

Eulogy

Professor Emeritus Brigitte A. Askonas

You have doubtless often heard it said that such a person needs no introduction. Well, I reckon the recipient of the 2007 Robert Koch Gold Medal deserves an introduction. I would like to introduce her, as she is not someone to blow her own trumpet. She would never describe herself as the grand dame of cellular immunology. She would never talk about the great influence she has had on immunology. She would never say that she has mentored countless outstanding scientists. She would never proudly list all her honorary memberships of scientific societies and academies and all her honorary professorships at top universities.

Professor Brigitte Askonas is not very forthcoming about her successes, which is precisely why an introduction is necessary. We would like her to know how much we value her contributions to science and how impressed we are by the formative influence she has had on the biosciences in Europe and in particular on immunology.

Ita Askonas started her scientific career as a biochemist. In 1944, she was awarded a bachelor's degree in biochemistry from McGill University in Montreal, Canada. In 1952, she received her PhD from the Biochemistry Department of the University of Cambridge in the United Kingdom, where she served her scientific apprenticeship under Malcolm Dixon. She studied muscle enzymes, by no means the worst grounding for her subsequent research.

After completing her doctorate, she became a member of the Scientific Staff at the National Institute of Medical Research in Mill Hill, London. There, she first continued with her enzyme studies and biochemical research. She studied milk proteins in goats and it was doubtless a stroke of fate that she discovered antibodies in the milk, as this finding led her to immunology. She soon became a convert to its technical advantages. Compared with conventional proteins, an antibody is much easier to purify using its specific antigen, which is like a key to a lock. She then quickly found herself intrigued by the biological aspects, particularly the question of how antibody production is stimulated by antigens.

A new Division of Immunology was established at Mill Hill in 1957 and the leading authority at that time on the specific field of cellular immunology, John Humphrey, was named as its first head. Ita Askonas became a founding scientific member of the new Division. She could now throw all her energy and enthusiasm into her favorite subject, antibody production. Her research led to the cloning of memory B cells in vivo long before Georges Köhler and César Milstein developed the hybridization method for producing B cell clones, for which they were awarded the Nobel Prize for Medicine in 1984. She was particularly fascinated by the phenomenon of antigen presentation by macrophages. As is already apparent, Ita Askonas was moving further and further away from biochemistry and towards biology or, more specifically, cellular immunology.

In 1961/62, she left London for a sabbatical year at the Department of Microbiology at Harvard in Boston. A second, 18-month period was spent as a guest researcher at the newly established Institute of Immunology in Basel in 1971/72.

In 1976, she was appointed Head of the Division of Immunology at the National Institute of Medical Research at Mill Hill. The following years were the high point of her research activity.

Ita Askonas elucidated the role played by macrophages and T cells in warding off infection and, in particular, laid the foundations for our understanding of antigen recognition by T lymphocytes. She conducted her experiments not with such easy-to-handle model antigens as sheep erythrocytes or hen's egg white that are so highly favored by many immunologists, but with actual pathogens. African trypanosomes, flu viruses and cold viruses were the preferred objects of her research.

She was also one of the first people to introduce the cloning of T lymphocytes. This enabled her to show that although killer T cells with specificity for flu viruses specifically recognize the host cell, they do not distinguish between different subtypes of flu virus. This has become of great practical importance of late. It shows that vaccines that activate T cells can protect against different flu virus subtypes, whereas antibodies are subtype-specific. Current flu vaccines are all based on antibodies that are specific to the pathogen subtype. That is why a new vaccine is necessary each year to protect against the next wave of flu. A vaccine offering a broad spectrum of protection that can also protect against a newly emerging flu pandemic is currently needed more desperately than ever and is most likely to be achievable using T cells.

A striking feature of this period is the number of scientists who learned the tools of their trade under Brigitte Askonas. PhD students included Mike Bevan, a well-known immunologist now working in Seattle, Andrew McMichael, renowned for his research into HIV/AIDS at Oxford, Peter Openshaw, now in London, Christine Clayton, now in Heidelberg, and David Sacks, now in Washington/DC, to name but a few. High-profile postdoctoral research students working under Ita Askonas were Hugh McDevitt from Stanford and Emil Unanue from St. Louis, the recipient of the Robert Koch Gold Medal in 2005. The list could go on and on but I'd like to leave it at that.

Many other scientists who didn't work directly alongside Ita Askonas were, by their own accounts, crucially influenced by her. I'd like to mention just two of these here. Firstly, Susumu Tonegawa, who started work at the Institute in Basel in 1971 and at that time had very little knowledge of immunology. As he himself says, he was introduced to immunology by Ita Askonas. In 1987 Susumu Tonegawa received the Nobel Prize for Medicine for his studies on antibody diversity. Peter Doherty, who was awarded the Nobel Prize for Medicine jointly with Rolf Zinkernagel in 1996 for his research into antigen recognition in viral infections, also extols the influence of Ita Askonas on immunology when he puts her on a par with Paul Ehrlich, as the father of immunology, and Louis Pasteur, as the father of infection research, referring to her fondly as the mother of cellular immunology.

One cause that has been particularly close to her heart all her life, however, is fostering an interest in immunology amongst young scientists and students from other countries, particularly developing countries. With this in mind, she has set up numerous immunology courses, many in Africa. In the final analysis, she was very much aware that the immune response is the key to controlling transmissible diseases and that immunology must descend from its ivory tower in order to help combat epidemics.

This insight is reflected also in the scientific work of Ita Askonas. Even though she was primarily engaged in pure research, her findings are nevertheless of crucial importance to vaccine development. In particular, her research has shown the potential of vaccines that preferentially stimulate defenses in the form of T lymphocytes. All currently available vaccines act in principle by means of antibodies. This is sufficient for controlling some but not

all pathogens. You need only think of HIV/AIDS, tuberculosis and malaria but also pandemic flu, in other words the arsenal of epidemic pathogens currently posing the greatest threat. In all these cases, effective control is possible only with T lymphocytes. The studies performed by Ita Askonas have laid the necessary cornerstones. She therefore ranks amongst the great researchers in the field of acquired specific immunity, a scientific discipline that was established by Paul Ehrlich and Emil Behring, two scientists who studied under Robert Koch at the end of the 19th century.

Ita Askonas has received countless honors. She is an honorary member of the British and French and also, to my particular pride, the German Society of Immunology. She is a member of the Royal Society in London and a foreign associate of the National Academy of Sciences in the USA.

The successes achieved by Ita Askonas can perhaps best be characterized with two words: resolute and committed. These characteristics on their own could apply to many successful scientists, however. With Ita Askonas, there is an additional factor: her human warmth and her enjoyment of sharing her knowledge with others and firing them with enthusiasm for her specialty, immunology - and indeed for science in general. In fact, she's the type of person that, having once got to know her, we'd all love to have as a colleague and a friend.

Dear Ita,

On behalf of the Robert Koch Foundation, it is my great honor and pleasure to congratulate you as the recipient of the 2007 Robert Koch Gold Medal.