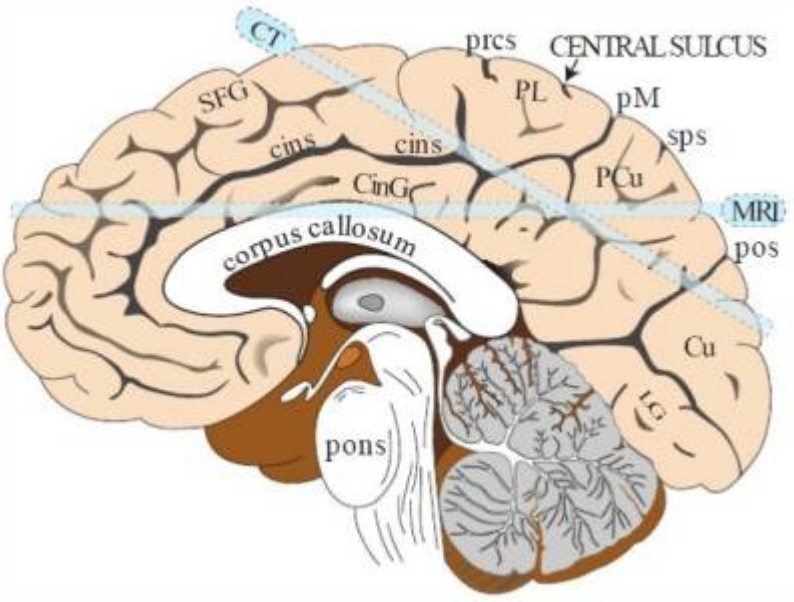
Right hemisphere



For a long time, the right hemisphere (RH) was considered as “non-dominant”, especially in right-handers. In neurosurgical practice, this dogma resulted in the selection of awake craniotomy with language mapping only for lesions of the left dominant hemisphere. Conversely, surgery under general anesthesia (possibly with motor mapping) was usually proposed for right lesions. However, when objective neuropsychological tests were performed, they frequently revealed cognitive and behavioral deficits following brain surgery, even in the RH. Therefore, to preserve an optimal quality of life, especially in patients with a long survival expectancy (as in low-grade gliomas), awake surgery with cortical and axonal electrostimulation mapping has recently been proposed for right tumors resection. Here, we review new insights gained from intraoperative stimulation into the pivotal role of the RH in movement execution and control, visual processes and spatial cognition, language and non-verbal semantic processing, executive functions (e.g. attention), and social cognition (mentalizing and emotion recognition). Such original findings, that break with the myth of a “non-dominant” RH, may have important implications in cognitive neurosciences, by improving our knowledge of the functional connectivity of the RH, as well as for the clinical management of patients with a right lesion. Indeed, in brain surgery, awake mapping should be considered more systematically in the RH. Moreover, neuropsychological examination must be achieved in a more systematic manner before and after surgery within the RH, to optimize the care by predicting the likelihood of functional recovery and by elaborating specific programs of rehabilitation [1].

1)
Vilasboas T, Herbet G, Duffau H. Challenging the myth of right “non-dominant” hemisphere: Lessons from cortico-subcortical stimulation mapping in awake surgery and surgical implications. World Neurosurg. 2017 Apr 15. pii: S1878-8750(17)30516-8. doi: 10.1016/j.wneu.2017.04.021. [Epub ahead of print] Review. PubMed PMID: 28419879.