



Hokkaido University
Faculty of Veterinary Medicine
第 826 回 獣医学研究談話会

The 826th Research Seminar for Veterinary Medicine



日時 : 2026 年 6 月 17 日 (水曜日) 17:00~18:00
Date and Time: 17:00-1800, June 17th (Wed), 2026
場所 : 北海道大学 獣医学研究院 講堂

Venue: Lecture Hall, Faculty of Veterinary Medicine

Lecturer: Professor Gou Young Koh

Director, Center for Vascular Research, IBS

Distinguished Professor, KAIST

Scientific Member, Max Plank Institute



Title : CSF Exit and Outflow: Meningeal Lymphatic Drainage

Abstract: Cerebrospinal fluid (CSF)-mediated clearance of neurotoxic proteins—including amyloid- β and tau—alongside cellular debris, metabolites, and neurotransmitters, is fundamental to maintaining central nervous system (CNS) homeostasis. CSF undergoes three to five complete turnovers per day through tightly regulated influx and efflux across the intracranial compartment, a continuous circulatory process essential for sustaining brain health. A growing body of evidence implicates impaired CSF drainage in age-related cognitive decline and a spectrum of neurological disorders, including Alzheimer's disease, Parkinson's disease, stroke, hydrocephalus, and traumatic brain injury—highlighting the considerable therapeutic potential of strategies aimed at enhancing CSF outflow to facilitate brain waste clearance.

Seminal contributions from the groups of Kari Alitalo and Jonathan Kipnis reinvigorated the field through the rediscovery of meningeal lymphatics as a key route for CSF drainage. Building on this foundation, our group systematically delineated the principal meningeal lymphatic networks and their anatomical interconnections relevant to CSF outflow. More recently, we identified a novel and direct CSF egress pathway through a discontinuous arachnoid membrane in the cribriform plate region—a finding with significant implications for our understanding of brain waste clearance and immune surveillance.

In this seminar, I will discuss the significance of these discoveries in the context of neurodegenerative disease pathophysiology and CNS immune surveillance. Particular emphasis will be placed on the anatomical and functional axis spanning the olfactory bulb, the cribriform plate, and the olfactory mucosa of the nasal cavity—an underappreciated yet critically important interface between the brain and the periphery.

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