

From basic science to clinical medicine

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I have crossed my scientific path with Professor Andrzej Szczeklik about a dozen years ago. As basic scientist with training in physical chemistry, biochemistry, microbiology, molecular biology, and molecular genetics, I never expected that my research in the area of fidelity of the genetic code translation and protein biosynthesis accuracy would lead to clinical studies of human disease. But this did happen and here is a story of how I was privileged to meet Professor Andrzej Szczeklik.

In the 1990s, a product of methionine metabolism – homocysteine – was recognized as a new risk factor for cardiovascular disease, which generated a lot of interest also in the mass media. At that time, one of my projects attempted to answer a question regarding why homocysteine *is not* a protein amino acid. I realized that the fundamental mechanisms that prevented access of homocysteine to the genetic code must be responsible, at least in part, for the toxicity of homocysteine to the cardiovascular system. As I have quickly learned, Professor Szczeklik has had related scientific interests and was studying the role of homocysteine in blood clotting and arterial stiffness.

My first meeting with Professor Szczeklik in 1998 was indirect, through his coworkers, Marek Krzanowski and Barbara Domagała, who presented their homocysteine-related human studies at the 2nd Homocysteine Conference in Nijmegen, The Netherlands, at which I presented my basic science studies of homocysteine editing in cultured human cells. After seeing and hearing Professor Szczeklik's group presentations, I realized that by combining efforts of our research groups, we can faster achieve answers to the questions regarding the mechanism(s) underlying the pathogenicity of homocysteine that we both were asking. After the meeting, I wrote to Professor Szczeklik and proposed that we collaborate in the area of homocysteine research, particularly on the aspects involving human subjects to whom I did not have access. He responded immediately and invited me and my wife to visit Krakow and his clinic; what struck me in his response was his youthful enthusiasm.

I finally met Professor Szczeklik in person at the Department of Internal Medicine in

Krakow in the summer of 2000. We talked for several hours in his office on topics ranging from our scientific interests and how and why each of us embarked on a scientific career, to medicine and issues facing physicians who want to pursue scientific research in order to understand etiology of human disease, which would allow them to provide more effective treatments for their patients. Professor Szczeklik was one of such rare physicians – scientists. After listening to my seminar on a mechanism underlying pathophysiology of elevated homocysteine, which I proposed a few years earlier, we talked more about areas of common scientific interests, considered a collaboration, and I invited the members of his group to my laboratory at the New Jersey Medical School in Newark, which Professor Szczeklik enthusiastically gave his blessing to. As we were leaving the Clinic for “Pod Aniołami” restaurant, Professor Szczeklik proudly showed me the surroundings of his Clinic (including the panorama of the city from the top roof) and, in a nice little garden in the front of the Clinic, a statue of Piotr Skrzyneczki, a well-known citizen of Krakow famous from the Piwnica Pod Baranami cabaret. Professor Szczeklik's pride was justified because he was instrumental in erecting the statue. During the lunch at “Pod Aniołami”, Professor Szczeklik remembered his experience of coming to the United States as a young doctor for a post-doctoral studies to enrich his scientific knowledge. I was astonished to learn that his American experiences from mid 1960s were quite different from my experiences as a post-doc in America about a decade later. After lunch, Professor Szczeklik gave me a lightning tour of the Old Town with highlights including the Residence of Archbishops, in front of which people used to gather during the dark days of communism to listen to spirit-lifting sermons delivered by Cardinal Wojtyła.

In the intervening years after my first personal meeting with Professor Szczeklik, we continued our scientific contacts through his collaborators, Anetta Undas, Barbara Domagała and Wojciech Sydor, whom I have met at the Homocysteine Conference in Sorrento, Italy, in July 2001. In February 2003, I visited Professor Szczeklik at his Clinic in Krakow again and had similarly pleasant

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FIGURE 23 Professor Szczeklik with Piotr Skrzynecki, Krakow, 1995

experiences of his company. During the visit, I acquired a copy of Professor Szczeklik's book *Catharsis: on the Art of Medicine* with the Author's dedication. While reading the book, I found several topics that we discussed during my visits. This book confirmed my original impression of Professor Szczeklik as an exceptional physician, scientist, and humanist. In 2003 and 2004, two members of his group, Anetta Undas and Barbara Domagała, came to work in my lab at the New Jersey Medical School. Both visits were fruitful and resulted in excellent publications. Anetta Undas brought her experiences from my lab where she studied human N-homocysteinylation-protein autoantibodies, to Professor Szczeklik's lab, where she creatively pursued this area of research. These positive experiences provided an important motivation in maintaining and expanding my contacts with scientists in Poland and accepting professorships and establishing my research programs at the Institute of Organic Biochemistry and at the University of Life Sciences in Poznań.

I have chosen perhaps an easy path to carry out my scientific research at an American medical school, which brought me a lot of satisfaction. When I visited my old home country in the past and met and talked to Polish scientists, most of them were curious whether I would consider returning back to Poland. Professor Szczeklik was a rare exception and did not bring this subject. In our private conversations, we did not question our

choices – his to pursue science at home in Poland and mine to exploit the opportunities offered in scientific research in the United States. I believe that Professor Szczeklik was as happy with his choices as I was with mine. We both achieved a high degree of satisfaction in our scientific pursuits, he at home in Krakow and myself in the USA and Poland. We both understood that, in addition to a rigorous education, it required a focus and a lot of determination and persistence to achieve success in one's scientific endeavors, regardless of the affiliation. Professor Szczeklik had those qualities and successfully used them to pursue his goals in the science and art of medicine. Given the limited resources available to Polish scientists, particularly in the past when Professor Szczeklik was embarking on his scientific and medical career, it is remarkable that he was able to organize his Clinic and carry out innovative research that was recognized also outside Poland. His success proves that a high quality scientific and medical research can also be carried out in Poland and provides a motivation for aspiring young doctors – scientists.

I was deeply saddened to learn that Professor Szczeklik passed away on 3 February 2012.