

## **Understanding cortical development and disease: from embryos to brain organoids**

Much remains unknown regarding the cellular and molecular principles that govern the development of the mammalian brain, and how these events are affected in neurodevelopmental disease. Focusing on the cerebral cortex, this lecture will cover mechanistic rules that drive the developmental generation of cellular diversity during embryogenesis. Building on this developmental work in the mouse, I will then present the challenges and opportunities of modeling human cortical development in the dish, from pluripotent stem cells, within 3D human brain organoids, and the promise that organoids offer to understand complex neurodevelopmental disease.