神经影像与神经调控

神经调控的影像引导与机制解析

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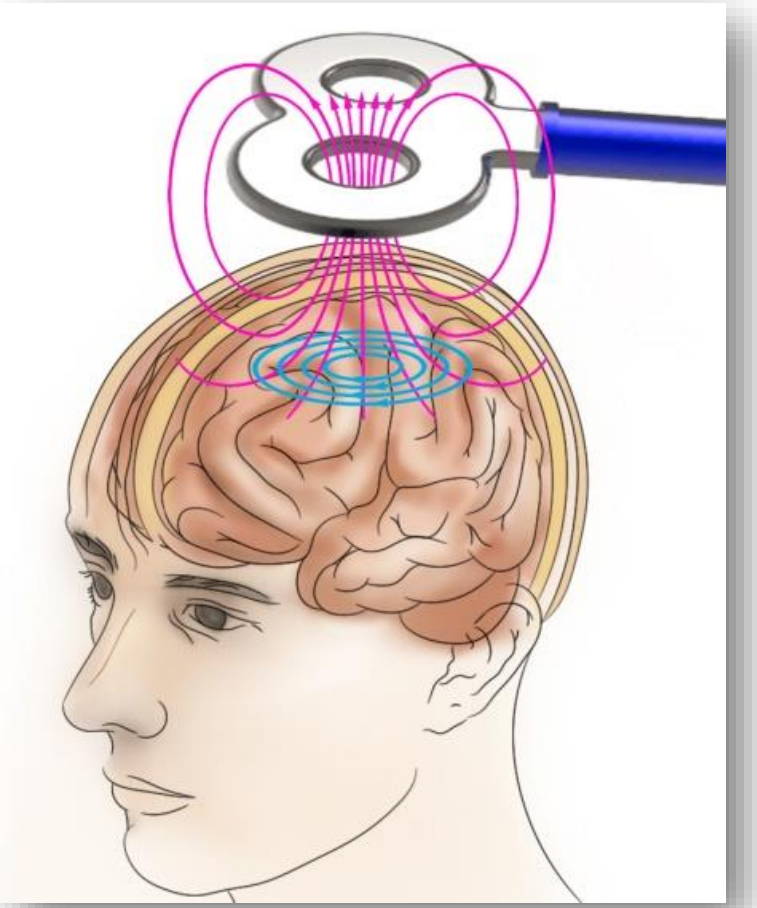
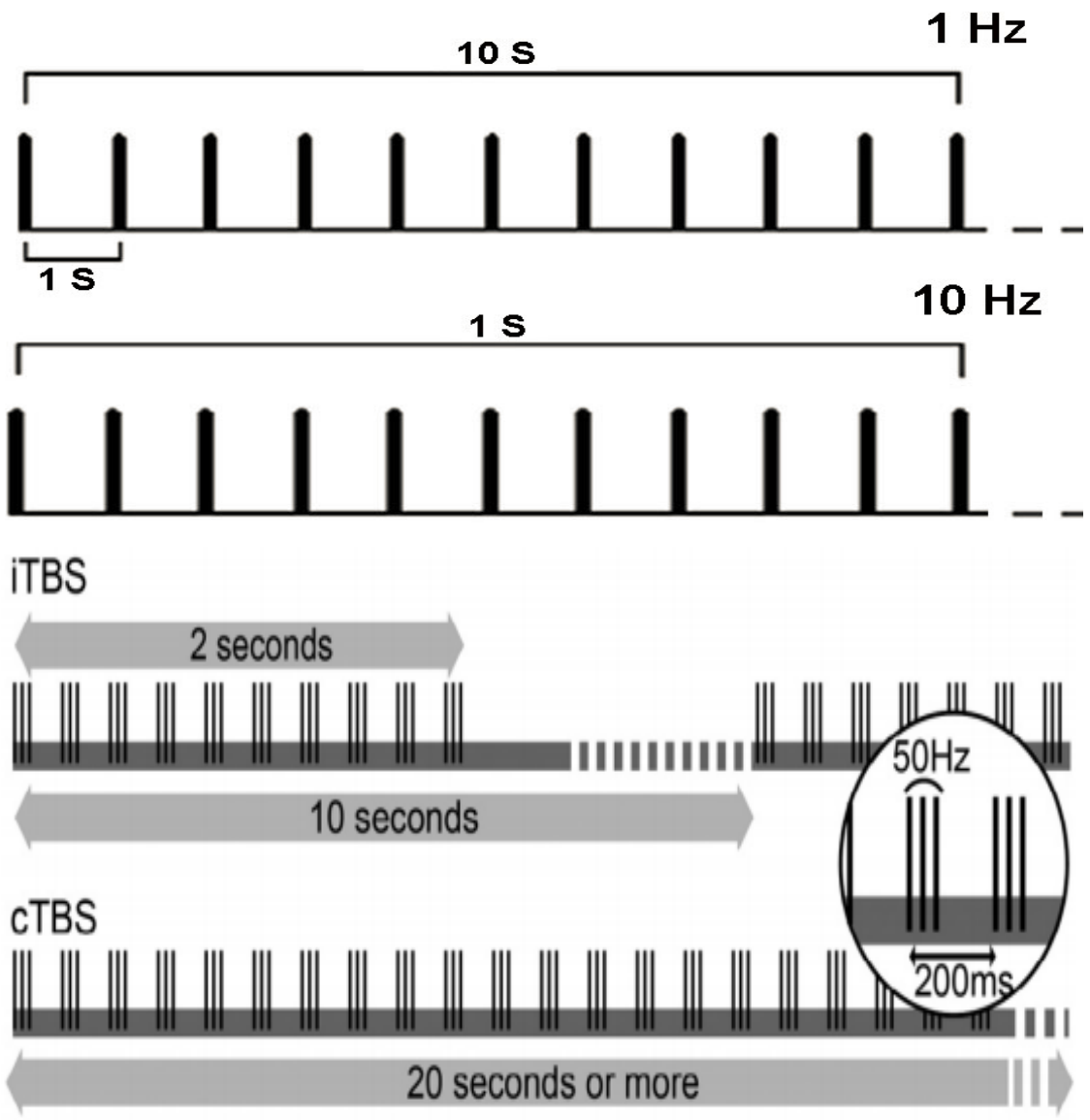
安徽医科大学，精神卫生与心理科学学院

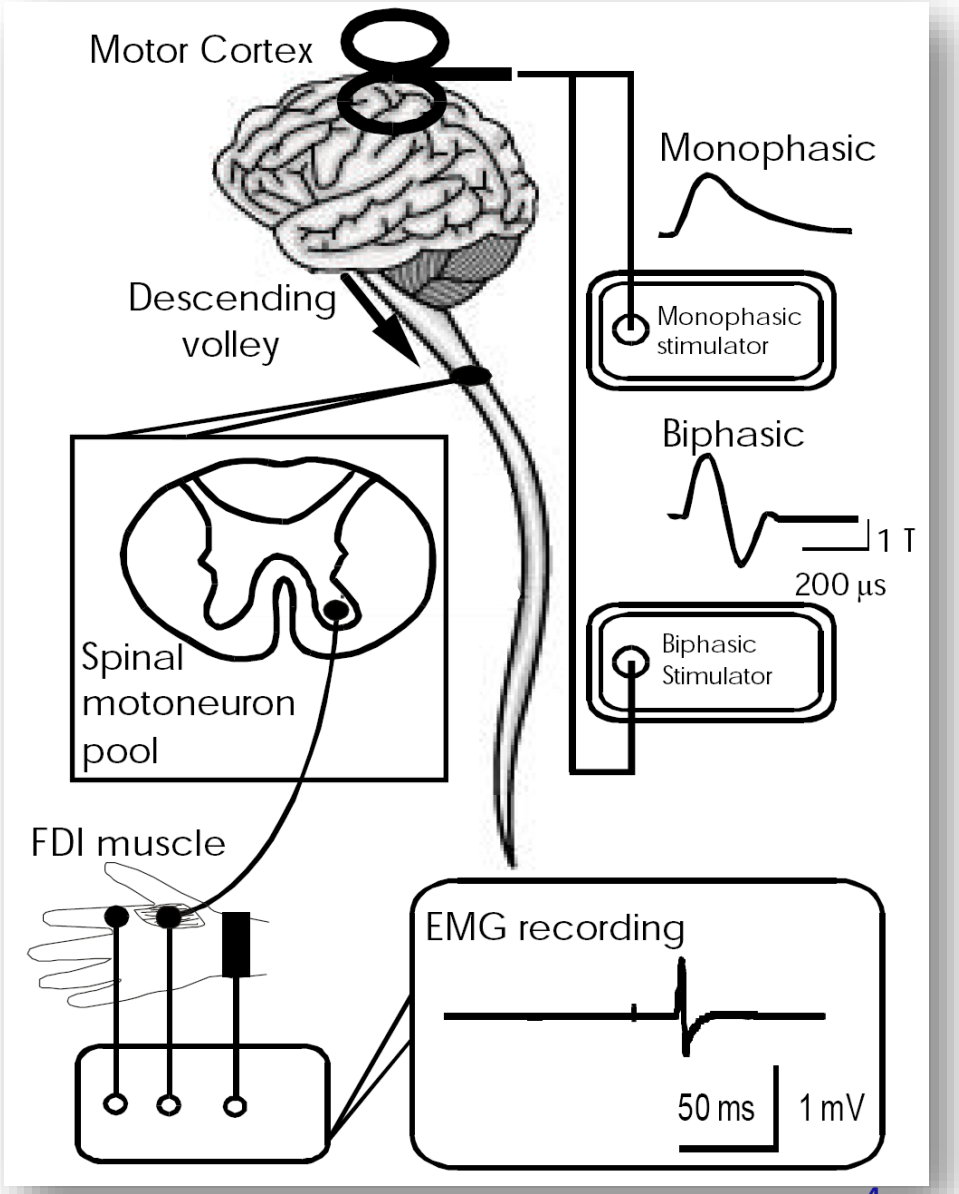

magstim



- 神经影像引导的rTMS参数优化
- 神经影像引导的rTMS临床应用
- 基于神经影像的rTMS机制解读

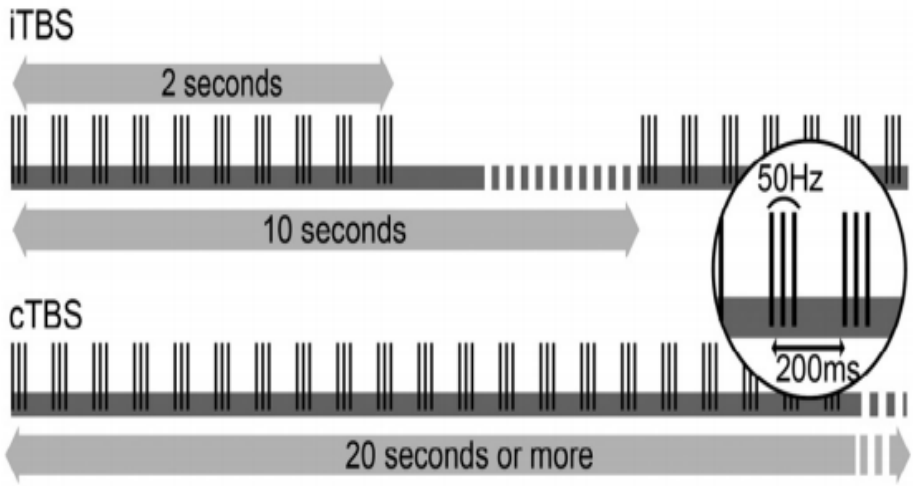
参数优化　序列的选择　剂量的选择　靶点的选择



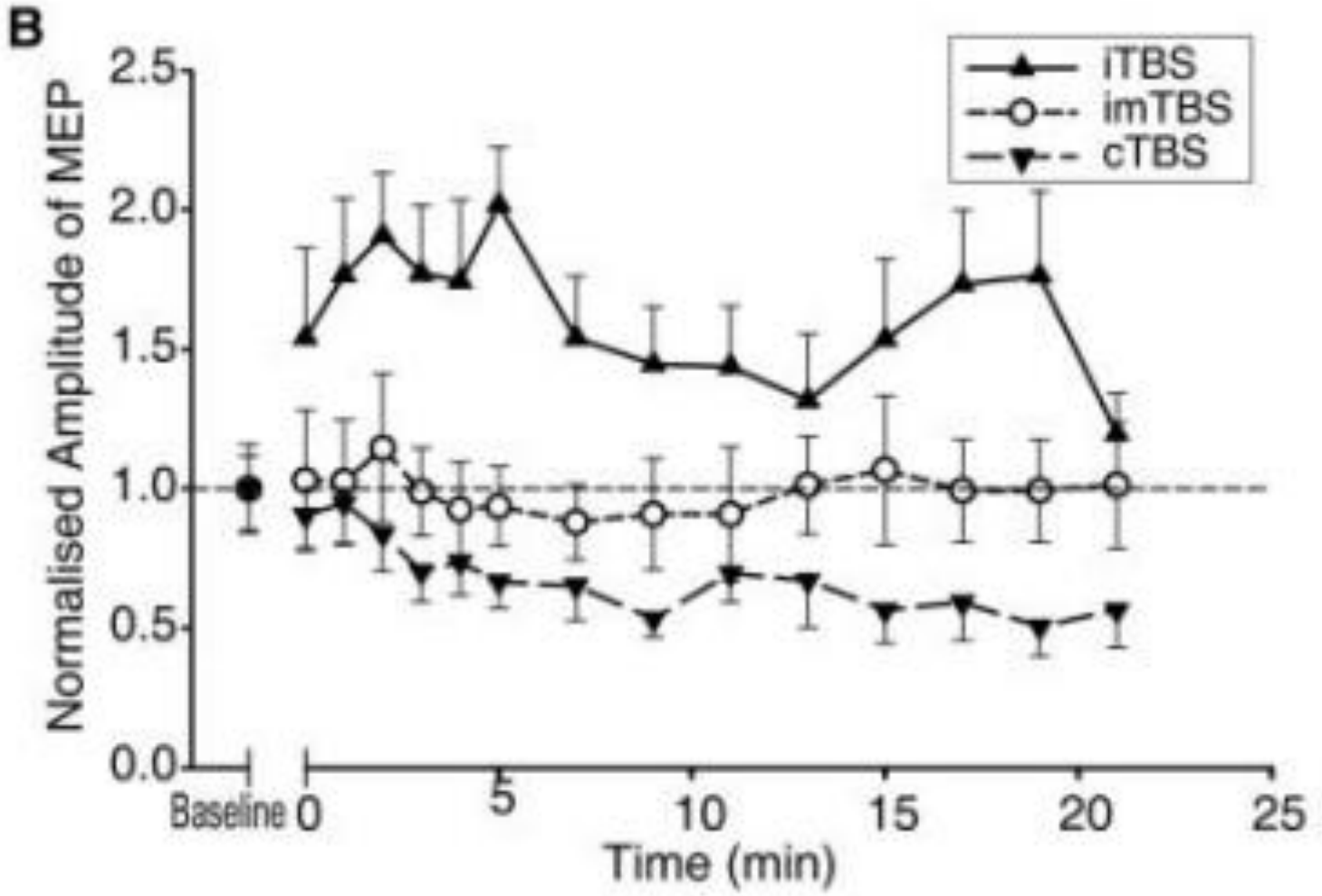


参数优化　序列的选择　剂量的选择　靶点的选择

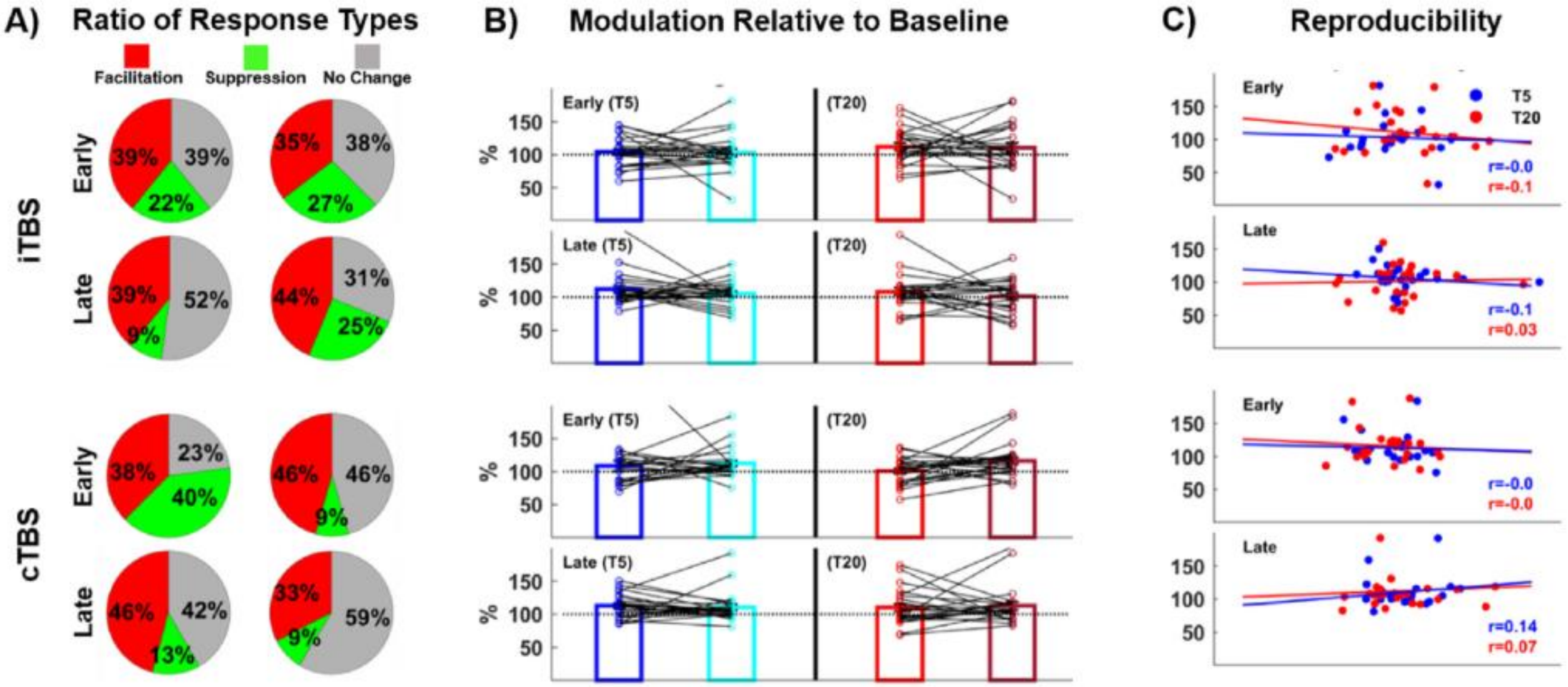
兴奋性



抑制性



参数优化　序列的选择　剂量的选择　靶点的选择

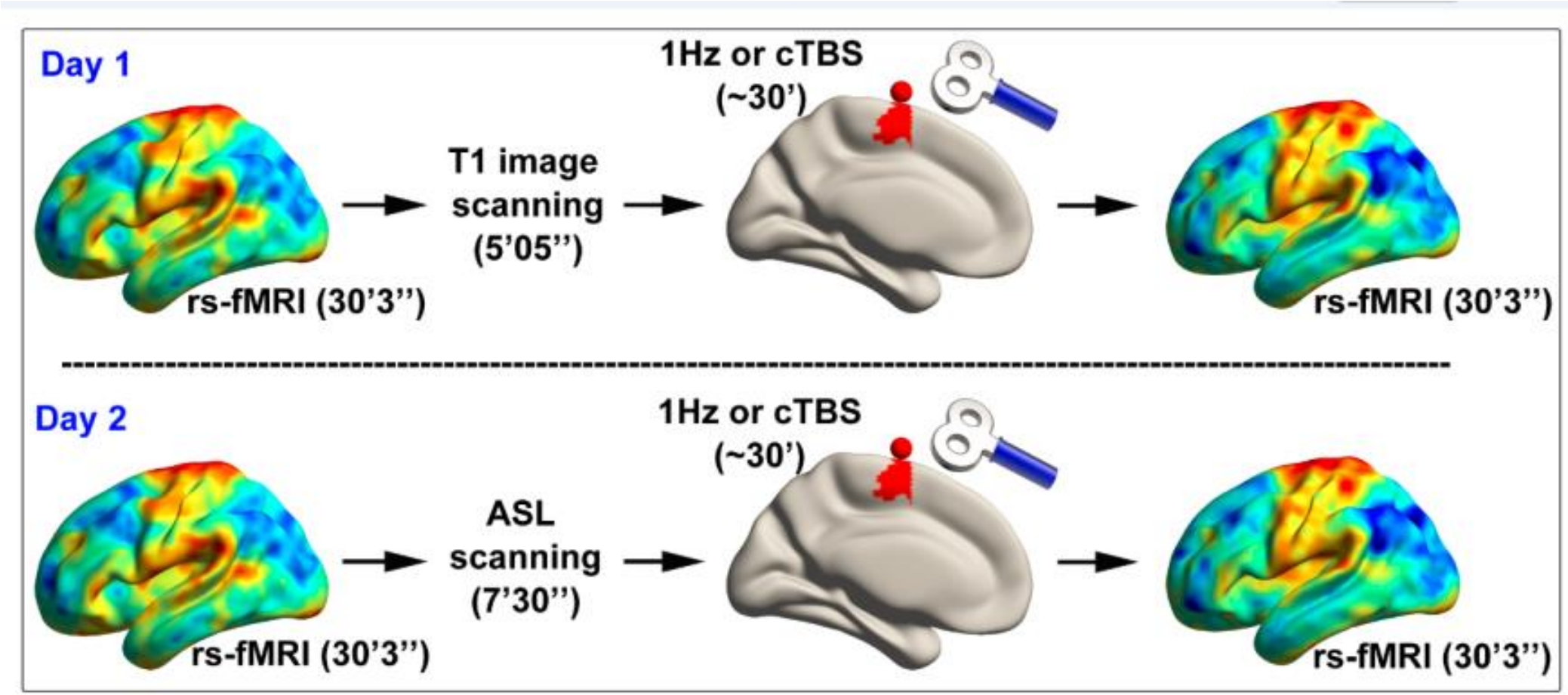


(Ozdemir et al., 2021, Brain Stimulation)

参数优化

序列的选择　剂量的选择　靶点的选择

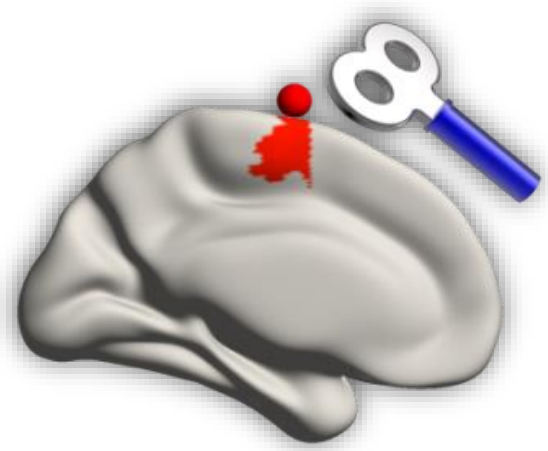
抑制性rTMS序列调控效果的时空特征



(Ji et al., NeuroImage, 2017)

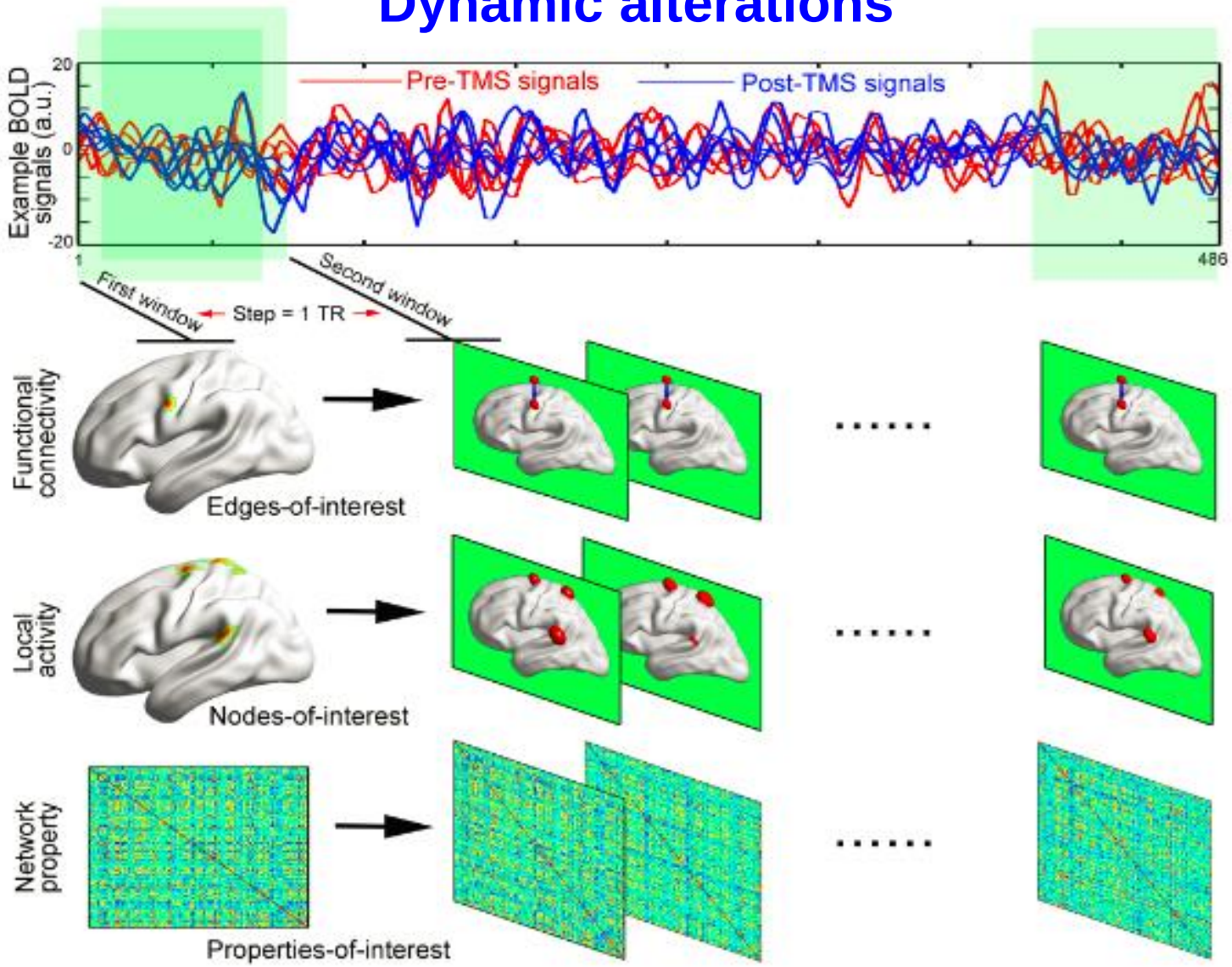
参数优化

序列的选择　剂量的选择　靶点的选择



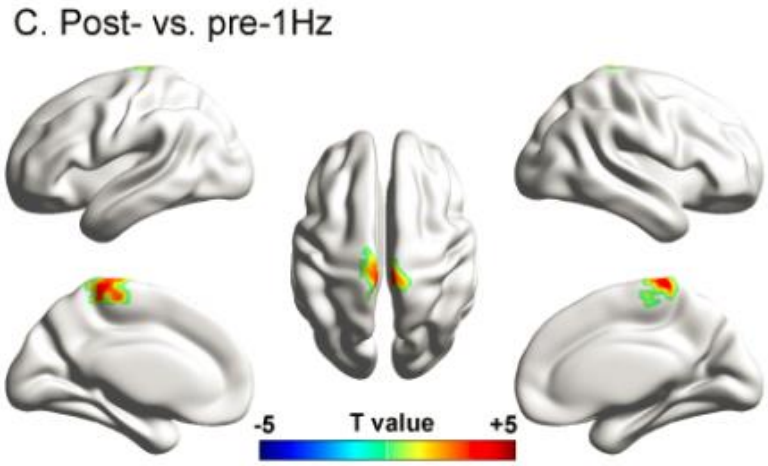
Spatial distribution

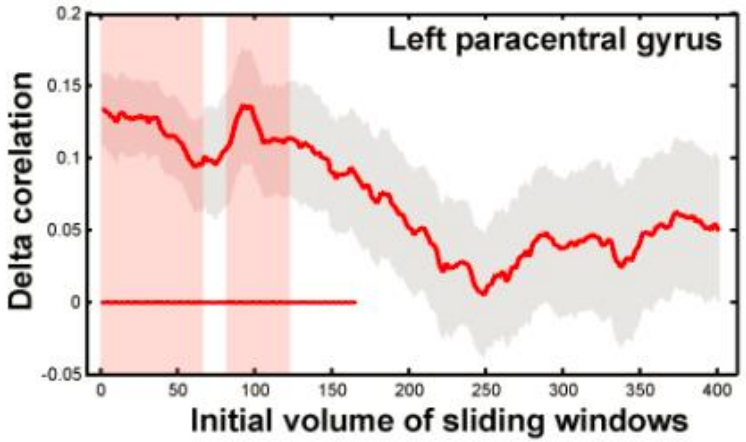
Dynamic alterations



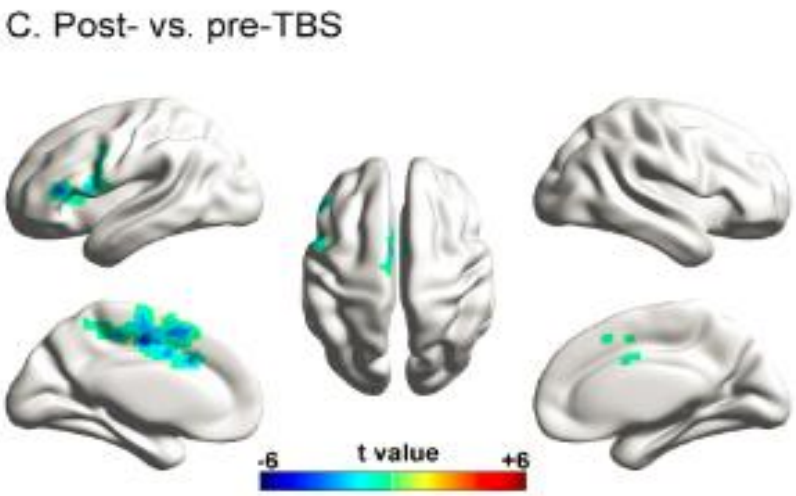
参数优化　序列的选择　剂量的选择　靶点的选择

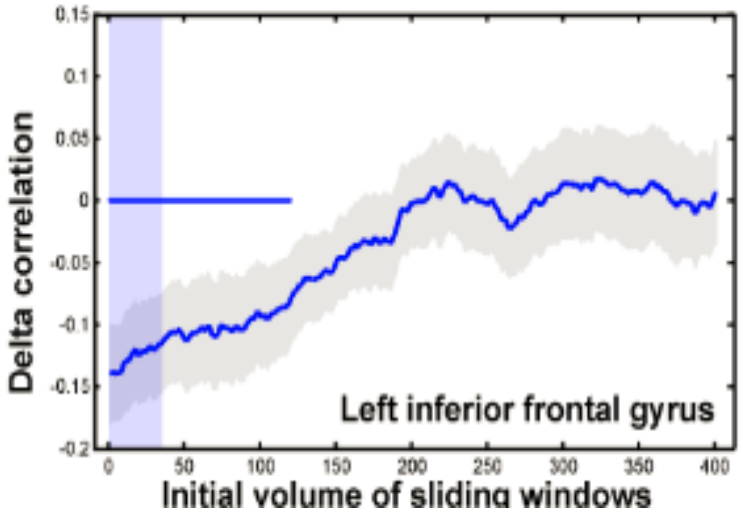
1-Hz





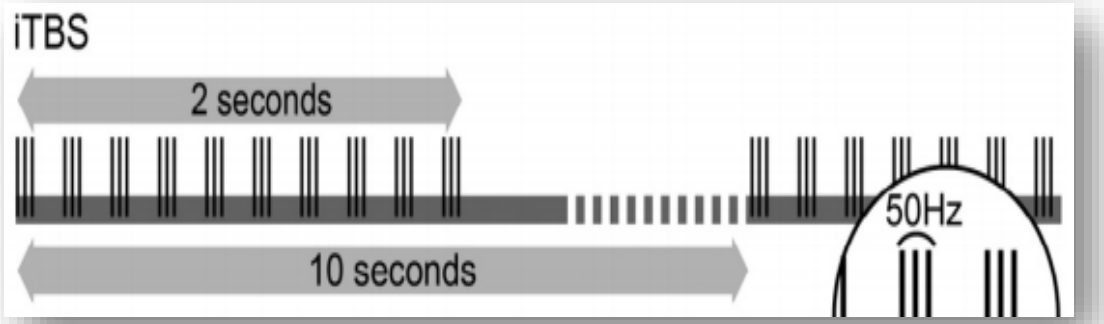
TBS

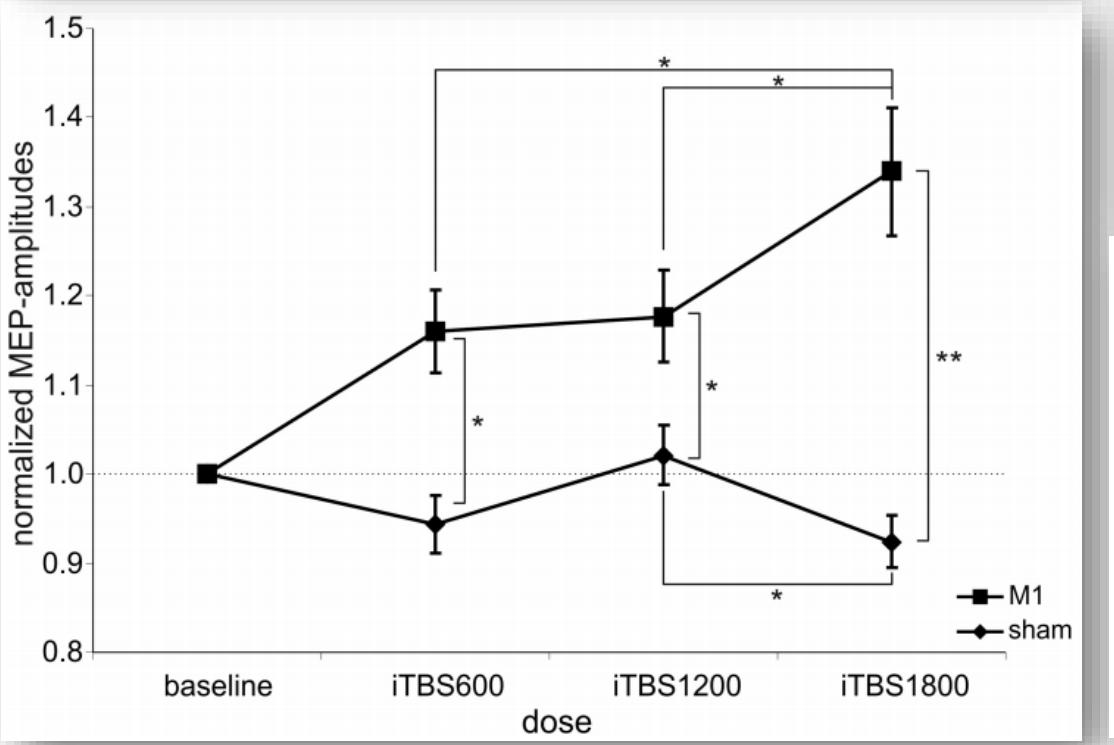


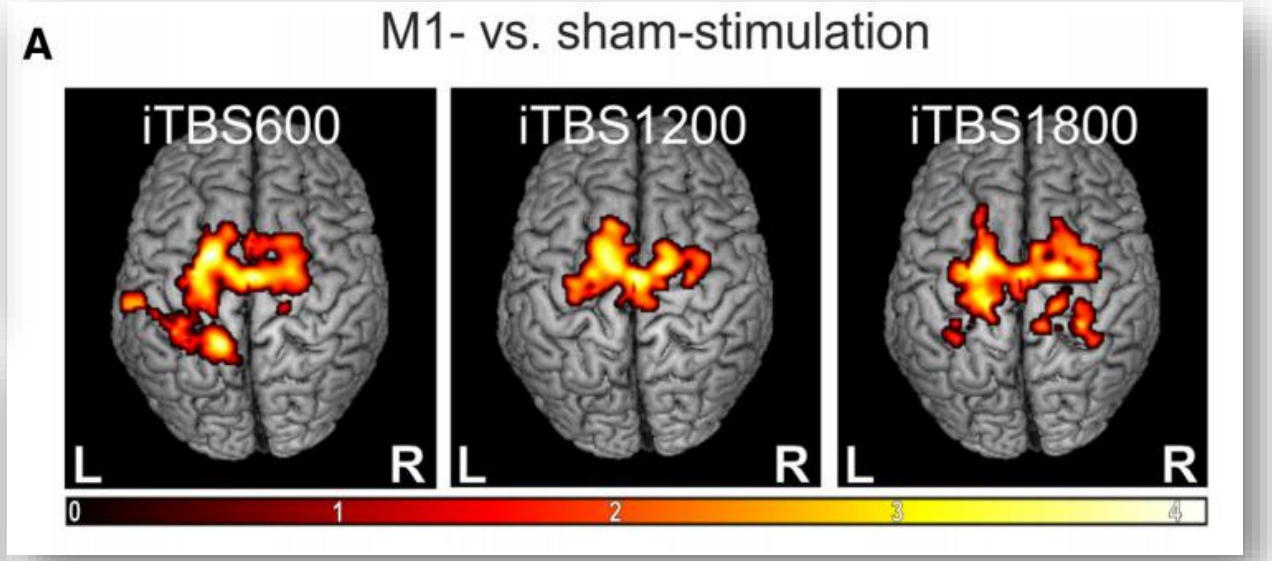


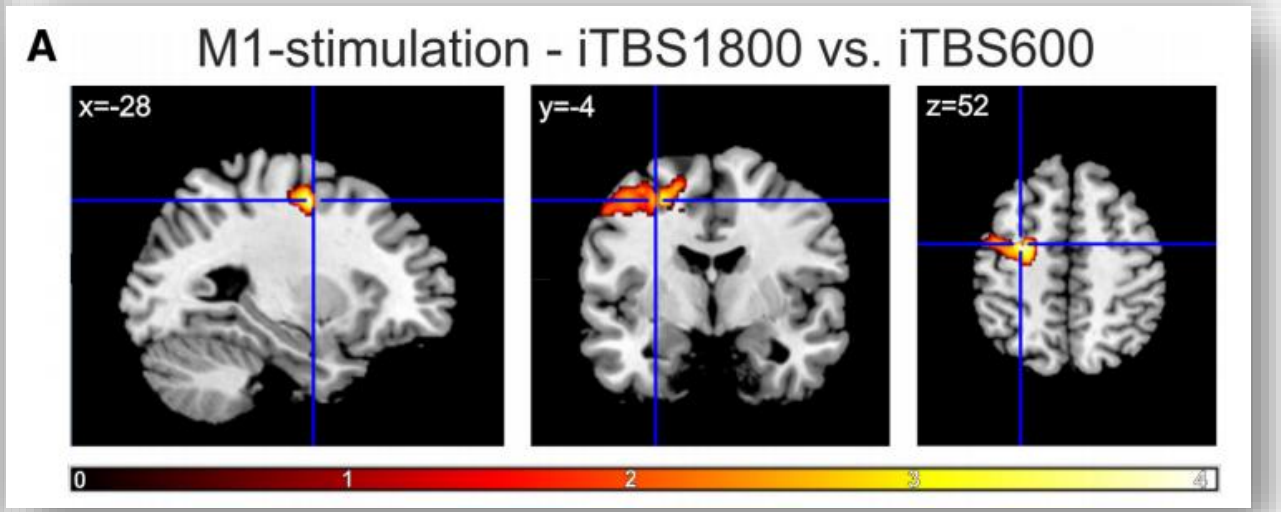
参数优化

序列的选择　剂量的选择　靶点的选择



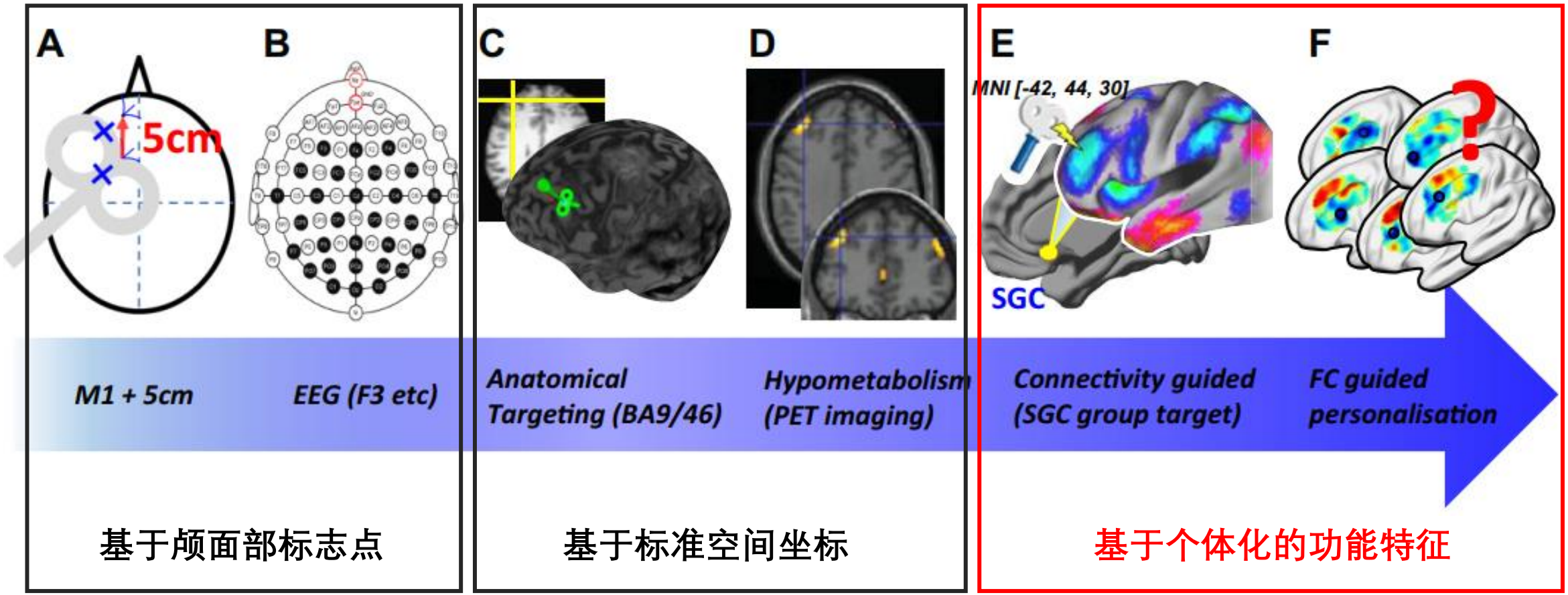






(Nettekoven et al., 2014, J Neurosci)

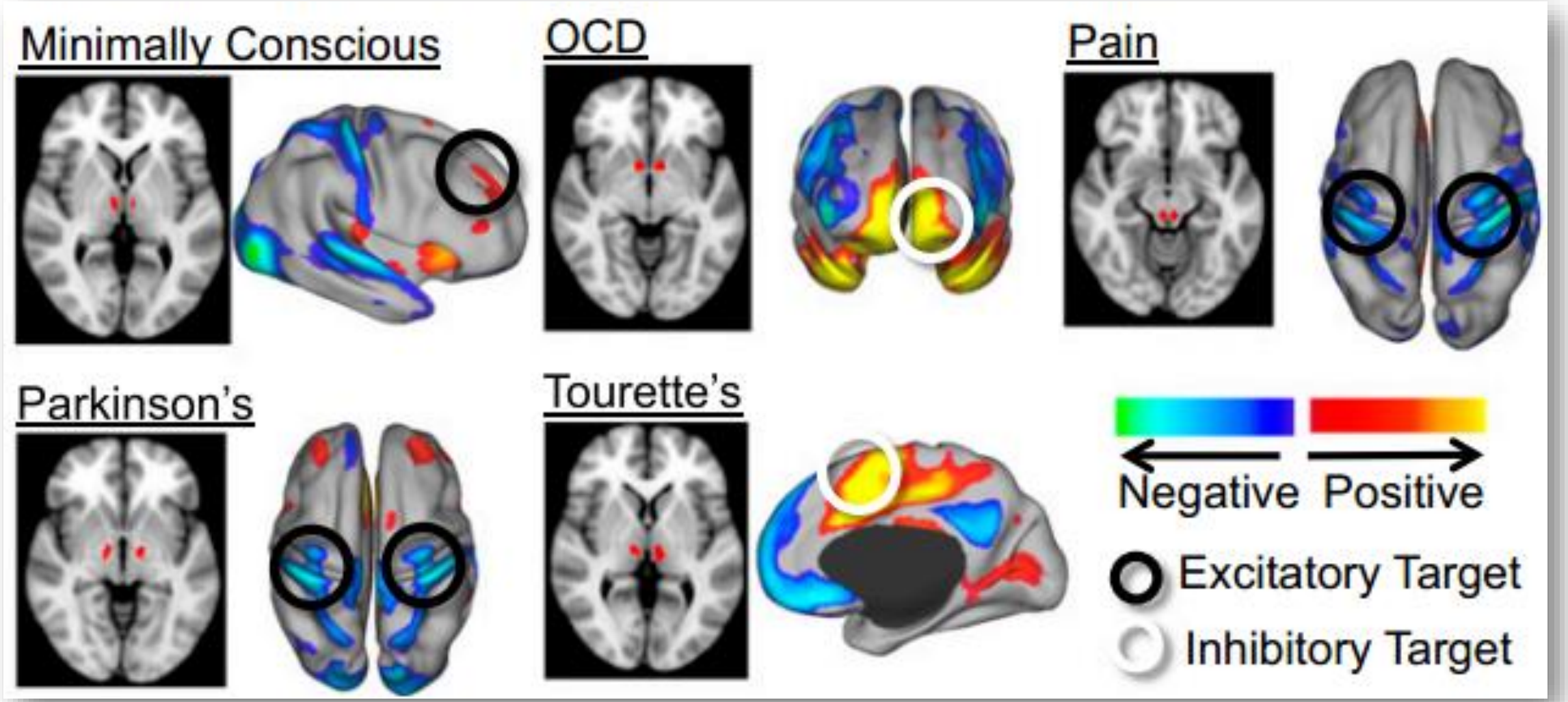
参数优化　序列的选择　剂量的选择　靶点的选择



组水平的定位方法

参数优化

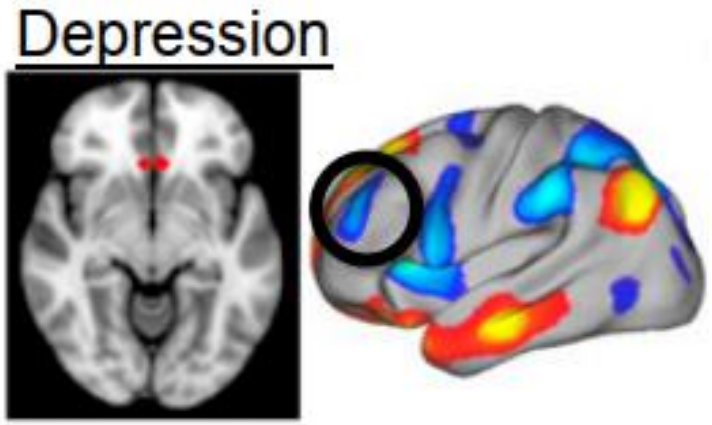
序列的选择　剂量的选择　靶点的选择

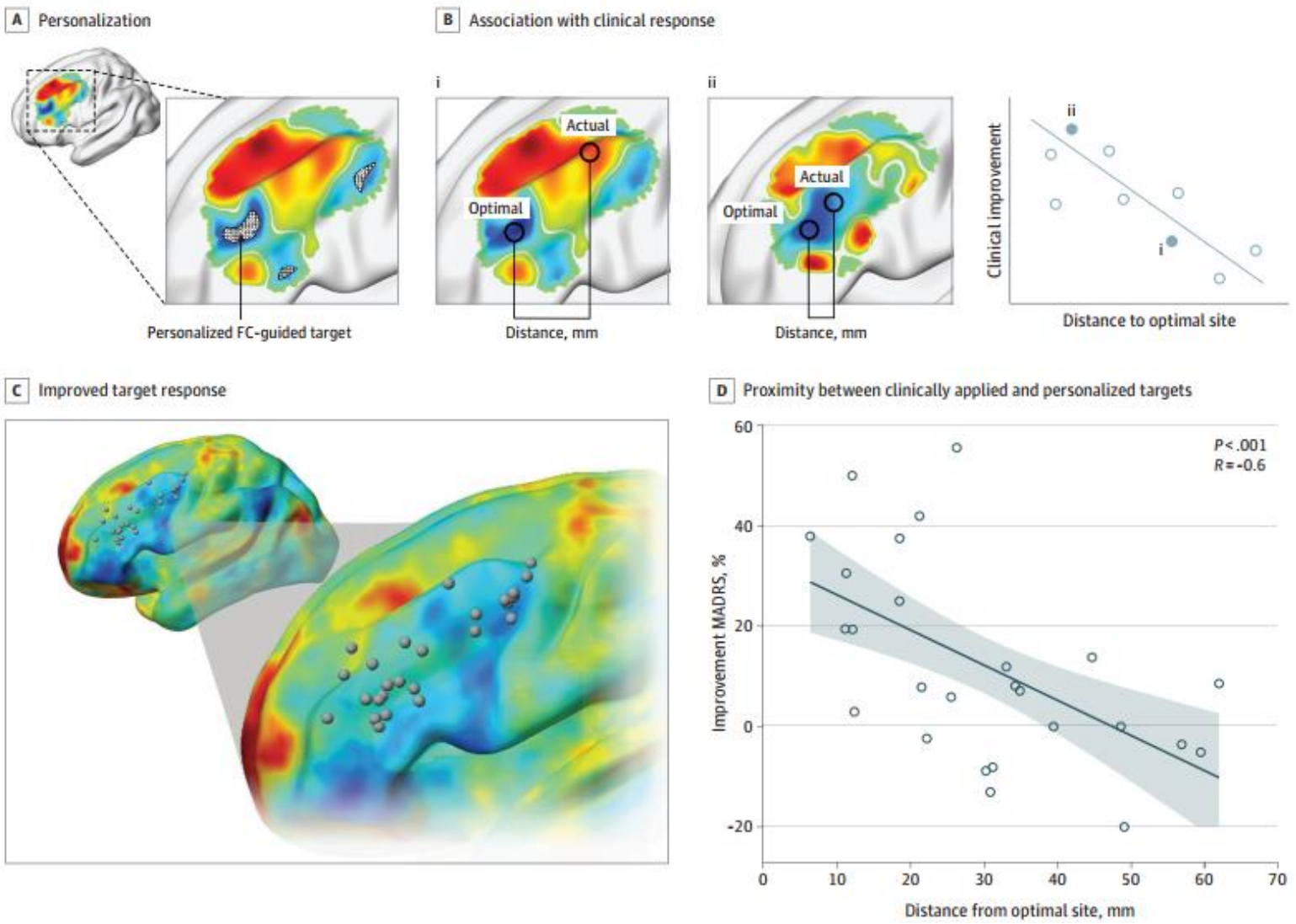


(Fox et al., 2014, PNAS)

参数优化

序列的选择　剂量的选择　靶点的选择





(Cash et al., 2021, JAMA)

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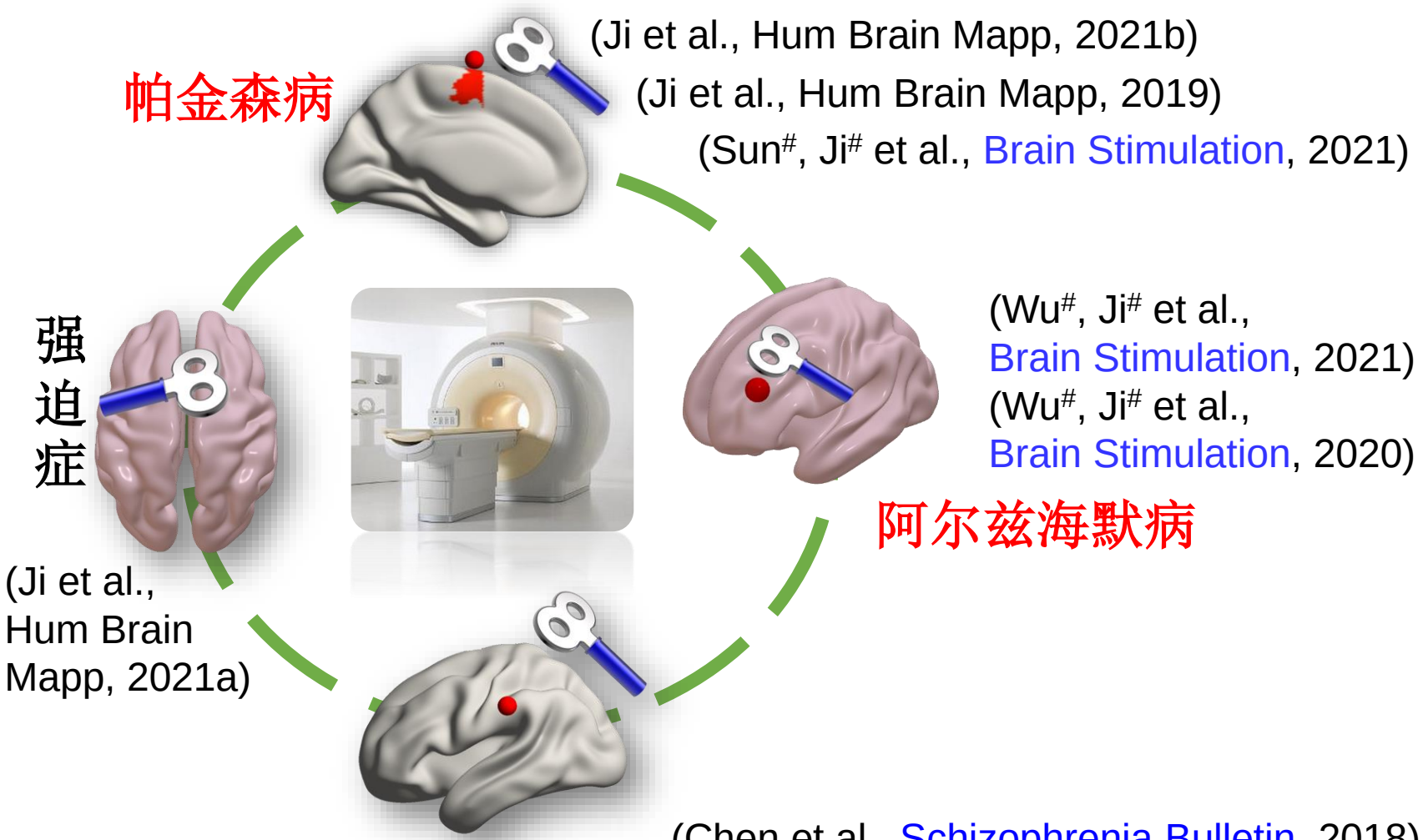
临床应用



帕金森病

(Ji et al., Hum Brain Mapp, 2021b)
(Ji et al., Hum Brain Mapp, 2019)
(Sun#, Ji# et al., Brain Stimulation, 2021)

强迫症

(Ji et al., Hum Brain Mapp, 2021a)

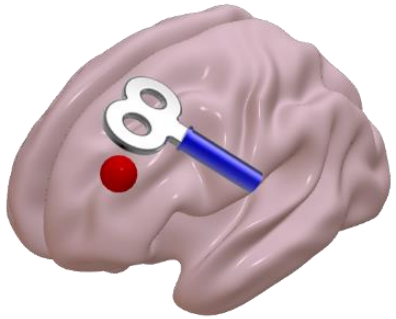
(Wu#, Ji# et al., Brain Stimulation, 2021)
(Wu#, Ji# et al., Brain Stimulation, 2020)

阿尔兹海默病

精神分裂症

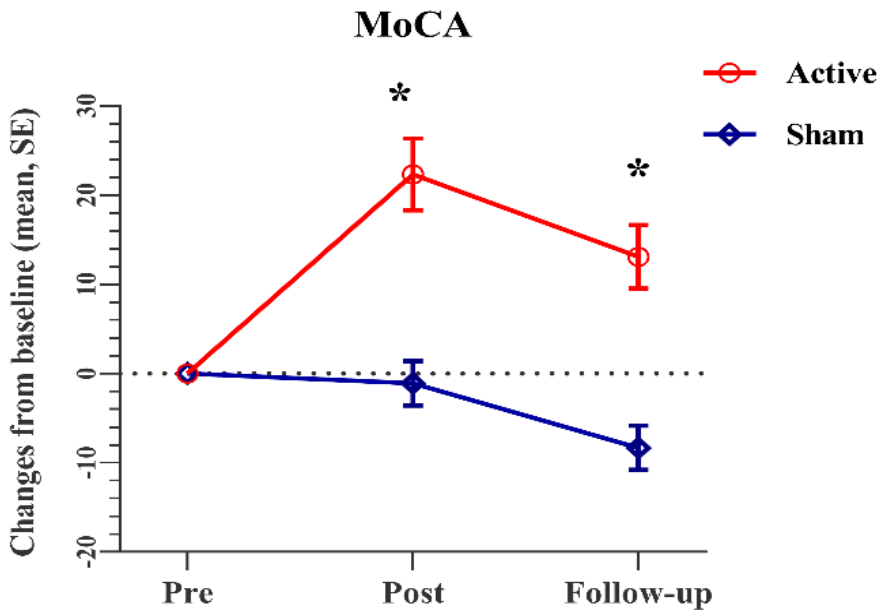
(Chen et al., Schizophrenia Bulletin, 2018)
(Ji et al., Schizophrenia Bulletin, 2023)

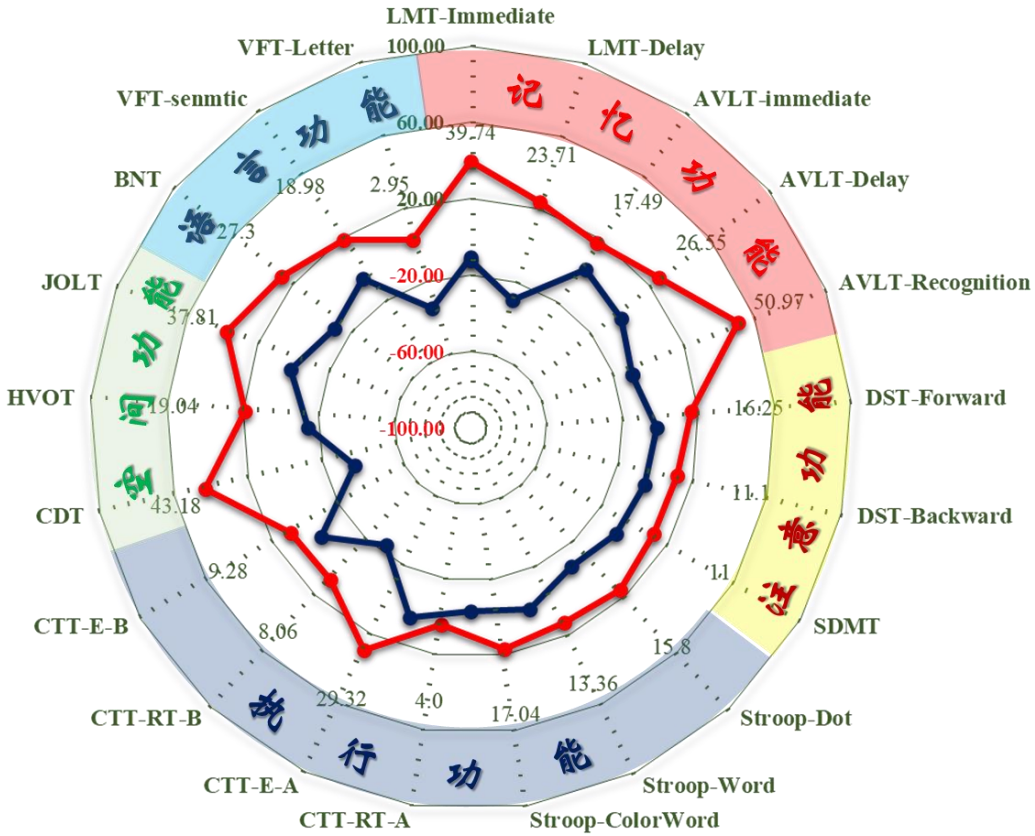
临床应用



阿尔兹海默病的rTMS研究

(Wu and Ji et al., Brain Stimulation, 2020, 2021)

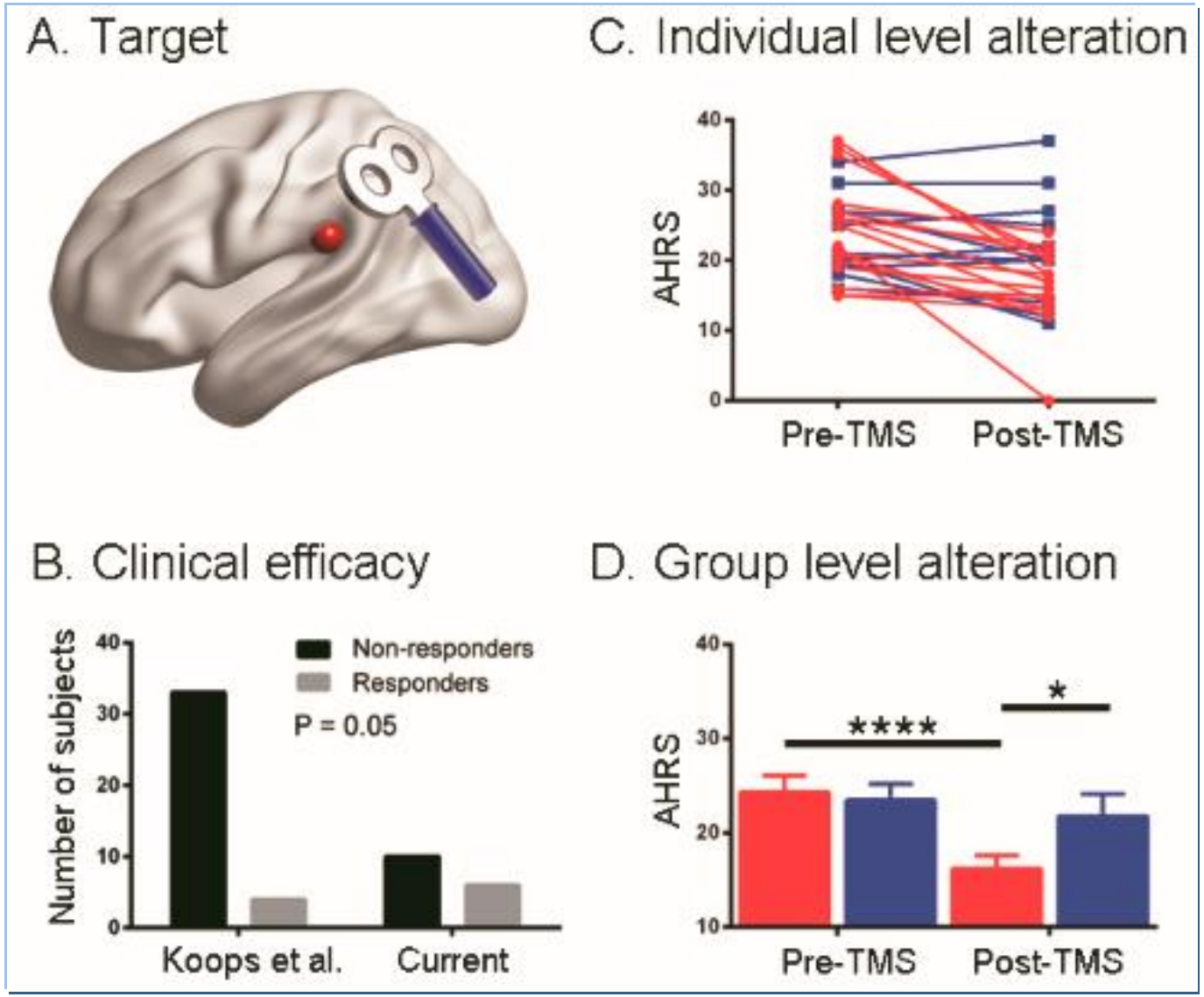




临床应用

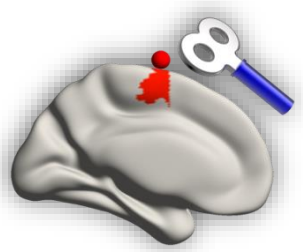
精神分裂症幻听症状的rTMS研究

(Chen and et al., Schizophrenia Bulletin, 2018;
Ji et al., Schizophrenia Bulletin, 2023)



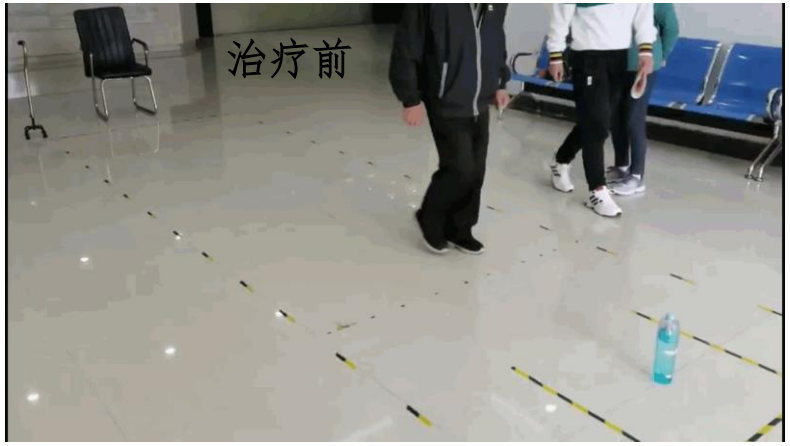
临床应用

冻结步态患者的rTMS治疗效果



（Sun et al., Brain Stimulation, 2022）

示例1



治疗前

治疗后

示例2

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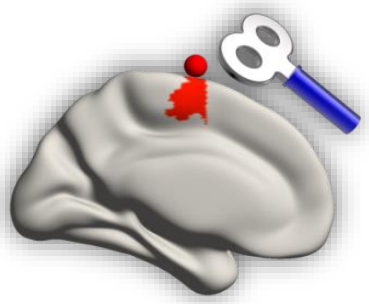
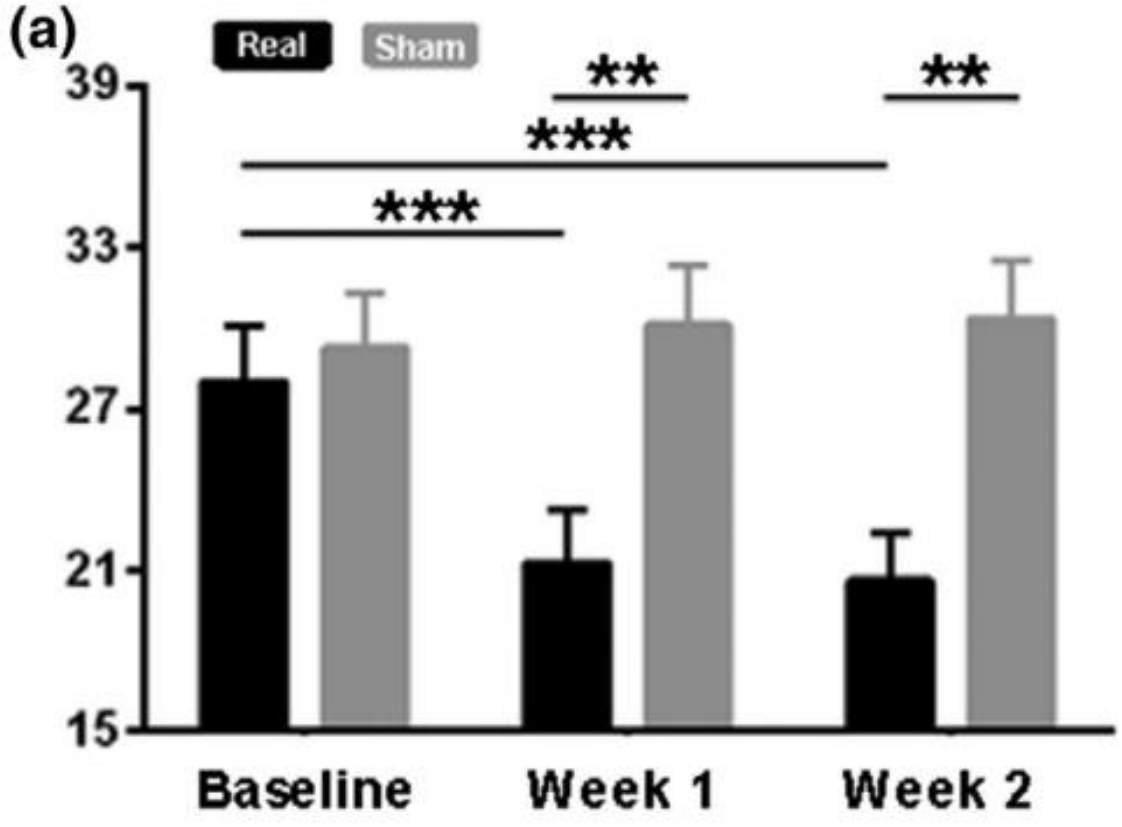
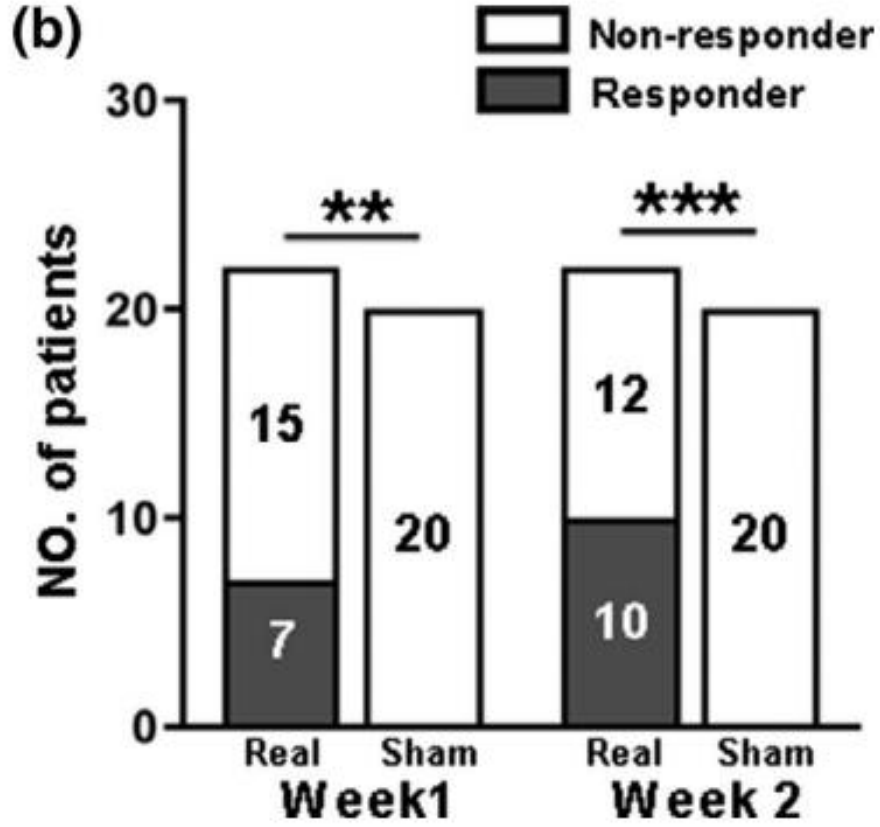
机制解读

帕金森运动症状的rTMS研究

(Ji and Liu et al., HBM, 2021)



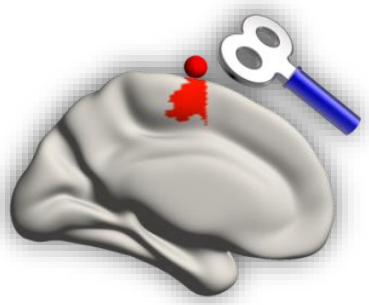


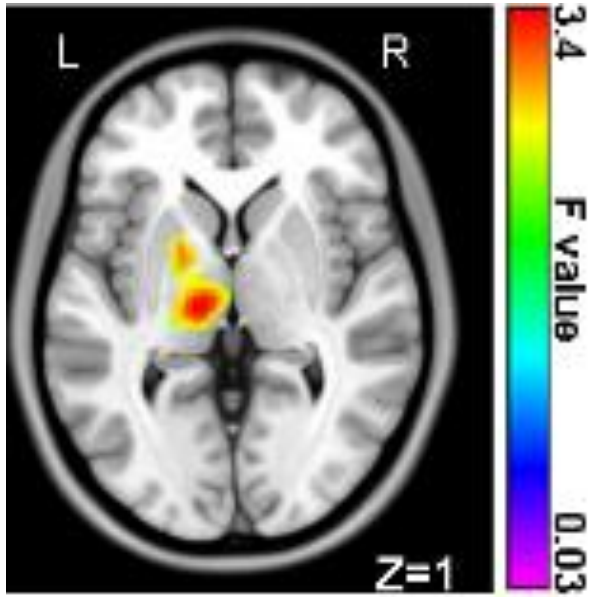


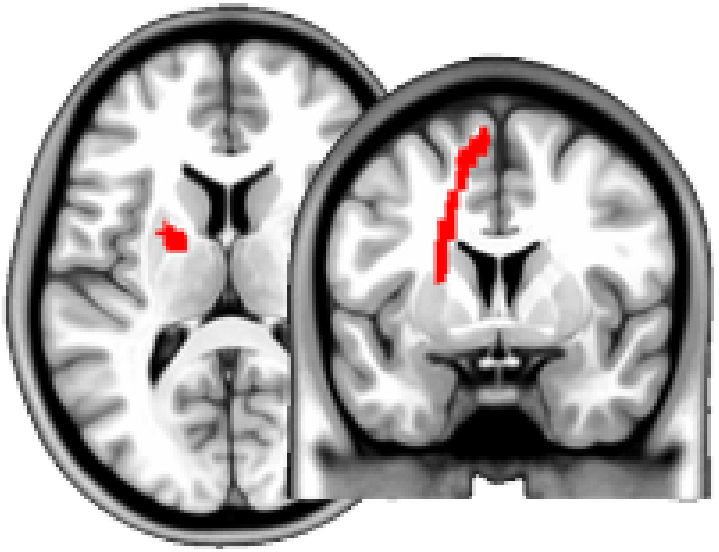
机制解读

帕金森运动症状的rTMS研究

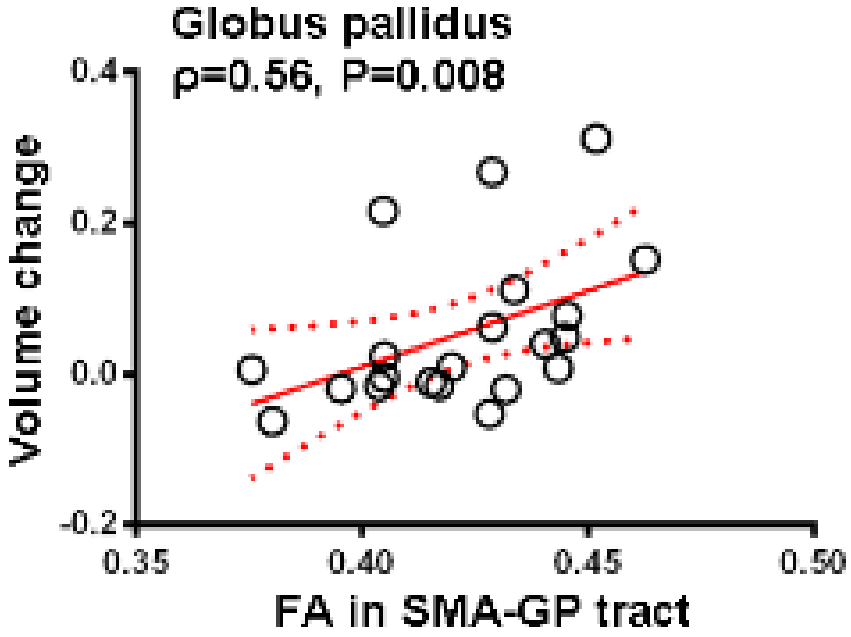
(Ji and Liu et al., HBM, 2021)



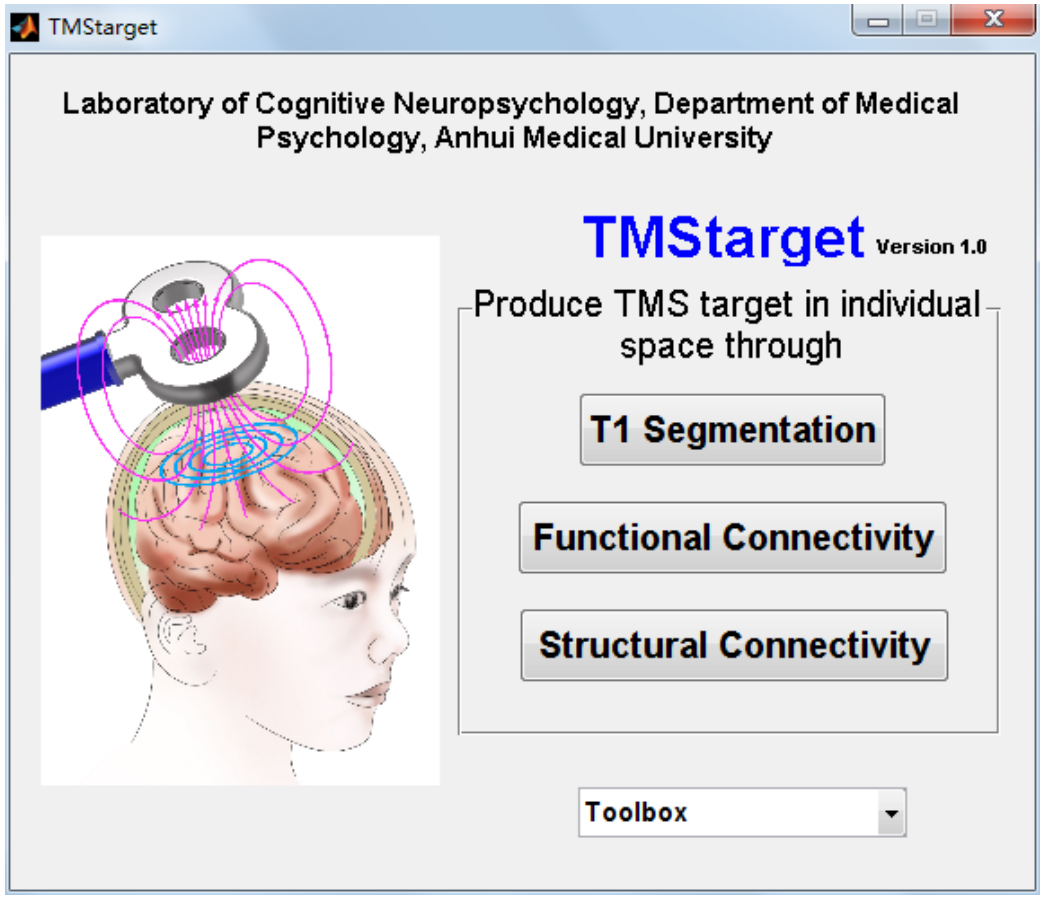


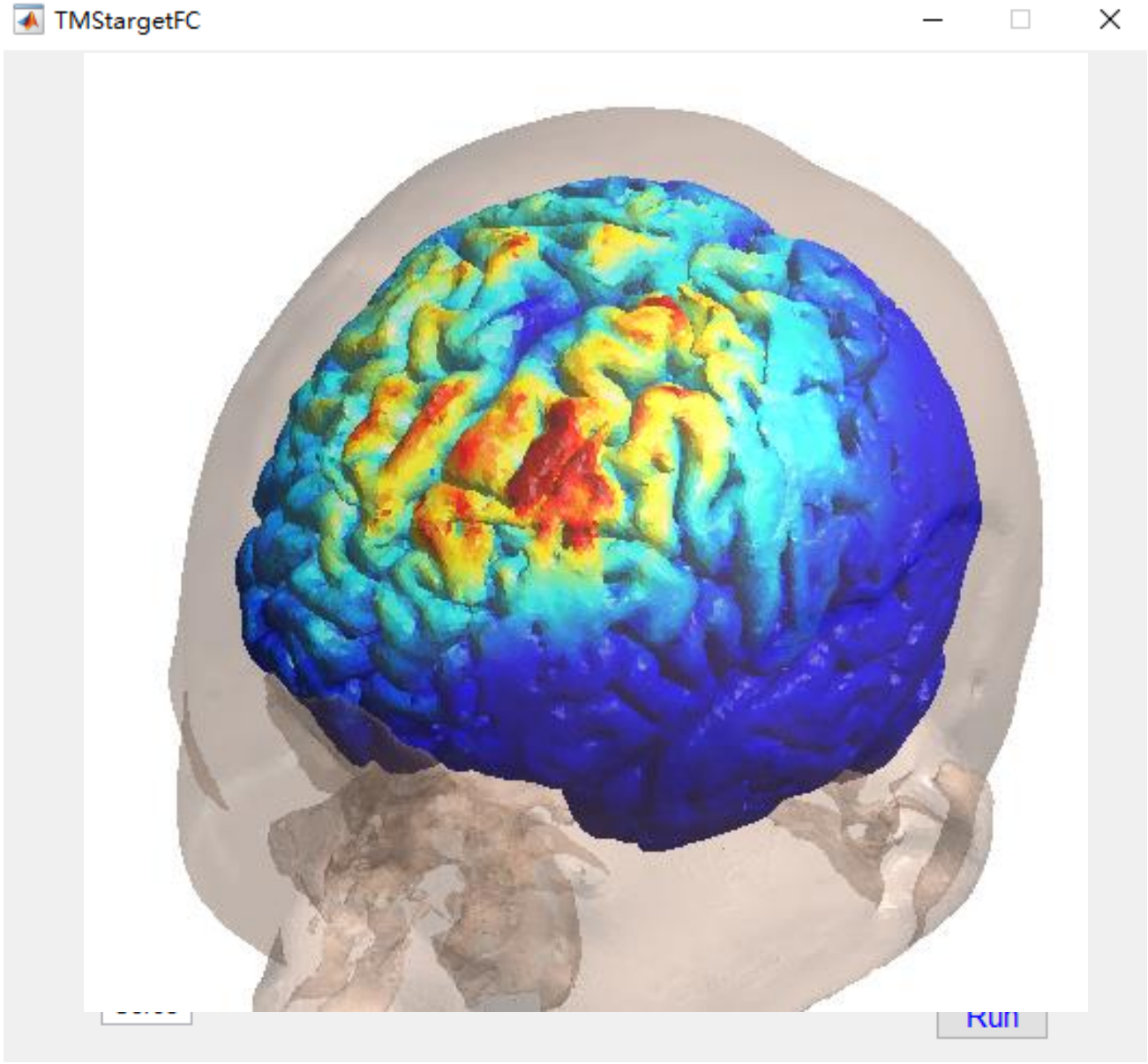


Example tract from SMA to GP



TMS靶点定位软件



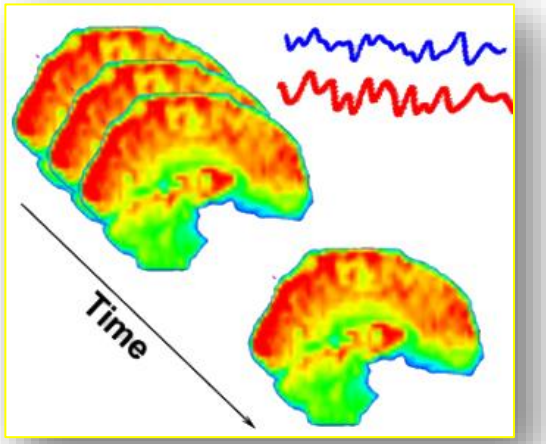


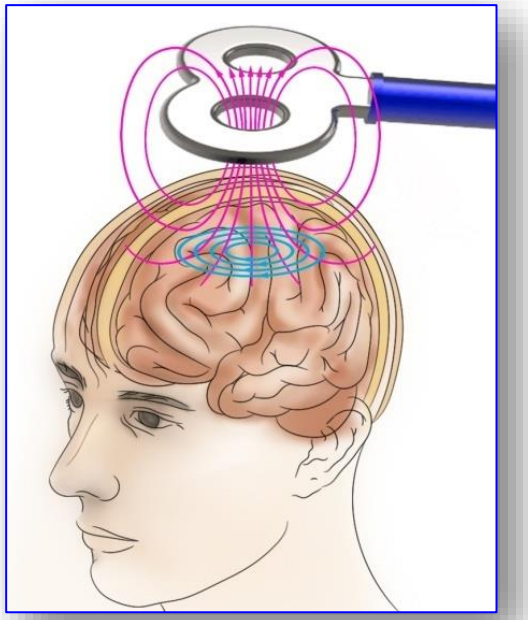
https://github.com/jigongjun/Neuroimaging-and-Neuromodulation

总结

神经精神疾病

多模态磁共振





经颅磁刺激

谢谢大家！