Abstract

The question of what makes human beings unique has fascinated humankind throughout modern history. Today, we view the brain as the core component of human identity, and an understanding of this organ is consequently essential for answering why we as a species are what we are. What distinguishes humans from other species is largely thought to reside in the unique features of brain development, especially in the wiring of the immensely complex neural circuits that underlie our cognitive and motor abilities.

In my presentation, I will describe some of our recent efforts to understand the molecular and cellular basis of how neurons acquire distinct identities and form proper connections in the cerebral cortex, the outside part of the mammalian brain that processes our senses, commands motor activity, and helps us perform higher-order cognitive functions like language. I will also present evidence on how these complex developmental processes were modified during human evolution and may become compromised in neuropsychiatric disorders.

