Otto Schmidt (1947–2011) – Open Doors and an Open Mind

Much of what we know about innate immunity in vertebrates has been pioneered by research on invertebrate model systems such as insects. Otto Schmidt who died on 31 May this year was one of the pioneers in insect immunology. Sparked by an early interest in the outdoors, Otto, who was born on 20 July 1947 in Karlsruhe, Germany, studied biology and chemistry at the University of Freiburg. His interest in insects was already stimulated during his undergraduate studies, leading eventually to a PhD thesis on the development of polarity and pattern formation in a leafhopper. Thesis advisors were Otto Vogel, Klaus Kalthoff and Klaus Sander at the Institute of Zoology (Biologie I). Between 1978 and 1981, while working in Dieter Söll's group at Yale where he used both yeast and *Drosophila* as models, Otto made several seminal discoveries on transcriptional regulation and RNA processing. When he took on his position as assistant professor back in Freiburg, Otto returned to the fly model, which he used to examine the control of cell proliferation in *Drosophila* tumor mutants. During this time he also grew increasingly interested in insect immunity, starting with a PhD project in his laboratory that addressed the mechanisms protecting parasitoid wasps from their host's immune response. Eventually his interest in insect immunity led him to spend a sabbatical at Stockholm University during 1989–1990 to study the function of hemolin, an immune factor discovered by Boman and cowork-

ers. Hemolin was shown by Ingrid Faye's group in Stockholm to belong to the immunoglobulin superfamily, which fitted nicely with Otto's studies of hemolin binding to lipopolysaccharide. In 1992, Otto made Australia his home country and took up the position as a de-

partmental head at the University of Adelaide. Much of the work during his Australian years was on parasitoid wasps and their little helpers in suppressing host immunity small viruses or virus-like particles that are coinjected with the egg. Otto also made major contributions to the studies of tolerance mechanisms towards insecticides and to understanding the evolution of host-parasite interactions. Insights into immune evasion and immune suppression provided new perceptions for innate immune mechanisms but also led to new concepts of immune recognition. In many ways these concepts completed a circle and led back to cellular interactions that occur during development. Otto regarded interactions between cells and between cells and the extracellular matrix and larger extracellular complexes such as lipophorin particles (the equivalent of vertebrate LDL) as highly dynamic. His interactive model proposes that cell interactions may lead to either the establishment of productive stable interfaces or to nonproductive interactions, which contribute

to surveillance and immune reactions. Otto's work has had a great impact and includes experimental as well as theoretical aspects.

For all of us who worked with Otto his enthusiasm was ever inspiring. This helped in everyday life in the laboratory when results were not as expected, but also on our intellectual trips ranging between the molecular, cellular and organismic levels. He never dismissed an idea but rather tried to incorporate it into a larger picture and see how it fitted in and to where it led. The door to his office was always open to everyone and his mind always ready for an interesting discussion. Together with Traudel, his companion for 43 years, he hosted many gatherings at his home where group members and visitors from near and far were always welcome. None of us will ever forget the lively discussions on these and many other occasions, Otto's genuine interest in people and their lives, his generosity and his burning enthusiasm for science.

U. Theopold, Stockholm