# Precision Functional Mapping - A biomarker platform for neuropsychiatric drug development

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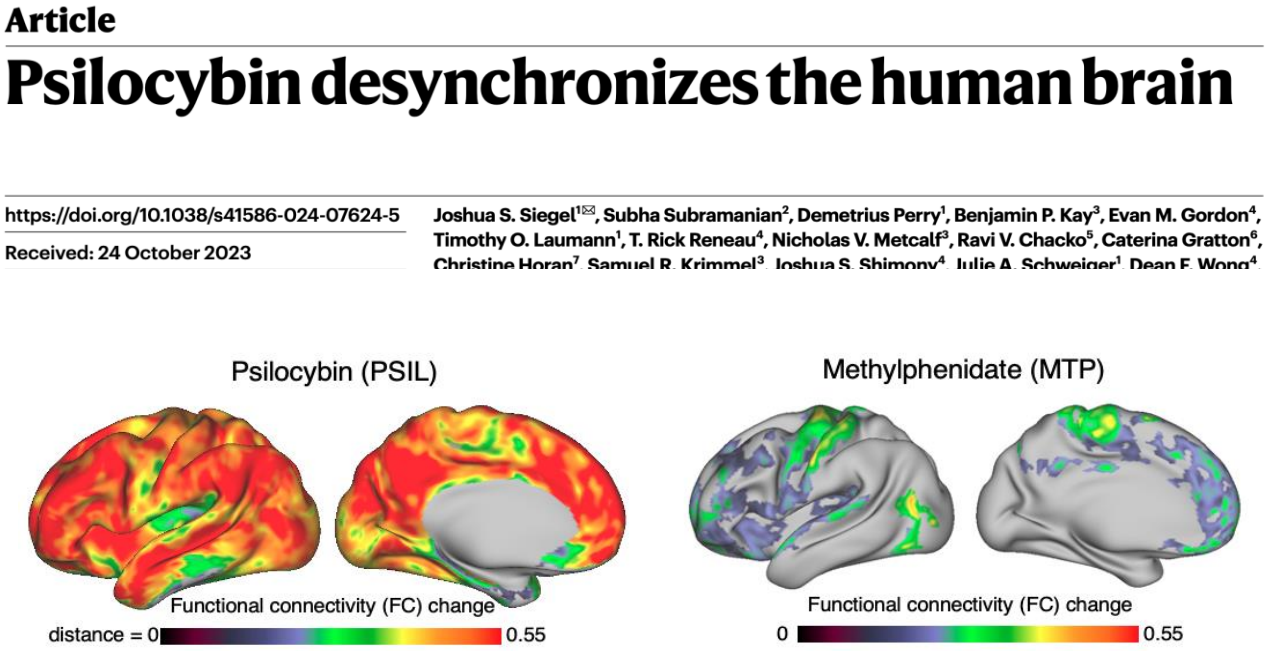
**Why**: In CNS drug development, rodent models are poor, pivotal trials are expensive, success rates are low. Reliable phase 1 biomarkers are critical. fMRI failed because good resolution is shot by group averaging.

**Precision Functional Mapping fMRI:** Define brain circuits in individuals, use within-subject design + data cleaning + fMRI advances + repeated sampling to assess activity/connectivity change.



Article

Psilocybin desynchronizes the human brain

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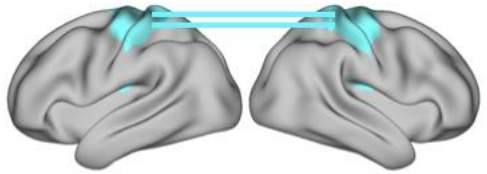
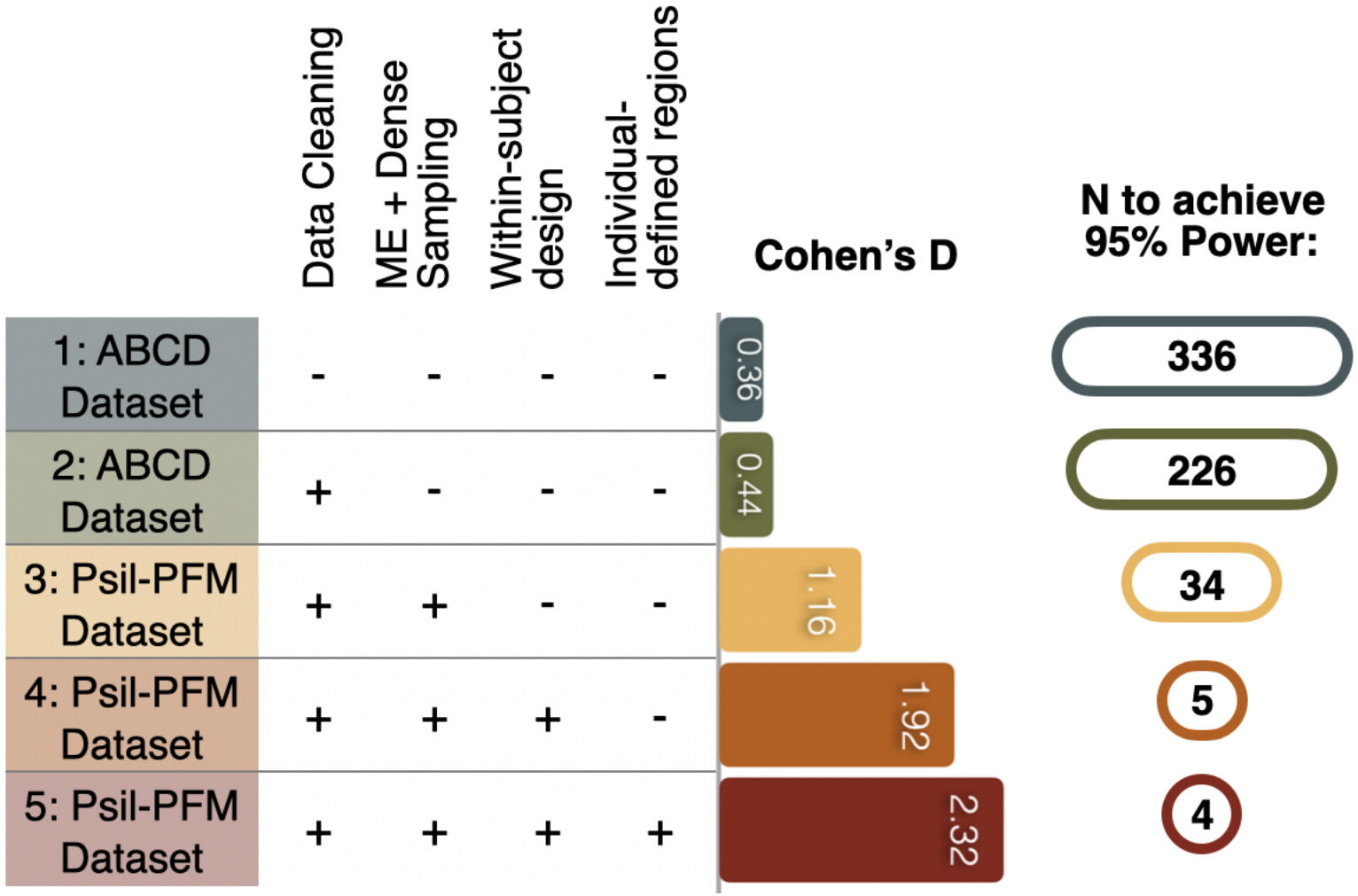
**What we did:** We compared a predefined resting fMRI biomarker for stimulants (⬇ somato-motor FC) across different datasets and methods.



Siegel et al., 2024 Nature

**What you found:** conventional fMRI yields Cohen's D = **0.36**. Precision Functional Mapping design (dense sampling, individual-defined areas, longitudinal/cross-over design) yielded Cohen's D = **2.32**. The sample size needed to detect an effect drops from N = **336** to N = **4**!




Precision Functional Mapping can provide much more sensitive biomarkers in early-phase clinical development.