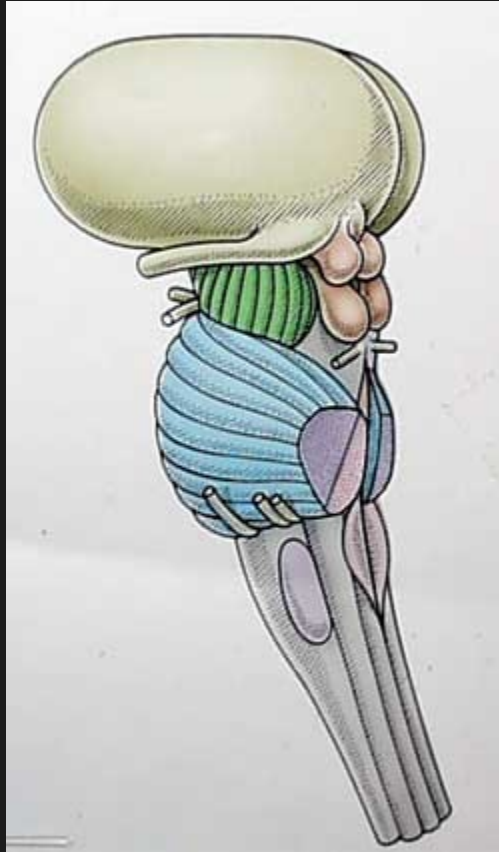


# Brainstem



**Mesencephalon**

**Pons**

**Medulla oblongata**

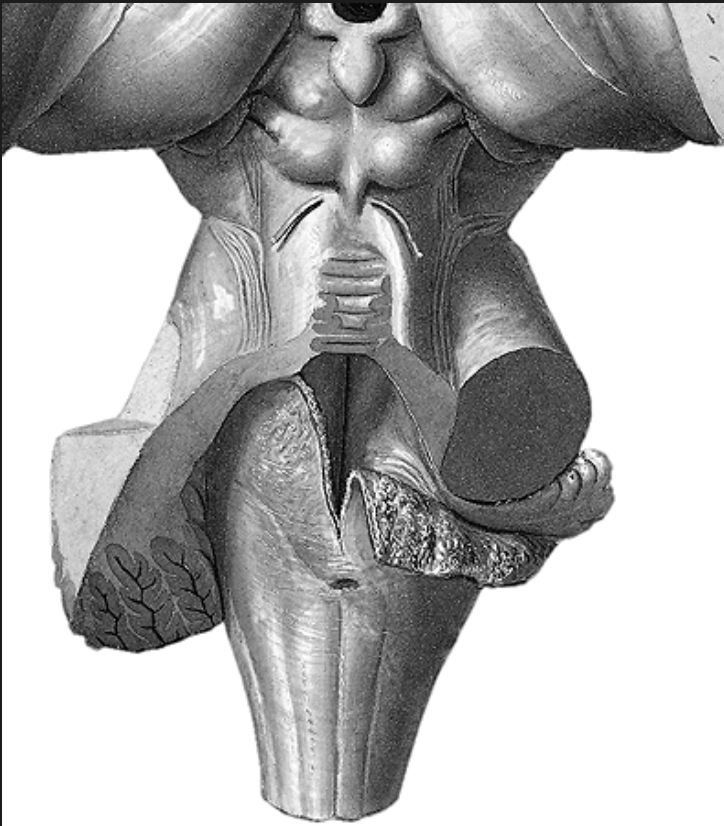
- nuclei of CN III - XII
- connection to the cerebellum
- large reticular formation



**Ventral aspect**

**CN III  
CN IV, V**

**CN VI, VII, VIII  
CN IX, X, XI  
CN XII**

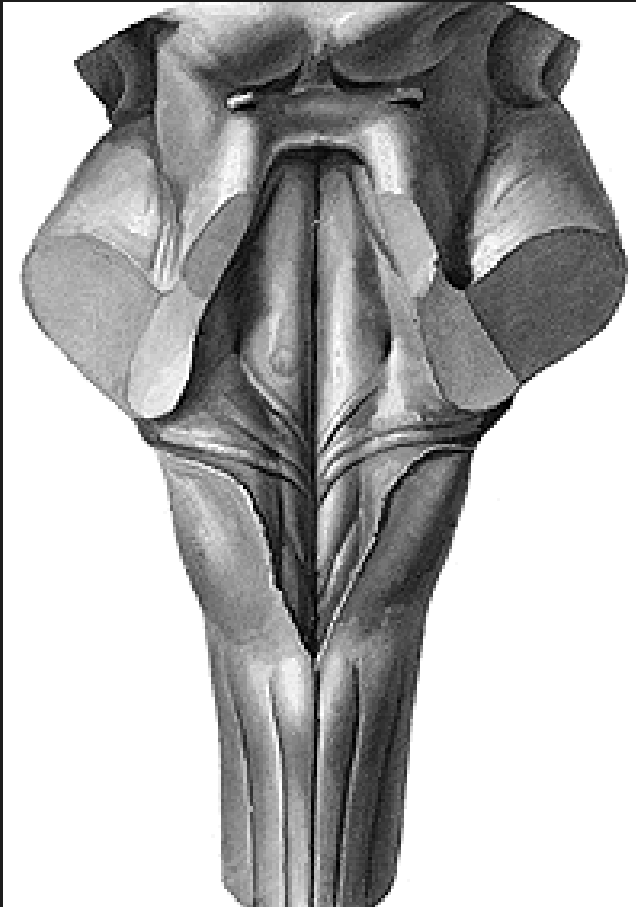


Dorsal aspect

## ■ IV. ventricle

- roof of the IV. ventricle:  
**velum medullare sup.**  
**fastigium**  
**velum medullare inf. =**  
**tela choroidea ventriculi IV.**  
(ependyma + pia mater) +  
vessels → **plexus choroideus**

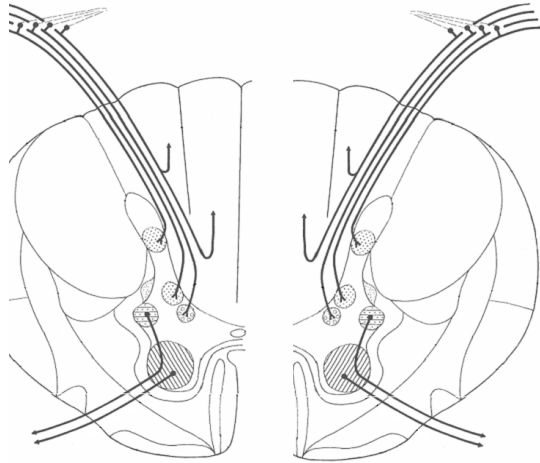
## ■ CN IV



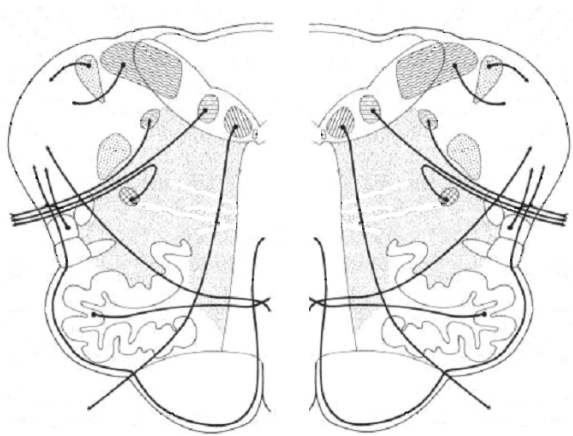
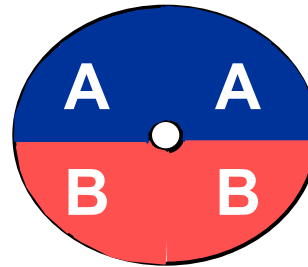
**Dorsal aspect**

- floor of the IV. ventricle  
**Fossa rhomboidea**

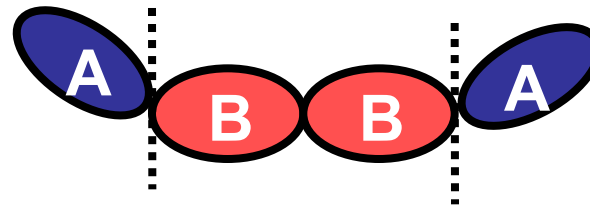
# Structure of the brainstem



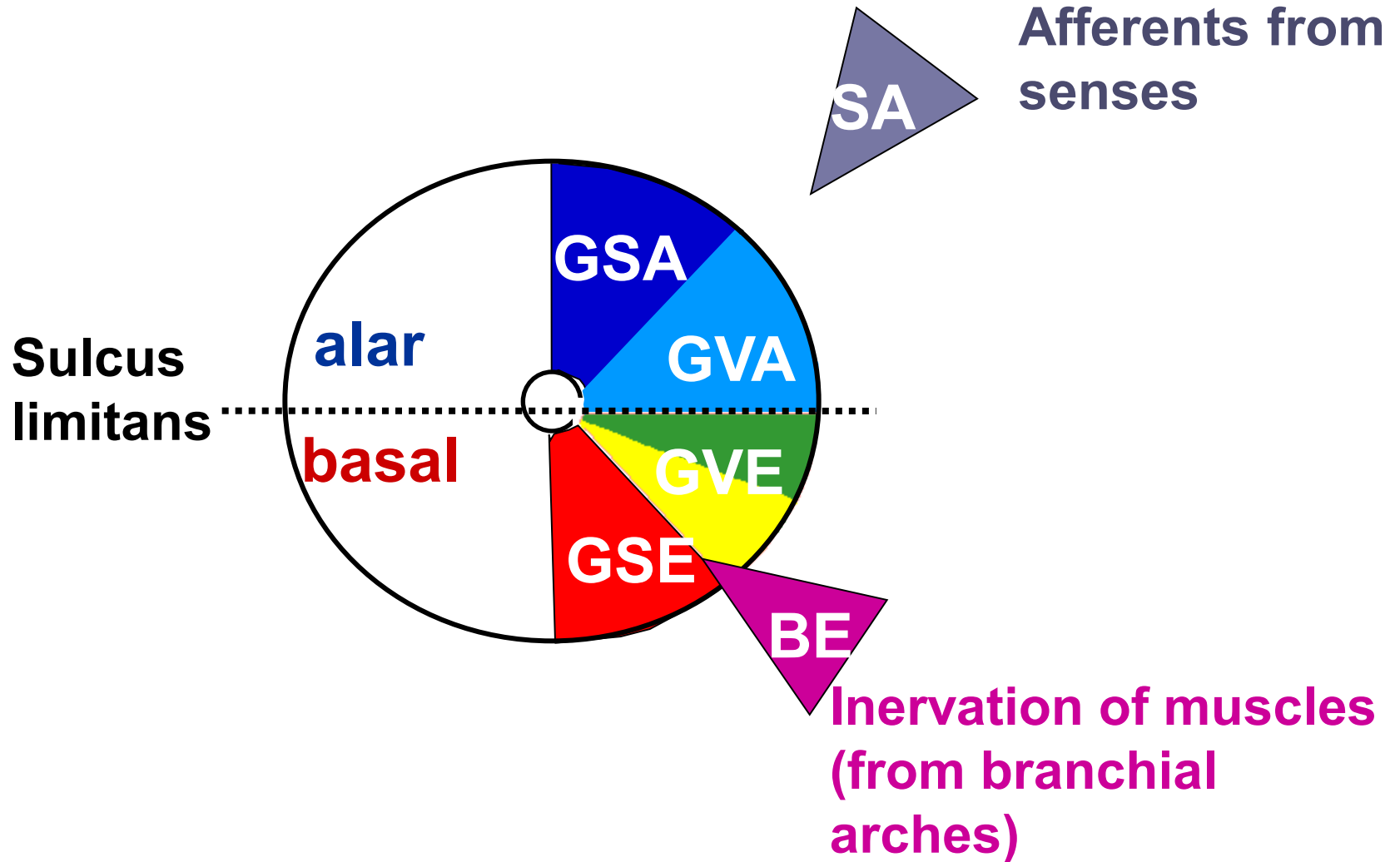
## Spinal cord



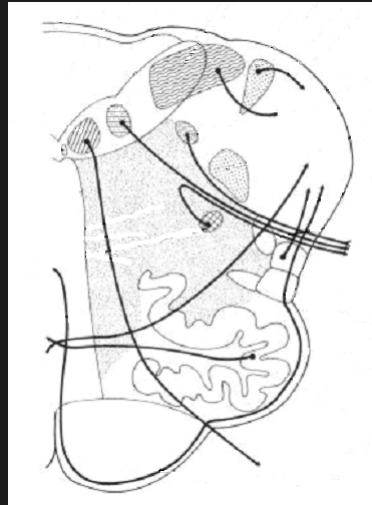
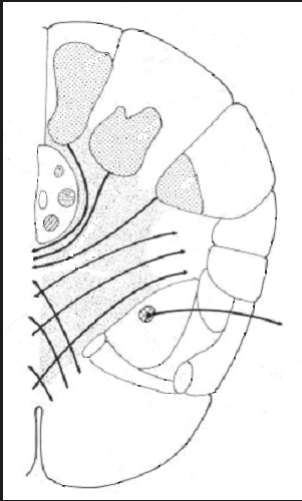
## Pons



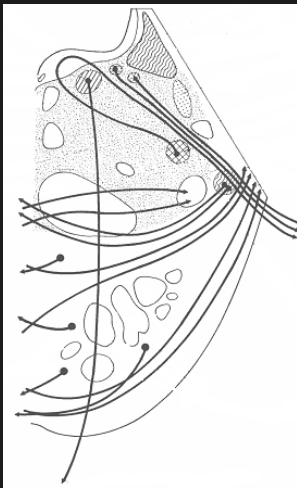
# Functional zones of the brainstem



# Gray matter of the brainstem



- nuclei of dorsal columns
- nuclei of cranial nerves
- nuclei of RF
- nuclei connected to the cerebellum
- motor nuclei of the brainstem

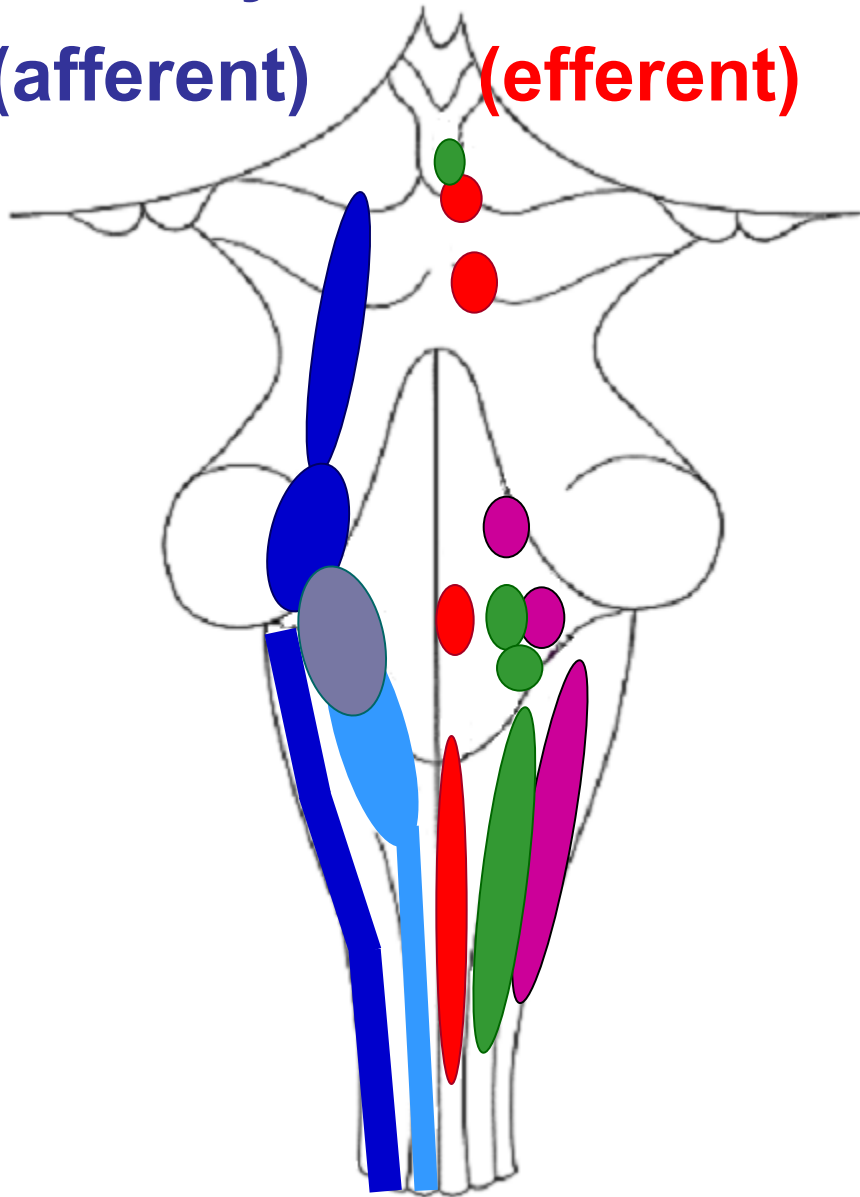


# White matter of the brainstem

- ascending tracts
- descending tracts from the cortex and brainstem

**Sensory  
(afferent)**

**Motor  
(efferent)**



**GSE** CN III, IV, VI, XII

**BE** CN V, VII, IX, X, XI

Ncl. ambiguus

**GVE** CN III, VII, IX, X

**GVA** CN VII, IX, X

Ncl. solitarius

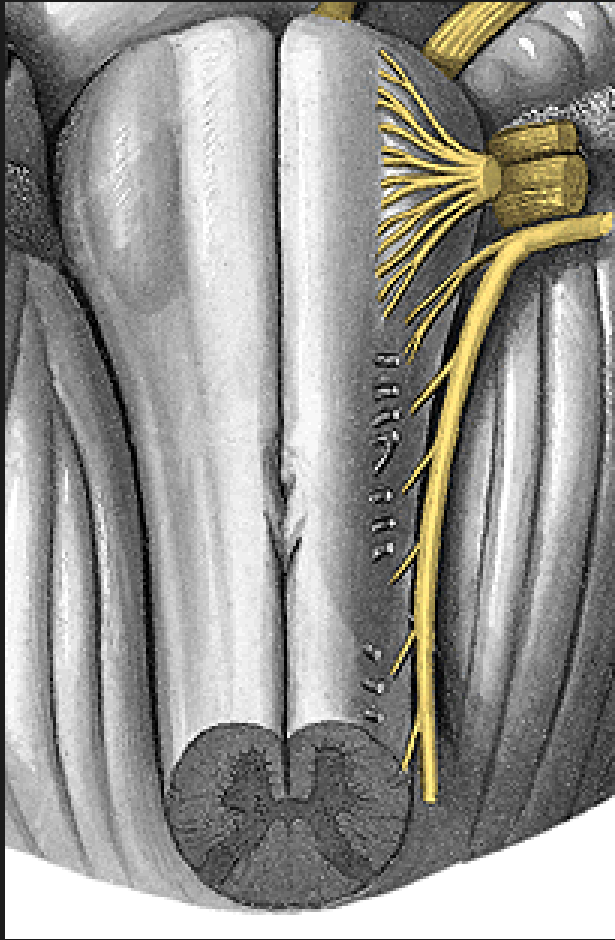
**GSA** CN V

**SA** CN VII, IX, X + VIII

Ncl. gustatorius

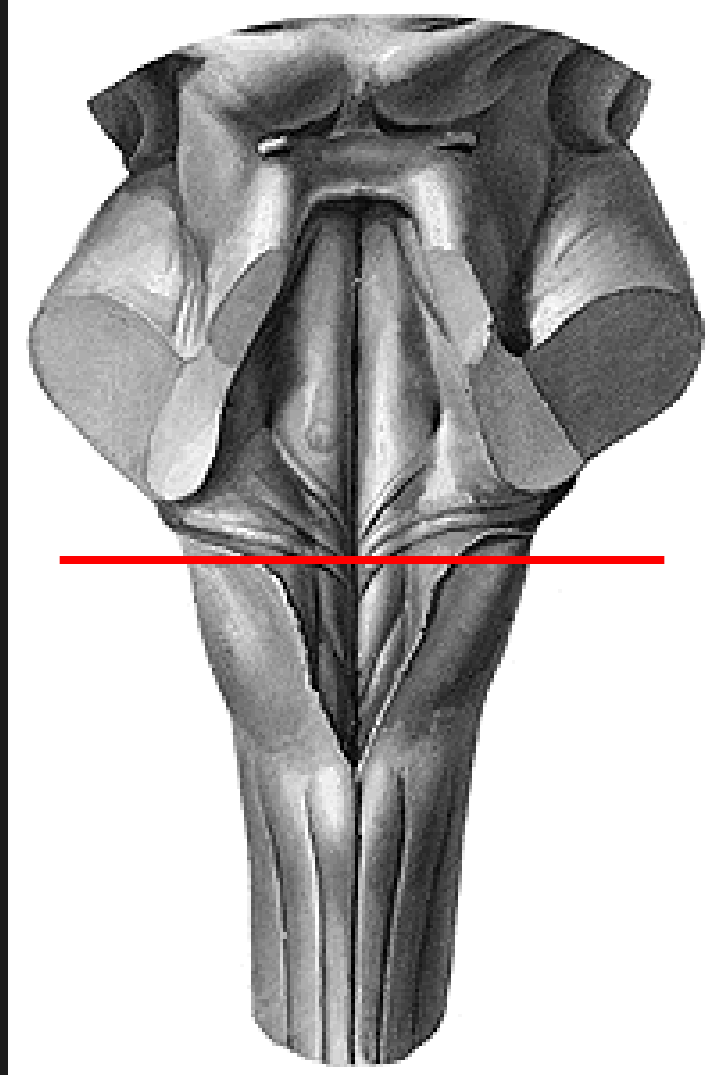


# Medulla oblongata

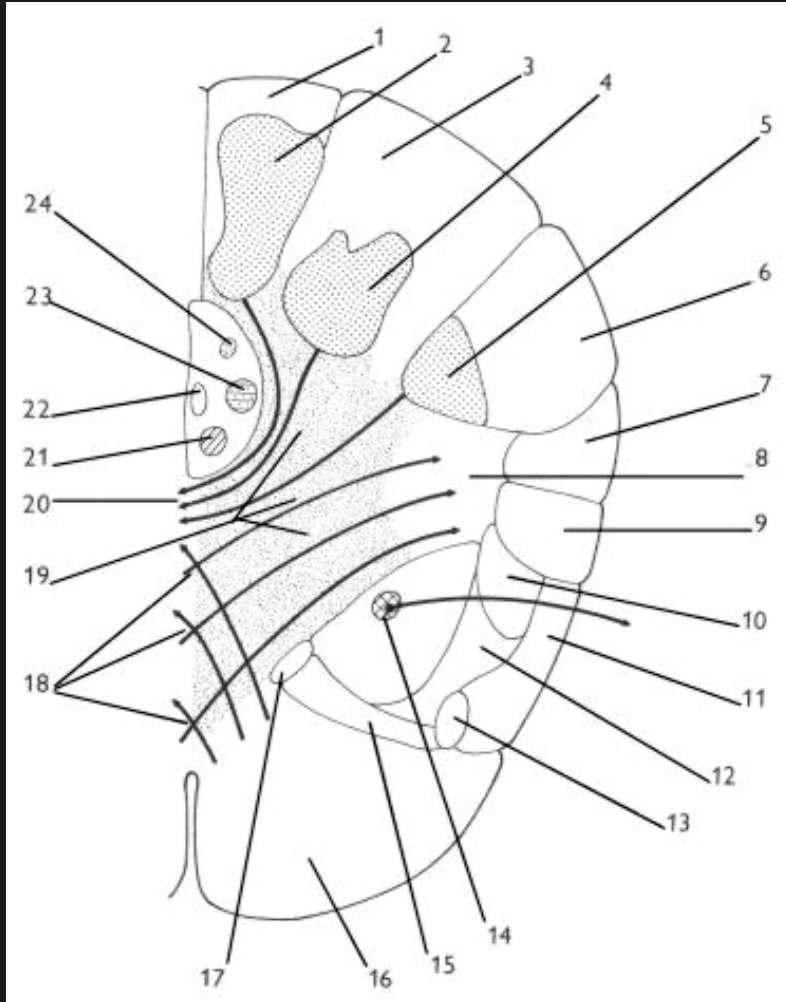


**CN IX, X, XI, XII**

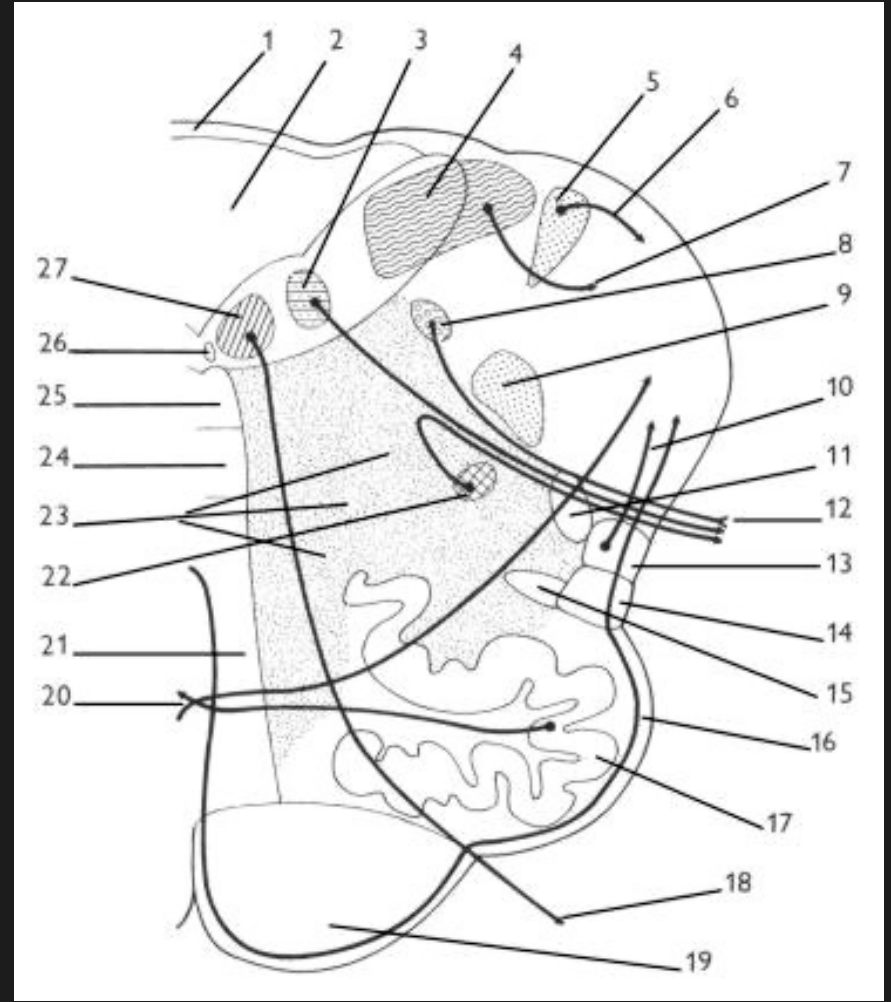
# Pars inferior fossae rhomboideae



# Medulla oblongata

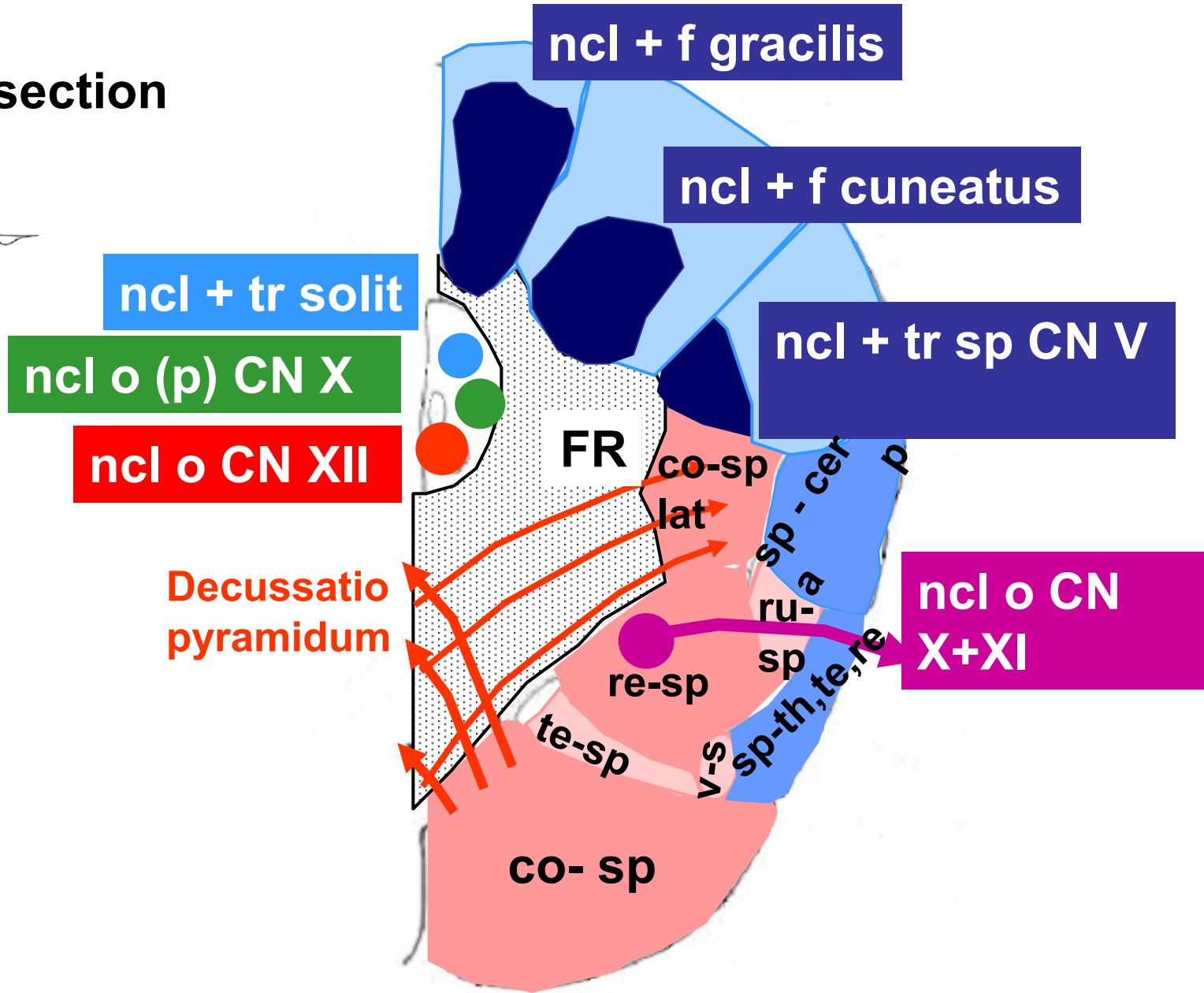
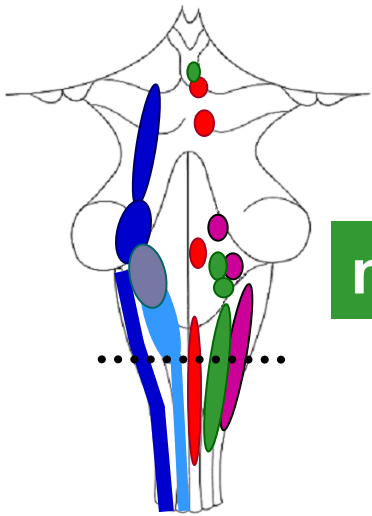


Caudal section

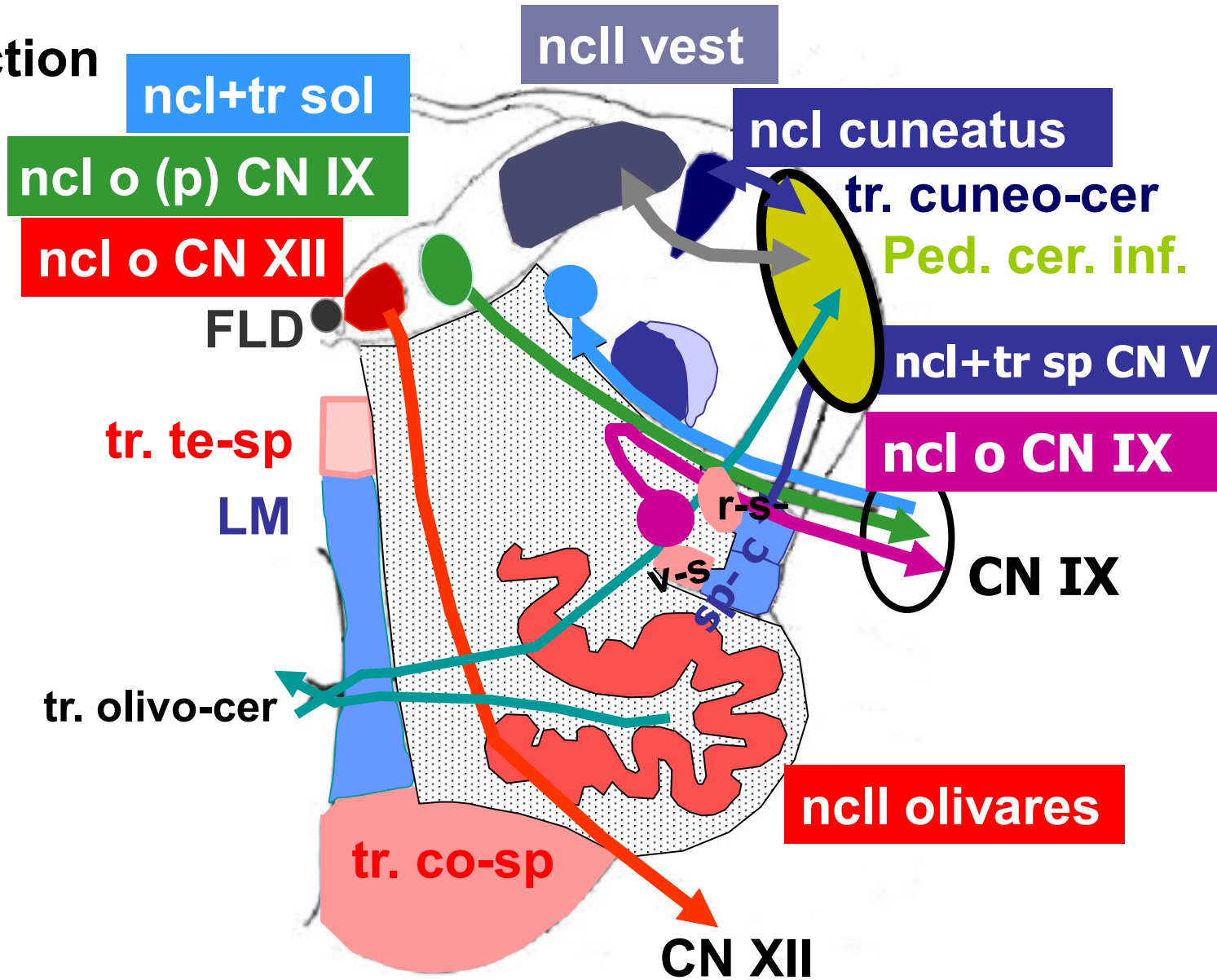
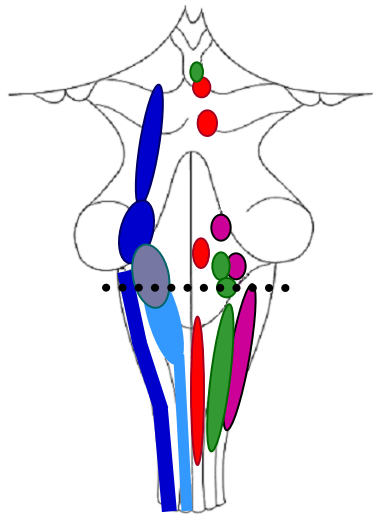


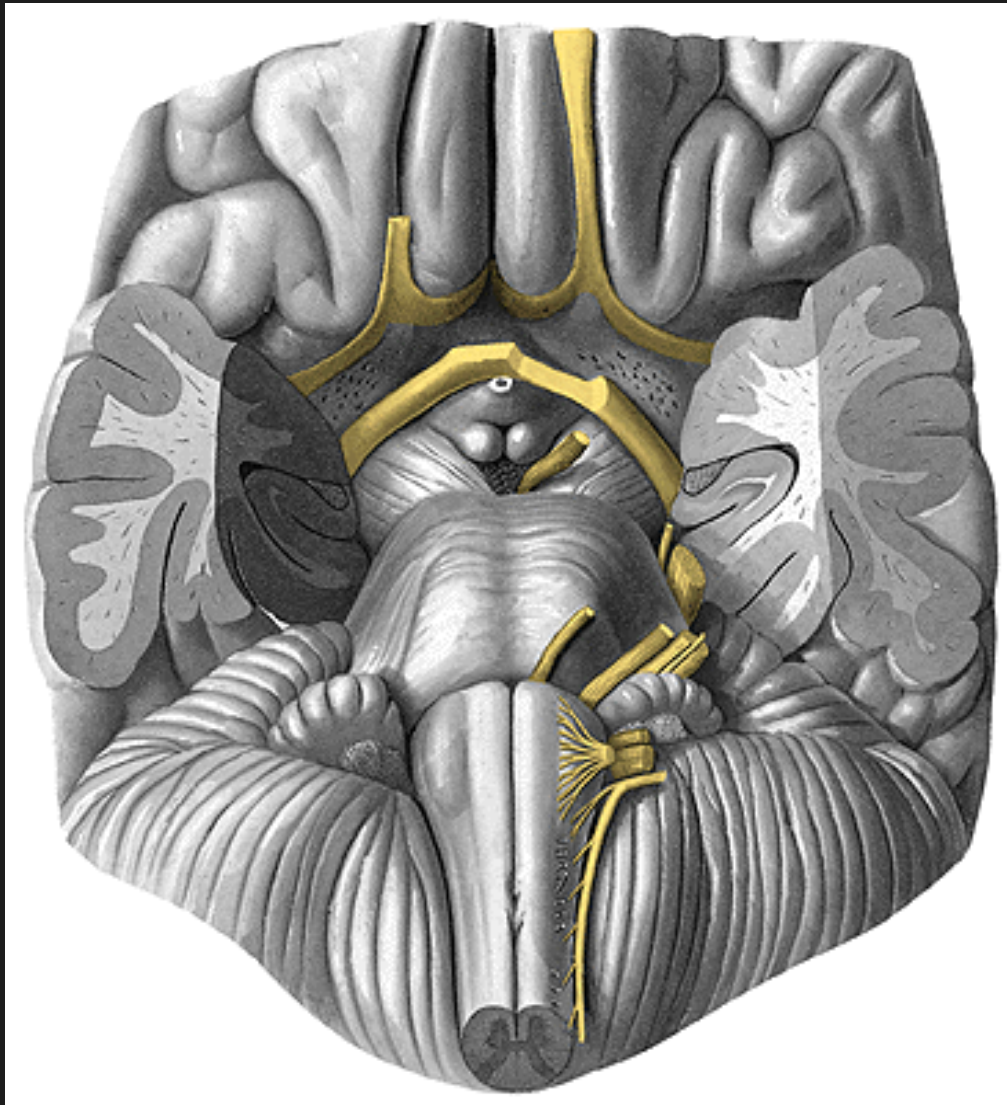
Rostral section

# Caudal section



# Rostral section

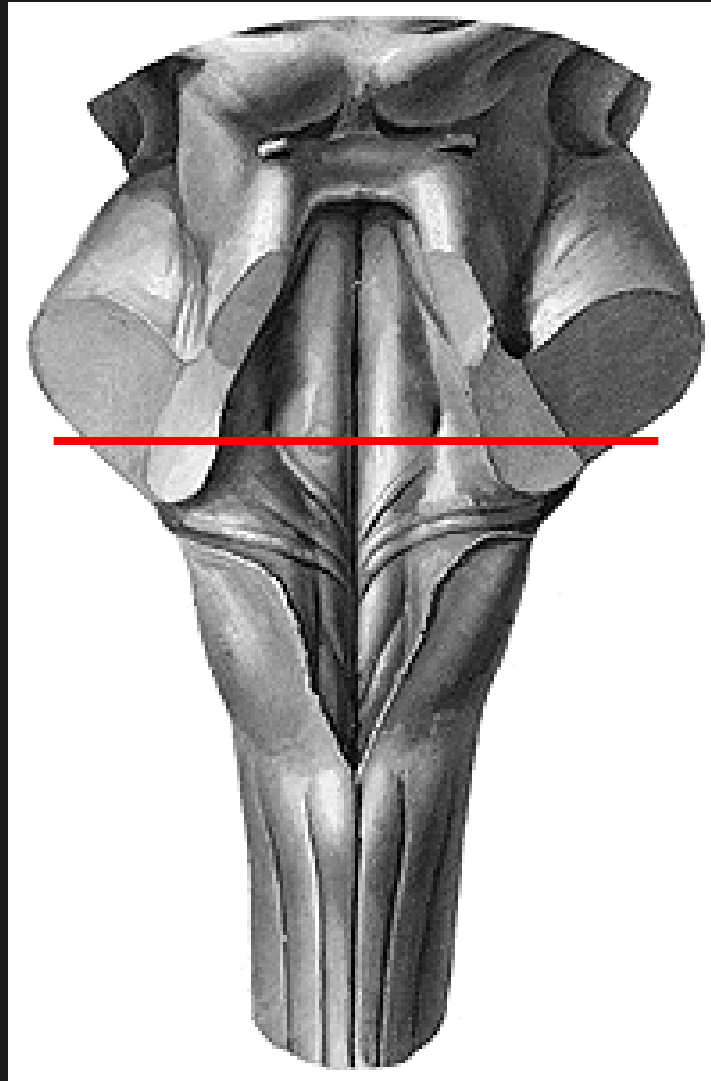




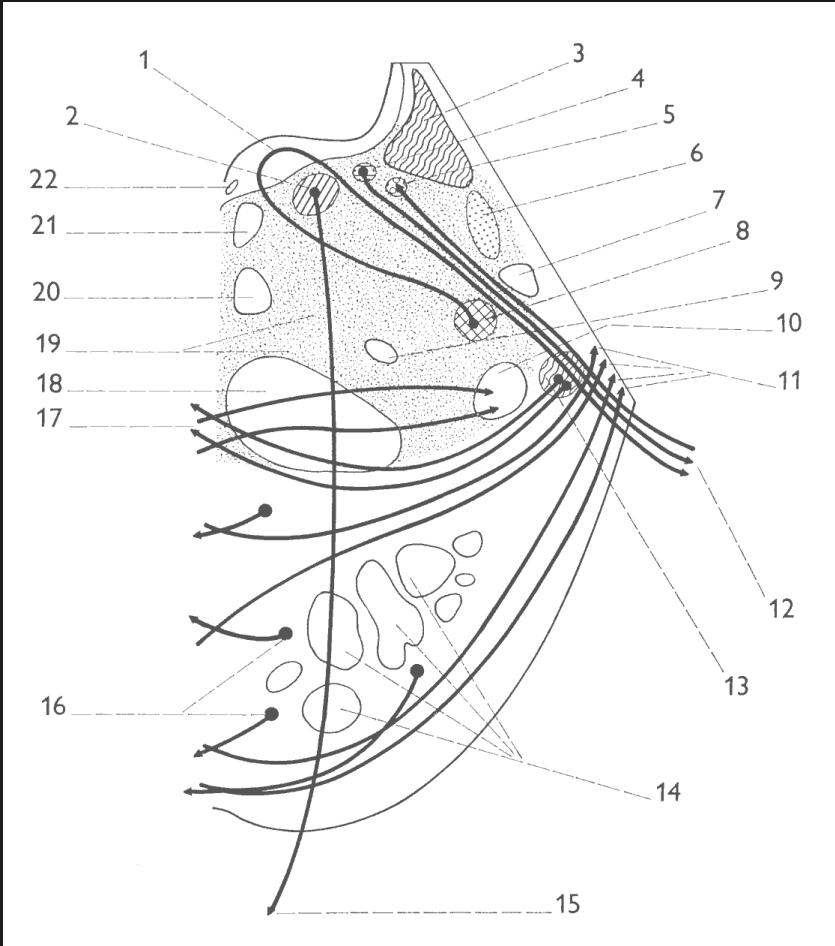
## Pons Varoli

**CN V, VI, VII, VIII**

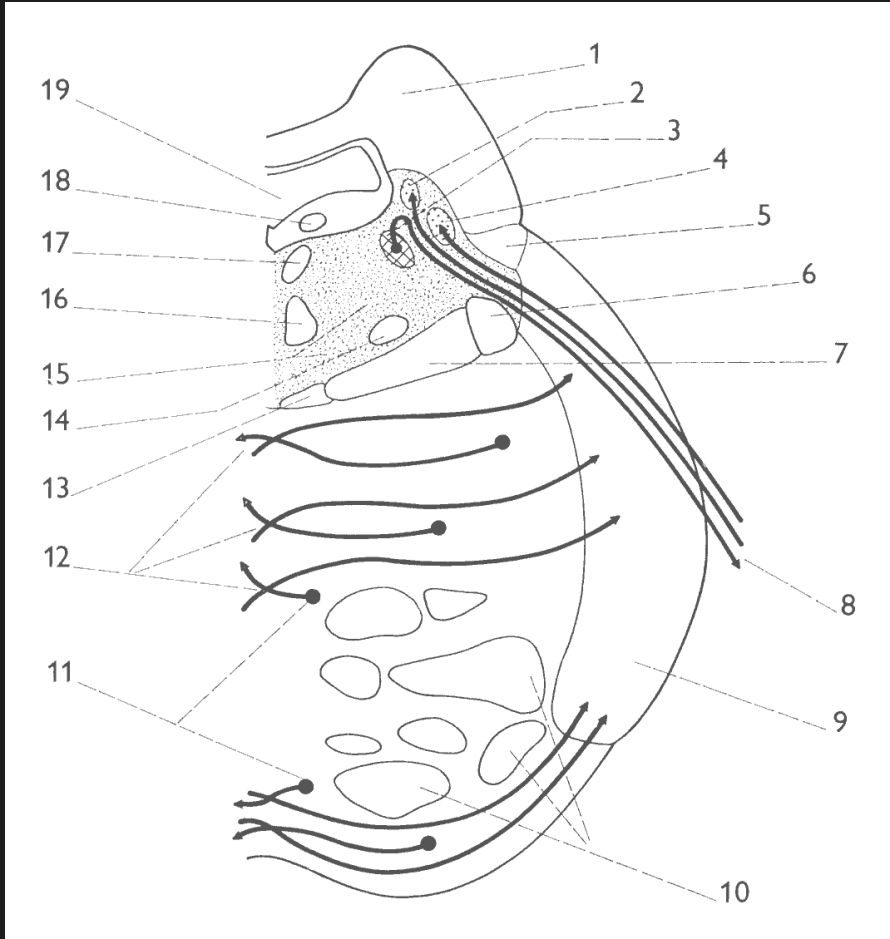
# Pars media et superior fossae rhomboideae



# Pons Varoli



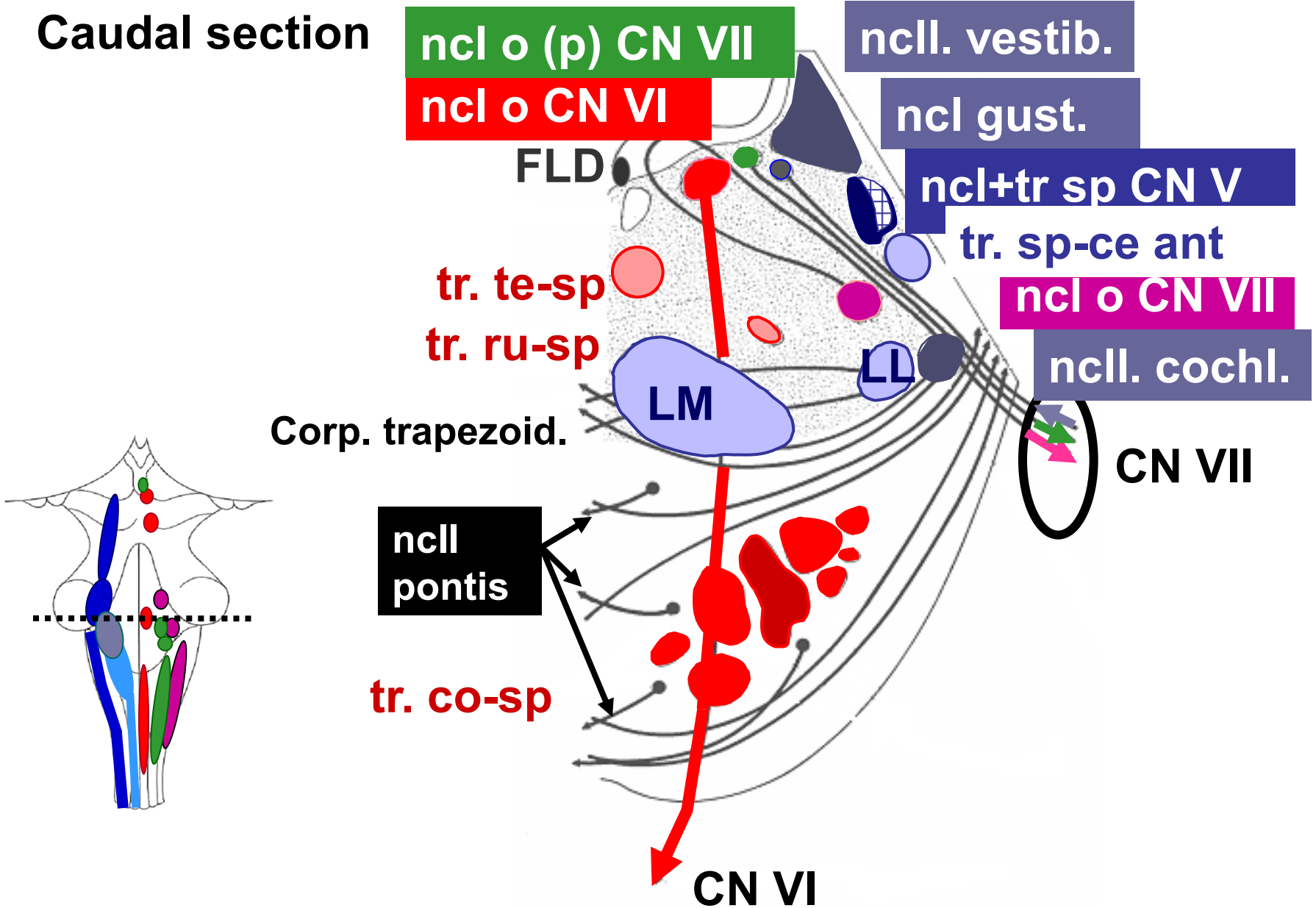
**Caudal section**



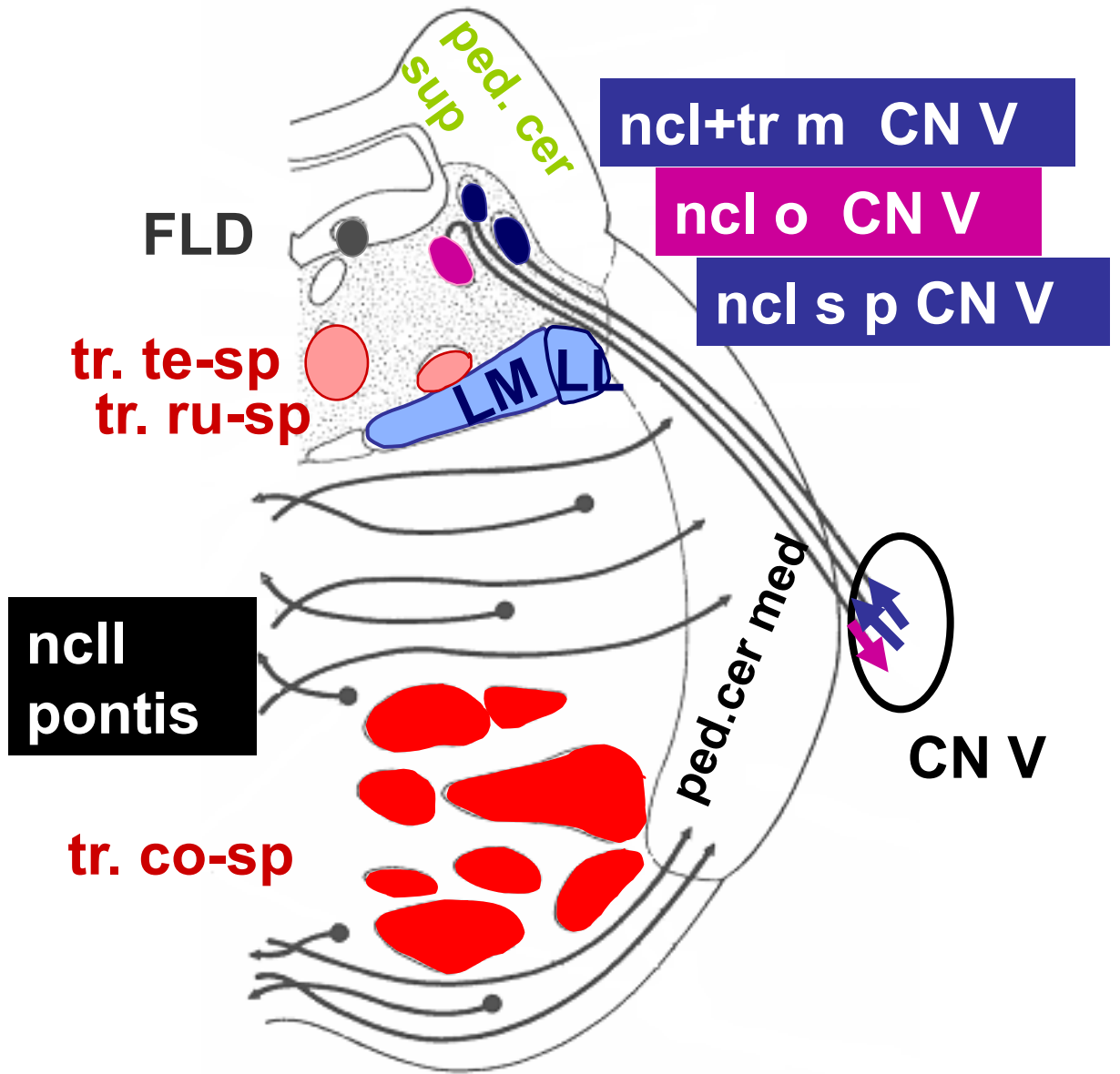
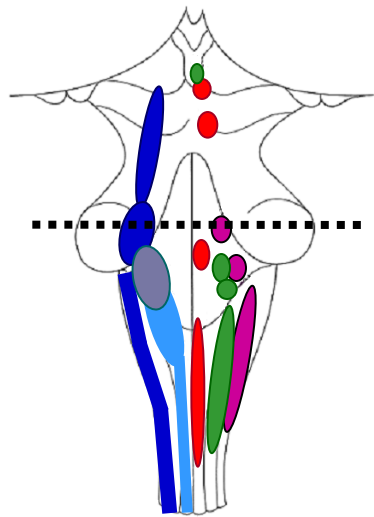
**Rostral section**



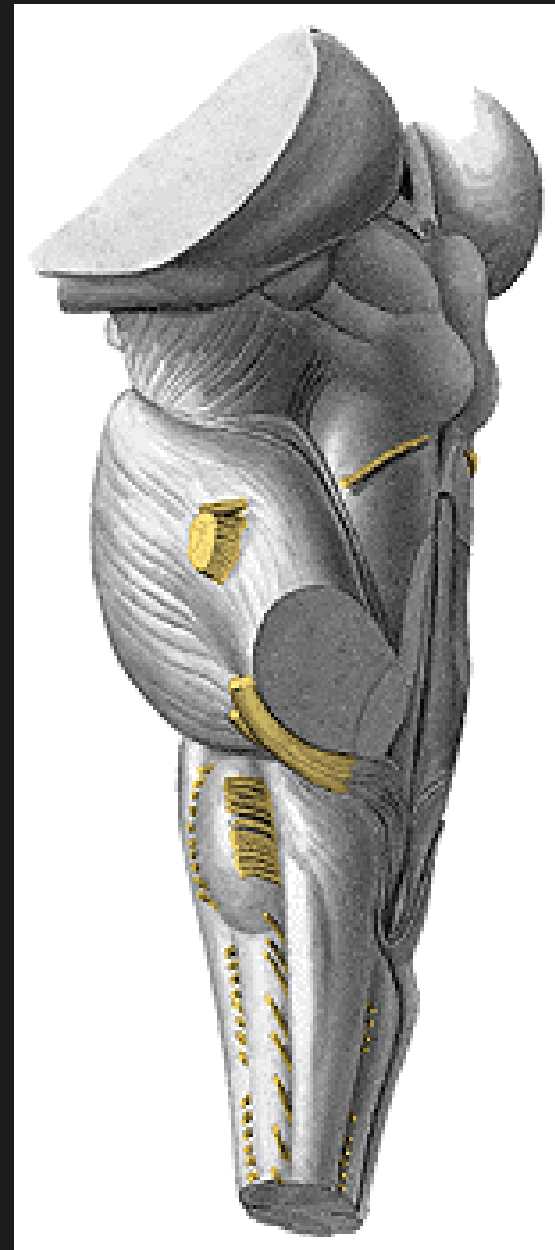
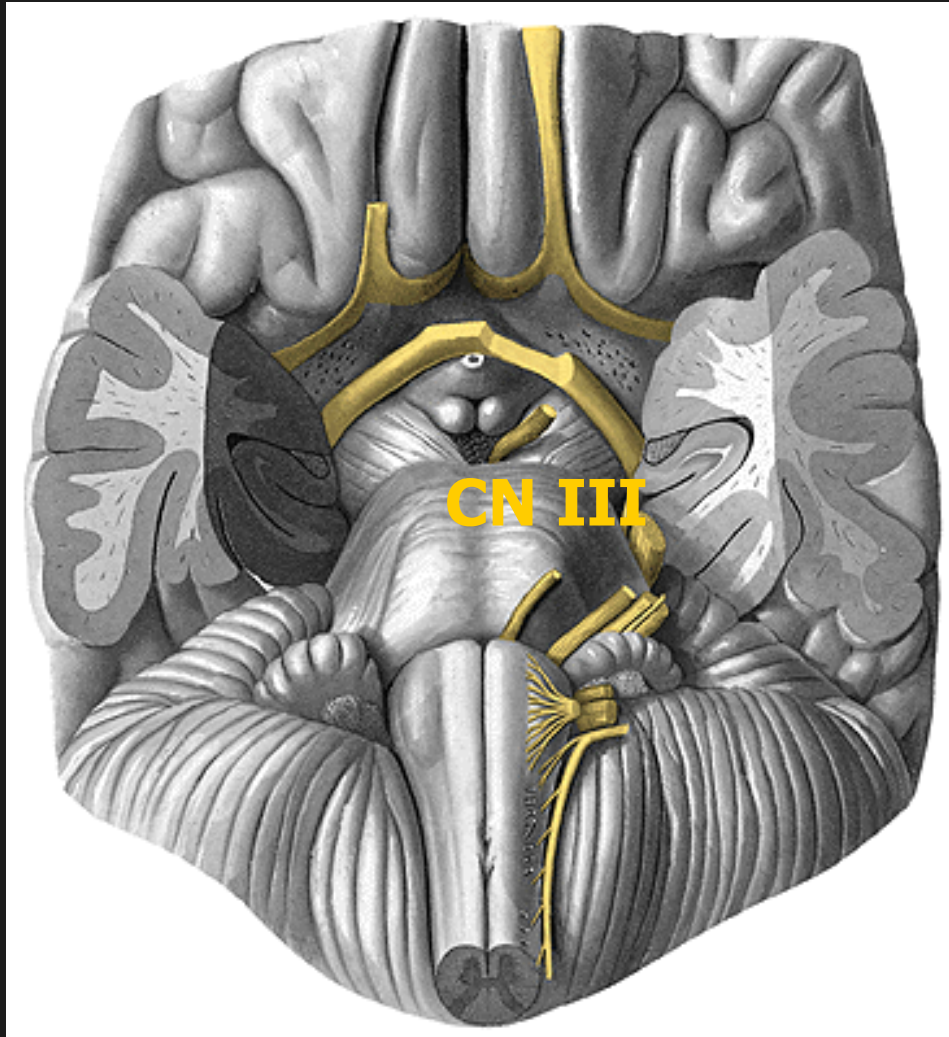
# Caudal section



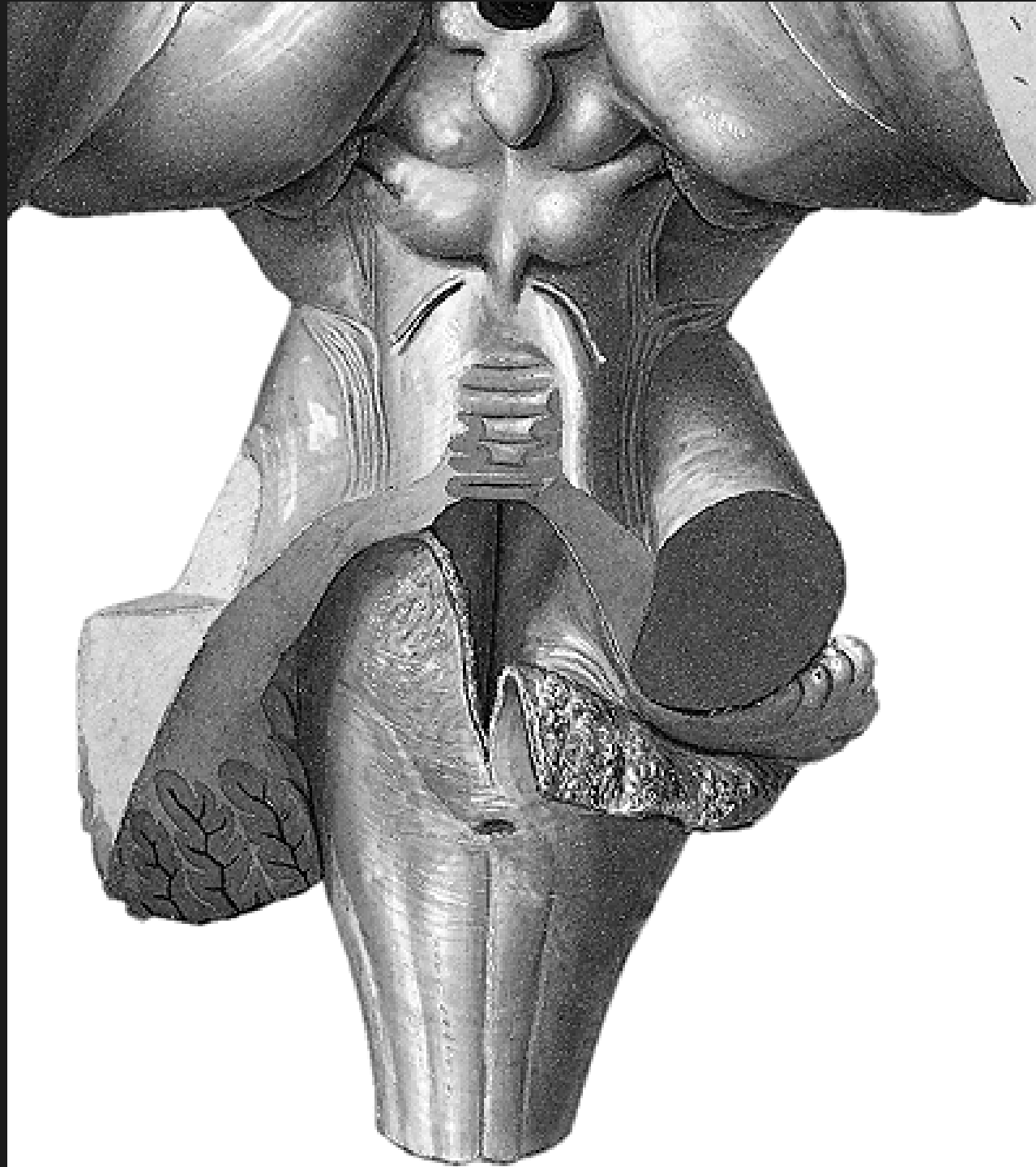
# Rostral section



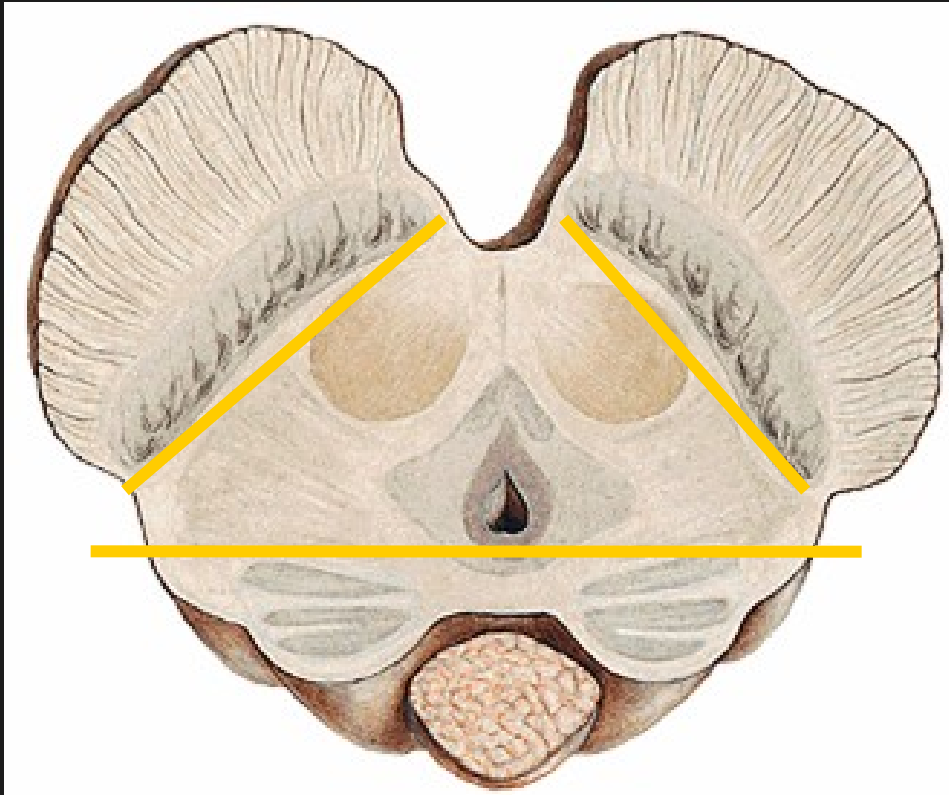
# Mesencephalon



**CN IV**



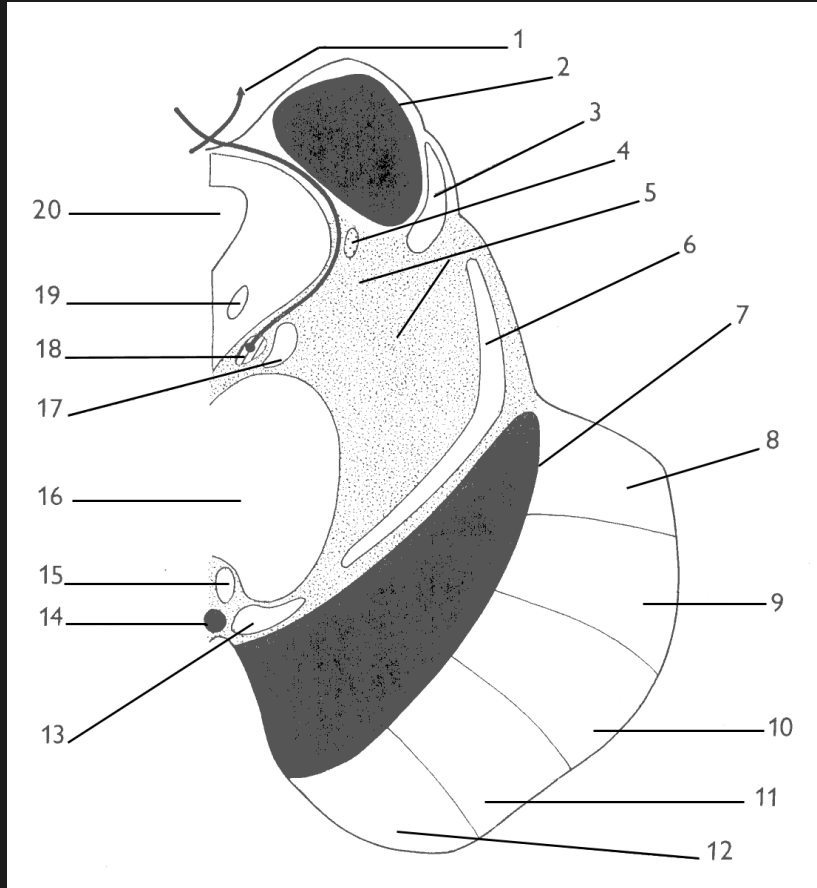
# Mesencephalon



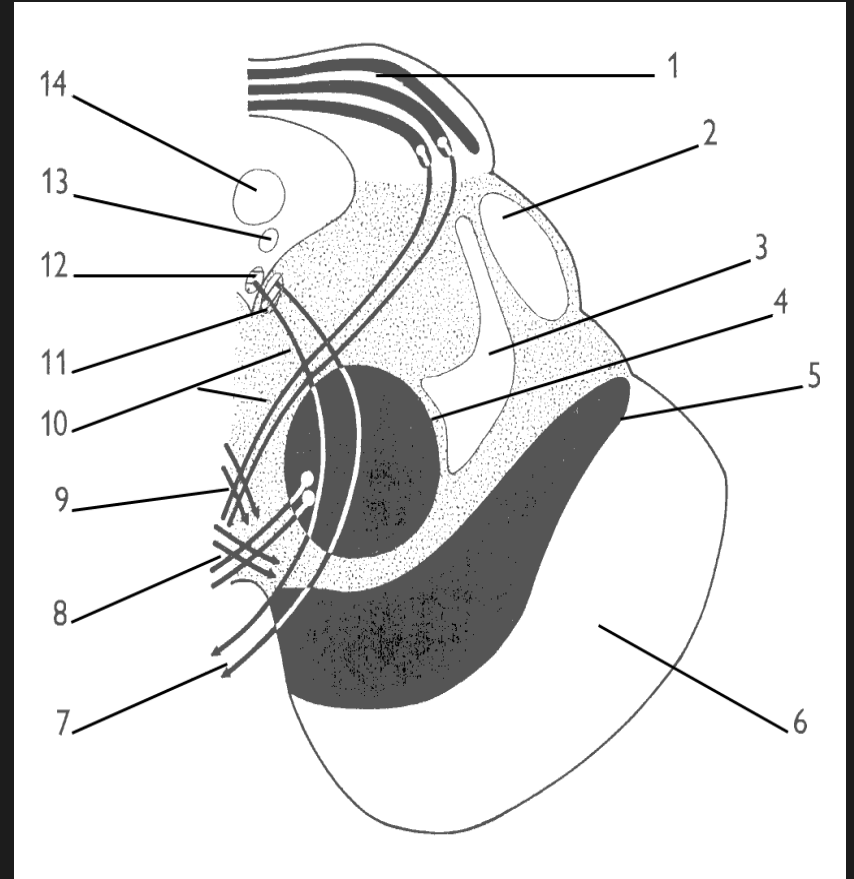
■ crura cerebri

■ tegmentum

■ tectum

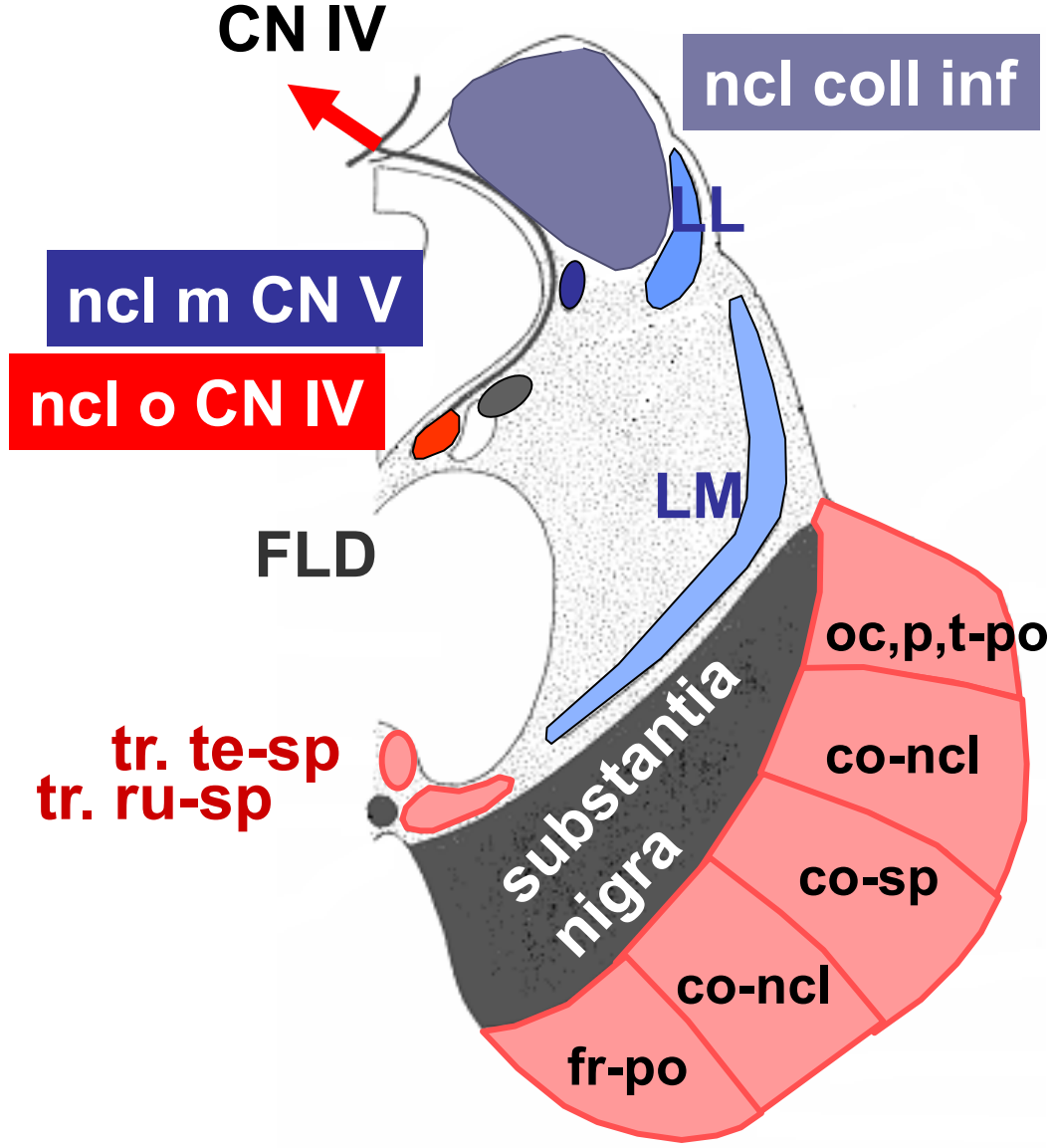
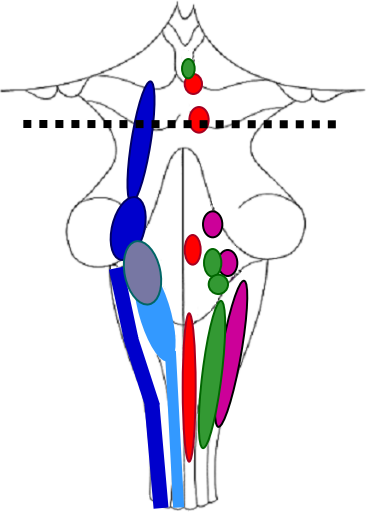


**Caudal section**

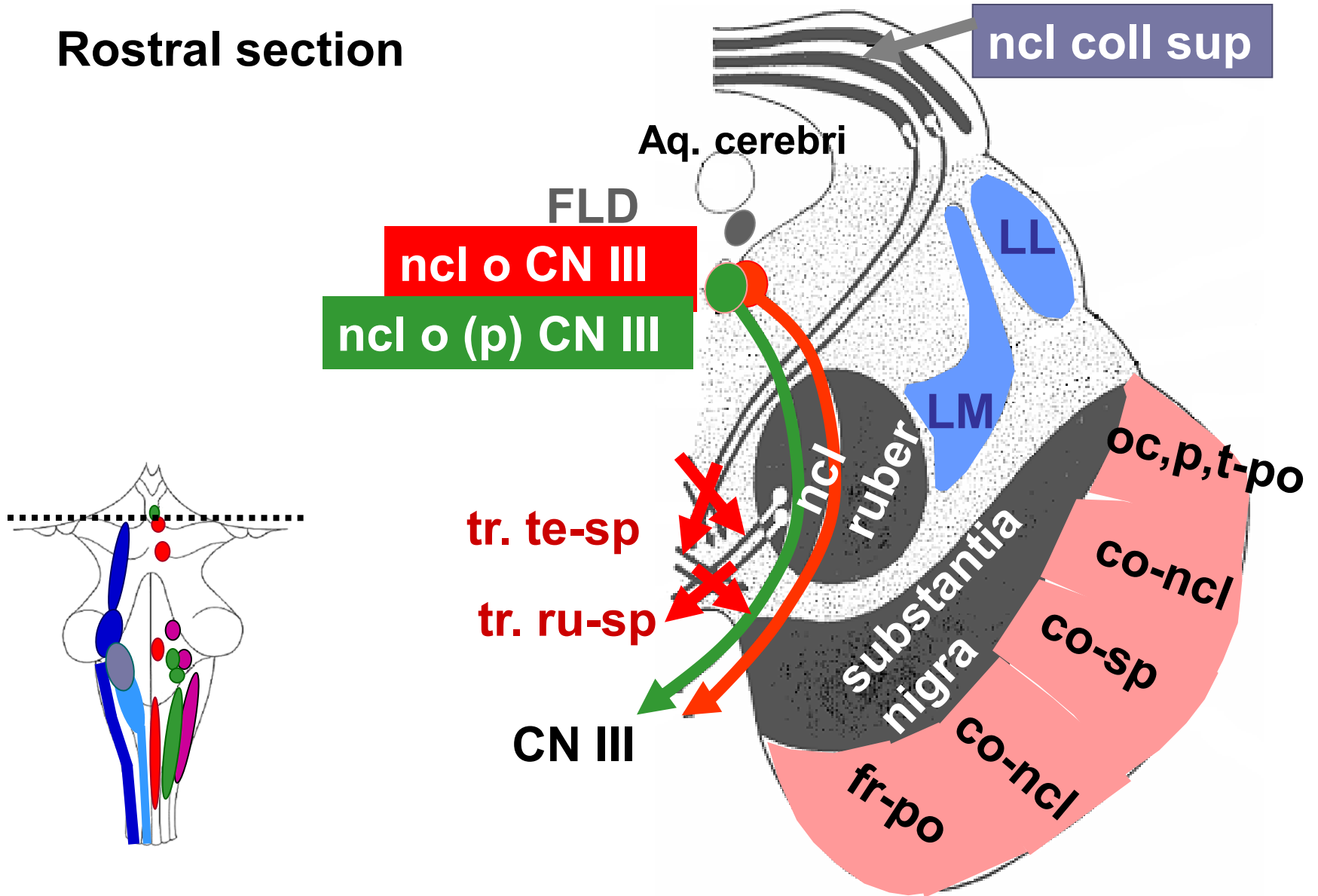


**Rostral section**

# Caudal section



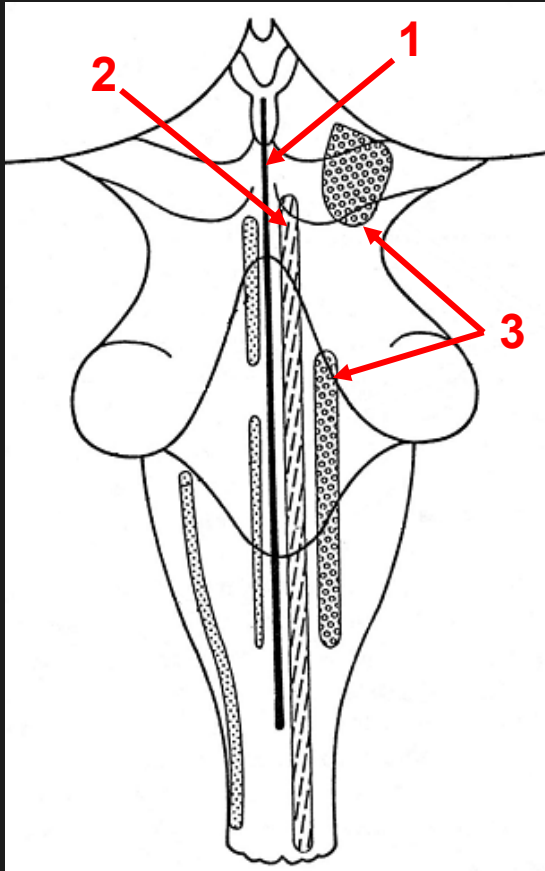
# Rostral section





# Reticular formation

- between afferent and motor systems
- spinal cord – diencephalon



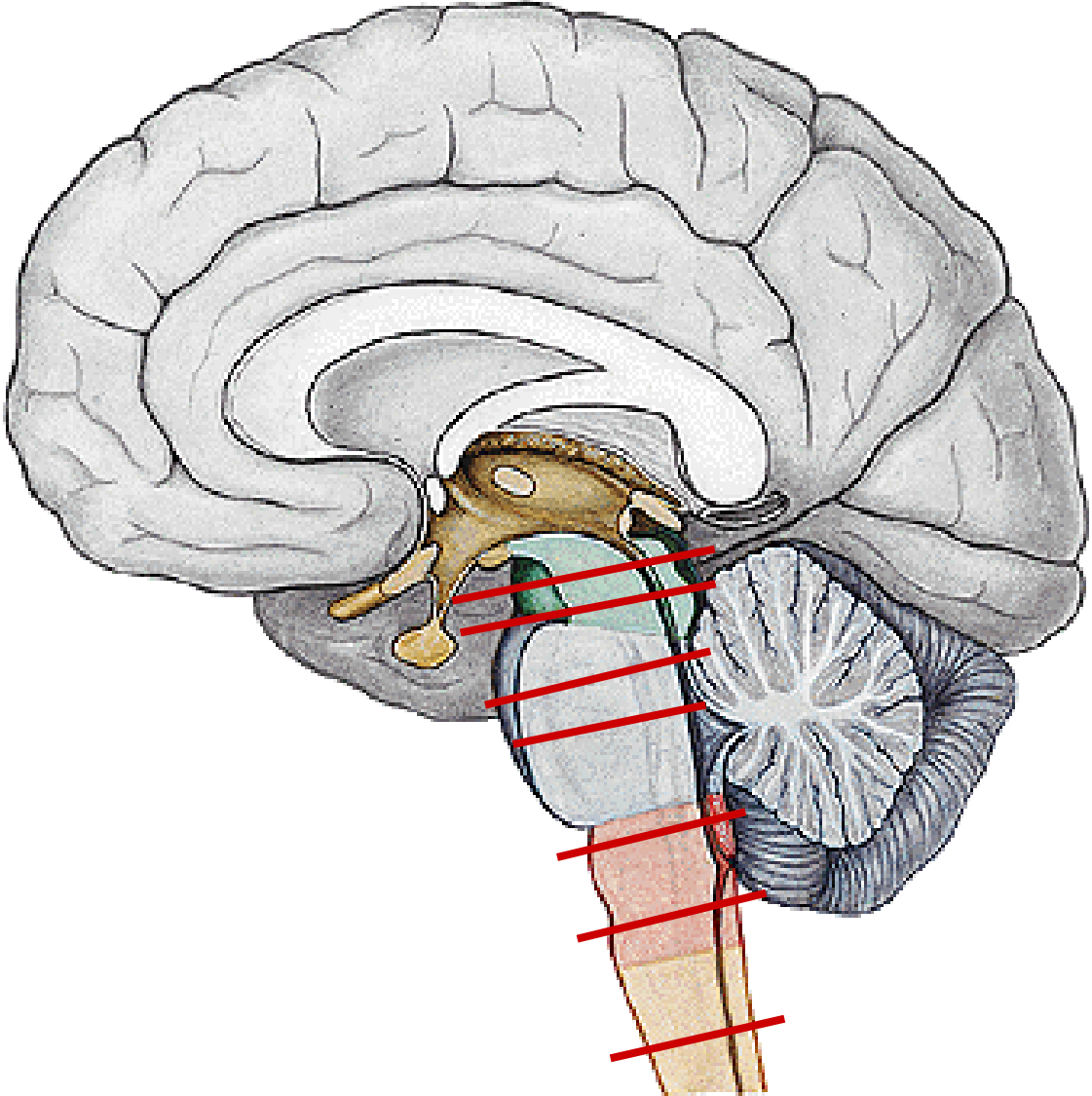
## Nuclei of RF

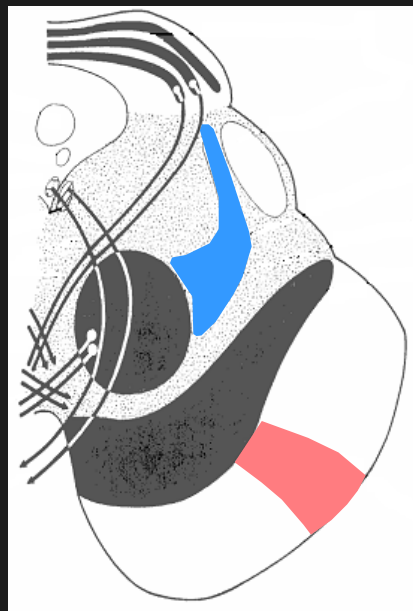
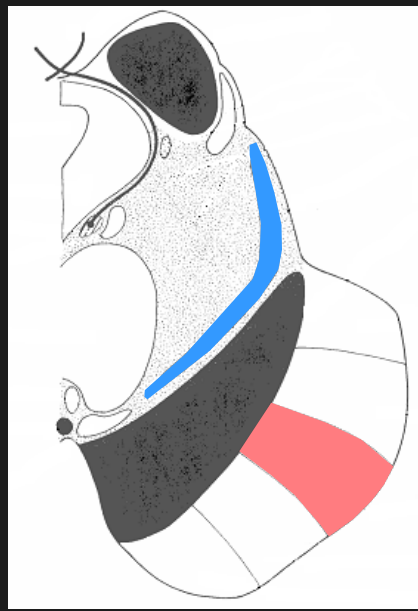
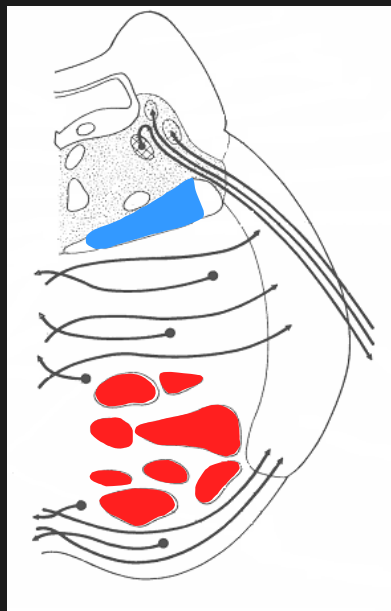
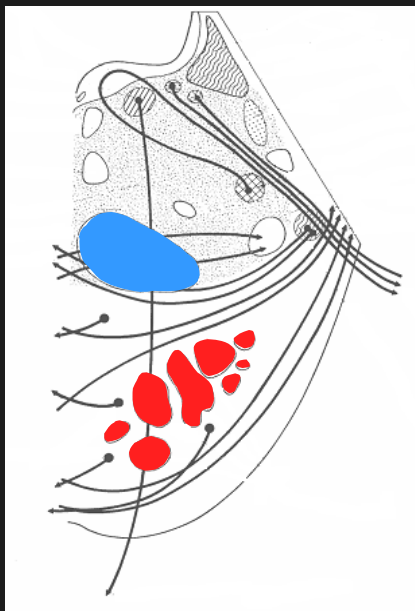
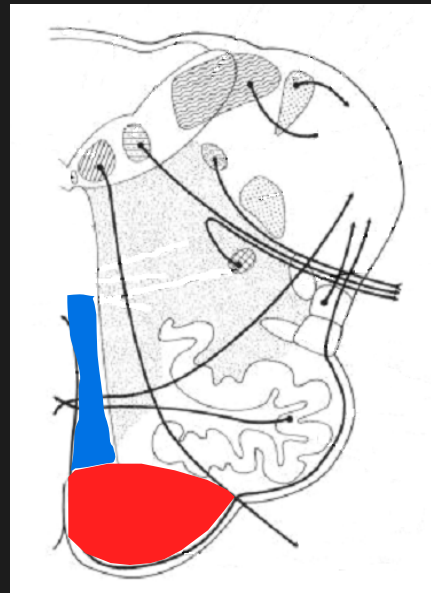
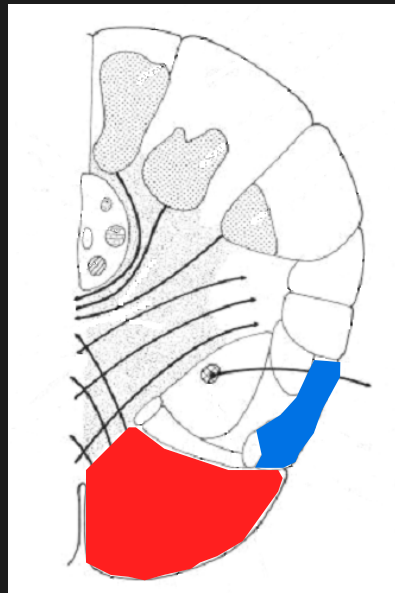
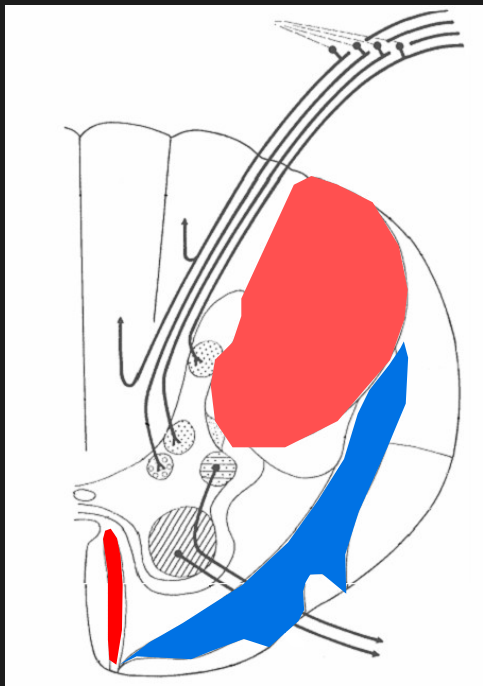
- 1 median, single (raphe system)
- 2 medial, paired
- 3 lateral, paired

Olivary ncll.  
Red ncl.

# Function

- Somatic motor control
- Pattern generation
- Vital centers (circulation, respiration)
- Blood pressure control
- Respiratory rhythm
- Bladder control
- Conveys somatic and visceral information to the cerebellum
- Sleeping and waking ( Ascending Reticular Activating System)
- Pain modulation





Illustrations were copied from:

**Atlas der Anatomie des Menschen/  
Sobotta. Putz,R., und Pabst,R. 20.  
Auflage. München: Urban &  
Schwarzenberg, 1993**

**Netter: Interactive Atlas of Human  
Anatomy. Windows Version 2.0**