

令和 6 年 4 月 8 日 Apr 8th, 2024

大学院学生各位 To All Graduate Students

基盤医学特論 開講通知
Information on Special Lecture Tokuron AY2024

題目：ストレス病態を担う代謝性中枢末梢連関の解明を目指して

Title: **Toward Understanding of Metabolic Central-Peripheral Relationship in Stress-related Pathologies.**

講師：永井 裕崇 先生（神戸大学大学院医学研究科薬理学分野 助教）

Teaching Staff: **Hiroataka Nagai, M.D., Ph.D. (Assistant Professor, Division of Pharmacology, Kobe University Graduate School of Medicine)**

日時：令和 6 年 4 月 26 日（金）17:00-18:30

Time and Date : **17:00-18:30, Apr 26th (Fri), 2024**

場所：基礎研究棟（講義棟）3階 講義室 1

Room: **Lecture Room 1, Basic Medical Research Building (3F)**

言語：英語

Language: **English**

Abstract: Excessive or chronic social stress can induce emotional and cognitive disturbances, potentially precipitating mental illness. These behavioral abnormalities are underpinned by altered neuronal morphology and functions in the medial prefrontal cortex (mPFC). However, the subcellular mechanisms underlying these changes remain elusive. In this study, we examined ultrastructural and multi-omics changes in the mPFC of mice subjected to social stress. We observed a loss of dendritic branches, morphological alterations of subcellular mitochondria, and selective synaptic shrinkage at synapses with mitochondria. Multi-omics and functional analyses revealed that social stress impaired mitochondrial functions, altered the mitochondrial proteome at synapses, and dysregulated central metabolic pathways in the mPFC. Molecular biological interventions targeting central metabolism mitigated the stress-induced synaptic shrinkage and behavioral changes. Besides, we found that social stress dysregulated blood glucose level in a manner associated with behavioral alterations and that administration of blood glucose-lowering drugs attenuated behavioral alterations. Collectively, these findings suggest that chronic social stress alters central metabolism both in the brain and the periphery, leading to neuronal pathology and stress-related behavioral alterations.

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[注意] 事前連絡は不要です。Notice: No registration required.

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