Symposium | Schizophrenia：[Symposium 108] Recent Advances and Future Directions in Nuroimaging and Neurophysiological Studies in Schizophrenia

Sun. Sep 28, 2025 4:30 PM - 6:00 PM JST | Sun. Sep 28, 2025 7:30 AM - 9:00 AM UTC Session Room 1 (Main Hall A)

[Symposium 108] Recent Advances and Future Directions in Nuroimaging and Neurophysiological Studies in Schizophrenia

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[SY-108-02] Brain-MINDS Beyond Human Brain MRI study project in Japan: A multimodal brain images for various neuro-psychiatric disorders through the lifespan

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Keywords：Magnetic Resonance Image、Multi-site Study、Harmonization、Cross-disorder Comparison、Life Course Trajectory

MRI signals in clincial studies can be divided into three key factors: measurement bias, arising from differences in MRI machines and protocols; non-disease-related sampling bias, influenced by the variations of age distribution and sex ratios in both case and control groups; and disease-related signals. When exploring cross-disorder analysis using a multi-site dataset, the measurement and sampling biases usually provide a greater effect size compared to the difference between psychiatric disorders. Furthermore, the clinical sites were unable to apply the standardized measurement procedure and eligibility criteria because of the restrictions of each research site (Koike et al. *Neurosci Biobehav Rev* 2025; Shi and Koike. *JMA J* 2024). The AMED Brain/MINDS Beyond Human Brain MRI (BMB-HBM) project aimed to establish clinically relevant imaging biomarkers for neuropsychiatric disorders with high-quality harmonized data collection through the lifespan (Koike et al. *Neuroimage Clin* 2021). We established high-quality multimodal scanning protocols, data sharing and preprocessing pipelines, and traveling subject harmonization data and techniques, which can only diminish measurement bias in the brain signals. In this project, we intend to publicly share more than 7000 samples targeting neuropsychiatric disorders and adolescent development. In this presentation, I intend to introduce the BMB-HBM project and ongoing multi-site data harmonization for schizophrenia, major depressive disorders, bipolar disorders, and autism spectrum disorders as well as clinical high risk for psychosis. Finally, expanding to larger sample size, multimodal investigation, and more targeted conditions including neuropsychiatric disorders and development and aging will be discussed in the AMED Brain/MINDS 2.0 project.