Josef Martin Penninger Biography

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Biography

Josef Penninger is a medical doctor and molecular immunologist. In his short research career he has already made discoveries of fundamental significance to the understanding of bacterial infections and heart disease, osteoporosis, and the human **immune system**.

Penninger was born in Gurten, Austria. His education was in Austria, culminating with his receipt of a M.D. and Ph.D. from the University of Innsbruck in 1998. In 1990, he joined the Ontario Cancer Institute in Toronto. In 1994, he became principle investigator with the United States **biotechnology** company Amgen, joining the AMEN Research Institute that had just been established at the Department of Medical Biophysics at the University of Toronto.

In his decade at the AMEN Institute, Penninger has produced a steady stream of groundbreaking studies across the breath of **immunology**. He and his colleagues demonstrated that infection with the bacterial *Chlamydia trachomatis* caused heart damage in mice. The basis of the damage is an immune reaction to a bacterial protein that mimics the structure of the protein constituent of the heart valve.

As well, Penninger has shown that a protein called CD45 is responsible for regulating how a body's cells respond to developmental signals, coordinates the functioning of cells such as red and white blood cells, and regulates the response of the immune system to viral infection. The discovery of this key regulator and how it is co-opted in certain diseases is already viewed as a vital step to controlling diseases and preventing the immune system from attacking its own tissues (a response called an autoimmune reaction).

The research of Penninger and others, such as Barry Marshall and Stanley Pruisner, has caused a re-assessment of the nature of certain diseases. Evidence is consistent so far with a bacterial or biological origin for diseases such as schizophrenia, multiple sclerosis and Alzheimer's disease.

Penninger already has some 150 research papers published, many in the world's most prestigious scientific journals. Numerous prizes and distinctions have recognized the scope and importance of his work.