

細胞デザイン医科学研究所  
システム医学情報研究部門

# セミナー

2024年12月13日(金)

18:00-19:30

場所：小串キャンパス 医修館5階 セミナー室



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## Lecture 1

18:00-18:45

**Brain dynamics: a path to investigate the computational power of human mind**

ブレイン・ダイナミクス：人間の心の計算能力を探る道

Alessandro E. P. Villa (Lausanne University, Switzerland)

## Lecture 2

18:45-19:30

**Functional states of prelimbic and related circuits during the acquisition of a GO/noGO task**

GO/noGO課題獲得における前頭前野と関連回路の機能状態

José María Delgado-García (Seville University, Spain)

Agnès Gruart (Pablo de Olavide University, Spain)

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## 【Lecture 1】

6:00pm-6:45pm

### **Brain dynamics: a path to investigate the computational power of human mind**

The brain's activity patterns rely on connectivity within and between regions, shaped by genetics and context. Studies and simulations show a link between spatiotemporal neural patterns and chaotic attractor dynamics. This talk explores neural network states over time and space, where recurrent activity forms oscillatory patterns and attractor states, potentially supporting higher-order functions. We will also discuss how biological neural networks may offer computational abilities beyond digital computers.

## 【Lecture 2】

6:45pm-7:30pm

### **Functional states of prelimbic and related circuits during the acquisition of a GO/noGO task**

This study examines medial prefrontal cortex functions through social cooperation, decision-making, and Go/noGo tasks. In the Go/noGo tasks, rats were trained to discriminate between two visual stimuli on an iPad, responding with a touch (GO) or refraining (noGO), receiving food as a reward. Local field potentials (LFPs) from multiple brain regions showed that the prelimbic cortex is specifically involved in cognitive and motivational processes, while other regions exhibited distinct activity patterns for GO/noGO stimuli, each playing specific roles as shown through coherence analyses.

主催：山口大学細胞デザイン医科学研究所 システム医学情報研究部門

共催：AIシステム医学医療研究教育センター