

Title: Gene delivery to the brain: applications in life sciences and gene therapy

August 25th (Monday), 8:30-10:25

Rm.113-115, Songdo CONVENIA, Incheon, Korea

Registration KSBNS2025.org

Organizer



Hirokazu Hirai

Dept. of Neurophysiology & Neural Repair, Gunma University Graduate School of Medicine, Japan

This symposium brings together researchers developing viral vectors and lipid nanoparticles, as well as those utilizing them in their studies, to showcase the latest advancements in gene delivery techniques in neuroscience. Additionally, it will highlight cutting-edge neuroscience research that leverages these innovative technologies.

Speakers



Hiroyuki Hioki

Dept. of Neuroanatomy, Juntendo University Graduate School of Medicine, Japan

"Structural Analysis of Neural Networks Using High-Expression Adeno-Associated Virus Vectors"

He is interested in the neuronal circuitry of the central nervous system. To understand how the brain enables higher functions, he investigates its underlying neural networks, with the belief that "no structure, no function." His research focuses on uncovering the brain's architecture while developing innovative tools for morphological analysis, including virus vectors and tissue-clearing methods.

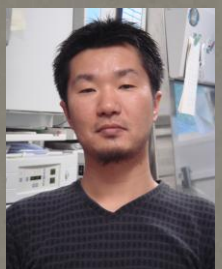


Taegon Kim

Center for Brain Convergence Research, Brain Science Institute, KIST, Korea

"Micro-dissection of the connectivity of cerebellar input layer with GABRA6 promoter by exploiting dispersed developmental time of granule cells and computational modeling"

He is investigating the principle of neural circuit formation using microscopy and computational methods. His recent work aims to infer the characteristics of densely packed neural network from local circuit labeling by applying viral vectors with development and understand how a target neural network is formed, contributing to insights into specialized architecture of a neural network and structure-function relationship.



Ken-ichi Inoue

Center for the Evolutionary Origins of Human Behavior, Kyoto University, Japan

"Long-term activity imaging of a neuronal population that sends input to a specific type of neurons via a low cytotoxic G-deleted rabies virus vector"

His studies rodents and non-human primates with the primary aim of elucidating the information processing mechanisms of the cortico-basal ganglia loop circuit. To achieve this, he is working to establish advanced neural pathway analysis methods by developing and applying new viral vector systems.



Dong Woon Kim

Dept. of Oral Anatomy & Neurobiology, Kyung Hee University College of Dentistry, Korea

"Rejuvenating aged microglia increases amyloid- β clearance"

He has been investigating how glia-induced neuroinflammation contributes to neurological disorders, with a particular focus on enhancing microglial function in Alzheimer's disease models. His recent work utilizes nanoparticles to deliver cell cycle regulators or induce Trem2 expression, aiming to boost microglial phagocytosis and improve amyloid clearance and cognitive function.



Yuuki Fukai

Viral Vector Core, Gunma University Initiative for Advanced Research (GIAR), Japan

"A Compact GAD67 Promoter Enables Inhibitory Neuron-Specific Gene Modulation"

His research focuses on gene therapy targeting inhibitory neurons. These neurons are involved in the pathogenesis of neuropsychiatric disorders such as epilepsy, schizophrenia, and autism. Our newly developed AAV vectors, specific to inhibitory neurons, enable modulation of their activity and serve as valuable tools for studying the pathophysiology of GABAergic neurons and for gene therapy applications.