical research studies, and 8,000 researchers and staff. We have organized this work around five institutes: The Institute of Behavioral Science which looks at the scientific basis for mental health disorders; The Institute of Bioelectronic Medicine which is using advanced technologies to target neurological mechanisms and signals to treat diseases without drugs; The Institute of Cancer Research which is looking at new paths to shape the future of cancer therapy as part of an important collaboration with Cold Spring Harbor Laboratory; The Institute of Health System Science looks to harness big data to transform healthcare and medical decision making, not only for individuals but across the whole community; and The Institute of Molecular Medicine looks at discovering the molecular mechanisms for disease as the basis of making new therapies.

How critical has it been to maintain the culture of the Feinstein Institutes for Medical Research as the organization has grown and expanded its work?

“Our Institute of Bioelectronic Medicine’s work in neuroscience, immunology, and biomedical engineering led to clinical trials of new devices to treat inflammation, and to reverse serious illnesses, including rheumatoid arthritis, inflammatory bowel disease, and depression.”



The Feinstein Institutes for Medical Research in Manhasset, New York

The Feinstein Institutes is known for two things: its focus on mission and its collaborative culture. In order to maintain this over nearly 25 years of growth and expansion, it has been critical to maintain a focus on excellence. This happens by recruiting leaders in their field who are committed to the mission themselves, are excellent in what they do, and who are collaborative. When we recruit and hire, we focus not so much on the position they play, or the role they fill, but on who is the best talent committed to the mission and collaboration. We are constantly looking for the best of the best, and equally persistent in our commitment to sustaining an environment that supports the Feinstein Institutes

faculty to be maximally productive as a valued team member.

Will you provide an example of the exciting research taking place at the Feinstein Institutes?

The Feinstein Institutes are well-known for its leadership in the areas of focus for the five Institutes. One example that has garnered a great deal of interest recently is in bioelectronic medicine. Our research shows that inflammation can be controlled through the vagus nerve, the main “highway” of neural information between the brain and body. Our Institute of Bioelectronic Medicine’s work in neuroscience, immunology, and biomedical engineering led to clinical trials of new devices to treat

inflammation, and to reverse serious illnesses, including rheumatoid arthritis, inflammatory bowel disease, and depression. One exciting aspect of using bioelectronic medicine devices is that this has the potential to supplement or even replace some drugs, and to eliminate or reduce their high cost and potentially debilitating side effects.

What excited you about the opportunity to join the Feinstein Institutes for Medical Research and has it been what you expected?

My tenure at the Feinstein Institutes has exceeded my own high hopes for organizational success. It has been wonderful to work with colleagues in science, medicine, and administration dedicated to helping others by seeking knowledge and cures. These are the best people in the business, collaborating together, bound by a shared mission, and working to accomplish a special goal. If you think back at what has happened in the last 25 years, whether it was a recession, financial collapse, pandemic – many of the obstacles that have been encountered along the way were quite significant, but when you look at the growth and accomplishments of our five Institutes, I believe we had the advantage of being relatively new. We built and grew unburdened by hundreds-year-old traditions and ancient precedents. We built a new, collaborative culture, in current times, so that our work could bring us all into a future with new cures.

How valuable has it been to have such an engaged and committed board for the Feinstein Institutes for Medical Research?

The irreplaceable support that has been the wind beneath the wings of the Feinstein Institutes has been the support of the Northwell Health system under the leadership of Michael Dowling and his passion for the Feinstein Institutes’ work and mission, and the support of our board members. When you put all this support together, you have tremendous, irreplaceable assets that have made all the difference for our success.

What do you tell young people about a career in medical research?

I tell them that the world changes one individual at a time. I tell them the story of Joseph Meister who was nine years old when he was bitten by a rabid dog in Paris. Before Joseph Meister, every person that contracted rabies died. But young Joseph Meister was fortunate, because he was treated by Louis Pasteur, who had invented a new therapy, and Joseph lived. I tell young people today, because of not only the rabies vaccine, but all the other vaccines that have come from that, we live in a different world. Every first research patient starts a new world, and the Feinstein Institutes have lots of first patients.

I tell young people that it is a blessing and a privilege to pursue this career – a career where you learn something new every day, in a collaborative environment, that produces knowledge to help people. There is no more noble career path, one that is not only fulfilling and rewarding, but is committed to making the world a better place. ●