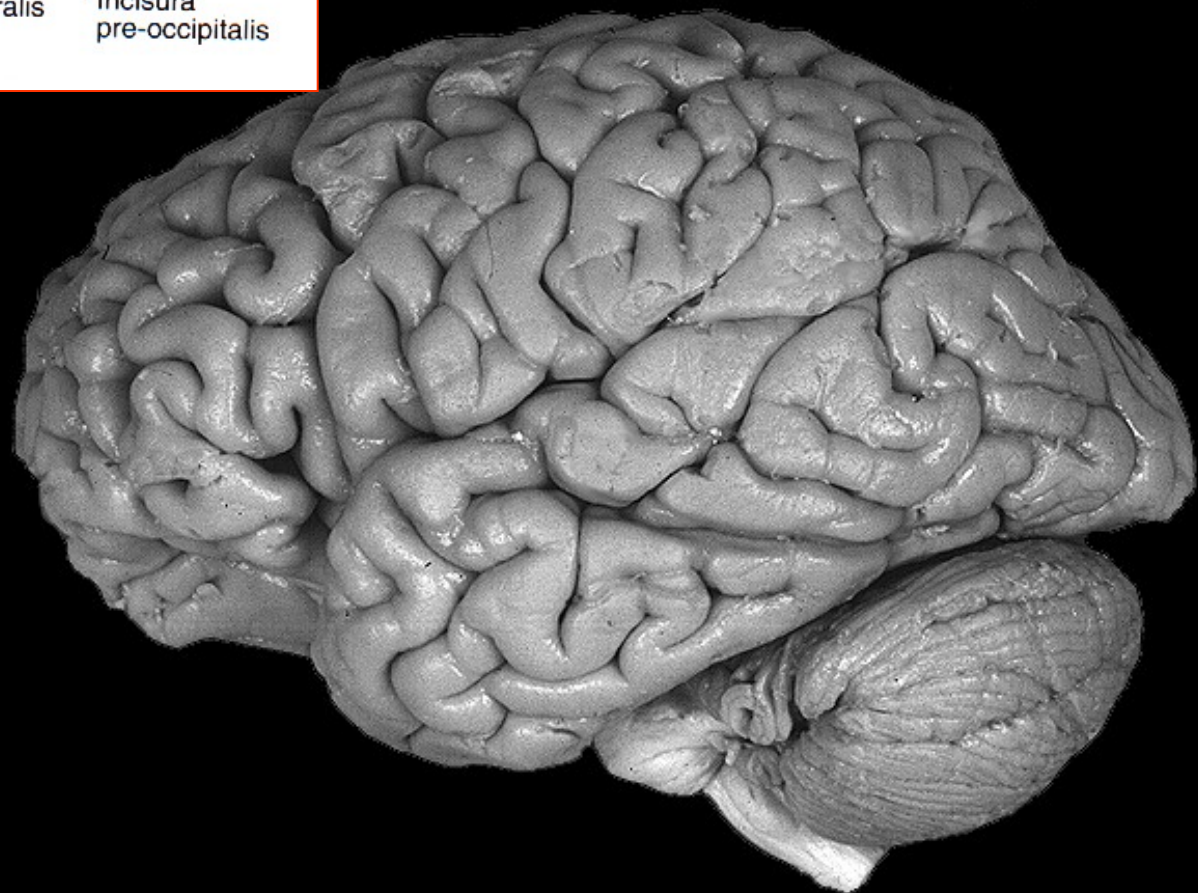
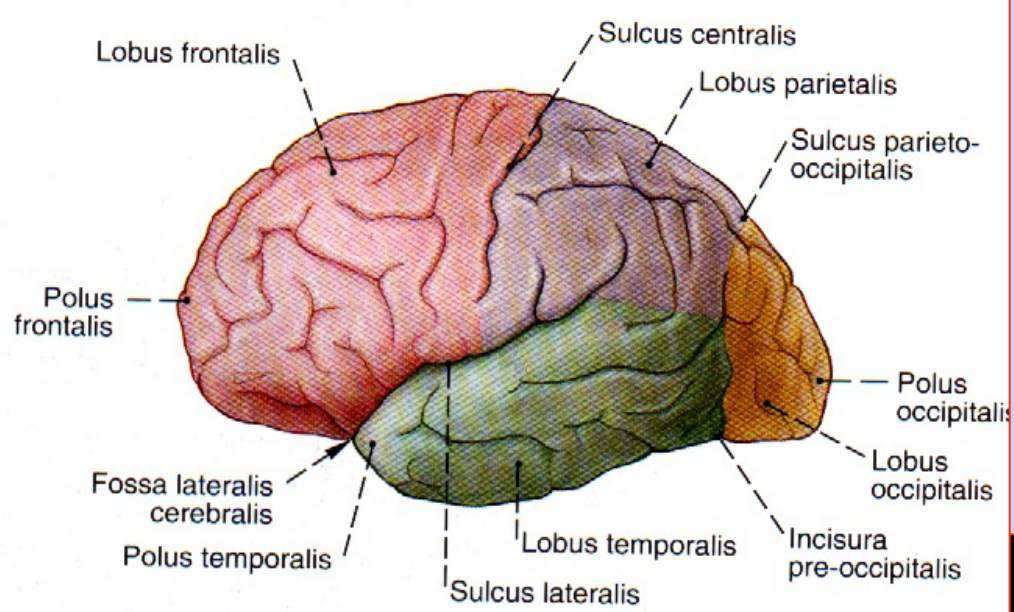


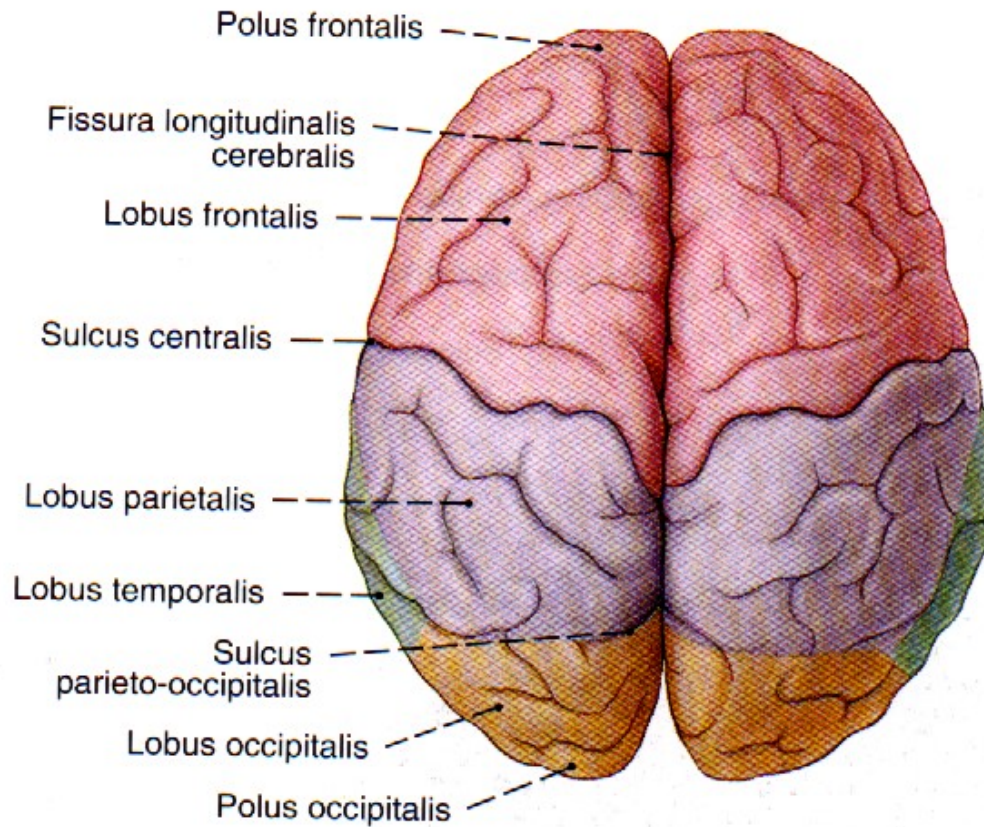
TELENCEPHALIC CORTEX - NOMENCLATURE

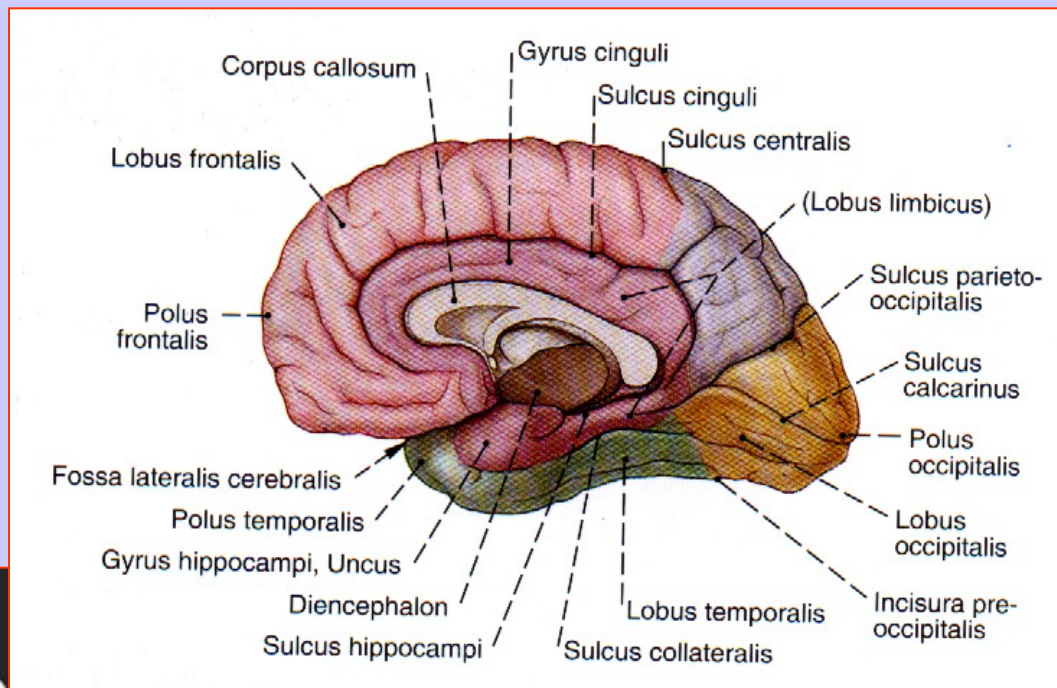
paleocortex, archicortex (allocortex) – neurons in 3-5 layers

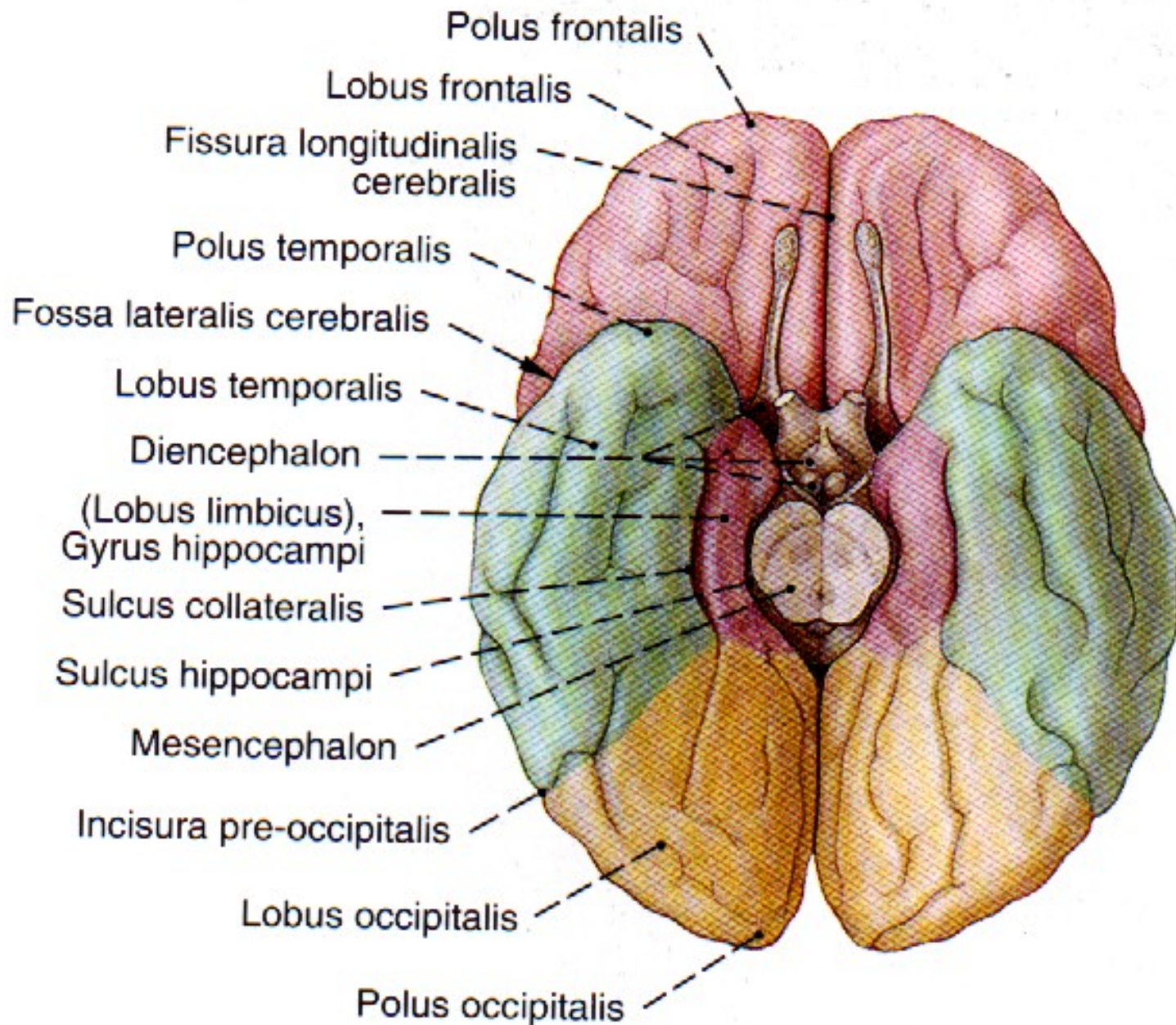
neocortex (isocortex) – neurons in 6 layers

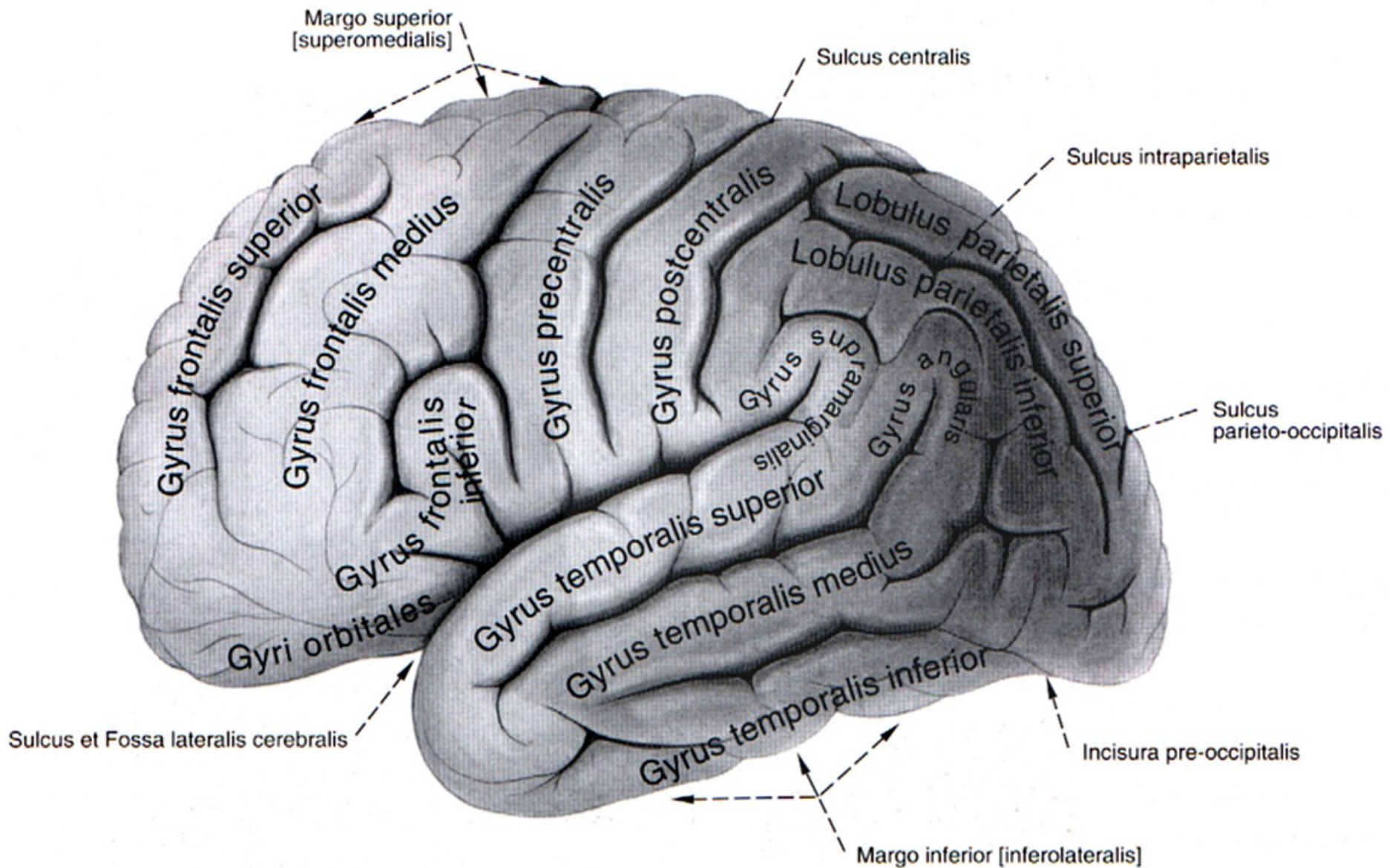
peripaleocortex et periarchicortex = mesocortex

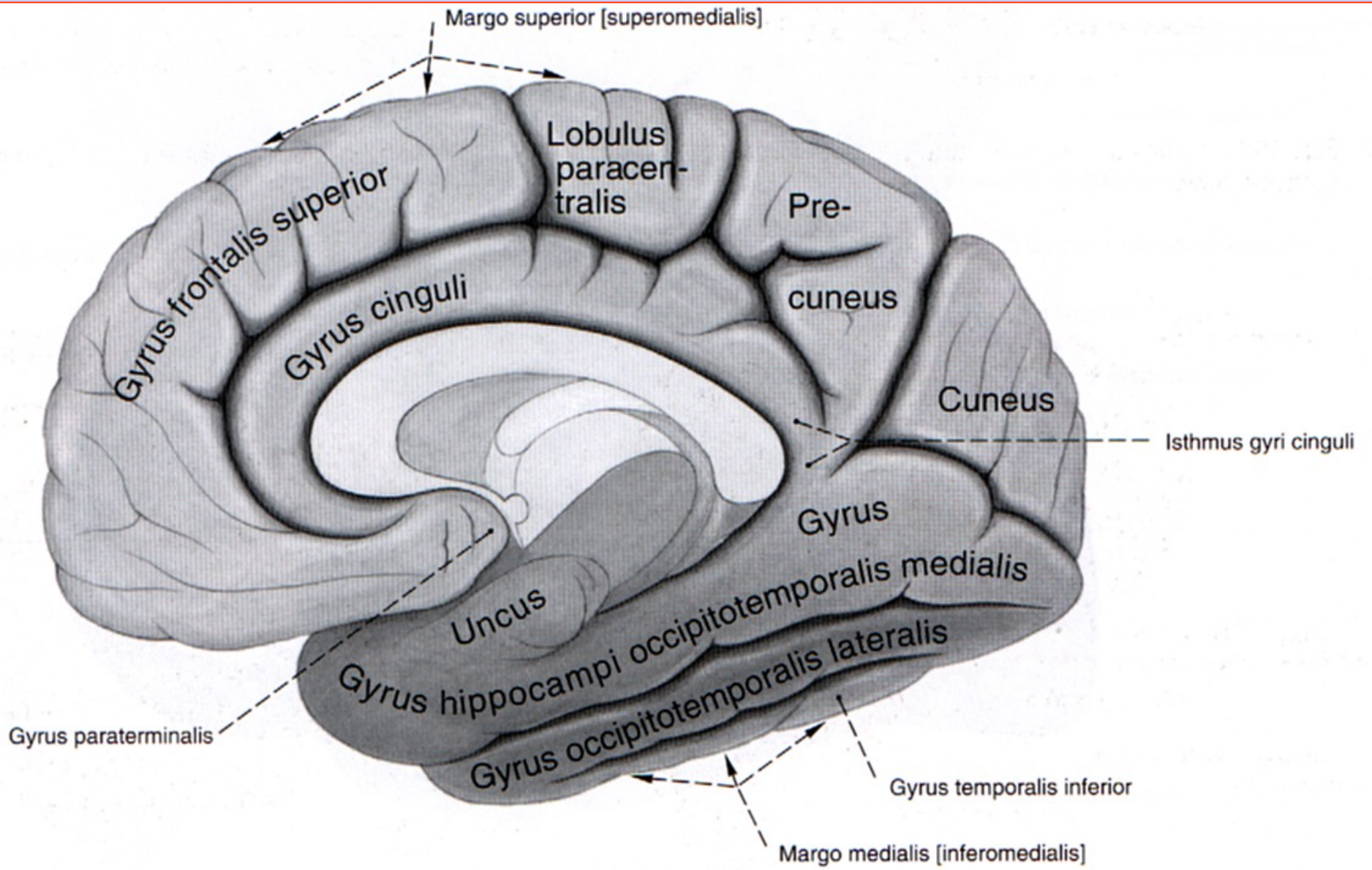




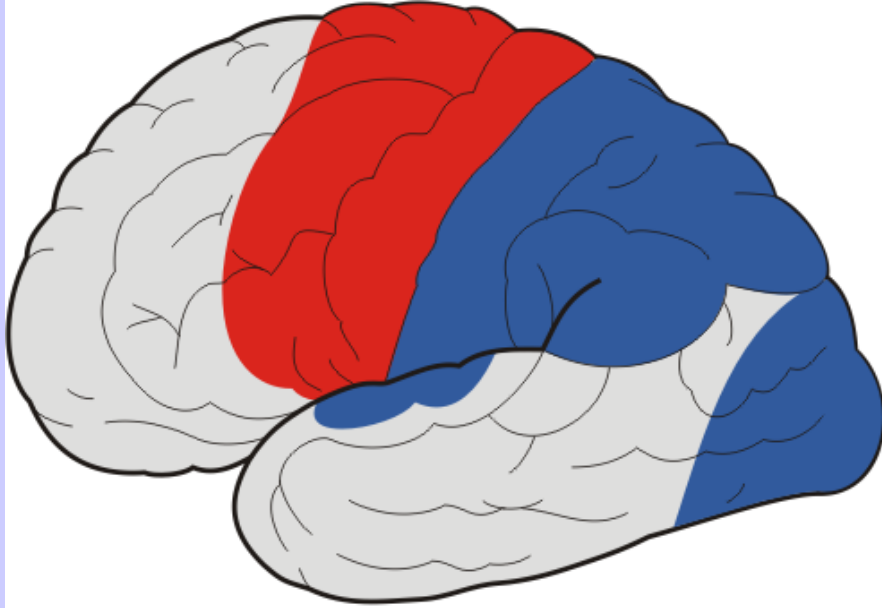









LOCATION OF MAIN FUNCTIONAL REGIONS OF TELENCEPHALIC CORTEX

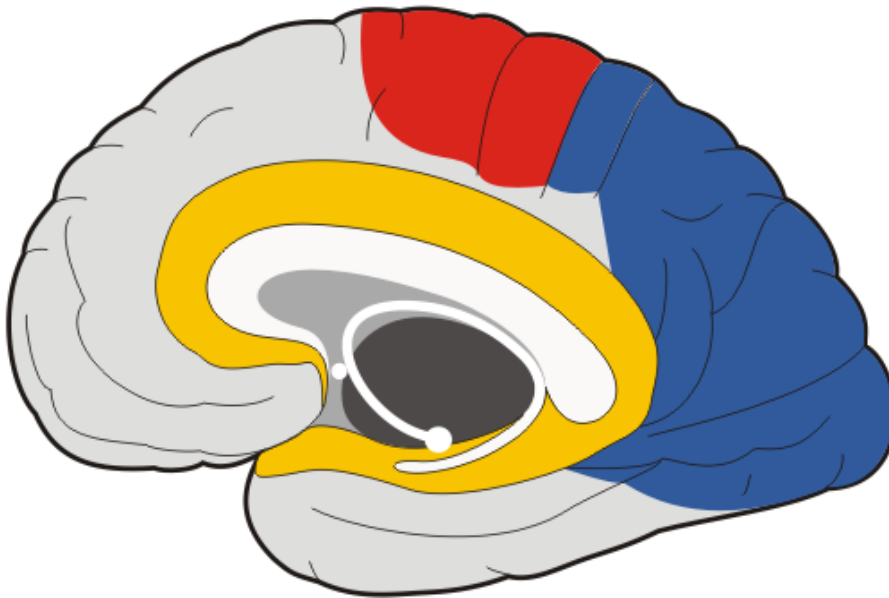


 somatosensory and sensory

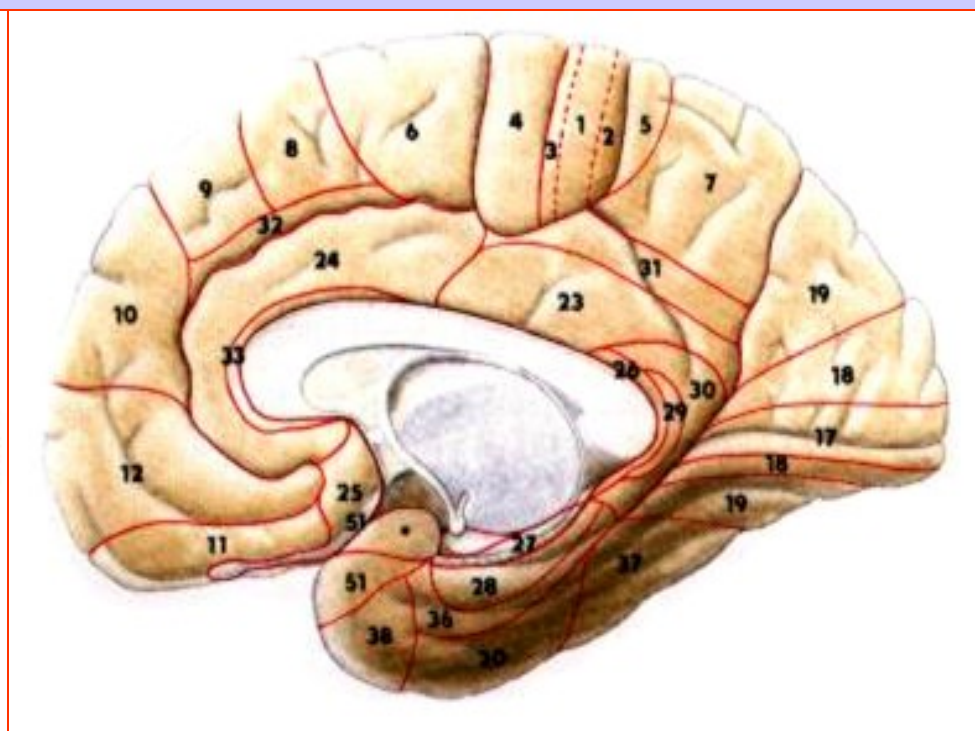
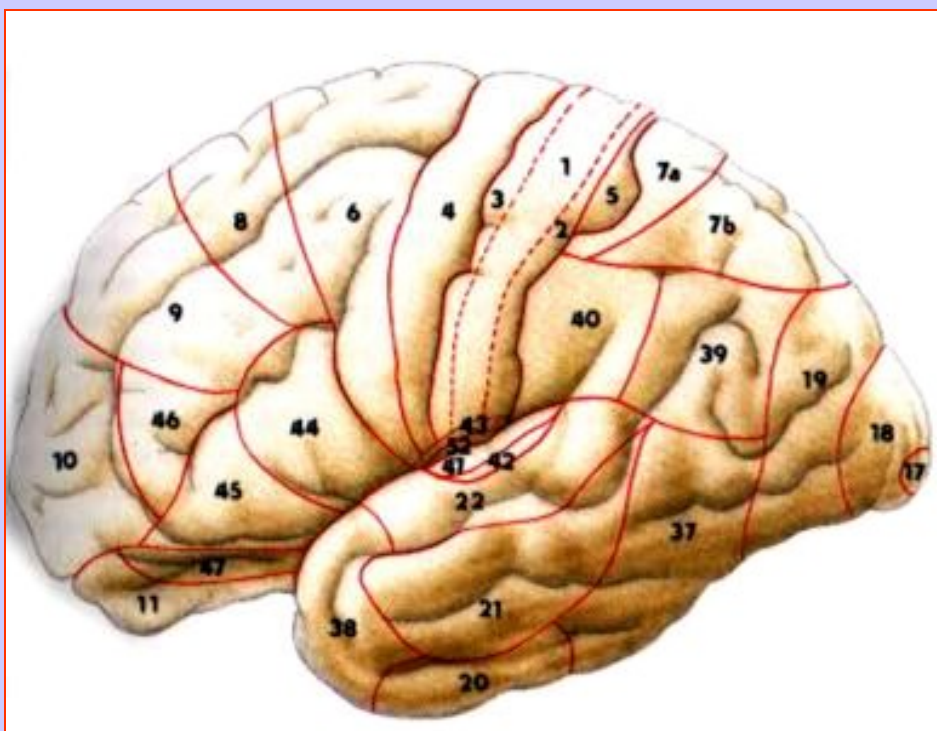
 motor

 cortex of limbic forebrain

 association cortex



| Brodmann's area | cortical location | functional involvement |
|-----------------|---|---|
| a 3, 2, 1 | postcentral gyrus | analysis of the somatosensory information |
| a 4, 6 | precentral gyrus | primary motor cortex |
| a 41, 42 | gyri temporales transversi | analysis of the hearing |
| a 17 | cortex parallel with the calcarine sulcus | primary visual cortex |
| a 18, 19 | cortex parallel with a 17 | secondary visual cortex |
| a43 | caudal part of the postcentral gyrus | analysis of the taste |



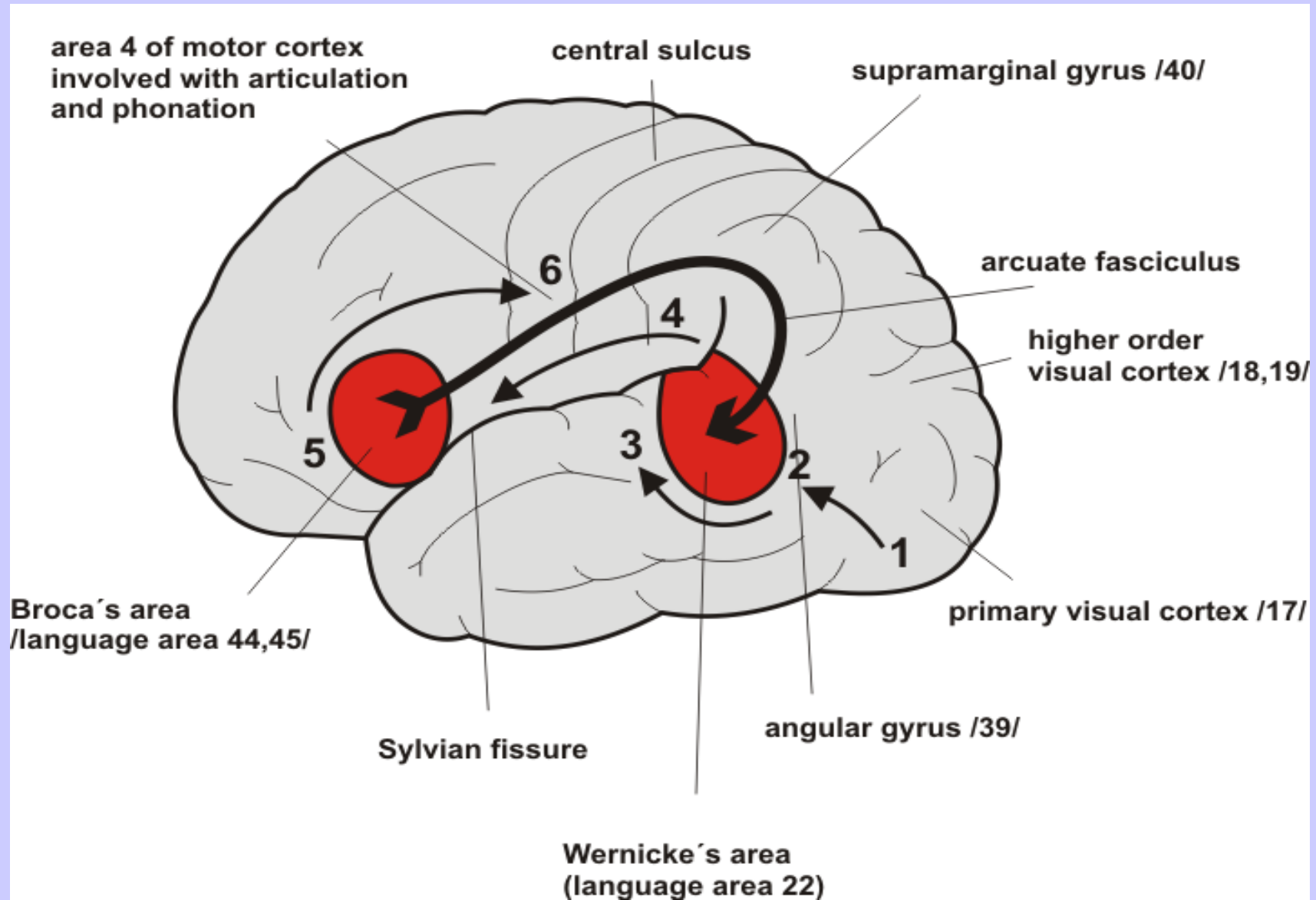
CORTICAL AREAS FOR SPEECH - I

Broca's (motor) cortical area - g. front. inf. a44, 45

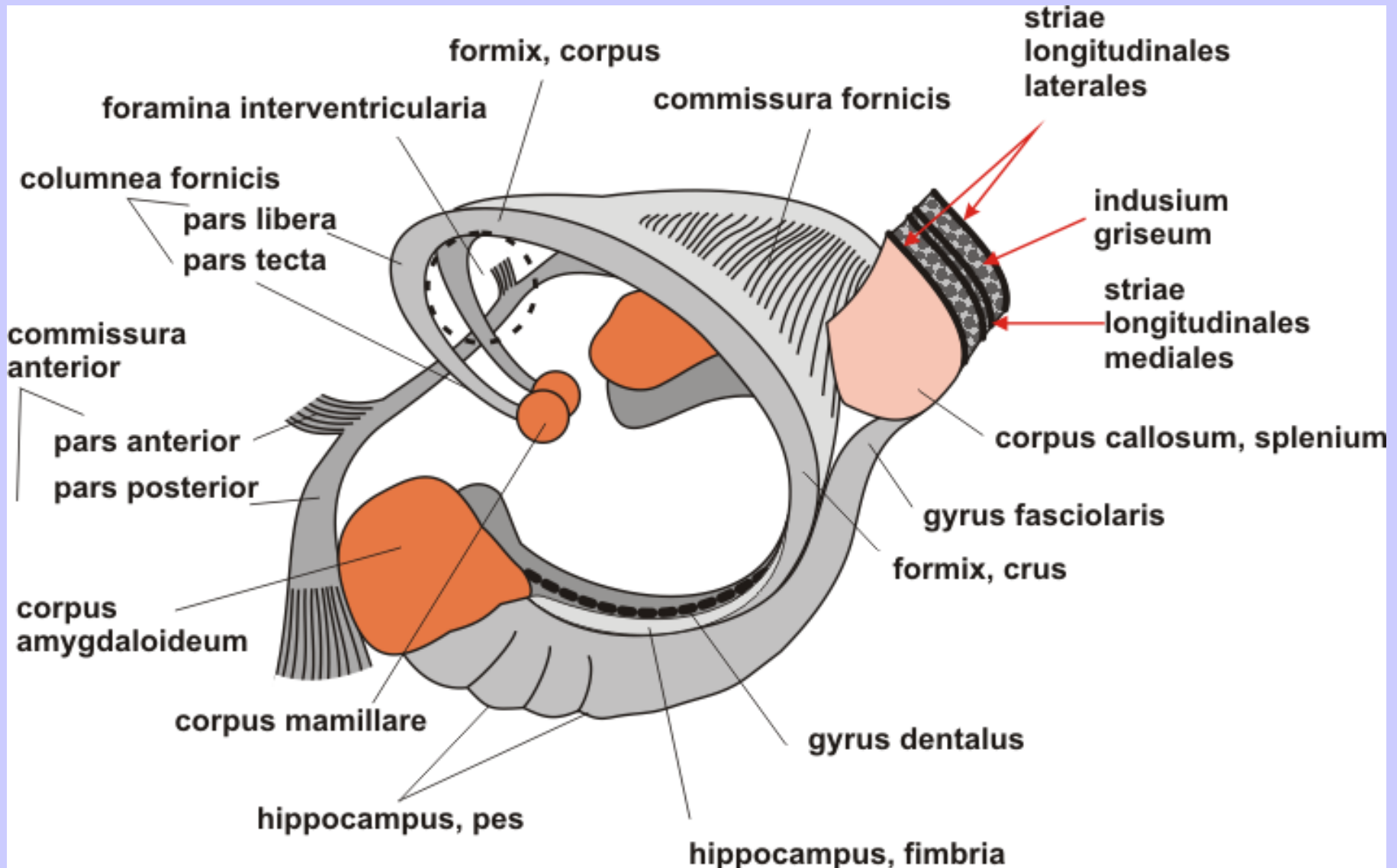
for right-hander in L-hemisphere, for left-hander in R-hemisphere

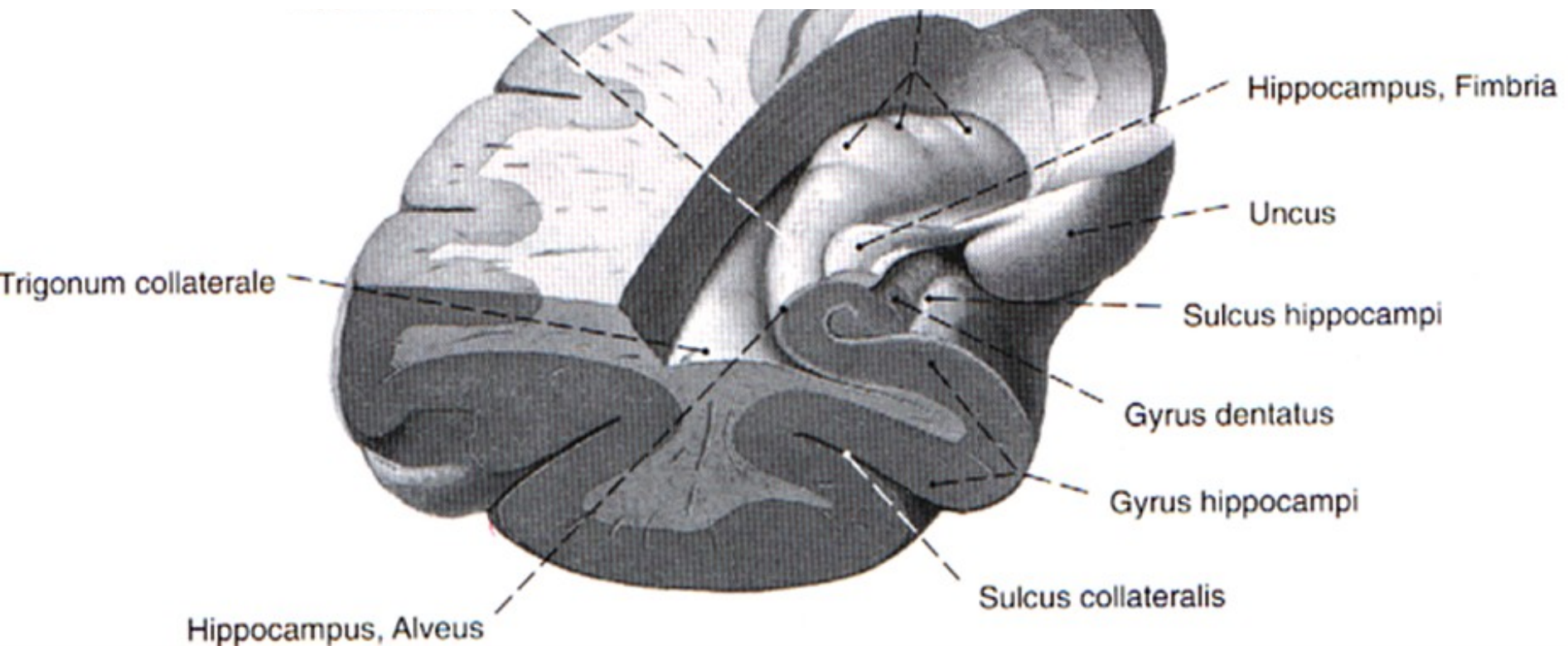
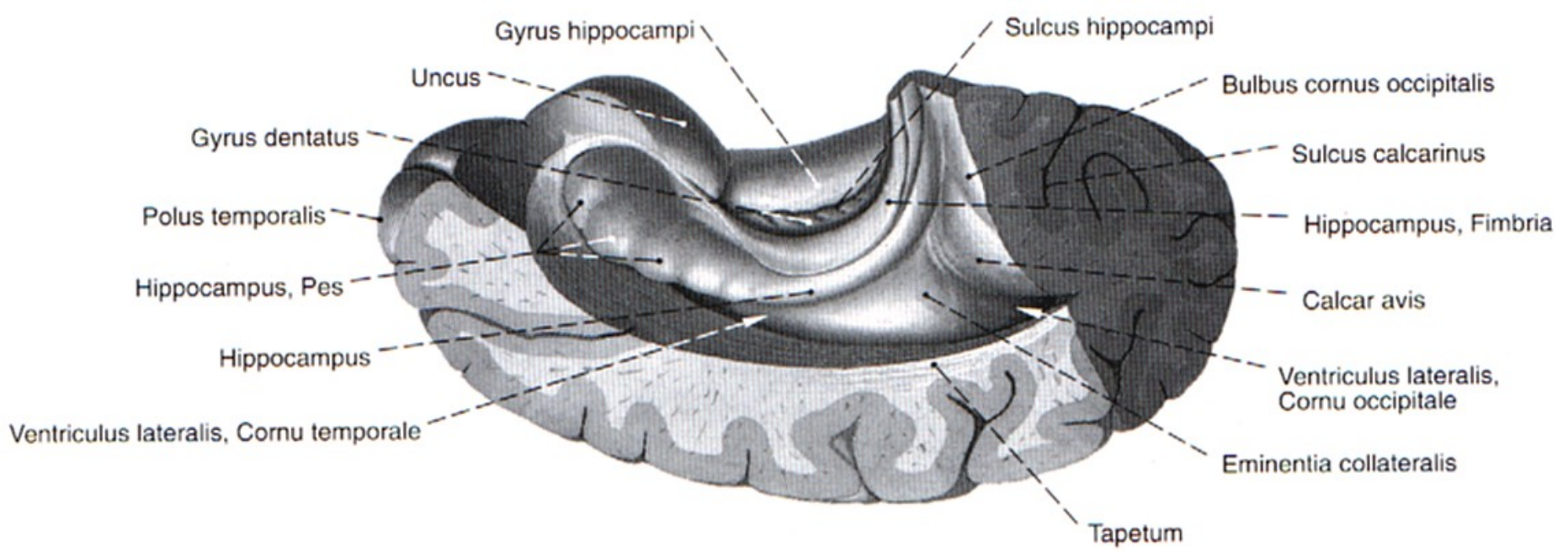
Wernicke's (sensory) cortical area - a 22,39,40 in dominant hemisphere

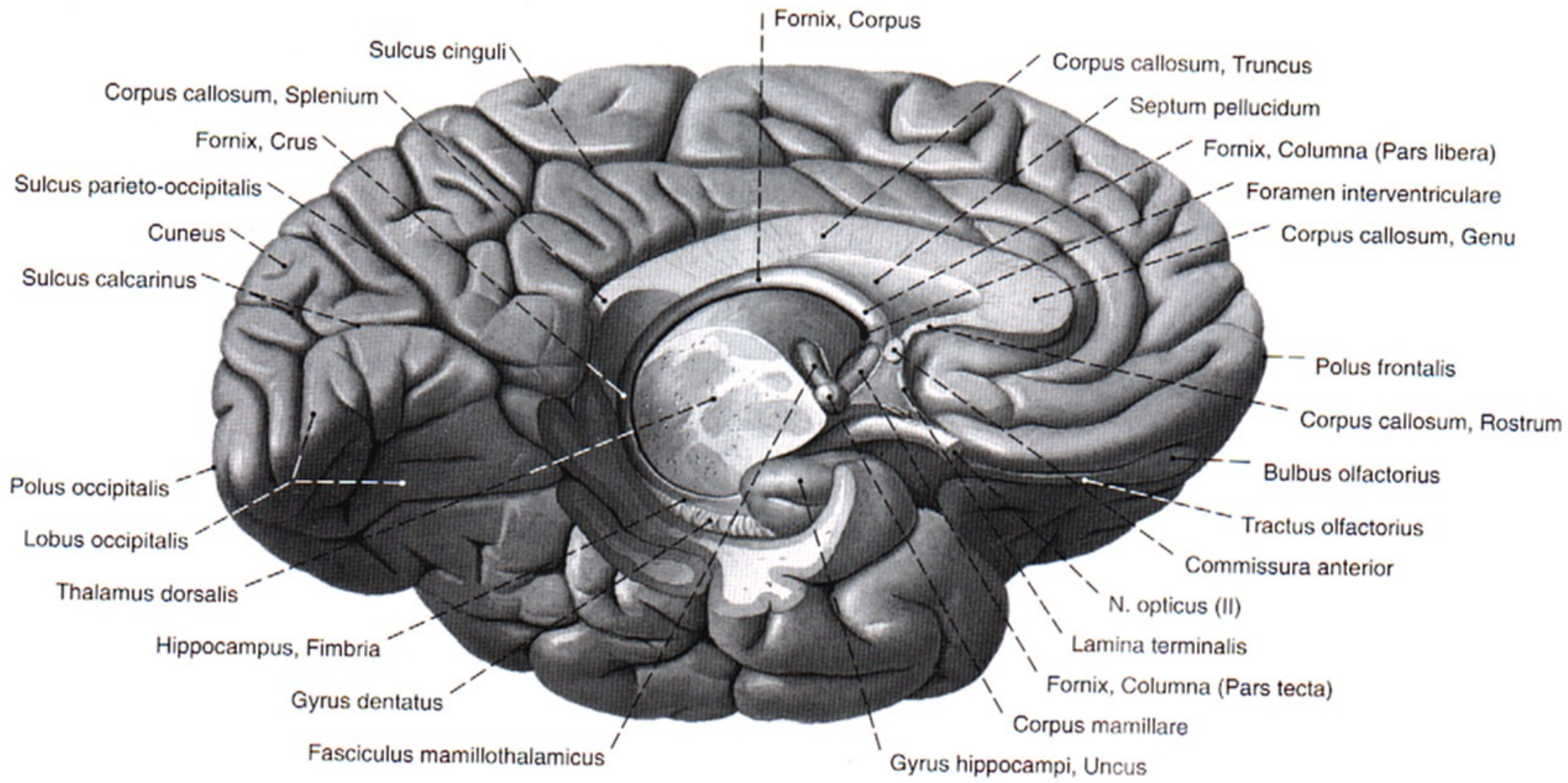
CORTICAL AREAS FOR SPEECH - II

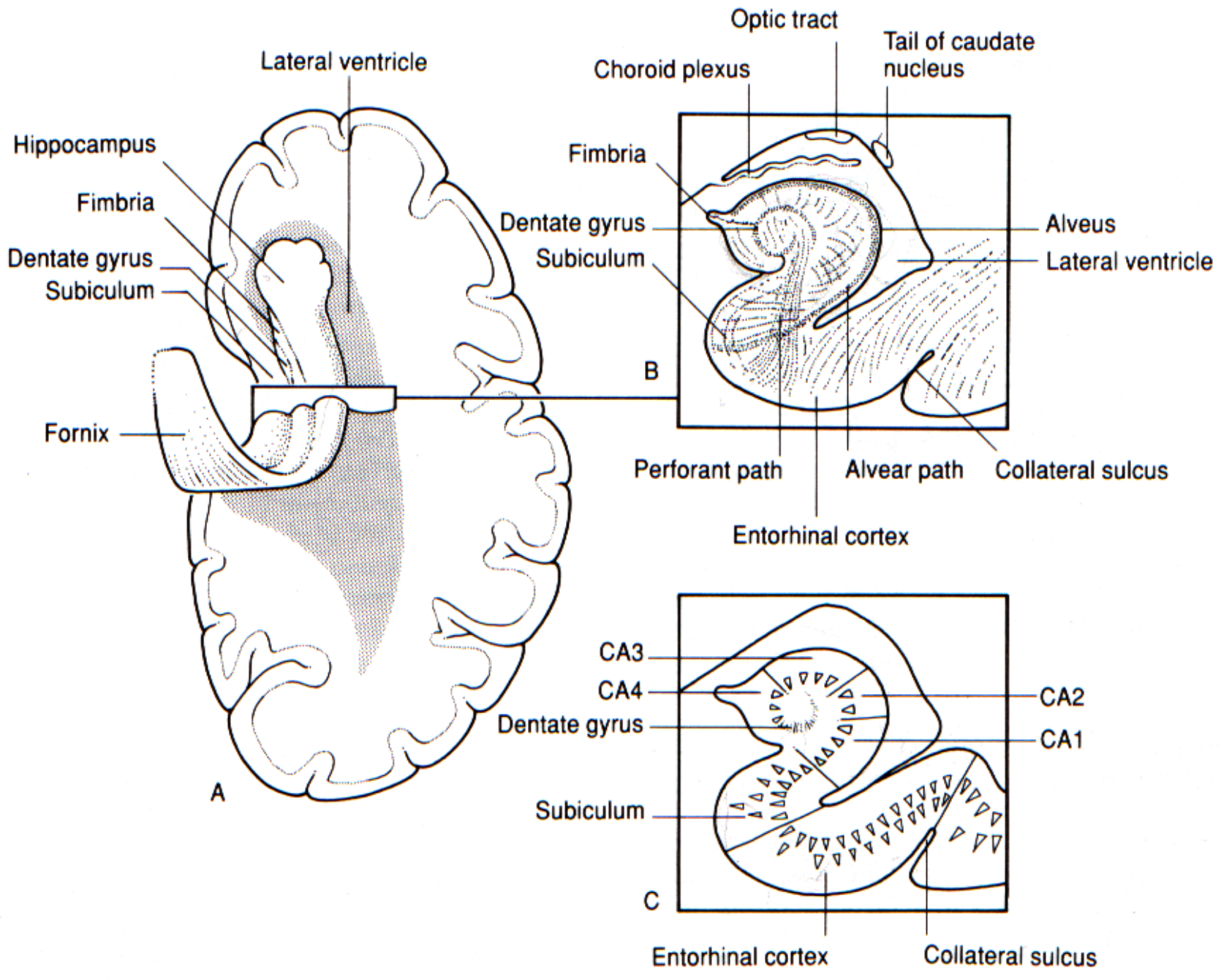


A SCHEMATIC DRAWING OF 3D ARRANGEMENT OF SOME TELENCEFALIC STRUCTURES





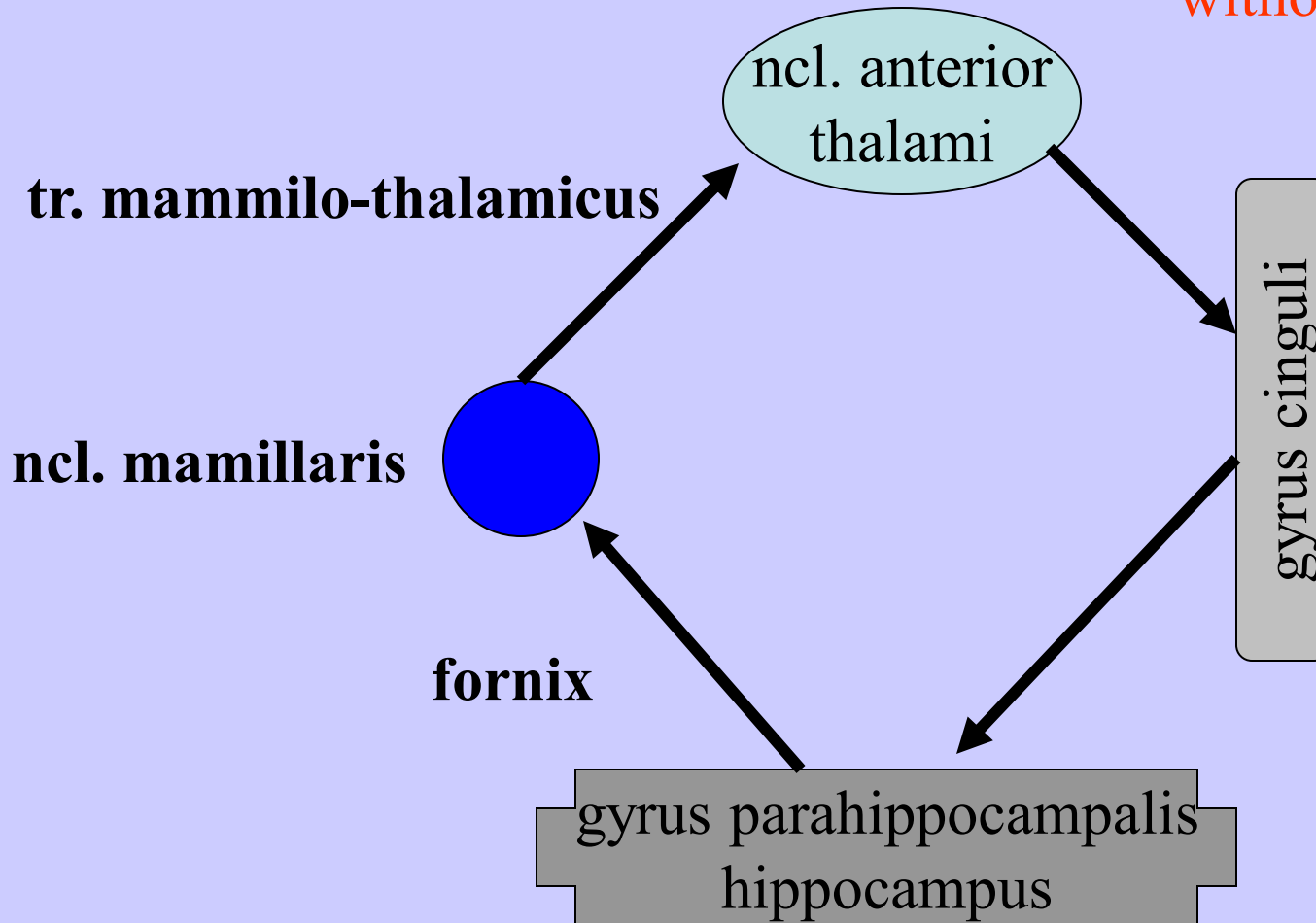




Limbic system – classic conception

Papez's circuit (James Papez 1939)

without specific function



RECENT CONCEPTION OF LIMBIC FOREBRAIN

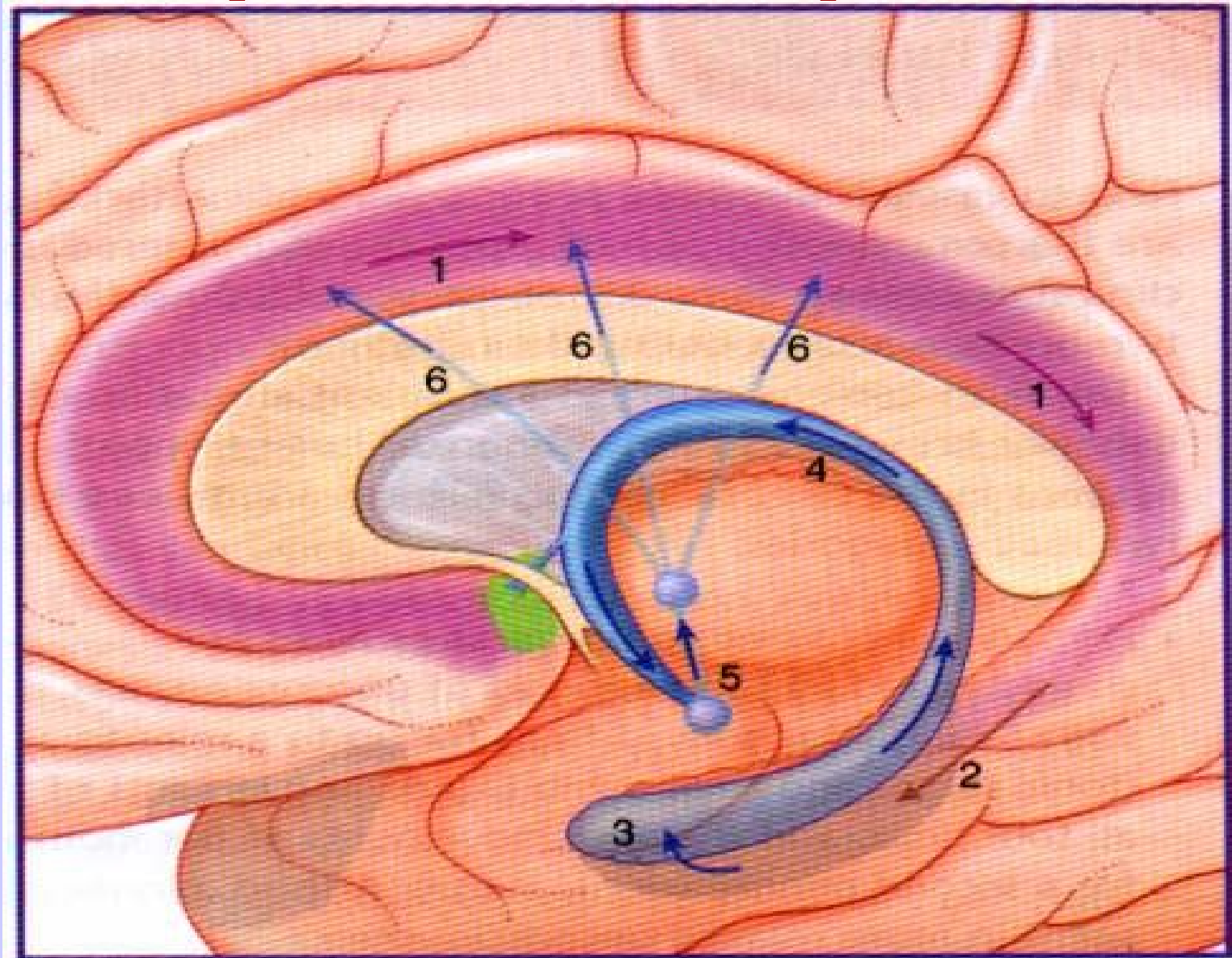
- **basomedial telencephalon, structures of diencephalon and mesencephalon for emotion and motivation of our behavior**

Regular structures

- **g. cinguli, g. parahippocampalis, hippocampus, *insular cortex***
- **neocortical regions of forebrain - basal frontotemporal regions, orbital cortex, ventral striatum (pallidum)**
- ***area septalis*, amygdalar ncl., hypothalamus (ncl. mammillaris)**
- **ncl. anterior et *medialis dorsalis* thalami**
- ***habenulla***

Limbic system – classic conception

Papez's circuit (James Papez 1939)



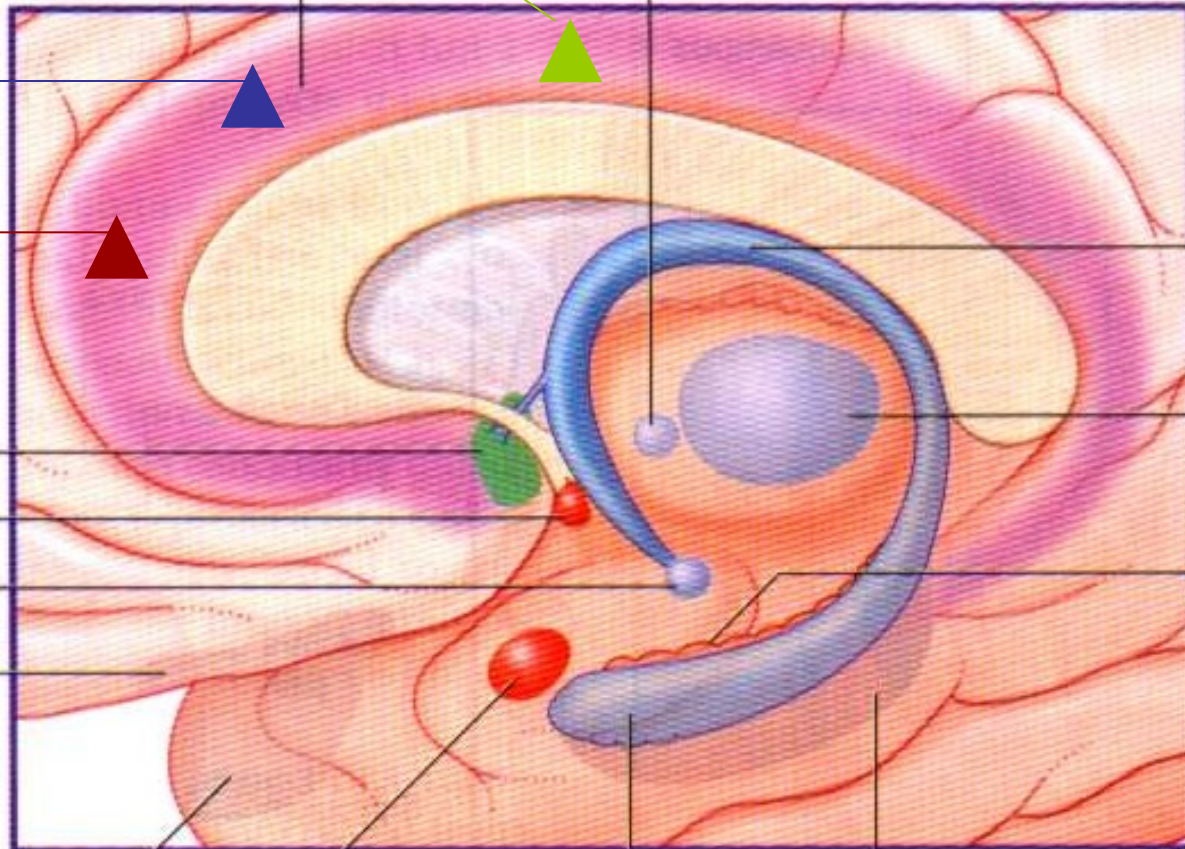
notion of tooth pain

notion of fear

memory of listening to music

Cingulate gyrus

Anterior nucleus of thalamus



Fornix

MDN

Dentate gyrus

Septal area

Nucleus accumbens

Mammillary body

Orbital cortex

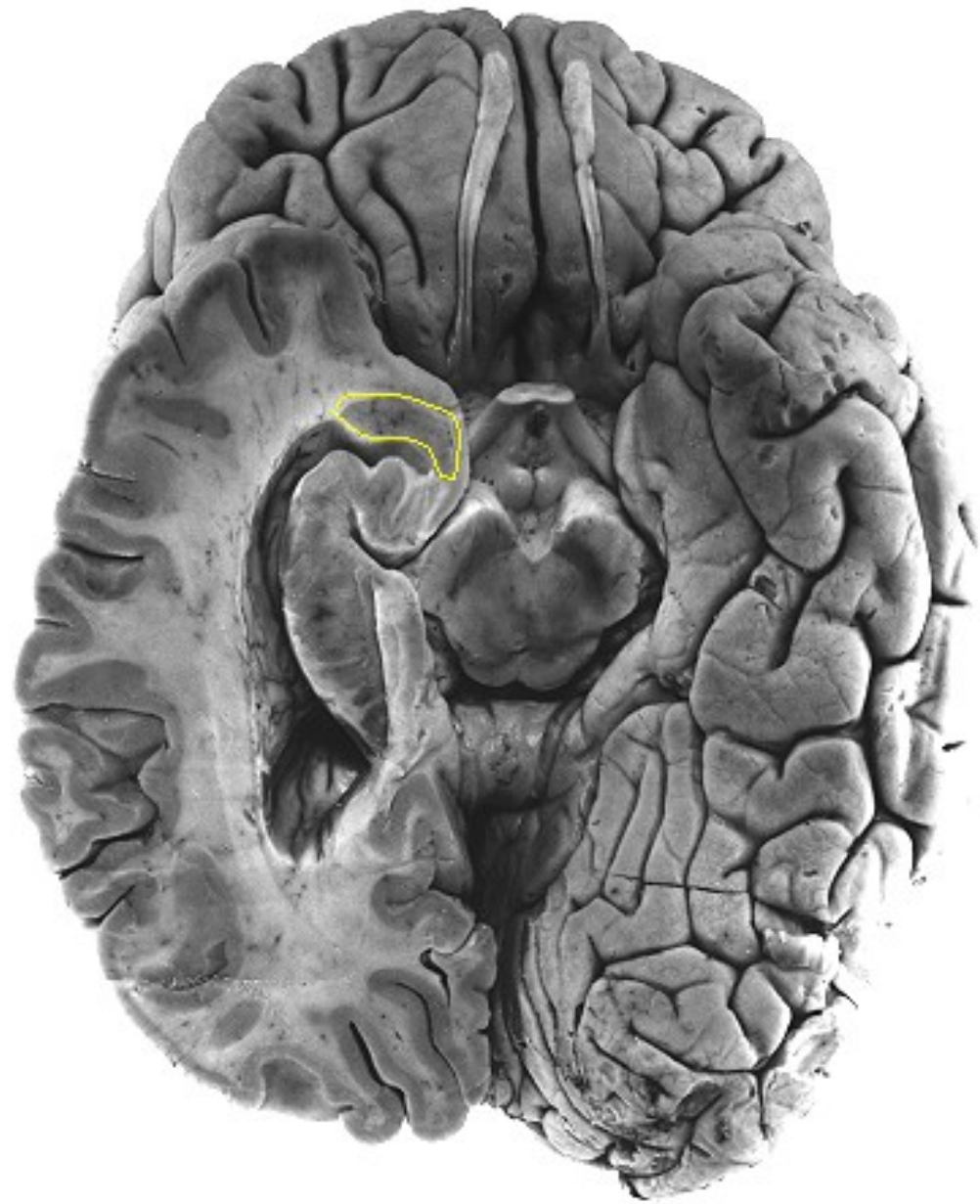
Temporal polar cortex

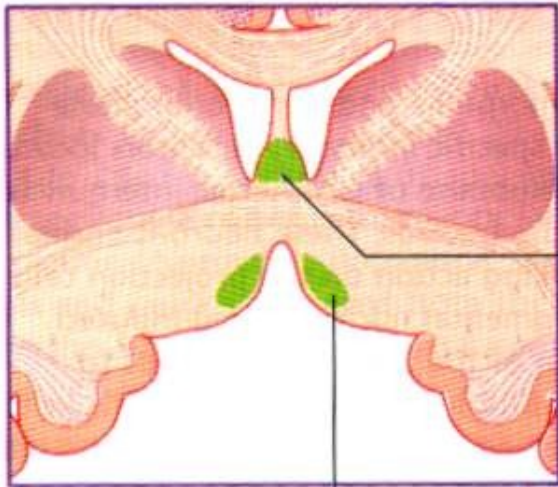
Amygdala

Hippocampus

Entorhinal cortex

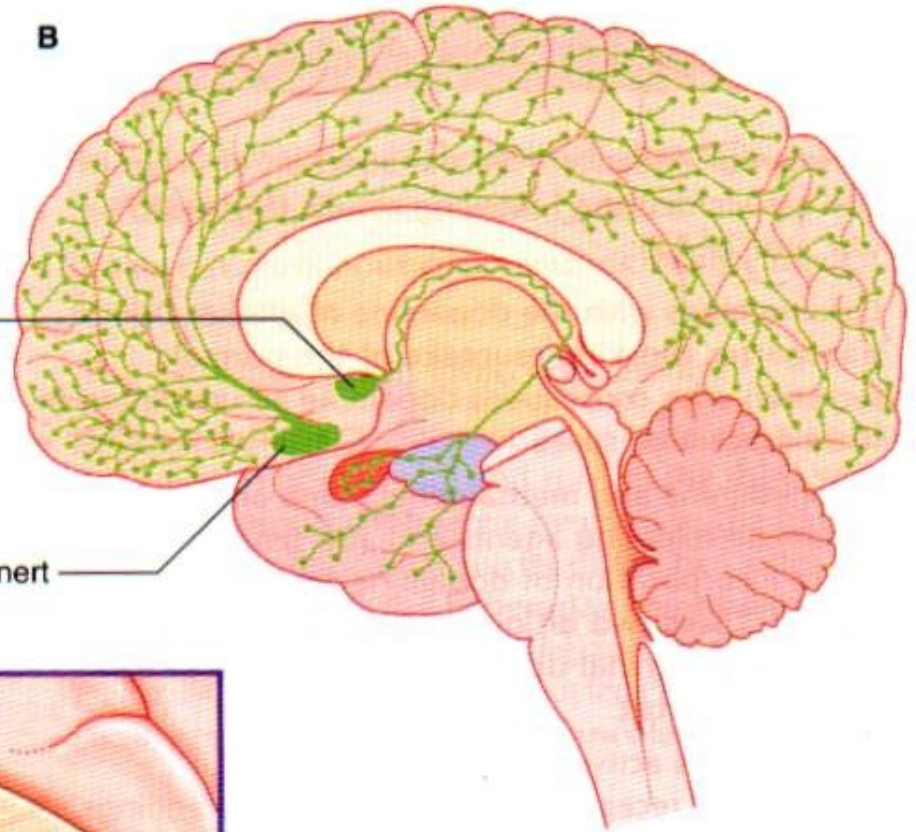
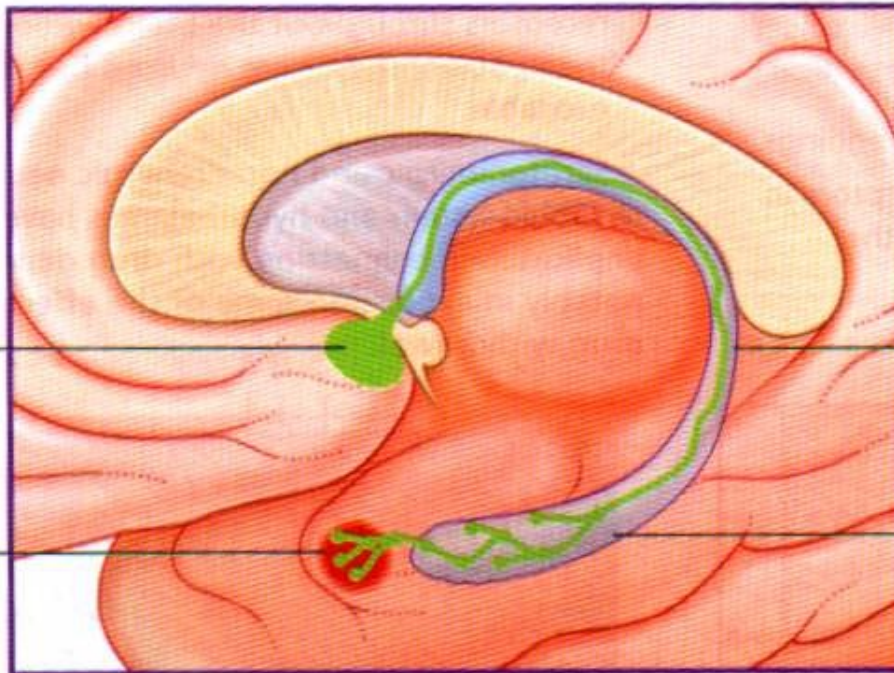
AMYGDALAR NUCLEI



A

Septal nuclei

Basal nucleus of Meynert

B**C**

Septal nuclei

Amygdala

Fornix

Hippocampus

BASAL GANGLIA AND RELATED STRUCTURES

ncl. caudatus, putamen, globus pallidus, claustrum and amygdalar ncll.

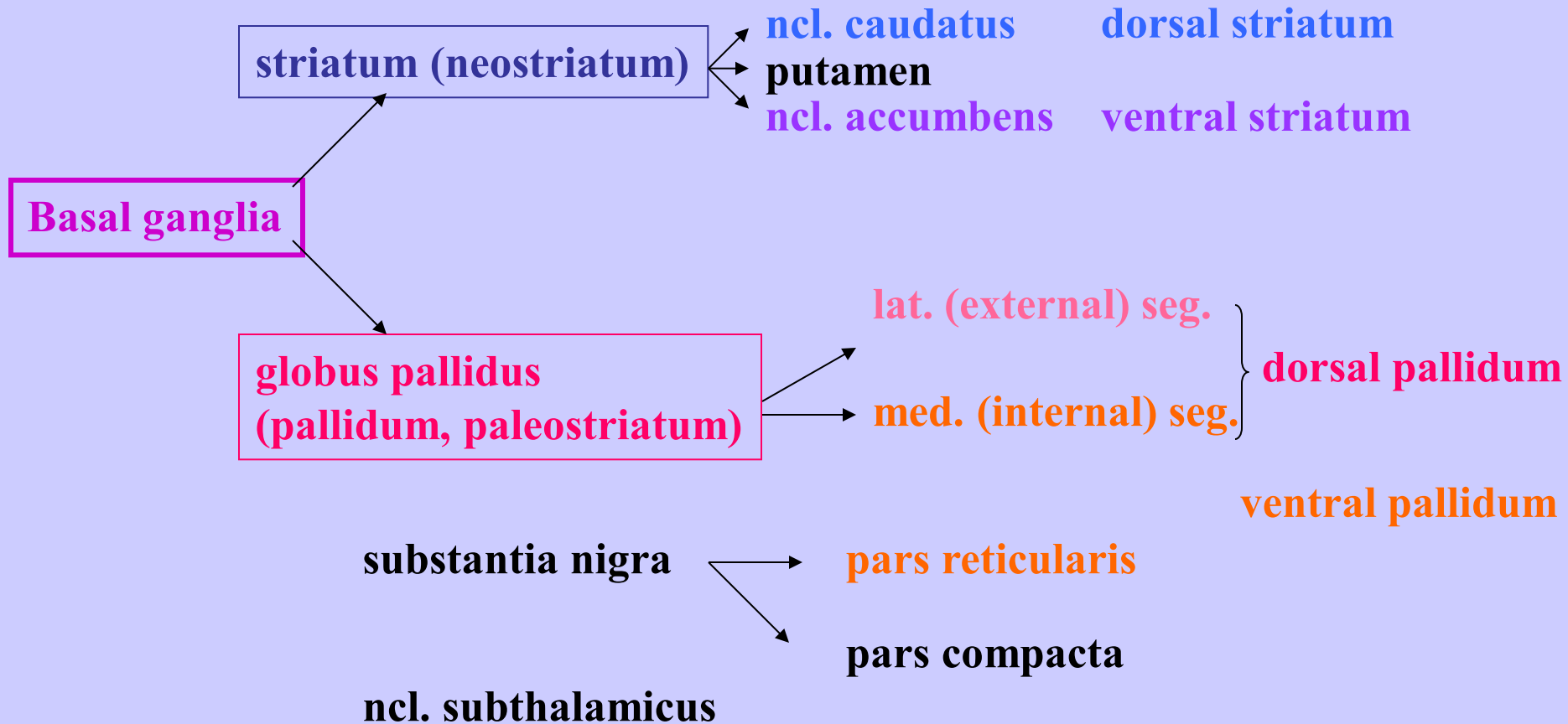
functional: + thalamus, substantia nigra and ncl. subthalamicus

ncl. caudatus + putamen = **neostriatum (striatum)**

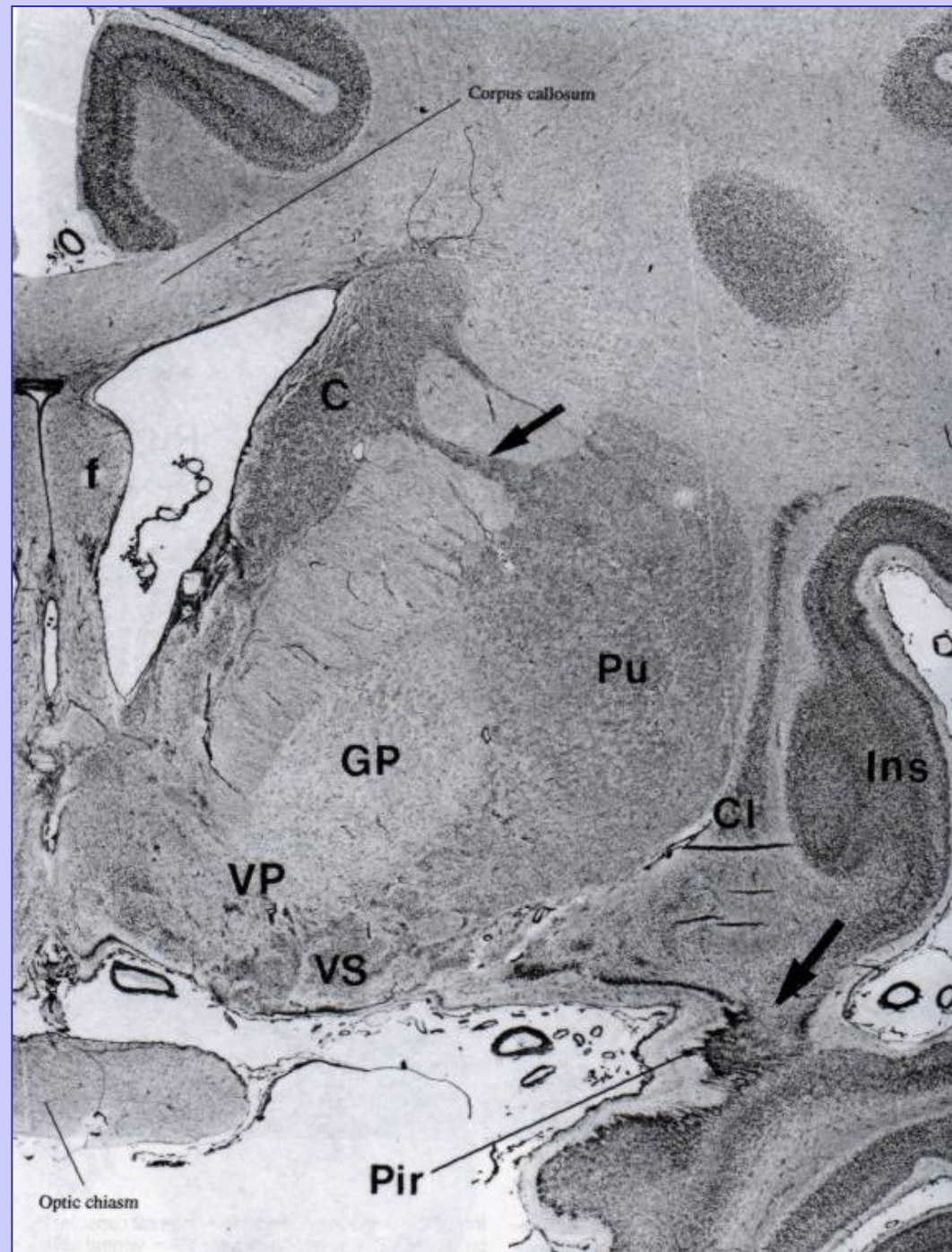
globus pallidus (ext. + int. segment) = **paleostriatum (pallidum)**

globus pallidus + putamen = **ncl. lentiformis**

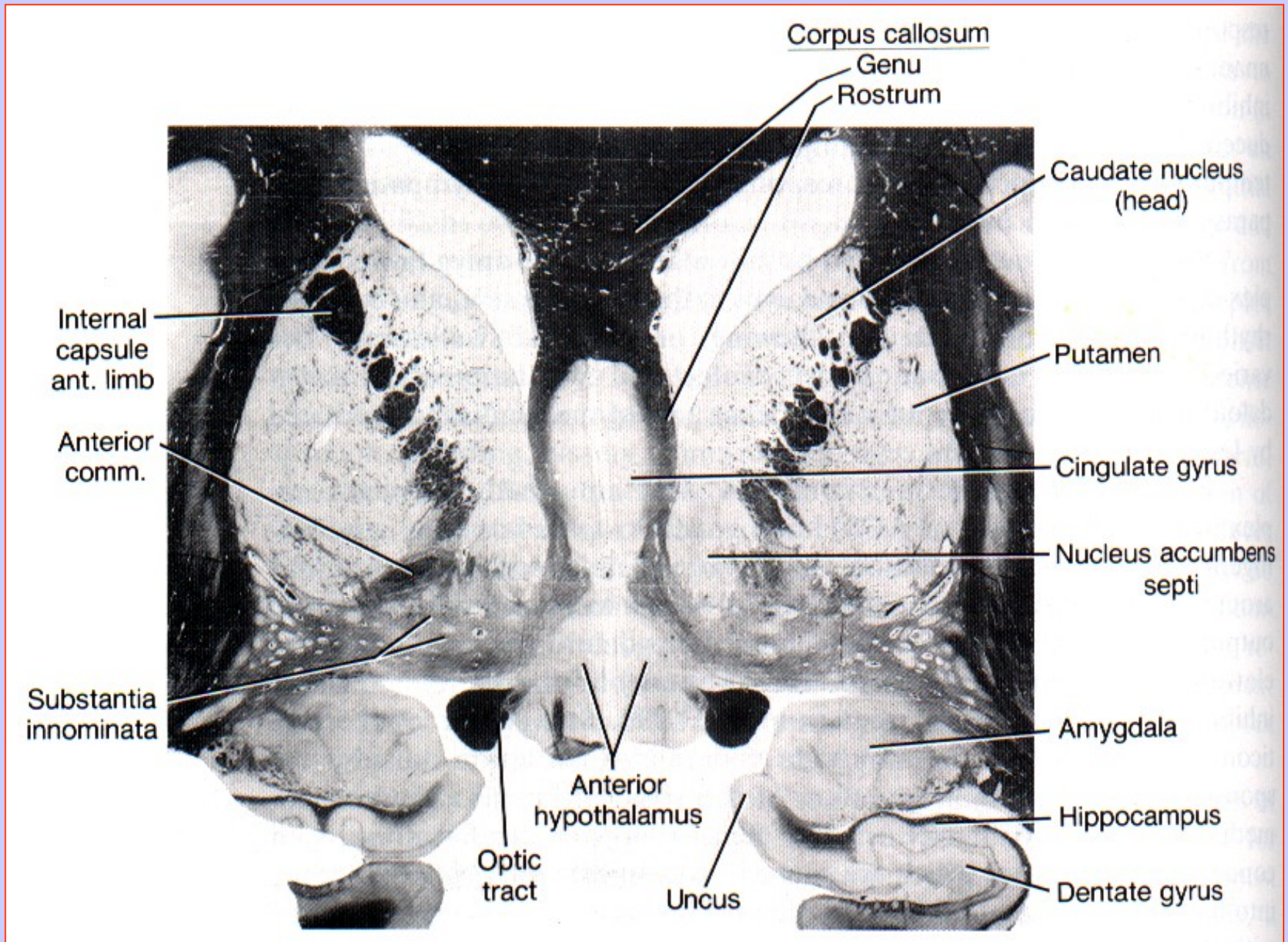
BASAL GANGLIA AND RELATED STRUCTURES

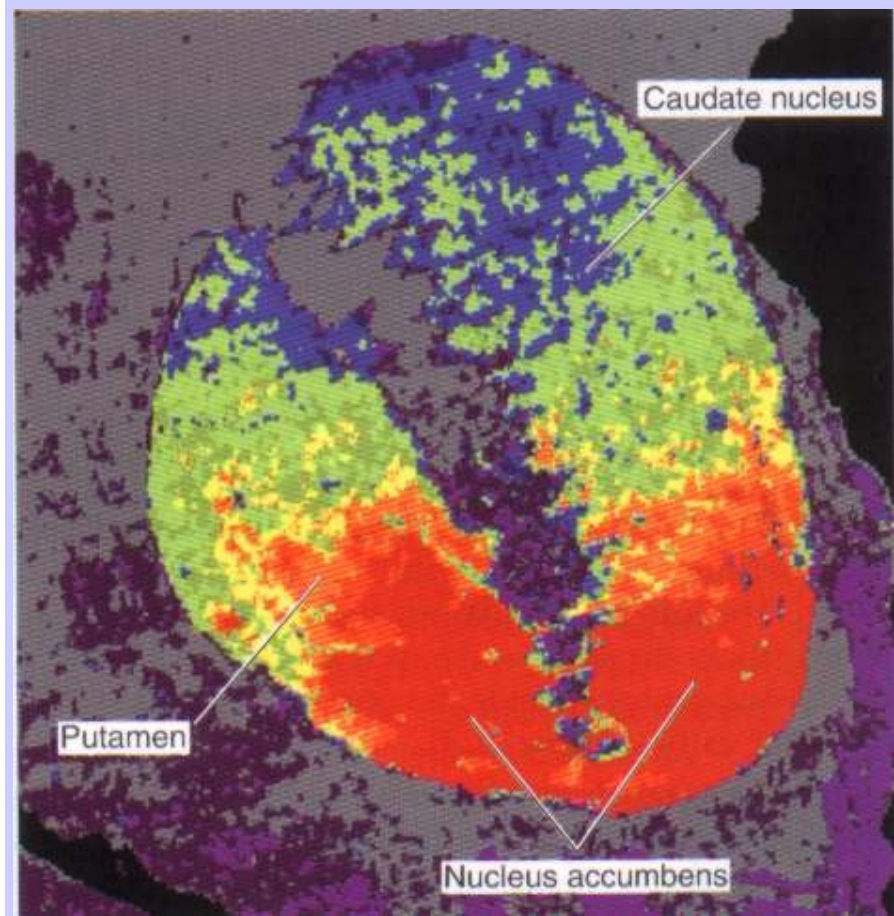
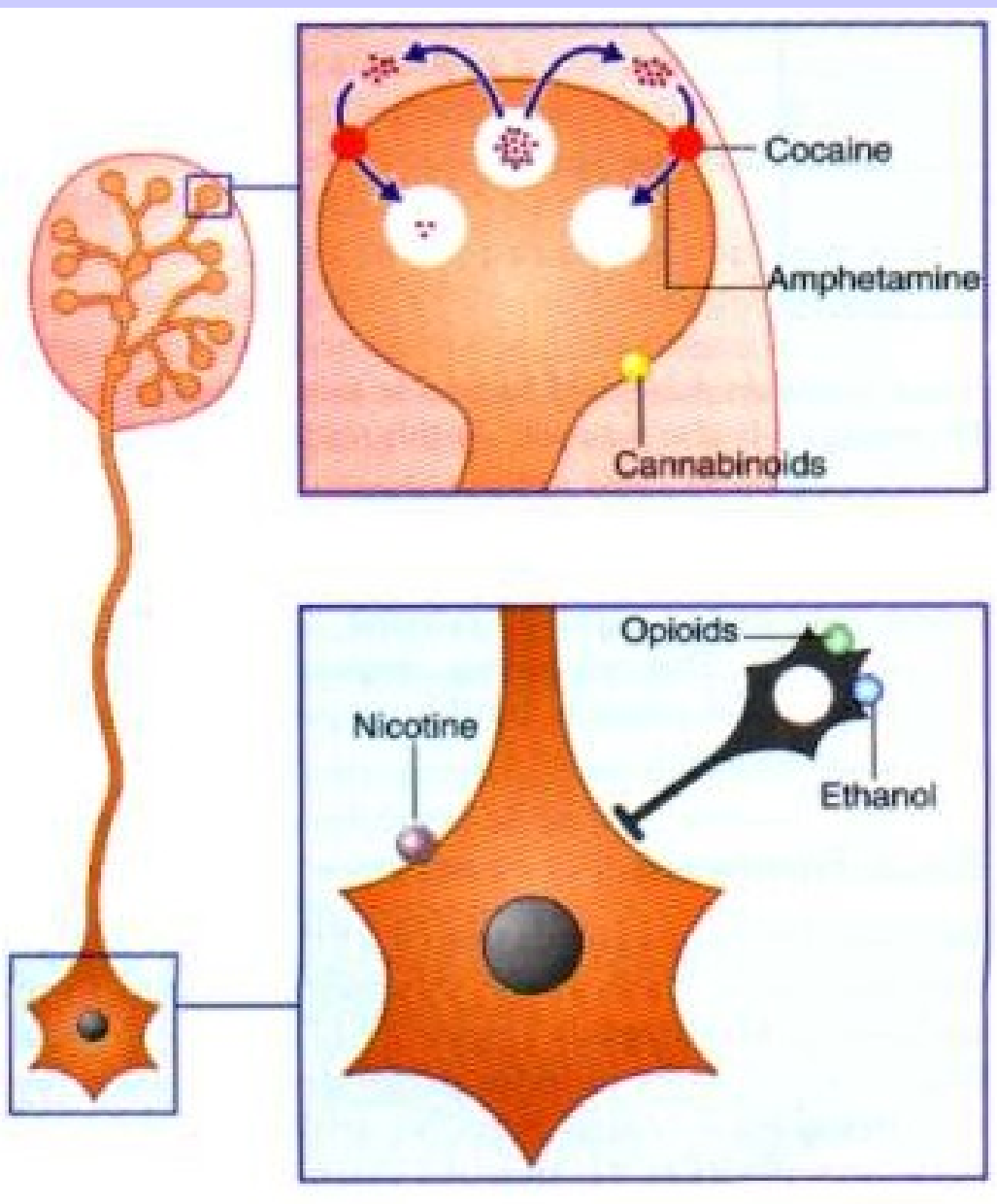


VENTRAL PALIDUM AND VENTRAL STRIATUM



SUBSTANTIA INNOMINATA a NCL. ACCUMBENS





WHITE MATTER OF TELENCEPHALON

Pathways - associated, projection and commissural

ASSOCIATED PATHWAYS - interconnections of various cortical regions

fasciculus longitudinalis superior

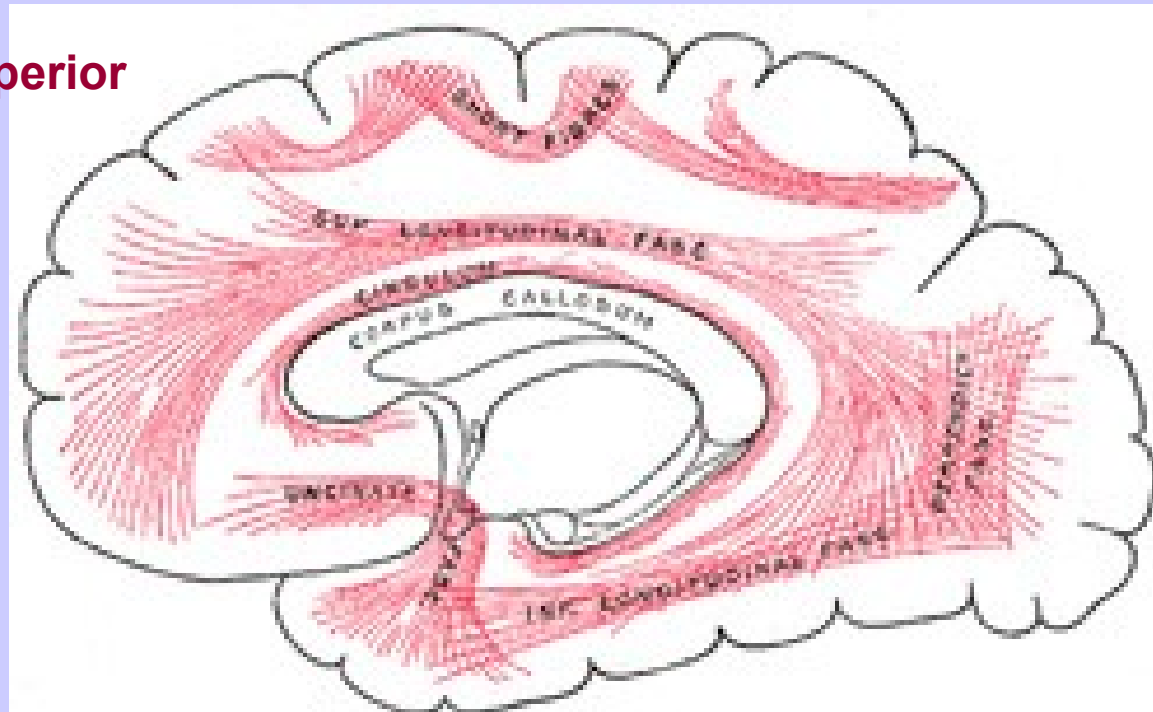
fasciculus longitudinalis inferior

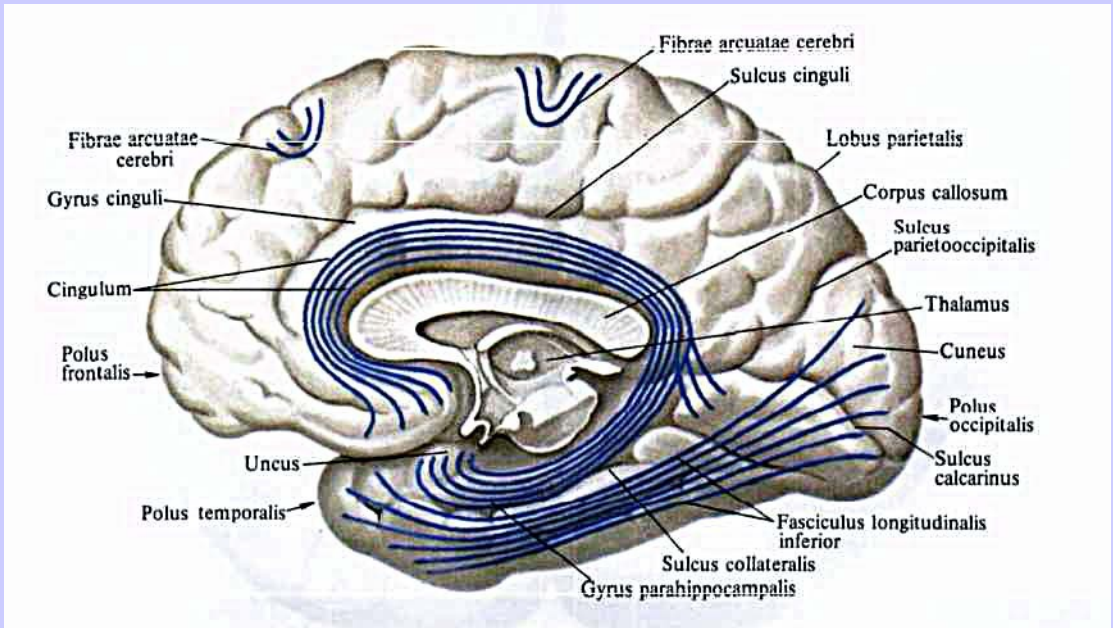
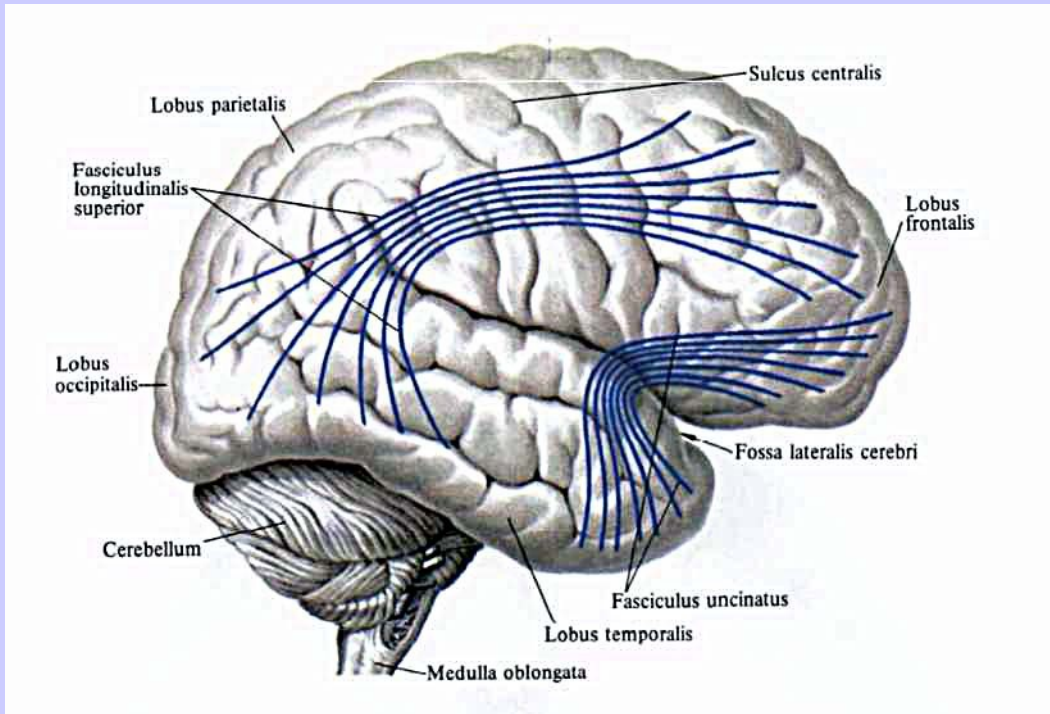
fasciculus occipitofrontalis superior

fasciculus uncinatus

fasciculi occipitales verticales

cingulum





Projection pathways

Short projection pathways

Long projection pathways - *capsula interna*

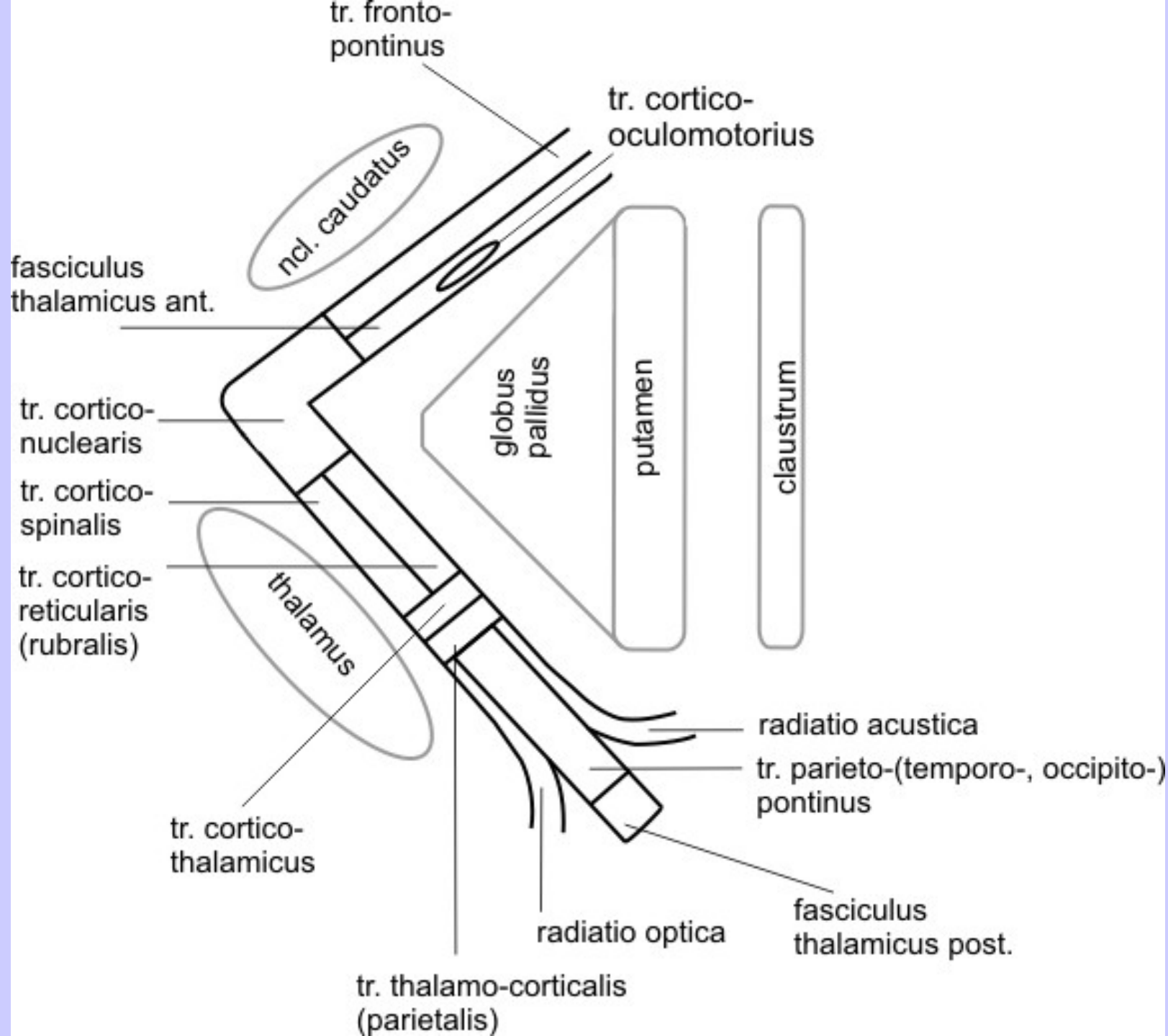
crus anterius, genu et crus posterius capsulae internae

CAPSULA INTERNA

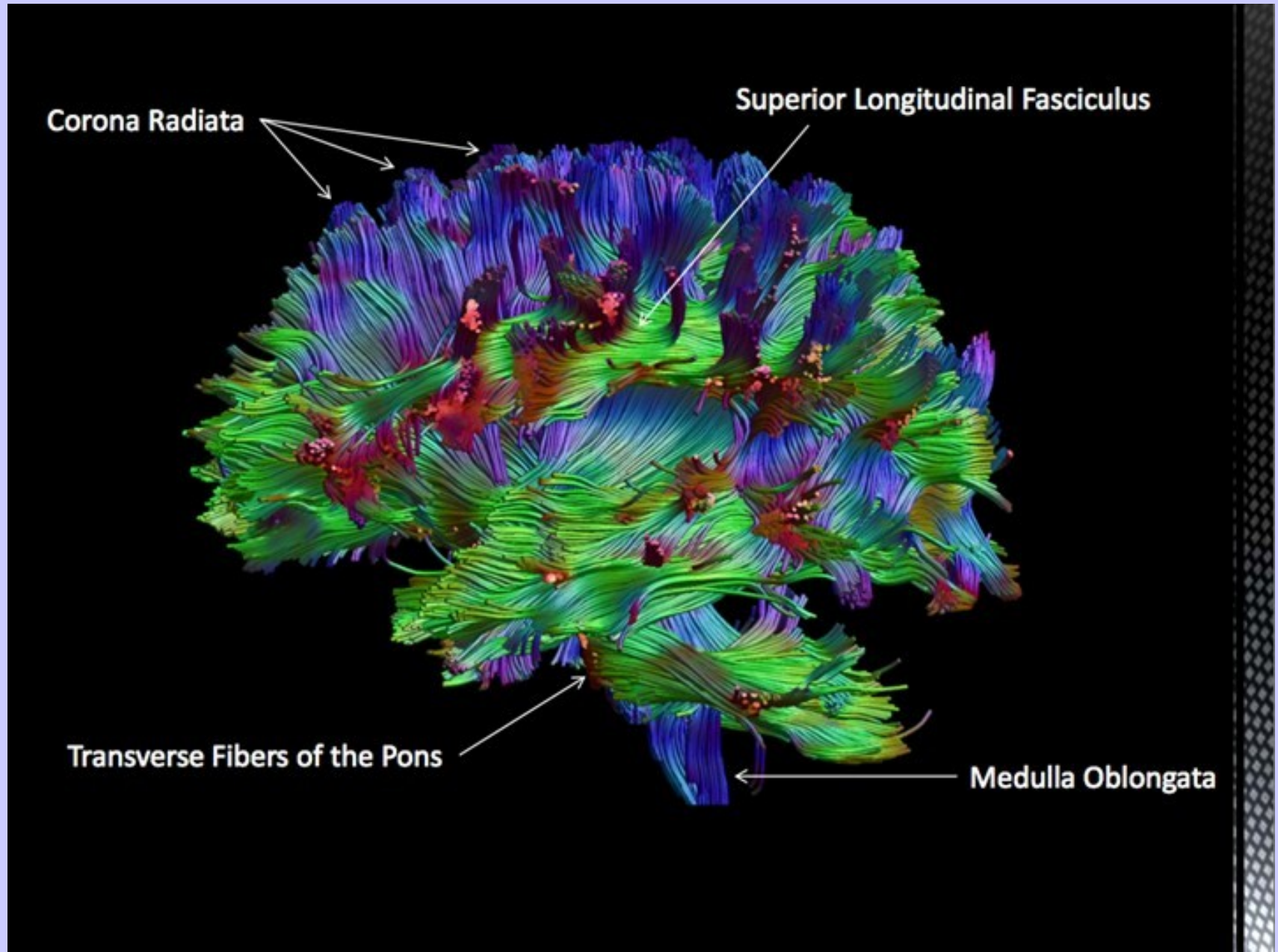
crus anterior – anterior tr. thalamo-corticalis and tr. fronto-pontinus

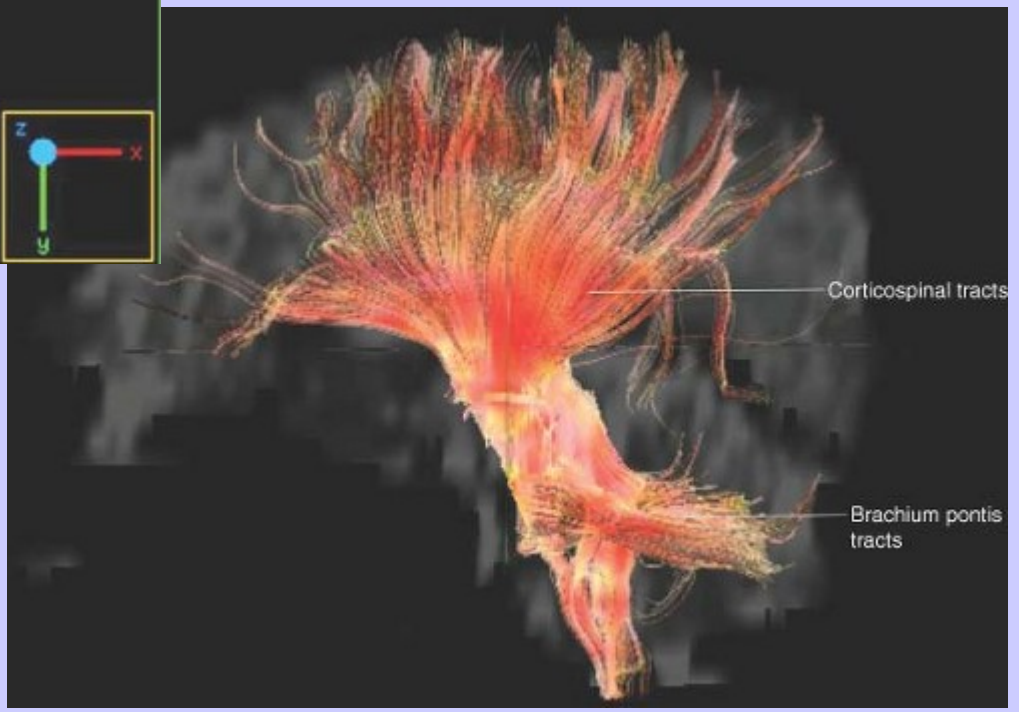
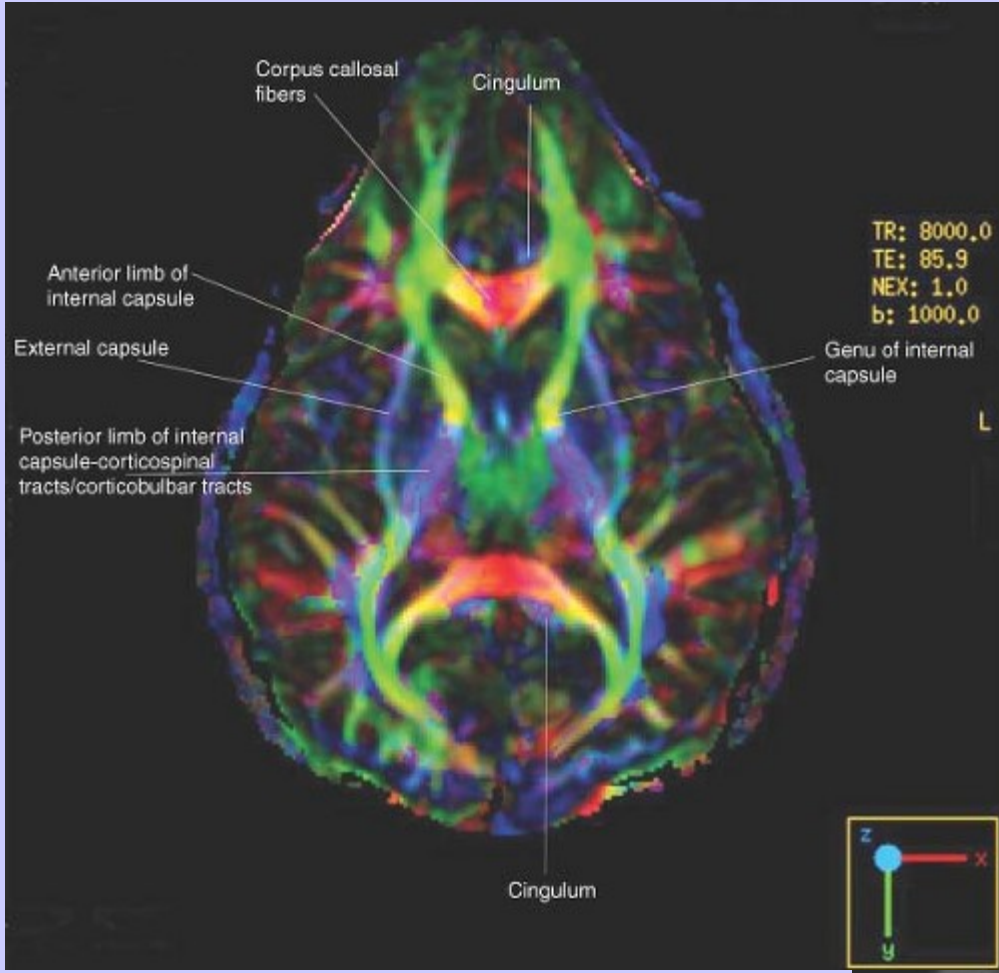
genu - tr. cortico-nuclearis, from area 4 to contralateral motoneurons of cranial nerves

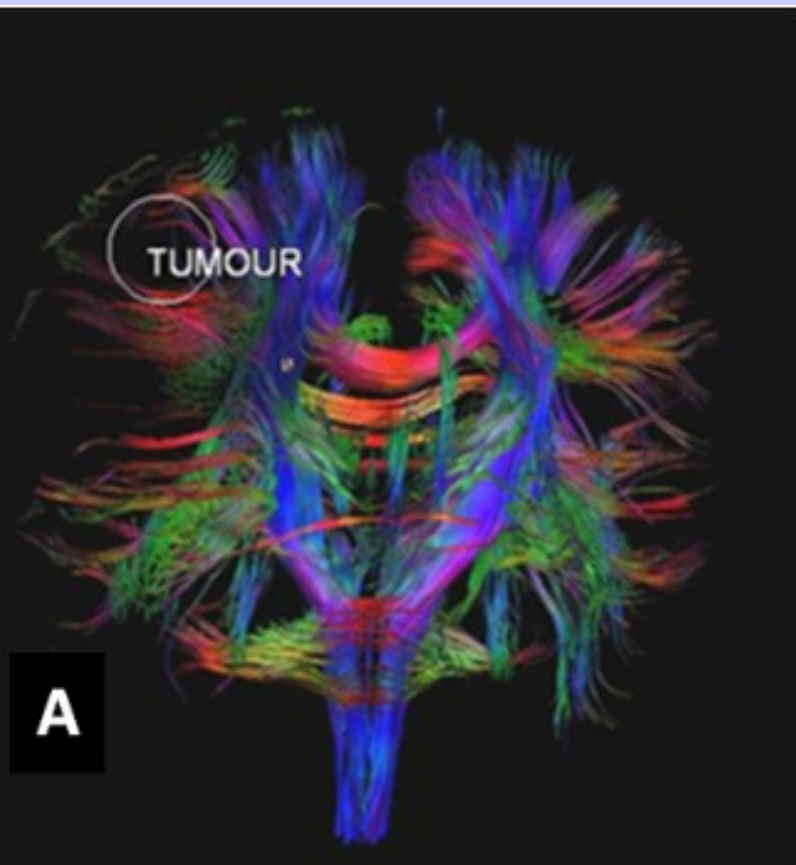
crus posterius - tr. cortico-spinalis (somatotopic arrangement), tr. cortico-reticularis and tr. cortico-rubralis, posterior tr. thalamo-corticalis (somatosensory information to parietal cortex), tr. parieto- , temporo-, occipito-pontinus, radiatio optica, radiatio acustica



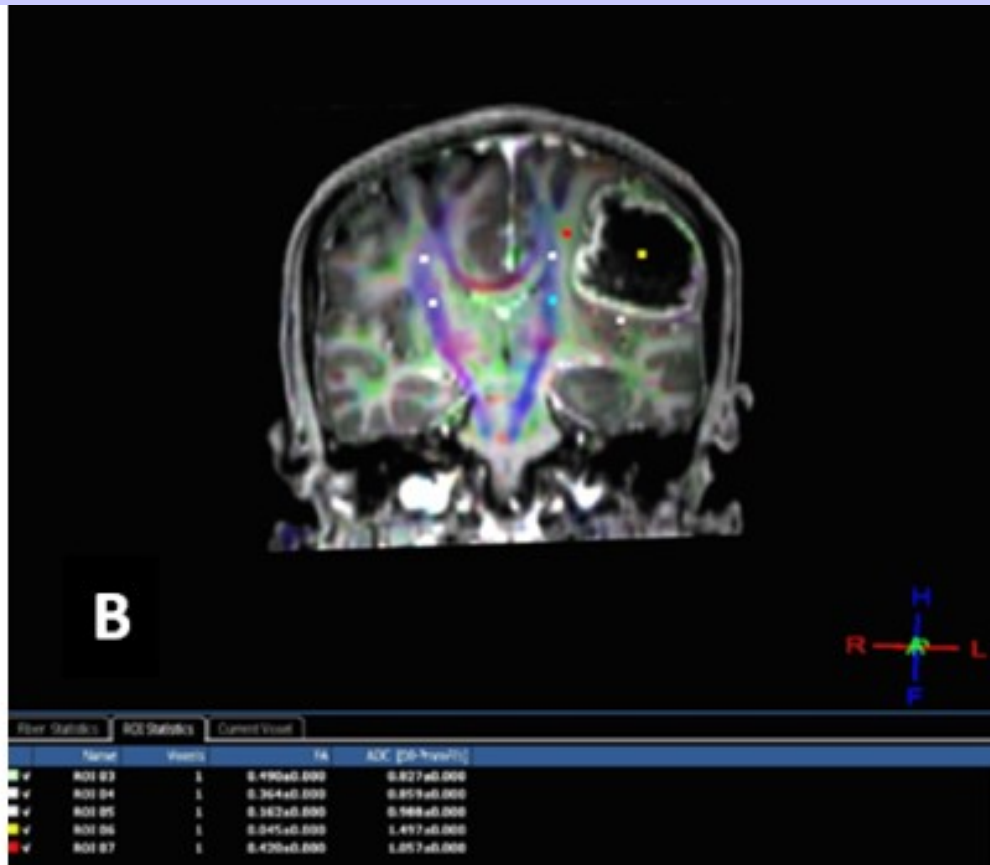
Tractography - Diffusion Tensor Imaging (DTI)







A



B