

# The Medical Commencement Archive

Volume 5, 2018



## Carl Nathan, MD

Weill Cornell Graduate School of Medical  
Sciences Commencement Address

### *The Chapters to Come*

Carl Nathan, MD is R.A. Rees Pritchett Professor and chairman of the Department of Microbiology and Immunology at Weill Cornell Medical College. After graduation from Harvard College and Harvard Medical School, he trained in internal medicine and oncology at Massachusetts General Hospital, the National Cancer Institute and Yale before joining the faculty of The Rockefeller University from 1977-1986. At Cornell since 1986, he has served as Stanton Griffis Distinguished Professor of Medicine, founding director of the Tri-Institutional MD-PhD Program, senior associate dean for research and acting dean. For eighteen years he co-chaired the Program in Immunology and Microbial Pathogenesis at Weill Graduate School of Medical Sciences of Cornell University, where he is now the dean. Nathan led the planning team for the Tri-Institutional Therapeutics Discovery Institute and is now a member of its Board of Directors. Tri-I TDI is a not-for-profit corporation owned by Weill Cornell Medical College, Memorial Sloan Kettering Cancer Center and The Rockefeller University. Nathan is a member of the National Academy of Sciences, the National Academy of Medicine and the American Academy of Arts and Sciences, a Fellow of the American Academy of Microbiology, associate scientific director of the Cancer Research Institute, a governor of the Tres Cantos Open Lab Foundation and on the scientific advisory boards of the Global Alliance for TB Drug Development, the American Asthma Foundation and the Rita Allen Foundation. He is a member of the national Pfizer Therapeutic Areas Scientific Advisory Panel and the Lurie Prize jury. He served for ten years on the scientific advisory board of the Cambridge Institute for Medical Research and the Board of Trustees of the Hospital for Special Surgery, where he chaired the Research Committee. He has been an editor of the *Journal of Experimental Medicine* since 1981 and presently serves as co-chair of its editorial board as well as on the editorial boards of the *Proceedings of the National Academy of Sciences* and *Science Translational Medicine*. He was awarded the Robert Koch Prize in 2009 for his work on tuberculosis, the Anthony Cerami Award in Translational Medicine in 2013 and the Milstein Award of the International Interferon and Cytokine Society in 2016.

Nathan is a member of the Bill and Melinda Gates Foundation's TB Drug Accelerator and Principal Investigator of the NIH-funded Tri-Institutional TB Research Unit. His research deals with the immunological and biochemical basis of host defense. He established that lymphocyte products activate macrophages, that interferon-gamma is a major macrophage activating factor, and that mechanisms of macrophage antimicrobial activity include induction of the respiratory burst and inducible nitric oxide synthase (iNOS). He and his colleagues purified, cloned, knocked out and characterized iNOS biochemically and functionally, discovered the cofactor role of tetrahydrobiopterin in NOS's and introduced iNOS as a therapeutic target. Although iNOS helps the host control *Mycobacterium tuberculosis* (Mtb), the leading cause of death from bacterial infection, Mtb resists sterilization by host immunity. Nathan's lab now focuses on the biochemical basis of this resistance. Genetic and chemical screens have identified enzymes that Mtb requires to survive during non-replicative states, including the mycobacterial proteasome. His group is identifying compounds that kill non-replicating bacteria while exploring new collaborative models between academia and industry to help invigorate antibiotic research and development.



s Dean of the Weill Cornell Graduate School of Medical Sciences, I congratulate our graduating students and the parents, partners, families and friends who've supported you on the journey you've completed. We all share your excitement at the journeys to come.

I have two graduation presents for you. The first is the brevity of these remarks.

The important one is to tell you, your parents, partners, family and friends about the gifts you have given us - your teachers and advisors - and the gifts you are now poised to give society.

You have given us new knowledge from your own minds and hands. You have given us fresh evidence that the prospects for scientific discovery are limitless. You've shown us that being the first to see something reproducible or to explain something mysterious brings as much joy and fulfillment as when van Leeuwenhoek first saw "wee beasties" through a microscope and Marie Curie discovered radium and thought of using it to treat cancer.

You've given us reassurance that no matter our inadequacies as teachers, your brilliance and resourcefulness let you absorb exponentially growing amounts of information with no sign of a limit to what the prepared mind can master.

Finally, in a troubled time, you've proven again that science is a form of communication that sifts fake from real and connects rather than divides, that creates a community transcending region, religion and origin. Many of you took precious hours from your pressured lives to share that message with children in the city around you.

What will you go on to give the world from your coming positions in colleges, universities, biotech, pharma, other businesses, foundations or public service?

You will help shed light on the unknown. Help cure disease. Help make cures accessible to those in need. Some of you will help create wealth. Help see that wealth distributed fairly. Help teach those who come up after you.

All of you can help defend the role of apolitical reason and scientific evidence in civic life and public policy. Help save this earth, its peoples and the diverse forms of life with which we share our climate, oceans, forests and fields.

The diploma you are about to receive is a symbol of the power you've proved that you have. Go use your power wisely. Then come back and tell us what you've done. Like your parents, partners, family and friends, your teachers and advisors are proud of the stories you are writing with your lives. All of us are eager to hear the chapters to come.