

# **Session 2: Precision Medicine Opportunities, Challenges, and Lessons Learned in Multimodal Biomarkers for CNS Disorders**

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**Multimodal Biomarkers for Central Nervous System Disorders:  
Development, Integration, and Clinical Utility**



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## Key Opportunities & Challenges

- 1) Heterogeneity of neuropsychiatric disorders  
→ *Biologically more valid subgroups (“biotypes”)?*
- 2) Trial-and-error can lead to treatment disengagement
- 3) The importance of biomarkers that predict functional outcomes (and not only reduction on a symptom scale)
- 4) Move from group-level to subject-level inference
- 5) Go beyond single time-points: emphasis on trajectories
- 6) Biomarkers for early intervention/prevention

## **Key Opportunities & Challenges (cont.)**

- 7) **Ethical considerations:** What do we do for individuals not presenting a given marker linked to treatment response?
- 8) **Developmental considerations:** biomarkers that change as a function of development
- 9) **Different “units of analysis”** could lead to different conclusions
- 10) The need for **collaborations, open science, data sharing**