Innate Immunity: Resistance and Disease-Promoting Principles
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Volume Editors

Gunther Hartmann  Bonn
Hermann Wagner  Munich

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Innate Immunity

This book series features the proceedings of the Else Kröner-Fresenius Symposia, which are intended to cover clinically relevant topics at the forefront of biomedical research. The meetings should give experts the opportunity to discuss the most recent findings in evolving fields of biomedicine and outline future research strategies.

Today’s research is characterized by the accelerated generation of biomedical data, the increasingly interdisciplinary and translational nature of biomedical science, as well as efforts to integrate the data into complex biological systems. These developments emphasize the need for new forums of discussion.

The innate immune system is an evolutionarily highly conserved, first rapid line of host defense that precedes and instructs the adaptive immune system. The defense system detects not only pathogen-mediated injury but also any other type of physical, chemical or radiation tissue insult. Its general strategy of defense relies on distinct innate immune-sensing receptors that are present not only in immune cells but in most somatic cells. These receptors are able to recognize both microbial molecules known as pathogen-associated molecular patterns (PAMPs) and sterile tissue injury-induced molecules denoted as damage-associated molecular patterns (DAMPs).

The recognition of either PAMPs or DAMPs then initiates an infectious or sterile inflammatory response, followed by tissue repair if necessary.

In this sense, innate immunity has definitely developed beyond the boundaries of classical immunology and can now be regarded as an immune sensory system evolutionarily determined to directly or indirectly sense alterations in cell or tissue integrity. In fact, as recognized today, the innate immune system encompasses a much broader field of life-saving biological functions: when adequately controlled, it is essential for maintaining homeostasis and, thus, guarantees the health of an individual. However – and this is the other side of the coin – when functionally uncontrolled and exaggerated, the same defense system plays a pivotal deleterious role in most human pathologies and diseases including sepsis, atherosclerosis, metabolic disorders, and neurodegenerative diseases.

In this context, Prof. Hermann Wagner organized in May 2012 a distinguished meeting to discuss the current knowledge of the innate immune system, the 4th Else Kröner-Fresenius Symposium. World-renowned experts in the
field of the innate immune system discussed perspectives of the current advances integrating the data from diverse fields of research into the medical perspective.

The Else Kröner-Fresenius Stiftung thanks Prof. Hermann Wagner for his inspiring scientific work and personal outstanding input in organizing together with his team, the 4th Else Kröner-Fresenius Symposium.

The Else Kröner-Fresenius-Stiftung


Else Kröner, née Fernau, was born on May 15, 1925, in Frankfurt am Main, Germany. When she was 3 years old, her father died. After his death, she lived with her mother in the home of Dr. Eduard Fresenius, a pharmacist and owner of the Hirsch Pharmacy in Frankfurt, who had founded the pharmaceutical company Fresenius in 1912. Dr. Fresenius, whose marriage remained childless, took care of Else Fernau. In 1944, she started an internship at the Hirsch Pharmacy and decided to study pharmacy, which was supported by her patron. In 1946, Dr. Fresenius unexpectedly died. At that time, Else Fernau had not completed her pharmaceutical education. However, Dr. Eduard Fresenius bequeathed the Hirsch Pharmacy and the Fresenius company to her.

At the age of 21 years, Else Fernau decided, against the advice of many, to take responsibility for the Hirsch Pharmacy and the Fresenius company, which were then experiencing severe financial difficulties during the post-war years. Of the original 400 employees, all but 30 had to be laid off. In her efforts to ensure the survival and force the re-expansion of the company, she was later supported by her husband, Hans Kröner. The company was progressively rebuilt and the need to maintain it determined all activities.

It were these important and far-sighted entrepreneurial business decisions in the 1950s and 1960s that ensured the successful future development of the company. Decades of growth followed, in particular within the field of dialysis, nutrition and intensive care, leading to an internationally competitive enterprise and market leader in special areas of health care.

Until 1981, Else Kröner led the company. After the transformation of Fresenius into a stock company, she remained chairwoman of the Supervisory Board until her death on June 5, 1988. From 1981 to 1992, her husband Hans Kröner led the company as CEO. Thereafter, he significantly shaped the policy of the Else Kröner-Fresenius-Stiftung, of which he was chairman of the board from 1995 to 2005.

Today, the Fresenius group, of which the Else Kröner-Fresenius-Stiftung is the leading shareholder, is an international healthcare conglomerate with products and services for dialysis, hospital, and medical care of patients. The Fresenius group currently employs nearly 150,000 people in more than 100 countries and generates annual sales of over EUR 16 billion.

Else Kröner entrusted nearly her entire property to the foundation. She laid down that its financial resources should be employed to promote medical science, advance health care and provide humanitarian aid. It is in accordance with her vision and requirements that the Else Kröner-Fresenius-Stiftung continues to put the founder's fortune at the service of nonprofit projects and objectives. The symposia are published as part of the foundation's commitment to the advancement of medical research and treatment.

Sascha Pahernik, Heidelberg
Member of the Scientific Committee of the Else Kröner-Fresenius-Stiftung
Series Editor