# Frontal lobe connections

Catani et al. identified three intralobar tracts connecting: i) posterior Broca's area with supplementary motor area (SMA) and pre-supplementary motor area (pre-SMA) (i.e., the frontal aslant tract - FAT); ii) posterior orbitofrontal cortex with anterior polar region (i.e., frontoorbitopolar tract - FOP); iii) posterior precentral cortex with anterior prefrontal cortex (i.e., the frontal superior longitudinal - FSL faciculus system). In addition more complex systems of short U-shaped fibres were identified in the regions of the central, pre-central, perinsular and fronto-marginal sulcus (FMS). The connections between Broca and medial frontal areas (i.e. FAT) and those between the hand-knob motor region and post-central gyrus (PoCG) were found left lateralized in a group of twelve healthy right-handed subjects. The existence of these short frontal connections was confirmed using post-mortem blunt dissections. The functional role of these tracts in motor learning, verbal fluency, prospective behaviour, episodic and working memory is discussed in the study of Catani et al. provides a general model for the local connectivity of the frontal lobes that could be used as an anatomical framework for studies on lateralization and future clinical research in neurological and psychiatric disorders [1].

1)
Catani M, Dell'acqua F, Vergani F, Malik F, Hodge H, Roy P, Valabregue R, Thiebaut de Schotten M. Short frontal lobe connections of the human brain. Cortex. 2012 Feb;48(2):273-91. doi: 10.1016/j.cortex.2011.12.001. Epub 2011 Dec 13. PubMed PMID: 22209688.