

OBITUARY

Ludger Rensing (1932–2013)



Ludger Rensing in his office at the University of Bremen
Photo: Peter Ruoff.

Ludger Rensing, Professor of Cell Biology at the University of Bremen, died March 11 at 80 years of age. Ludger had many interests, from science to art, culture, sports, and politics. Those of us who knew and worked with Ludger remember him as an extraordinary fine person and colleague. Ludger's main research theme was focused on the organization of circadian rhythms. After completing his doctoral thesis on the locomotor activity patterns of the water skater (*Velia currens*) at the University of Göttingen in 1960, he spent 2 years in Colin Pittendrigh's lab at Princeton, which at that time was one of the leading centers of chronobiology. After returning to Göttingen, he established the fruit fly *Drosophila* as a model organism for the study of circadian rhythms and investigated, with Victor Bruce at Princeton, the hormonal system of its larvae. In 1966, he and his research group extended investigations to rodents and mammalian cell cultures.

In 1971, Ludger was promoted to Associate Professor at The University of Göttingen. Ludger possessed the talent to stimulate the creative potential of his co-workers, whose ideas were intensely discussed either in a group meeting or during lunch. In the sixties and early seventies, when we could not even have dreamt of direct measurements of mRNA, he and his coworkers used indirect approaches to study circadian rhythms of gene expression, e.g., by analyzing the extent of puffing in giant chromosomes. He determined changes in poly-some size following temporal variations of hormone-specific enzyme induction and blocking of circadian rises in enzyme activity by inhibitors of transcription, poly-adenylation, and translation. Another important subject of his research was the generation of rhythms at the cellular level in multicellular organisms. This was studied in isolated salivary glands of *Drosophila* larvae, primary cultures, and transformed cell lines of mammalian origin. Indeed, studies conducted by Ludger and his group can be regarded as significant early contributions to the understanding of cellular rhythms, and which predated by several decades the technological ability to investigate these phenomena directly.

In 1976, Ludger transferred to the University of Bremen as a Full Professor. During sabbatical stays at Harvard in the lab of J. Woodland ("Woody") Hastings and later at the University of Santa Cruz in Jerry Feldman's lab, he added the dinoflagellate *Lingulodinium polyedrum* (at that time called *Gonyaulax polyedra*) and the filamentous fungus *Neurospora crassa* to his repertoire of model organisms. Besides his molecular biology-focused research, Ludger also had a keen interest in the development of cybernetics and systems theory towards biological applications. His first textbook on biological rhythms and regulation, published in 1973, shows Ludger's interests in control theory and biological systems by including many examples and relationships between biological regulation and theoretical control concepts. He organized pioneering conferences on the structure of "Temporal Order" (1984) and "Temporal Disorder" (1986), including major contributions from the fields of mathematics and physics. In 1989, he combined his interests in pattern formation in nature and arts to initiate the well-received exhibition "Natur und Form" (Nature and Form) for the Übersee-Museum in Bremen, which was later exhibited in more than fifteen other locations. In his later years, Ludger focused his research

on stress and aging, which was initiated earlier when he analyzed the effect of heat shock proteins in *Neurospora crassa*. Ludger's group contributed to unraveling the molecular mechanisms of the cellular stress-response leading to induction of heat shock proteins. The then accumulating evidence indicated free radicals generated during oxidative stress might play a major role in aging and the outcome of age-dependent diseases. Ludger was particularly interested in the mechanisms of free radicals and preventive measures against degenerative diseases, such as Alzheimer's, Parkinson's, and cancer. Apart from his over 170 research papers, Ludger was the author of 8 books. His last book on the biological basis of aging was completed just before his death.

In 1994, Alain Reinberg, primarily an applied chronobiologist, invited Ludger to be his replacement as one of the co-editors-in-chief of *Chronobiology International*, and Ludger graciously accepted. From his appointment as a co-editor in the beginning of 1995 until his retirement at the end of 2005, Ludger worked tirelessly to build the reputation of the journal. He attracted excellent manuscripts devoted to basic chronobiology while helping to refine editorial policy. He travelled annually to New York City, usually with his wife Roswitha, to attend editorial meetings with Michael Smolensky (other co-editor-in-chief), Alain Reinberg (senior advisory editor), and staff of the then publisher of the journal, Marcel Dekker. It was always a delight to visit with Ludger before and during these meetings, which were often held in December, a few weeks before Christmas. As a dedicated co-editor of *Chronobiology International*, teacher, and investigator, Ludger was a strong advocate of chronobiologists, especially the young students and researchers of the European and developing nations, and the science of chronobiology as a deserving field of academic endeavor. He contributed

strongly to the growth of the journal and its scientific impact. Ludger was a gracious and humane editor. He respected the research efforts of others and viewed the peer review process of *Chronobiology International* as a type of instructional and learning experience by which chronobiologists could gain knowledge from experts in the field to improve their research skills. He took the time to draft diplomatic and kind explanations to authors for the basis of the decision to reject submissions and did so sometimes with a keen sense of humor. Ludger, with his broad knowledge in the field of cellular and molecular chronobiology, coupled with his widely respected overall expertise and academic accomplishments, was certainly the right man at the right time for the journal, and also for the developing field of chronobiology.

Ludger was a very likeable, fun, and multi-faceted, multi-talented person. He was a serious and accomplished academic scholar, but, nonetheless, he enjoyed socializing and even engaging in improvised soccer matches, often with younger participants, at scientific meetings. He loved his family and was proud of his wife Roswitha, his son Christopher, daughter Anne, and of course his five grandchildren.

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