

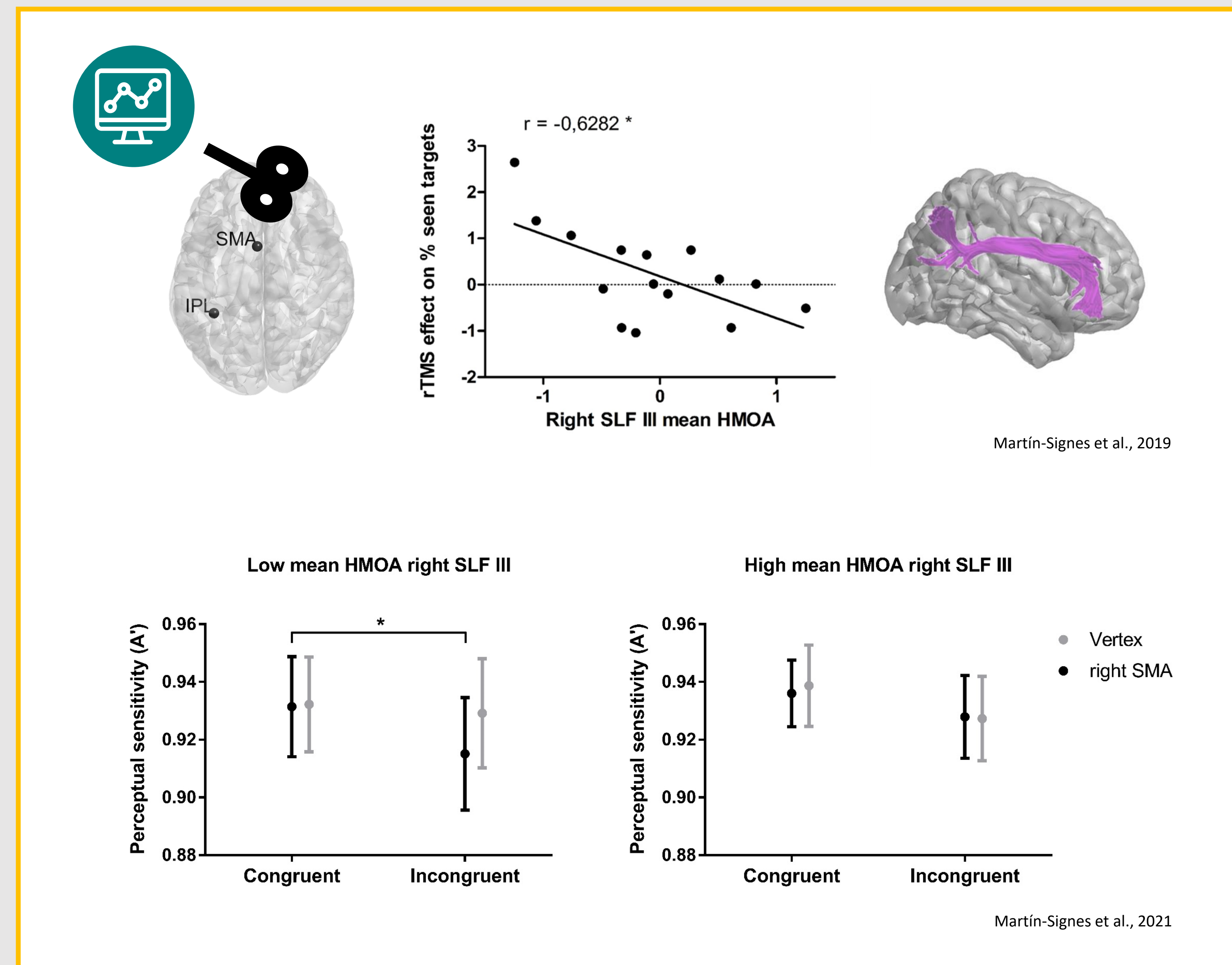
Susceptibility to neuromodulation in the healthy brain: the role of white matter variability

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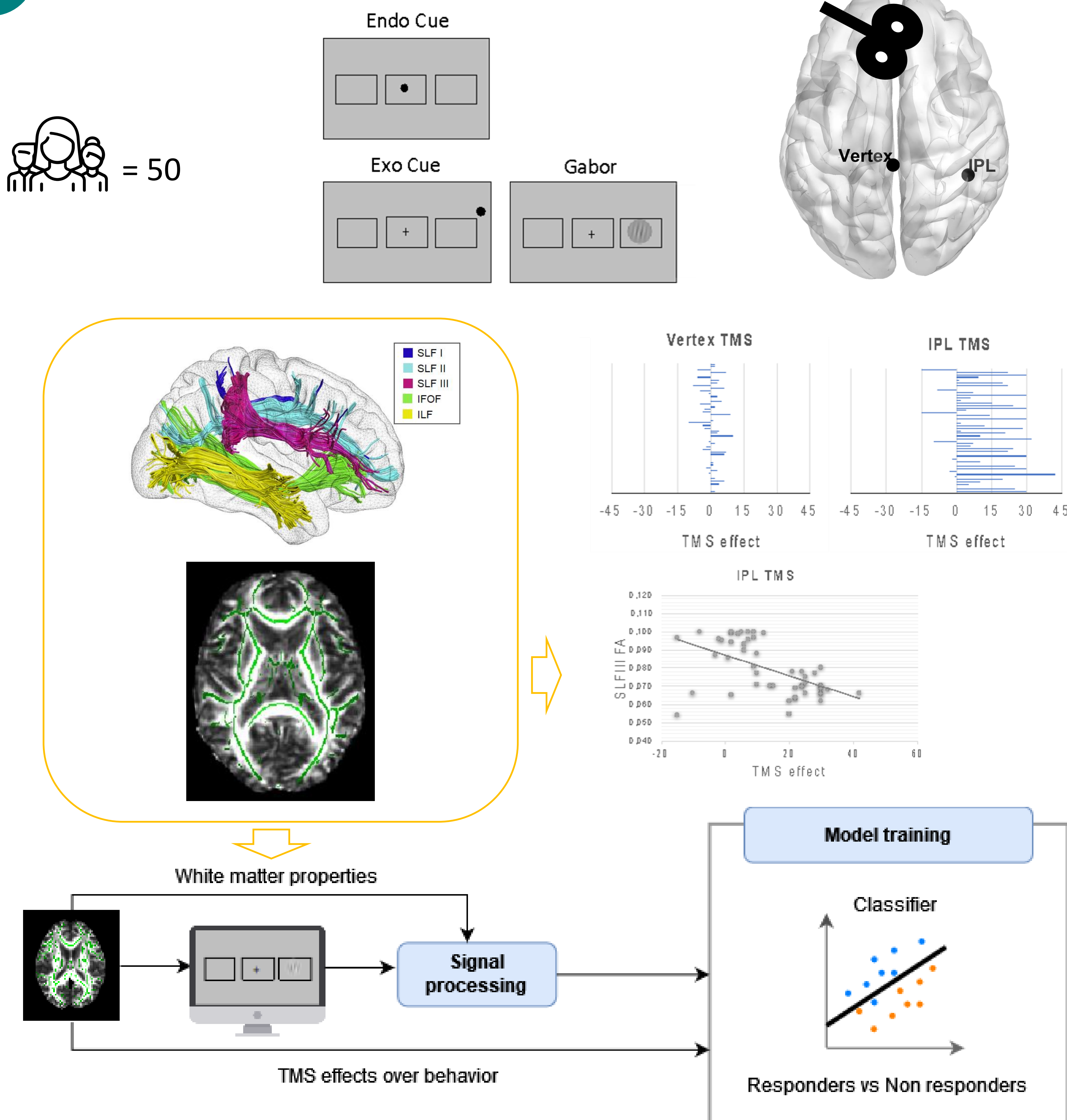
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Background

- Transcranial Magnetic Stimulation (TMS)-induced neuromodulation is related to structural properties of white matter tracts.
- In patients with brain lesions, white matter properties have been linked with the recovery potential of TMS treatments.
- In healthy individuals, white matter microstructural variability correlates with TMS effects.
- Tracts connecting the TMS-targeted region and other key regions are fundamental to explain TMS effects. Also, some studies have shown an association between TMS effects and indirect white matter tracts (not innervating the targeted region), probably due to compensatory processes supported by different anatomical networks.



Methods and expected results



Predictions

- TMS effects over behavior will correlate with the indexes of microstructural white matter properties of relevant tracts or voxels.
- TMS effects-white matter correlations will depend on the behavioral variability of the employed tasks.
- IA algorithms will be able to predict the TMS outcome of a participant (responders vs non responders) based on the white matter properties.

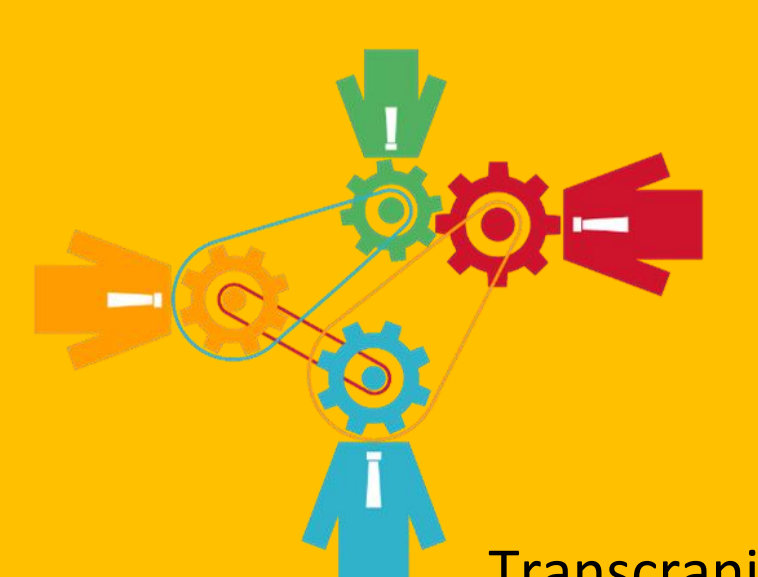


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(1) Martín-Signes, M., Pérez-Serrano, C., & Chica, A. B. (2019). Causal contributions of the SMA to alertness and consciousness interactions. *Cerebral Cortex*, 29(2), 648–656. (2) Martín-Signes, M., Cano-Melle, C., & Chica, A. B. (2021). Fronto-parietal networks underlie the interaction between executive control and conscious perception: Evidence from TMS and DWI. *Cortex*, 134, 1–15.