Meet Krishna Chatterjee, our 2025 European Hormone Medallist

Professor Krishna Chatterjee, from Cambridge, UK, is our 2025 European Hormone Medallist. He will deliver his Award Lecture in Copenhagen at the Joint Congress of ESPE and ESE. Read on to learn more about his career in endocrinology, his advice for future endocrinologists, and what you can look forward to hearing him talk about at the Congress.

Please tell us about your current role
I am based in the Institute of Metabolic Science at the University of Cambridge, UK. My research spans the basic-clinical interface and translates into a diagnostic service for rare and unusual thyroid disorders. In addition, I am privileged to direct the Cambridge Clinical Research Centre and a PhD programme for health professionals.

What career path have you taken in endocrinology?
I graduated from Cambridge and completed clinical training in Oxford. I first trained in endocrinology with Steve Bloom at Hammersmith Hospital, London, and then undertook research with Larry Jameson in the Thyroid Unit at Massachusetts General Hospital in Boston, MA, USA. In 1990, I returned to the School of Clinical Medicine in Cambridge, led by Keith Peters. I was appointed Professor of Endocrinology in 1998. Our research has been supported continuously by Wellcome and, more recently, by the National Institute for Health Research.

What will you discuss in your Award Lecture at the 2025 Joint Congress of ESE and ESPE?
I will present notable contributions of our group in the field of thyroid hormone action. We have defined a multisystem disorder, often presenting in childhood, due to mutations in *SECISBP2* which controls synthesis of selenocysteine-containing proteins. This syndrome is associated with disordered thyroid hormone metabolism and phenotypes (e.g. muscular dystrophy, azoospermia) due to tissue-specific selenoprotein deficiencies, and features (e.g. photosensitivity, progressive hearing loss, aortic aneurysm) secondary to a lack of antioxidant selenoenzymes. Uniquely, this disorder illustrates the consequences of oxidative stress in humans.

We first discovered mutations in thyroid hormone receptor-α, causing a form of congenital hypothyroidism with near-normal thyroid function tests which is underdiagnosed, and in peroxisome proliferator-activated receptor-γ, causing lipodystrophic insulin resistance, as well as diverse mutations in thyroid hormone receptor-β. I will show that dominant negative inhibition of normal receptor function by their mutant counterparts is a unifying pathogenetic mechanism in these and other nuclear receptor-mediated disorders. Uniquely informative receptor mutations, found in prismatic patients, have elucidated the molecular basis of dominant negative inhibition, informing approaches to treatment of these disorders.

What are you most proud of in your career, and in life in general?
It has been a privilege to work with basic scientist and clinician colleagues, both within my group and as collaborators around the world. Without their efforts, as well as the patients taking part in our research, our contributions to advancing knowledge and changing health outcomes in endocrine disorders would not have been possible.

What is likely to be the next breakthrough in your area of interest?
We now recognise that the actions of thyroid hormone in tissues are controlled by membrane transporters, metabolising enzymes and receptors. I think it will be possible to exploit this complexity, developing therapies that target these molecules, to selectively modulate hormone action in specific tissues.

What are the biggest challenges in your field right now?
During the COVID pandemic, I was privileged to contribute to clinical trials, undertaken at unprecedented speed and scale, which helped develop effective vaccines. The challenge now is to translate discovery science into health benefits in other areas, at a comparable pace.

What is the most enjoyable aspect of your work?
Overseeing a clinical research centre that accommodates nearly all clinical research conducted on the Cambridge Biomedical Campus provides me with invaluable insights into leading edge developments. It is a privilege to mentor health professional fellows in our PhD programme, guiding them to pursue clinician-scientist career pathways.

What are you most looking forward to at the 2025 Joint Congress?
As a clinician-scientist who studies rare endocrine disorders with a heritable basis, I am very conscious that these conditions can have health implications throughout life. Accordingly, I am most looking forward to interacting with delegates who look after both childhood and adult patients, as I think this will provide many opportunities to learn and exchange new information.

Why should people join ESE?
Many endocrine conditions are uncommon, and the ESE membership encompasses countries whose large combined population is located within a relatively restricted geographical area. This facilitates the formation of networks of colleagues who collaborate to study large cohorts of patients with disorders, often yielding impactful research outcomes.

What words of wisdom do you have for aspiring endocrinologists?
Throughout my career, I have tried to keep up with knowledge of advances in both basic science and clinical practice in my field of interest. Although this takes much time and effort, I think it has been the basis of our most fulfilling contributions to knowledge and understanding.