한국뇌신경과학회
The Korean Society for Brain and Neural Sciences

K-Brain 2026

Symposium 09

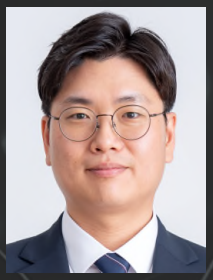
Title: Evo-NeuroDevo: A Comparative View of Mammalian Brain Development

September 7th (Monday), 08:30-10:25

Grand Ballroom, Daejeon Convention Center, Daejeon, Korea

Registration KSBNS2026.org

Organizer



Changuk Chung
Graduate School of Medical Science and Engineering, KAIST, South Korea
&
Kihoon Han
College of Medicine, Korea University, South Korea

This symposium will explore evolutionary aspects of mammalian brain development by integrating findings from humans, non-human primates, mice, ferrets and pigs, revealing key developmental innovations that distinguish the human brain. By bridging multiple experimental systems and evolutionary perspectives, this session aims to highlight how comparative neurodevelopmental approaches can illuminate what makes the human brain unique.

Speakers

Jinju Han

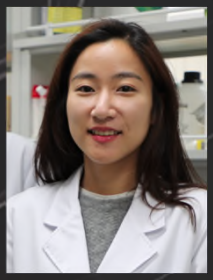
Graduate School of Medical Science and Engineering, KAIST, South Korea
"Loss of AGO1 impairs brain development and induces ASD-like behaviors via LIN28A upregulation"

Prof. Jinju Han investigates how regulatory noncoding RNAs and cellular metabolism shape human brain development and contribute to neuropsychiatric disorders, using patient-specific iPSCs and animal models. Her recent work identified a microRNA as a key regulator of mitochondrial and metabolic maturation during early human neurogenesis. She also revealed distinct metabolic dysfunctions and lithium responses in astrocytes derived from patients with bipolar disorder, providing new insights into brain disease mechanisms and personalized treatment strategies.

Hiroshi Kawasaki

Graduate School of Medical Sciences, Kanazawa University, Japan
"Formation, evolution and functional significance of cortical folds"

Prof. Hiroshi Kawasaki is a leading scientist in the field of molecular evolution of the brain. He has established the genetic methods for ferrets, which have relatively large, folded brain, and by comparing mice and ferrets, he has found the molecular mechanisms underlying the development and evolution of cortical folds. Furthermore, he recently uncovered a biological reason why the brains must be covered with folds.



JaeYeon Kim

Department of Neurology, University of California, San Francisco, USA
"Protracted migration of cortical inhibitory neurons for the complexity of higher cognitive areas"

Dr. JaeYeon Kim is focusing on the protracted development of inhibitory neurons in the human brain and their relevance to human neurodevelopmental disorders, including language impairments. By leveraging brains from humans, chimpanzees, pigs, and mice, her goal is to define human-specialized genetic and cellular features that underlie the larger size and greater complexity of the human brain. She recently identified the expansion of human cortical inhibitory neurons that contributes to the emergence of distinct cortical organization, using rigorous cross-species comparative approaches. This work provides new insights into the evolutionary mechanisms of human brain development and its vulnerability to neurodevelopmental disorders.

Song-Hai Shi

School of Life Sciences, Tsinghua University, China
"Convergent emergence of robust pallial circuits underlying advanced intelligence"

Prof. Song-Hai Shi studies mammalian brain development and function, with a focus on identifying the common structural and functional principles of brain circuits and linking them to animal behaviors, aiming to achieve a circuit- and system-level understanding of brain function in both normal and disease conditions. His work uncovered lineage-dependent mechanisms underlying precise neural circuit assembly and operation, leading to the principle that "neurons born together wire together and work together," which has provided important insights into brain development and functional organization.