



# Distinguished Alumnus

**Robert A. Levine, MD**  
**Class of 1966**

**Introduction:** I am a physician, teacher, and scientist/inventor who loves both the science and the practice of medicine—both internal medicine and laboratory medicine. I am constantly looking for ways to improve the practice and delivery of medical care.

**Early life:** I was born in November 1942 in Brooklyn, New York, to a wonderful, loving, lower middle-class family. Both of my parents were born in Brooklyn very shortly after their parents escaped from the pogroms of western Russia in the first decade of the 20th century. Yiddish was their first language. My mother, Sara, was a brilliant woman. She was a secretary-bookkeeper, known for her photographic memory of numbers and names, and, ultimately, a full-time homemaker when she had her first child. My father was the oldest of five children. He was 13 when he and his siblings were nearly sent to an orphanage because their

from St. John's University, where he was elected to the Law Review, an especially high honor for a night student. He was one of very few Jews (he said "the only") in the company when he was hired in 1926. Jews were almost never hired and certainly not allowed in the law department. One day when I was in high school, my father came home from work with a big smile. One of his close friends had been promoted to a high executive position, and during his first week at work "told" the head of Edison's law department that my dad was to be hired as a lawyer. His career for the next several decades was as a successful trial and contracts attorney for the Edison Company.

In high school, a year or so after his appointment, I applied, at his suggestion, for a summer job in the computer division at the Edison Company. I confidently filled out the application stating that I had been a semifinal-

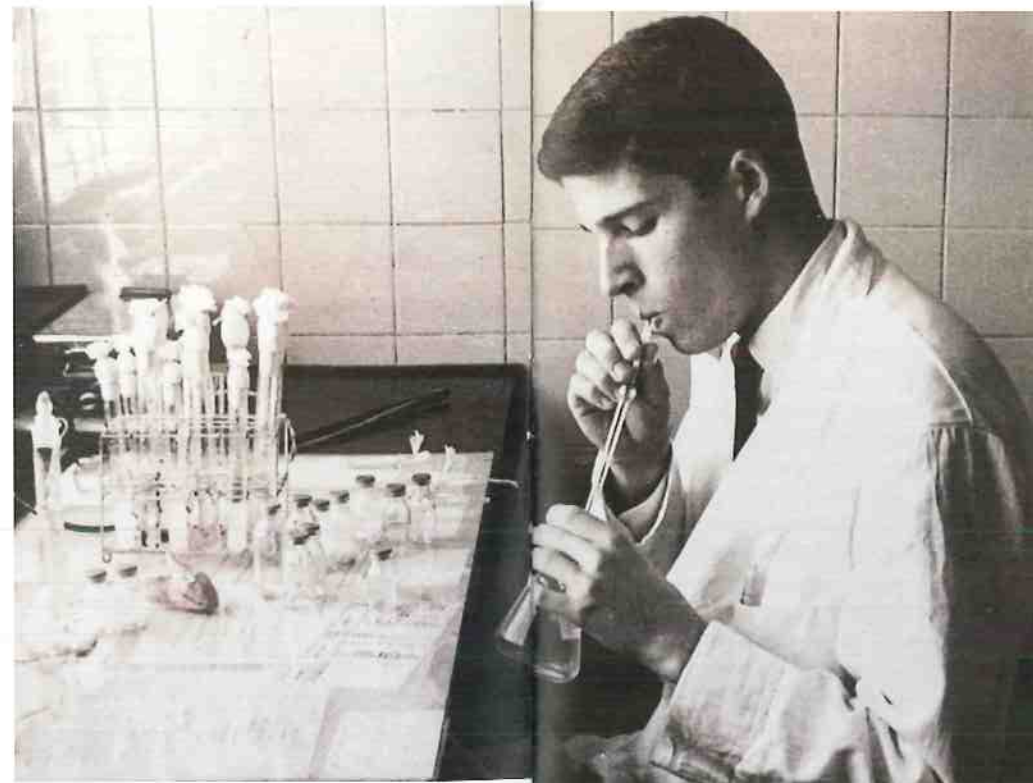
ist in the national Westinghouse Science Talent Search and that my dad had worked for the company for the past 32 years. I soon received a rejection letter, opened by my mother, stating, "There were many qualified applicants but not enough positions." I was not too upset because my job delivering telegrams in Chinatown for the Western Union Company was exciting for me, but later that night I heard my father crying for the first time in my life. My mother had shown him the rejection letter. The next day he came home and at the dinner table told me that I had a job in the computer department. I asked, "What happened?" He said that he put my rejection letter on top of a stack of letters of congratulation from national and state dignitaries and offers of college scholarships I had received relating to my Westinghouse semi-finalist status and presented it to the head of the personnel



Dr. Levine with his wife Elana

**"My educational experience at Upstate was wonderful because of the support and teaching from master physicians and talented scientists, and, equally important, the friendships I formed that have endured and blossomed over the past half century."**

father, a peddler of vegetables and fruit, had suddenly died leaving the family with no means for financial support. My dad would tell us the story of him coming home from school and learning of his father's death and then having to go and sell their horse. Through the fortunate help of a new program in New York City he called "Relief," my father and his mother were able to take care of the siblings and keep the family intact. Relief is now called welfare, and without it, I might not have been born. My father began working immediately after high school as an office boy for the Consolidated Edison Company, the large power utility in New York City. He was a clerk for 30 years in spite of his having obtained a college degree from CCNY and a law degree



department. He said that he was Samuel Levine from the law department and would accept their rejection decision as stated in the letter if this man could show him one application that was more qualified than his son. Times had changed, but not fully.

**Education:** My time in Syracuse at Upstate Medical School was the most formative period in my young adult life. I was among the youngest in our class, entering medical school after completing three years at Brooklyn College at age 19. My educational experience at Upstate was wonderful because of the support and teaching from master physicians and talented scientists, and, equally important, the friendships I formed that have endured and blossomed over the past half century. Most importantly was my marriage to Elana at the end of my freshman year. She was my childhood love and kept me grounded, in a positive

This picture was taken at Antibioticos SA, Leon, Spain in 1961 during a three month summer research internship. I described the research I was performing, on using anti-penicillinase compounds as a means of increased efficacy of penicillins against penicillinase producing resistant bacteria, to my Upstate interviewers. I guess they liked it!

sense, and still does. My four years at Upstate was marred by my self-diagnosis of thyroid cancer during my senior year. It had spread to my lymph nodes, and I had a modified radical neck dissection and complete thyroidectomy. It left me with moderate hypoparathyroidism. The cancer diagnosis resulted in the retraction of my much-valued acceptance to the National Institutes of Health training program, which greatly saddened me. I was then drafted and accepted by the Army, but because of the hypoparathyroidism I was later reclassified as "4F", meaning that I was not to be inducted, which did not sadden me.

**"I became acutely aware of the negative impact that the absence of real-time diagnostic laboratory data had on my clinical decision-making, especially in my office practice."**

I completed my internal medicine residency at Mt. Sinai and began a fellowship at Yale School of Medicine in endocrinology and nephrology. The last year of my Yale fellowship I commuted back to Mt. Sinai at the invitation of my former Chief of Medicine, Dr. Solomon A. Berson, to learn the technology called radio-immunoassay from him and his associate, Dr. Roslyn S. Yalow. Upon completing my fellowships, I was offered full-time academic positions at both Yale and Mt. Sinai, which had now become a medical school. Elana and I now had two children, and we did not want to return to Manhattan. I accepted the offer from Yale, but because of my father's understandable advice to "work for yourself and don't have a boss," I negotiated the right to have a part-time private practice in addition to setting up and running the radio-immunoassay lab and teaching residents, fellows, and medical students. Shortly after I began my academic career at Yale, Dr. Yalow received the Nobel Prize for her work on radio-immunoassay. Dr. Berson, co-inventor of the technology, had passed away prior to the award and was therefore not eligible.

**Career:** My busy office and hospital based internal medical practice in Branford, Connecticut, and at Yale-New Haven Hospital respectively, supplied the inspirations for my medical inventions. I became acutely aware of the negative impact that the absence of real-time diagnostic laboratory data had on my clinical decision-making, especially in my office practice. The synergy of seeing and experiencing unmet medical needs with the fertile environment of my academic life at Yale led me together with my colleague, partner, and friend, Dr. Stephen C. Wardlaw, to discover and develop novel ways to meet many important unmet needs that I encountered in the course of my primary care medical practice. Individually and jointly we have successfully patented and licensed or sold those solutions so that they may enter the health care system. My particular expertise is in the field of diagnostic devices and technology platforms, with special emphasis on medical point-of-care testing, primarily in the hematology field, fecal occult blood testing and more recently the detection and quantitation of circulating cancer cells in the blood for purposes of diagnosis and therapeutic monitoring. I have also developed and continue to work on point-of-care hematoparasite detection methods for malaria, filariasis, trypanosomiasis, and Babesiosis. Thank you Dr. Justus Mueller! (Mueller was an esteemed parasitologist and teacher at Upstate Medical School from 1930 to the mid-1970s)

Patent-covered products that I have invented and licensed have been extremely successful, generating enough royalty bearing sales to allow my partner and me to fund our own research, most of which was done in the unfinished basement of my medical office and some in Dr. Wardlaw's kitchen. Products based on our inventions have been or are being sold by Becton Dickinson and Company, Inc., IDEXX Laboratories, Inc., Tyco Corporation Inc., Medical Technology Inc., Access Medical, Inc., QBC Diagnostics, Inc., and Applied Precision/RareCyte, Inc. In 1999 we formed a new company, QDx, Inc., to commercialize some of our newer technology in the hematology field. The intellectual property of that company in the field of image-based digital hematology diagnostics was sold in 2008 to Abbott Laboratories, Inc., which is developing it with our active participation.



Dr. Levine, his wife Elana, three children, daughter-in-law, and three of their four grandchildren. The latest, a grandson, is six months old!

I continue to actively teach at the Yale School of Medicine while pursuing the development of our new hematology diagnostic platform with the scientists and engineers at QDx and Abbott Laboratories. My current interests, in addition to the above, include the development of a point-of-care test for the diagnosis of malaria and studying the utility of measuring phagocytosis as a diagnostic parameter. Additionally, together with my son, Joshua, I'm working on developing a new means for increasing the efficacy of certain pharmaceutical agents by harnessing the power of the placebo. We are also developing a new treatment for the prevention of the nausea and vomiting during pregnancy and other neuro-olfactory triggered conditions by decreasing olfactory stimulation.

**Conclusions:** The indignities and prejudices that my father experienced were quite minor compared to the prejudices discrimination and suffering still present in our world. The experiences were described because they contributed to my decision to avoid working in full-time academia or industry, but as many physicians did at the time, to open a practice of my own in order to maintain control of my destiny. They also taught me on a very personal level the value of "Relief"/welfare as a social safety net.

It has been and continues to be a great deal of fun defining a problem, applying basic science, enlisting the aid of talented engineers, writing and prosecuting a patent and, then, selling it to large corporations to manufacture and distribute the product. It's even more rewarding to read about the use of our inventions in many millions of patients—both

human and animal—around the world. Our inventions have saved tens of thousands of lives including those of a few close friends and family members. For all of above, I am grateful.

I love what I have studied and continue to study that which I love.

**Acknowledgements:** I have been blessed by picking the right schools, Brooklyn College (CCNY) and Upstate Medical University, and having the right mentors, Dr. Herman Zieger and Dr. George Gibson at Brooklyn College, David H. P. Streeten at Upstate Medical University, Dr. Solomon A. Berson and Dr. Rosalyn S. Yalow at Icahn School of Medicine at Mount Sinai School of Medicine, Dr. David Seligson at the Yale School of Medicine and Dr. Maxwell M. Wintrobe at the University of Utah School of Medicine who was my inspiration, my collaborator and became my friend. I picked the right spouse, Elana, the love of my life and wife of over 50 years. I chose the right partner in business and science, Dr. Stephen C. Wardlaw at Yale, and chose a career that I love. I have also been extremely fortunate in being born to wonderful parents, who nurtured me and, thankfully, lived long enough to witness my success and share my happiness. For all of above I am thankful.

*\*Bio submitted by Dr. Levine*