

Q&A with Dominick P. Purpura

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The Einstein Journal of Biology and Medicine (EJBM) interviewed Dominick Purpura, and this article was written after a pleasant hour and half conversation we had with the Dean. Of course, all of this was conducted in the presence of his inseparable human size doll, "Uncle Albert." We talked to the Dean about his friendship with Uncle Albert, which started when Uncle Al was donated to the school by a philanthropist who "couldn't stand him"—but Dominick Purpura has "enjoyed him ever since". We start with a timeline in prose of Dominick Purpura's trajectory toward deanship, and finish with excerpts of the interview we thought would be most interesting for our readers.

Dr. Purpura has been Dean of Albert Einstein College of Medicine (AECOM) for the past 22 years during which time he has contributed greatly to the college. Dean Purpura is an internationally renowned neuroscientist and is especially distinguished for his contributions to the study of mental retardation. He has demonstrated that structural abnormalities of neurons are fundamentally involved in disorders of cognitive development. He is a member of the National Academy of Sciences and a trustee of the New York Academy of Medicine. Sadly, he will be leaving his position as Dean of Einstein this year, but is planning to engage in some exciting professional and personal projects.

When we asked Dean Purpura about the path that led him to do science and his inspirations, he told us about part of the journey that brought him to Einstein. His interest in medicine and science started early. Directly after finishing high school, he pursued an undergraduate pre-medical degree at Columbia College. But before he finished his first semester, he had to take a leave of absence to join World War II.

EJBM: We didn't know you were a veteran, how was that experience?

Dr. Purpura: I graduated from high school...in January 1945. My birthday was on April 2nd, in 1945 I turned 18 and registered for the draft on that day. I was inducted as a selected volunteer six weeks later, having not even finished the first semester of Columbia College. So I immediately got a leave of absence. I entered the Army Air Force in, I guess it had to be late May or early June or something like that, because VE [Victory in Europe] Day had occurred. We were gearing up for a long and terrible war with Japan, nobody had any idea at the time of the bombs...so I was in a training program that involved B29s and that sort of stuff and as soon as the VJ [Victory over Japan] Day occurred we were sent overseas to be part of the dominant occupation of Japan.

For me it was a remarkable experience. I was 18 years old and four or five months and when I landed in Yokohama, which was a replacement depot—a replacement depot is where the troops come in to get processed to go home and the other troops are coming in to take their places—so, while standing on line to be assigned to something, the officer in charge asked what I was doing before I got drafted. I said I was a pre-medical student starting in Columbia College. He immediately assigned me as a laboratory technician in the flight surgeons office in the Far East Air Force. He gave me a manual on setting up a laboratory at 18 and a half, not even that, but that's the way they worked. And so I found myself with another young lieutenant, who had just finished 2 or 3 years of Medical School and a couple of months of internship, and we went off to develop the dispensary, which was very successful. Within weeks I had complete blood counts and set up for venereal disease smears, blood chemistries; we did all that out of the laboratory manual!

I was discharged in December '46 and started immediately in January '47 back to Columbia, and then started for real, started everything over again. I graduated in June of '49. I only had two and a half years of college because I went over summers and made up a whole bunch of courses. I had no time to waste on that schedule. I almost graduated about the time that I would have if I wasn't in the service. But I put enough time in service so I was never called up for the Korean War.

After graduating from Columbia, Dean Purpura attended Harvard Medical School, where he started doing physiology research in his first year. By the time he graduated from medical school he had a number of papers already published. He had first become interested in research in his junior year at Columbia College, when he decided he wanted to be a neurosurgeon. He was motivated by John Fulton's Pulitzer Prize winning biography about Harvey Cushing, the father of neurosurgery. Purpura asked himself "if I want to be like Harvey Cushing, how could I be better than Harvey Cushing." He knew that Cushing did not have the opportunity to study the brain the way people were able to do in the late 40s and early 50s. So he decided to learn as much as he could about the brain once he entered medical school, where the opportunities for hands-on learning were available to him. He started working in the cerebral cortex of mammals after his first year at Harvard. By his third year he had a full time fellowship, which was extremely rare for a student, and is not even permitted in most cases. When the Harvard Dean's office found out, they got very upset about his dual life as a scientist and as a medical student. But Purpura needed the fellowship for the money it provided him and his wife: "I don't know how she did

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it but we got pregnant. It was devastating! Things like that were horrendous on our economics, so I needed that fellowship. So the deal I made with the chairman of Physiology, a very distinguished man, was that I would do B or better in every course in order to keep working in the laboratory. And I didn't have any problem; I graduated magna cum laude."

After getting his medical degree from Harvard in 1953, Purpura went back to Columbia for his residency in neurosurgery. During that time he organized a laboratory in the Department of Neurosurgery to carry on research, and that led to him full-time research work. "I am always proud of the fact that when I had that laboratory, the first student that I ever took into my laboratory was Eric Kandel, Nobel Laureate in 2000. He and I constantly joke about the kind of fun that we had then."

Dr. Purpura was recruited to Einstein in the summer of 1966 to teach neurophysiology and neuroanatomy. He started at Einstein on January 2, 1967 as Chairman of the Department of Anatomy with the charge of developing a program about the nervous system for the medical school curriculum. At the same time, AECOM decided to overhaul its entire curriculum. The Dean at the time, Harry Gordon, appointed Dr. Purpura as chairman of the curriculum committee, whose plan was to shorten the hours students spent in anatomy, histology, physiology, and pharmacology labs in order to give them more time to be involved in other activities. Dr. Purpura credits Sam Rosen, the Associate Dean for Students, with helping him come up with the novel fusion course in pathophysiology, which revolutionized medical curricula at the time. It was during this revision that Dr. Purpura organized the integrative course in neurobiology, which continues to this day. It was the first of the so-called "megacourses" and he taught the bulk of it during his time as a professor at AECOM. The other major revision made by the committee was the start of the Family Life Program, which assigned first year medical students to a mentor physician and a family to follow their health needs for the duration of their medical education.

In 1969, Dom was appointed Scientific Director, then in 1972 Director, of the Rose F. Kennedy Center for Research in Mental Retardation and Human Development, though he still maintained the chairmanship in the Department of Anatomy. Being Director of the Kennedy Center was a huge job that could have been split into two parts. One part was to run the already existing research center and the other was to develop a neuroscience program for cutting-edge research. In 1974, Purpura founded the Department of Neuroscience and stepped down from the chair of the Anatomy Department.

Dr. Purpura directed the Kennedy Center from 1972 to 1982, after which he left for the Stanford University School of Medicine to be the Dean and Associate Vice President for Medical Affairs. This position was short-

lived, "I had two and a half years of what I refer to as my 'Dean Sabbatical.'" In the middle of 1984 he came back to AECOM as Dean, a position he has commanded for nearly 22 years, as the longest running dean in the country. Dr. Purpura has been at Einstein for a total of nearly 36 years, and much of our acclaim as a school of medicine can be attributed to his great leadership and contributions to shape this community.

Below is the rest of our interview with Dr. Purpura, which includes his thoughts on the medical and scientific curricula, his plans for the future, his advice to students, and some little known facts about his life outside of Einstein. Enjoy our conversation with the Dean!

EJBM: Of all your work, what do you think is your greatest contribution?

Dr. Purpura: For the medical school, I think the important things that have happened over the past two decades has [sic] been the establishment of a system for empowering the faculty...in the design of the curriculum, in the organization of courses, and in the evaluation system, which I then formalized 10 years ago in the Division of Education (DOE). Through the implementation and organizational skills of Al Kuperman we have been able to develop a very important program for the medical education here, which isn't unique, but from our standpoint, the most important thing, and the one thing I am proudest of, is that when our students leave here they are prepared for engaging an internship, residency, and doing the things that are necessary to become fine house officers. I've heard this repeatedly, that the training our students get is just outstanding. In order to do that it is not only necessary to provide the integrated courses that are now part of the pre-clinical years; but we also build in this period a good safety net for student clerkships. So, in addition to Montefiore, which has been our primary affiliate, we continue to work with Jacobi Hospital and Bronx-Lebanon. We developed new relationships, new affiliations with Beth Israel Medical Center and the North Shore Long Island Jewish Medical Center. So, the variety of experiences that students get at these various sites and the patient mix is, I think, one of the important things about the education here that's outstanding.

I think those are accomplishments. I think the strengthening of the MD/PhD program has been important. The graduate program is in good shape. We had paid particular attention to the needs of the post-doctoral fellows by providing greater opportunities for housing and benefits, and those are the things that post-doctoral fellows are very much concerned about. The post-doctoral fellows don't seem to have a continuing amount of irritation as a group; they are content. The graduate students are well cared for. So, student programs are going well. The affiliates are very happy to have our students because it enhances their capacity to recruit good faculty as

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well as good residents. So it is a very mutually beneficial relationship.

Now, we are, even to self advertisement, a very research intensive medical school. Research is a very very important part of our lives. The maintenance of a strong program with the National Institutes of Health (NIH) is what makes us tick.

I have recruited every one of the chairs in the basic science and, sometimes, two or three times. We have recruited outstanding leaders who are able to identify excellent young faculty, many of whom over the years I have seen come from the ranks of assistant professor up to chairman. Tremendous statement of loyalty as a result of that, that's what it really represents. Excellent people that have become part of the faculty here. Our basic science program over the years, and even before my being Dean, was always excellent. From the standpoint of the NIH, we generally were in the top 5 of NIH monies in basic sciences, and we stayed very much at that level. Considering the amount of competition and growth in other institutions, I think that's something that this institution should be proud of.

At some point about almost seven, eight years ago, two thoughts occurred to me. First, we absolutely had to have a new building, the faster the better, even though it's taken this long time to get this building to this stage. And, secondly, we had to expand our interest much more from basic science to a more clinical investigation and clinical research oriented work. That's why I coined the term "A Center for Genetic and Translational Medicine." At the time, the word translational had not been used that much, seven years ago, and we dubbed that, put that name on the building and now so many institutions now use that word. It's the buzzword, the word of the day.

My definition of translational research is translating the basic science of medicine to the science of patient care. And, of course, without throwing out the heart of medicine, but we are talking about the science of medicine today, both in terms of genomic medicine, drug discovery, proteomics, epigenomics, the whole works is part of the future. So this building comes at just the right time to be at the leading edge of where medical science is going and behavioral science is going.

EJBM: Who was the most influential person in the history of AECOM?

Dr. Purpura: I would put down the two "Harrys". One is Harry Eagle, who passed away some years ago. He was an extraordinary scientist and administrator. He began in the early years to build the scientific base of AECOM. Harry Eagle was a person that one would want to emulate. He

was associate dean for scientific affairs, before me, as well for the previous dean, he was one of the brightest and most gifted administrators in science in the country.

The other person I would like to put down is Harry Gordon, who was the dean who appointed me to become the scientific director and then director of the Kennedy Center. His career was in pediatrics. His warmth and his expression for the advocacy for patients, for children in particular, were very important to me.

EJBM: Where do you see AECOM in the next 10 years?

Dr. Purpura: I think we have searched for and found an excellent person in Allen Spiegel, the next Dean. He has a superb scientific background and excellent administrative capabilities. So I think we are going to have someone who is going to make a major impact as a leader in American medicine. And he's at a good place to do it because the medical school is in a very facilitating role in medical science. Its educational programs are secure, its building program is excellent, and I think that the creativity of the faculty is going to keep bringing one advance after another, both in terms of management, drug discovery, epidemiology. And also by bringing together bioinformatics with computational sciences, which is the next area of great importance. And so that's secure.

I think it is important to recognize that our Board of Overseers plays a very important role in developing, with the Dean, and with the administration and the faculty, programs for expansion and providing the philanthropic thrust that is needed to supplement NIH activity. The extramural sources are one thing, but the philanthropy in this institution is vital. The generator of that is our Board of Overseers, the university's interest and desire, as well as ability to implement programs that bring funding into the medical school. The new president is very dedicated to the continuing and developing excellence of the medical school. So that in his fundraising we are not far from his thoughts, and that's critical. You can have a president that is so concerned about his or her own thing, but this medical school is, we like to use the expression, "The Crown Jewel" in the crown of Yeshiva University. I don't think there's any contention about that.

EJBM: What are you planning to do post-retirement?

Dr. Purpura: Well I am not retiring. I have got to get back to the Kennedy center, for one thing. I am looking forward to picking up in several areas of interest that I was involved with many years ago which have become very important areas of research, such as the role of dendrites and dendritic spines, their structure and function. I want to look at some of the issues in the curriculum of the human nervous system course.

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EJBM: *You will still be here every day?*

Dr. Purpura: Yeah, between here and probably some other institution that I am going to be visiting. And I'm always available for any kind of questions that people want to ask.

EJBM: *When you say going back to Kennedy, do you mean doing research?*

Dr. Purpura: I won't have a laboratory. I've been away for too long. But having spent a long period of time as editor of the Brain Research Journals, I have kept up with the field and hope to use that information for several reviews that I want to do, particularly in the area of structure and function of dendritic systems.

I hope to do that. I hope to become more proficient in practicing for longer periods of time my cello.

EJBM: *How long have you been playing the cello?*

Dr. Purpura: A very short period of time—that's my problem! About a year and a couple months. I picked it up by myself unfortunately. I am the worst teacher you could imagine. But I had experience when I was a child playing the violin. Currently I am working with my daughter-in-law on a Bach.

EJBM: *That does not look simple at all. That is impressive, in a year and a half that is quite amazing!*

Dr. Purpura: Actually, it gets done. It just sounds terrible! Intonation is the enemy of the amateur. I don't have any problems with the reading. My daughter-in-law is very good at the violin. She has played with several interesting quartets while she was at Rockefeller. She is a great teacher.

EJBM: *What are you most proud of in life?*

Dr. Purpura: The accomplishments of my children. My first son works at IBM, my second son is a Captain, he flies at American Eagle Airlines. My third son is a neuroscientist down at Cornell, he has a PhD, and his wife is also a neuroscientist. My daughter, the youngest, is a PhD in cultural anthropology, East African cultural anthropology.

I am also proud that students are prepared for medical life beyond Einstein. I am happy to think that when people get sick there are exceptionally smart doctors around with outstanding skills which they will use to save lives. It has been wonderful to be involved in handing out 200 diplomas per year. I am extremely proud to have given out more than 4000 diplomas here at Einstein.

EJBM: *Who would you like to thank for your accomplishments?*

Dr. Purpura: My wife. I couldn't have gotten here without her support, and to share my support to her. We have a very exciting and interesting partnership.

EJBM: *How did you meet your wife?*

Dr. Purpura: We met in the latter part of '46, or maybe early '47 at the YWCA on 53rd street and Lexington avenue, at a dance, at a Saturday night dance. And that's how we met. As my wife Penny says, the rest of it is history. We got married in 1948, while I was just entering my senior year at Columbia College. We have 58 years, a pretty successful marriage. We have learned a lot about each other and how to make things work, which is very important.

I've had considerable longevities, it's interesting, in my life. My marriage, these 22 years as Dean, I was editor in chief of Brain Research for 27 years. I was the founder of four Brain Research Journals: Molecular Brain Research, Development Brain Research, Cognitive Brain Research and Brain Research Reviews, all the family spin-offs of Brain Research. My other longevity was president of International Brain Research Organization (IBRO) which, at that time had about 70,000 neuroscientist members in the world. I stayed 12 years as president.

EJBM: *What have you learned as Dean?*

Dr. Purpura: As Dean, I have learned that you will be successful to the extent that you lead the faculty in the direction they want to go but don't know how to get there.

I would advise the medical students to cherish every moment of the experience they have being a student and an MD. We are privileged to take on responsibilities afforded to no other individual—that is to care for our fellow human beings. I hear students say "I came out of school and I don't know anything and now I am in charge of someone's grandmother." It is true, they get a 007 license to kill and cure which is a great responsibility that should be used very carefully. For the PhD's I would say that the key to success in science is experimentation.

There is this Einstein quote which is one of my favorites that says "*It is the responsibility of every human being to aspire to do something worthwhile, to make the world a better place than the one we found. Life is a gift, and if we agree to accept it, we must contribute in return.*" In the end, when they sum up, people should ask themselves if they did something worthwhile. Having the opportunities for it, everyone should help the human condition and try to make things better.