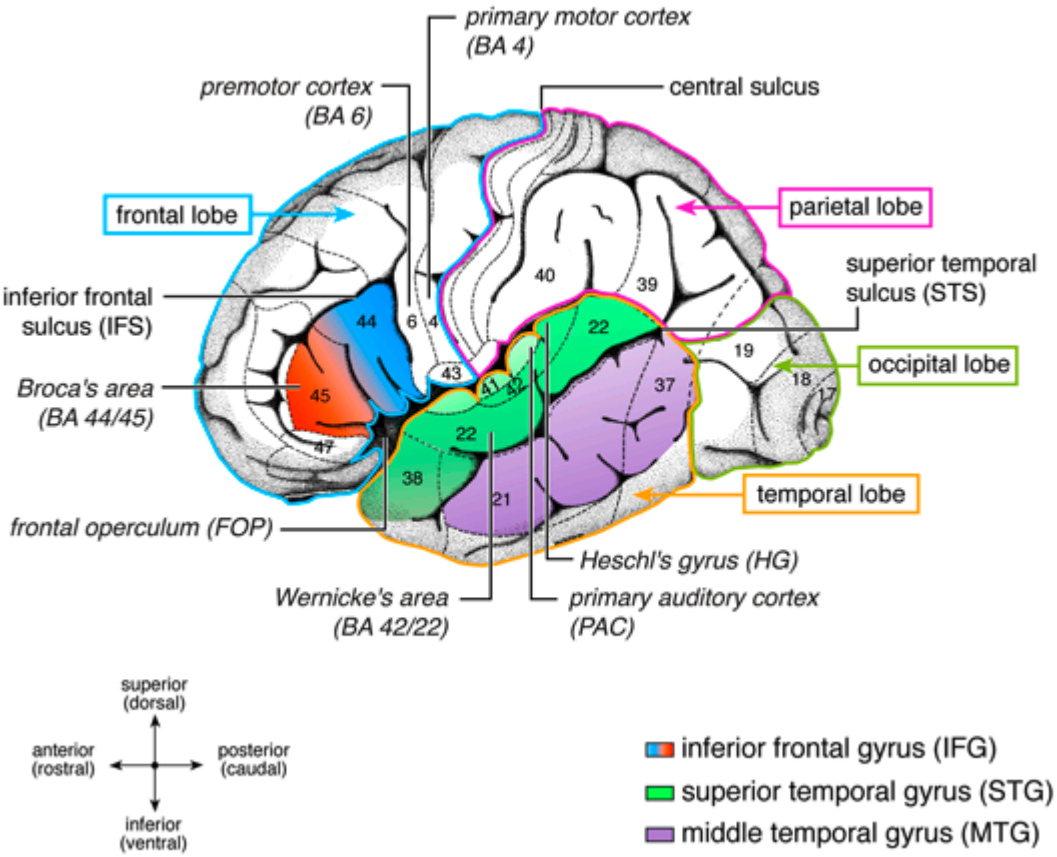
Frontal operculum



The frontal operculum is a region of the brain located in the frontal lobe, specifically on the lateral surface of the brain. It is part of the larger operculum, which includes the parietal operculum and temporal operculum.

The frontal operculum plays a crucial role in language processing and speech production. It is involved in the planning and execution of movements necessary for speech, including the control of the lips, tongue, and jaw. It is also involved in the comprehension of speech, particularly the processing of phonetic and syntactic information.

In addition to its role in language processing, the frontal operculum is also involved in decision-making, attention, and working memory. Dysfunction in this area has been implicated in a variety of neurological and psychiatric disorders, including aphasia, schizophrenia, and obsessive-compulsive disorder.

The frontal operculum rostral to the ascending ramus of the lateral fissure is associated with the prefrontal association cortex and plays a role in thought, cognition, and planning behavior.

Resection of the frontal operculum was independently associated with greater odds of motor deficits (OR=2.75, 95% CI=1.46-5.15, p=0.002). Dominant-hemisphere resections were independently associated with dysphasia (OR=13.09, 95% CI=2.22-77.14, p=0.005) albeit none of the observed language deficits were permanent. Surgery for Insular Epilepsy is associated with a good efficacy/safety profile. Most patients experience seizure freedom, and neurological deficits are

predominantly transient. Pediatric patients and those requiring invasive monitoring or undergoing stereotactic ablation procedures experience lower rates of seizure freedom. Transgression of the frontal operculum should be avoided if it is not deemed part of the epileptogenic zone. Well-selected candidates undergoing dominant-hemisphere resection are more likely to exhibit transient language deficits; however, the risk of a permanent deficit is very low [1)]

1)
Obaid S, Chen JS, Ibrahim GM, Bouthillier A, Dimentberg E, Surbeck W, Guadagno E, Brunette-Clément T, Shlobin NA, Shulkin A, Hale AT, Tomycz LD, Von Lehe M, Perry MS, Chassoux F, Bouilleret V, Taussig D, Fohlen M, Dorfmuller G, Hagiwara K, Isnard J, Oluigbo CO, Ikegaya N, Nguyen DK, Fallah A, Weil AG. Predictors of Outcomes after Surgery for Medically Intractable Insular Epilepsy: A Systematic Review and Individual Participant Data Meta-Analysis. Epilepsia Open. 2022 Oct 19. doi: 10.1002/epi4.12663. Epub ahead of print. PMID: 36263454.