



Elite Forsk Award to Aarhus University

At Aarhus University a research tradition begun by Nobel Prize Winner Jens Christian Skou in the 1950s and '60s has continued in the genome era with the Water and Salt Research Center, where director and professor Søren Nielsen has just received the prestigious 'Elite Forsk award' from the Danish Ministry of Science.

Sometimes success in research is just a matter of blind luck, but most often luck plays a small part and having an open mind, hard work and seeing opportunities are the major factors in the equation.

Looking back at his career professor Søren Nielsen, Director of the Water and Salt Research Center at Aarhus University, is not afraid to admit that luck has played a part.

"I was lucky to be in the right place at the right time," says Søren Nielsen, of his time as a young researcher at National Institutes of Health in the outskirts of Washington DC, USA in 11.

Almost next door, a Nobel Prize was in the making in the shape of the 2003 Winner, Peter Agre, who himself had just stumbled onto the lucky shot of his life a water channel that generations of researchers had failed to find. And Agre, a blood scientist looking for something completely different found it as an impurity that kept spoiling his samples!

"Yes, it was lucky, but if Agre hadn't been curious it would have passed his life by," says Nielsen. Some researchers see all the problems and never get anything done whereas others see opportunities and get a lot done.

Søren Nielsen also had his eyes open for opportunity and set up collaboration with Agre. Coming from a tradition of working with cell biology and knowledgeable about the research established in the 150s and '60s at Aarhus University by another Nobel Prize Winner Jens Christian Skou, Søren Nielsen was well trained in just the skills Agre needed. With his colleague at the time, Mark Knepper, they initiated a collaboration bringing together research groups each with a different expertise.

The triangle proved very effective over the next few years, where competition



Professor Søren Nielsen, Director of the Water and Salt Research Center at Aarhus University,

got intense in a research field centred on aquaporins and to Nielsen it was a tremendous acknowledgement of all their work when Agre received the Nobel Prize in 2003.

Now he himself has been awarded the Elite Forsk and in the same way he sees it as an acknowledgement of all the people who have carried out the research over the years. "I am just the person who receives the prize," says Nielsen.

His studies has been centred on the aquaporins, which is found highly expressed in the kidney, and plays a central role in regulating vital water and salt balance. Using a wide range of methods, including cell biology, electron microscopy, molecular biology, physiology and pathophysiology, Nielsen's group has over the years studied several different aquaporins. They have investigated how they are regulated and their role in diseases caused by salt and water imbalances, such as high blood pressure, renal failure and brain edema. Lately,

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aquaporins 7 and have been indicated in type-2 diabetes, so again the research might lead down a new road.

Nielsen comes from a medical background and his ultimate goal is to have the molecular studies end up benefiting patients. That might just happen. A few years ago, studies on the kidney and water channels again turned up something unexpected, which seemed to have a huge potential in protecting against severe organ failure after major surgery. It was just plain fascination, and to pursue it Nielsen and others quickly established a biotech company Action Pharma. It now has eight drug candidates, one in clinical development and about to enter a phase II trial in the US, and another to enter clinical development this spring.

What other surprises the research will have in store, time will show, but Nielsen is always having his eyes open for opportunities. <

The Water and Salt Research Centre

The Water and Salt Research Centre is a centre of excellence established and supported by the Danish National Research Foundation (Danmarks Grundforskningsfond). The centre was established in 2001, based on the pioneering work by Peter Agre, Winner of the Nobel Prize in Chemistry in 2003, for the discovery of aquaporins, and on the work pioneered by Jens Chr. Skou in the 1950s and '60s at the University of Aarhus on the discovery of the Na,K-ATPase; for work that he was rewarded the Nobel Prize in Chemistry in 1997. The centre was based on four research groups in Aarhus headed by Søren Nielsen, Jørgen Frøkiær, Arvid Maunsbach and Christian Aalkjær, respectively. It has now expanded to incorporate 6-8 research groups that work together in a highly synergistic fashion and with very close international collaboration. It engages about 60 researchers and technicians with an annual budget of approx. DKK 80 million from the Danish National Research Foundation.

Action Pharma

Action Pharma A/S has a pipeline of eight drug candidates of which four are in late preclinical development, one in clinical development and will enter a phase II study in the US mid 2007. The compound has major potential in protection against severe organ failure associated with major surgery. Another compound will enter clinical studies in Stockholm in April 2007 and is aimed at treatment of Type-2 diabetes. All the targets are melanocortin receptors.