

Meet Martin Heni, our 2023 Jens Sandahl Christiansen Awardee



Professor Martin Heni from Ulm University Hospital, Germany is our 2023 Jens Sandahl Christiansen Awardee; he will be delivering a lecture in Istanbul for ECE 2023. Read on to learn more about his career in endocrinology, what you can expect from ECE 2023, and his advice for future endocrinologists.

Tell us a little about your current position and research

I am a clinician scientist and the head of the Division for Endocrinology and Diabetology at Ulm University Hospital, Germany. In our daily work, my team and I are committed to improve the lives of those with endocrine and metabolic disorders. I constantly work on establishing new concepts and innovative treatment strategies, with a particular focus on diabetes.

The best thing about my position is that patient care and research always goes hand-in-hand. My translational research is focused on the crossroads of neuroendocrinology and systemic metabolism. I am keen to understand how different organs work together in

metabolism and how this is regulated by the human brain. My special focus is on the hormone insulin. We have investigated how it acts in the brain, what consequences this has in humans, and how insulin resistance in the brain contributes to metabolic diseases.

I am convinced that endocrinology is one of the best fields to combine excellent patient care with innovative clinical research and I am deeply committed to both.

Tell us about your career path so far, and what you're most proud of

In Germany, it is common for medical students to conduct some research as part of their MD thesis. Back then, I knew I wanted to find a challenging and intense project that would help me to find out if research was the right path for me. I came across a fascinating project at Tübingen University's Department of Endocrinology and Diabetology under the supervision of Reiner Lammers, a molecular biologist. This opportunity allowed me to join a DFG Research Training Group and put my medical studies on hold while I investigated the interaction of two proteins in insulin signalling.

During my time in the lab, I learned so much about molecular biology and different basic science techniques. I discovered that science can be challenging and hard work, but also incredibly rewarding. It was during this time that I met Hans-Ulrich Häring, the head of the department, who later became my mentor. Through my research, I knew that endocrinology was the area I wanted to specialise in, and after completing my MD studies, I asked him if there was an opportunity to join the department as a young physician. Fortunately, there was one.

My first position was, however, not immediately in regular patient care but in the clinical research centre. Even though this was not what I had imagined, I quickly discovered that clinical research was fascinating. With my background in basic science, this was an opportunity for me to perform translational work. At that time, there was accumulating evidence from rodents that insulin acts in the brain and has an impact on metabolism in the entire body. In Tübingen, first clinical studies to test if insulin also acts in the human brain were ongoing and I joined that research team.

As a physician with a strong clinical focus on endocrinology and metabolism, my main interest was to uncover how brain insulin contributes to the regulation of metabolism in the entire body in humans. We designed clinical experiments that allowed us to uncover important mechanisms, characterise insulin resistance of the human brain, and get first ideas on its clinical impact. During this time, I also completed my clinical training in endocrinology and realised how important precise and reliable laboratory diagnostics are for endocrine patient care. This became my second strong focus as a physician.

My work in patient care has always benefited from my research skills, knowledge, and new discoveries, and my research has always benefited from my growing clinical experience.

Recently our team made two important contributions: we extended knowledge on subgroups of diabetes to the stage of prediabetes and discovered that there are specific

groups of prediabetes with a strongly different risk for progression towards overt diabetes and, even more important, a strongly different risk for complications and mortality.

Our second important recent discovery was that insulin resistance of the human brain is not a fixed trait but a condition that can be therapeutically targeted, with potential impact not only on diabetes but also on brain diseases like depression and cognitive decline. I am proud of the work that we have done and excited to see where the future of endocrinology research will take us.

What are you presenting at ECE 2023?

I am deeply honoured and proud to receive this year's Jens Sandahl Christiansen Award from the European Society of Endocrinology. In my lecture I will give an overview on insulin action in the human brain and discuss the clinical impact of insulin resistance of the brain.

What are you looking forward to at ECE 2023?

I am very much looking forward to meeting colleagues and friends from all over Europe who share my passion for endocrinology. I am excited to get to know, and connect with, like-minded people with similar interests, to engage in critical but also stimulating discussions, and to learn about latest advancements in endocrinology.

Who has had the most impact on your career?

I am deeply grateful for the guidance provided by my long-time mentor, Hans-Ulrich Häring. Through his expertise and unwavering support, I have gained a wealth of knowledge and skills that have shaped my development both as a scientist and as a physician.

Hans-Ulrich Häring is a remarkable scientist with a talent for developing clear and comprehensive strategies. He has been a true role model to me, inspiring me to push beyond my limits and strive for excellence in all aspects of my work. I have greatly benefited and still benefit from our challenging and stimulating scientific discussions, which have broadened my perspectives and helped me to grow both professionally and personally.

What are the biggest challenges in your field right now?

From my perspective, one of the biggest challenges in our field in Germany — and several other European countries — is the political and structural change in healthcare. We are witnessing a shift of resources from smaller "speaking medicine" specialties towards those that rely more on advanced technical and invasive procedures. This trend poses significant challenges for endocrinology, resulting in increasing economic and political pressures on our clinical work. This is one of the reasons why it has become increasingly difficult to inspire and motivate young people to pursue a career in endocrinology research or clinical work.

I firmly believe that endocrinologists and endocrine scientists across Europe must unite and work together to reverse this development. We must strive to preserve excellent scientific opportunities and ensure adequate patient care for the future.

What do you think will be the next major breakthrough in your field?

I believe that we are experiencing two major breakthroughs in my field that will have a tremendous impact on clinical care and will improve the lives of many patients.

In recent years there has been a growing recognition that diabetes mellitus is not a monolithic condition, but a rather complex and heterogeneous disease that can manifest in a variety of ways. For example, recent research has identified distinct subtypes of diabetes (and we even extended this to pre-diabetes). Each of these groups likely has a unique pathophysiology and patients of these groups share specific clinical features and have a markedly different risk for complications. By better understanding these subgroups, we will learn much more about targeted and personalized approaches to diagnosis, prevention, and treatment of diabetes. I am certain that there will be groups who require a more intense screening and therapy, while others might require only little to no medical attention.

The second condition with major breakthroughs ahead is obesity. It is now widely recognised that obesity is not simply a matter of carrying excess weight, but rather a complex condition influenced by multiple factors including genetics, environment, lifestyle, and metabolism. The brain appears to play a crucial role in the pathophysiology of obesity. While lifestyle interventions such as diet and exercise are theoretically effective treatment options, in reality, many patients struggle to maintain these interventions over the long term, and therefore fail to achieve significant weight loss. However, upcoming medical treatments for obesity hold immense promise and have the potential to introduce substantial weight loss in a non-invasive manner in many patients. The impact of these innovative treatments will be enormous. They have the potential to significantly improve the lives of many patients, and the potential to prevent many associated complications.

Could you tell us what you most enjoy about your work?

Throughout my career, I have been fortunate to work in a very interdisciplinary environment. This has allowed me to learn from experts in different fields, to approach problems from different angles, and to develop new and innovative solutions. Working in an interdisciplinary environment has also challenged me to communicate effectively across different specialties, and to develop a broader understanding of how different disciplines can come together to advance our understanding of endocrine disorders. Overall, I believe that my work has been greatly enhanced by this interdisciplinary approach, and I am grateful for the opportunity to collaborate with so many talented and diverse colleagues over the years.

Any words of wisdom for aspiring endocrinologists?

For me, endocrinology is the most fascinating and mind-stimulating field of medicine. Hormones are responsible for nearly all physiological processes, including metabolism, growth, reproduction, and even behaviour. We, as endocrinologists, have the opportunity to explore and understand complex and diverse aspects of human biology and health.

Furthermore, endocrinology is a rapidly evolving field, with new discoveries and technologies constantly emerging. This presents exciting opportunities for research and discovery, as well as for the development of innovative treatments for endocrine disorders.

Research in endocrinology can be particularly fun because it often involves interdisciplinary collaboration and experimentation. Endocrinologists may work with scientists from a variety of fields, including genetics, biochemistry, and pharmacology, to explore the mechanisms of hormone action and develop new treatments for endocrine disorders.

While everyone may have different interests and passions, for those who are curious about how the human body works and those who are excited about the possibilities of scientific discovery, endocrinology is the right field to work in. The potential for ground-breaking research and innovative treatments, combined with the interdisciplinary nature of the work, makes endocrinology the most fascinating and fun field to be a part of.