


Clastrum

The claustrum is a thin, irregular, sheet of neurons that is attached to the underside of the neocortex in the center of the brain. It is suspected to be present in the brains of all mammals. 

The claustrum is a fraction of a millimetre to a few millimetres deep and is a vertical curved sheet of subcortical gray matter oriented sagittally between the white matter tracts of the external capsule and extreme capsule. The claustrum is lateral to the putamen and medial to the insular cortex and is considered by some sources to be part of the basal ganglia. There are lateral and medial tracts connecting the claustrum to many parts of the cortex and perhaps to the hippocampus, the amygdala, and the caudate nucleus (connections with subcortical centers are a matter of debate).

One of the interesting features of the claustrum is the uniformity in the types of cells, indicating a uniform type of processing by all claustral neurons. Though organized into modality specific regions, the claustrum contains a great deal of longitudinal connections between its neurons that could serve to synchronize the entire anterior-posterior extent of the claustrum.

Francis Crick and Christof Koch have compared the claustrum to the conductor of an orchestra. The different parts of the cortex must play in harmony or else the result is a cacophony of sounds instead of a beautiful symphony. The claustrum may be involved in widespread coordination of the cerebral cortex, using synchronization to achieve a seamless timescale between both the two cortical hemispheres and between cortical regions within the same hemisphere, resulting in the seamless quality of conscious experience.

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