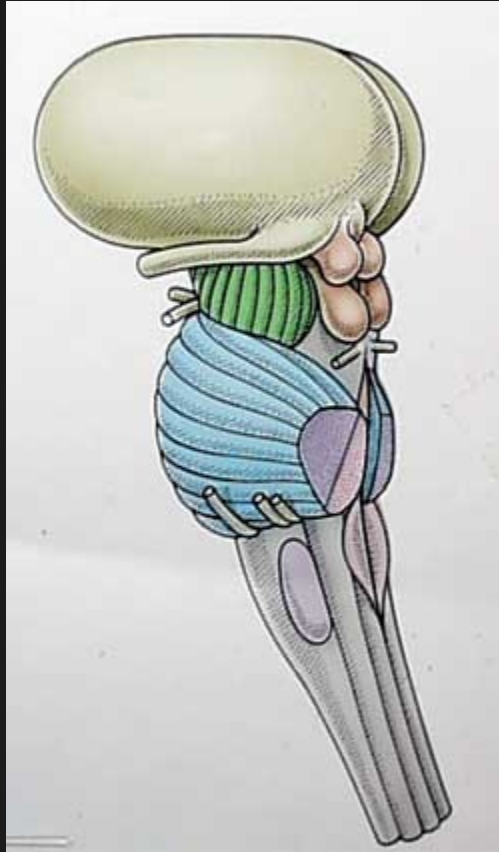


# Brainstem



**Mesencephalon**

**Pons**

**Medulla oblongata**

**nuclei of CN III - XII**

**connection to the cerebellum**

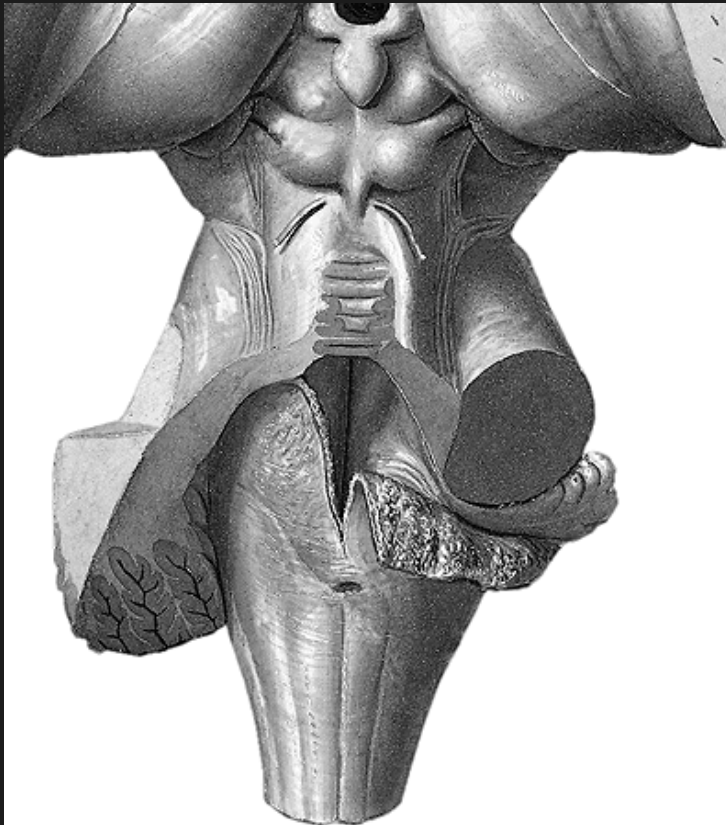
**large reticular formation**



**CN III**  
**CN IV, V**

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

**Ventral aspect**

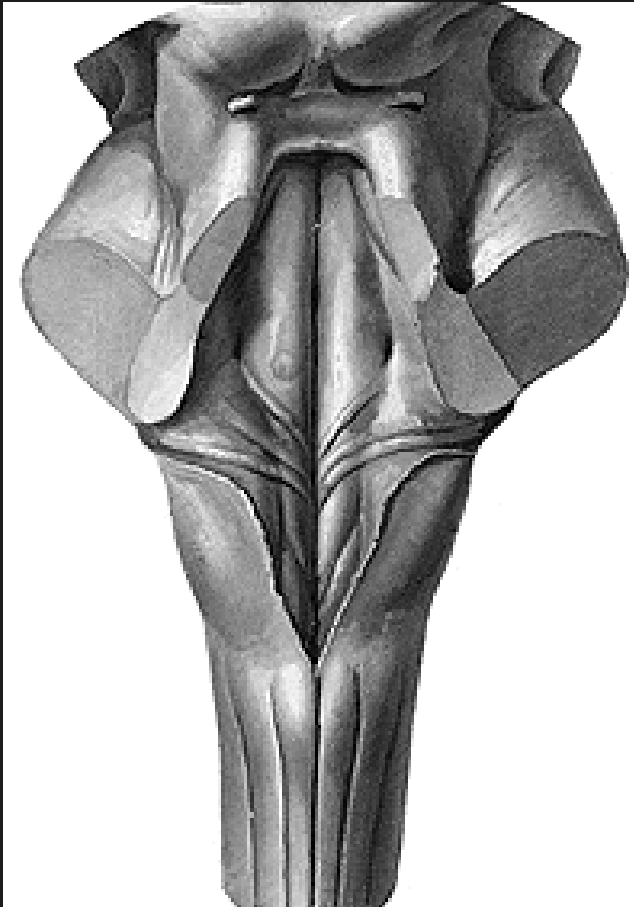


**Dorsal aspect**

## **IV. ventricle**

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

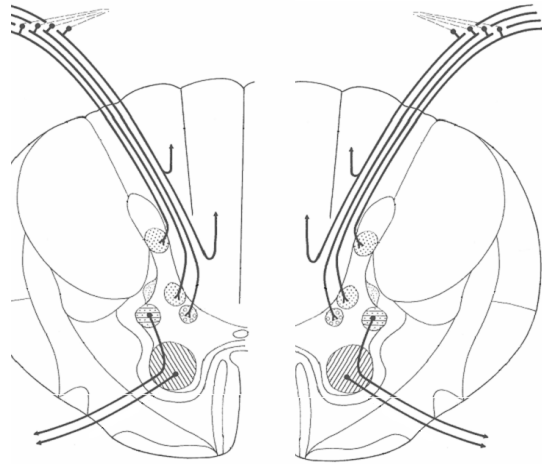
## **CN IV**



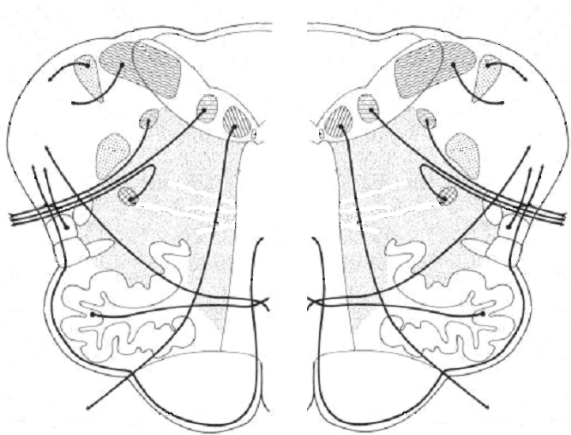
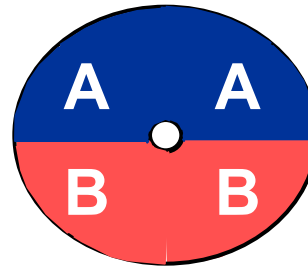
floor of the IV. ventricle  
**Fossa rhomboidea**

**Dorsal aspect**

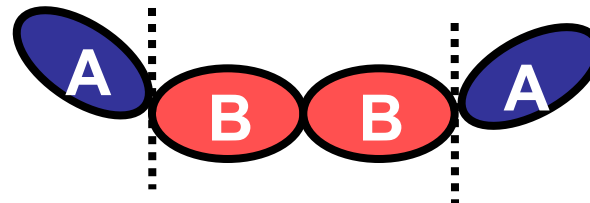
# Structure of the brainstem



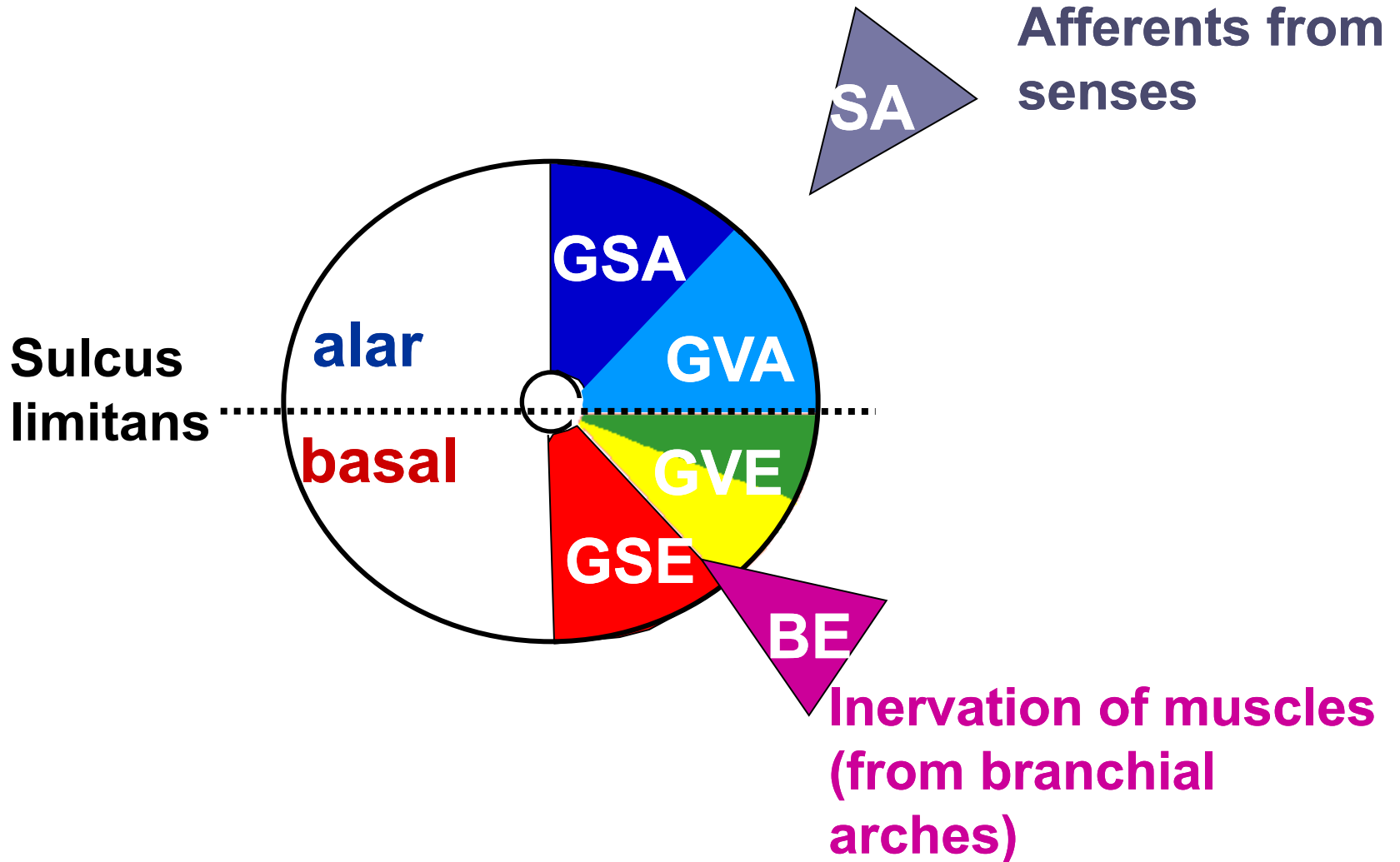
## Spinal cord



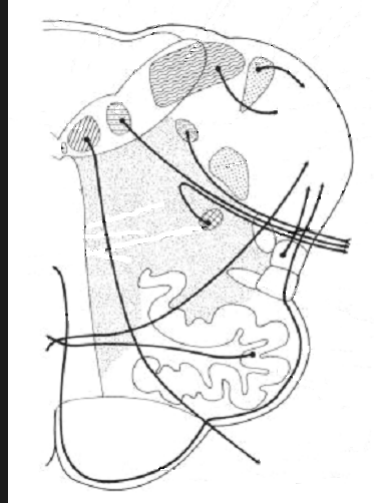
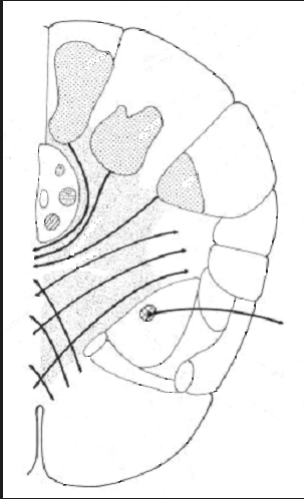
## Pons



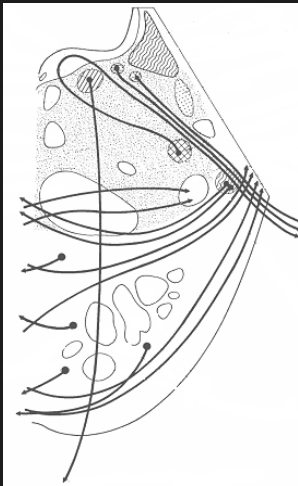
# Functional zones of the brainstem



# 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

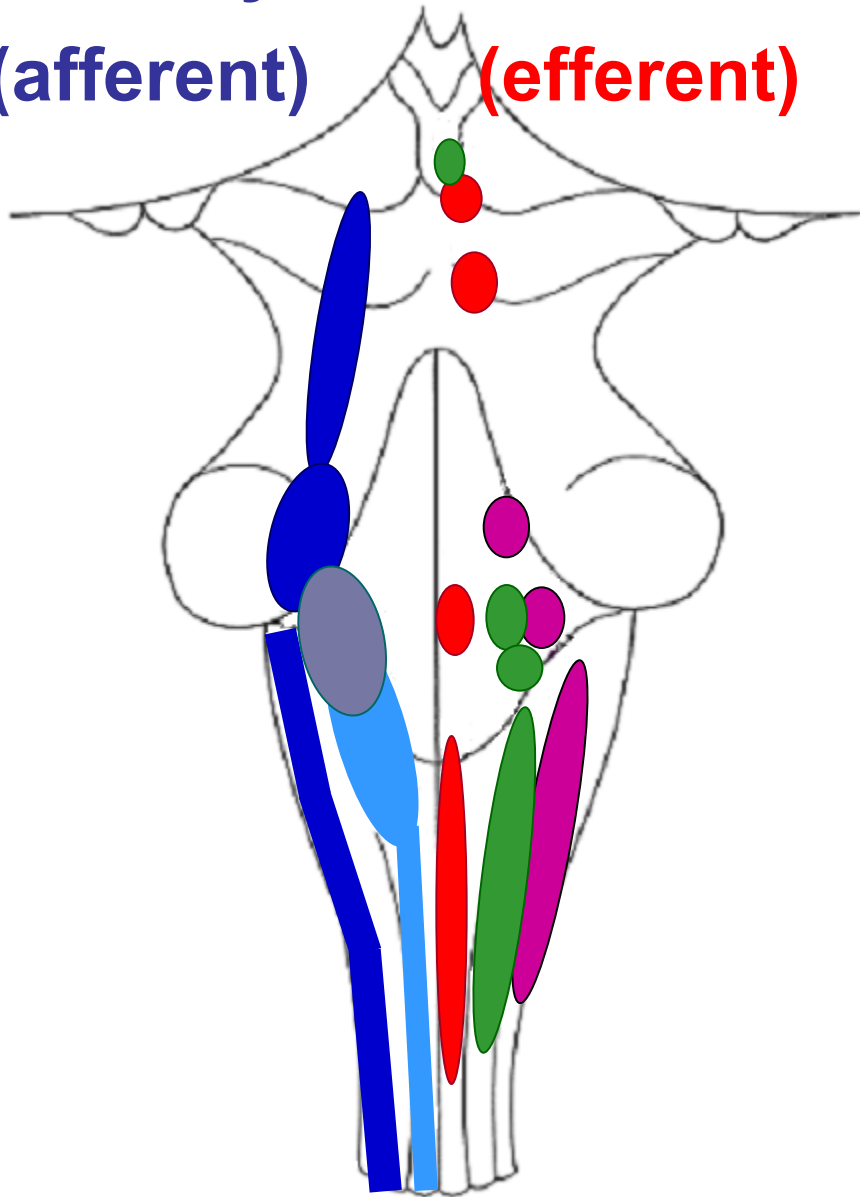


# White matter of the brainstem

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

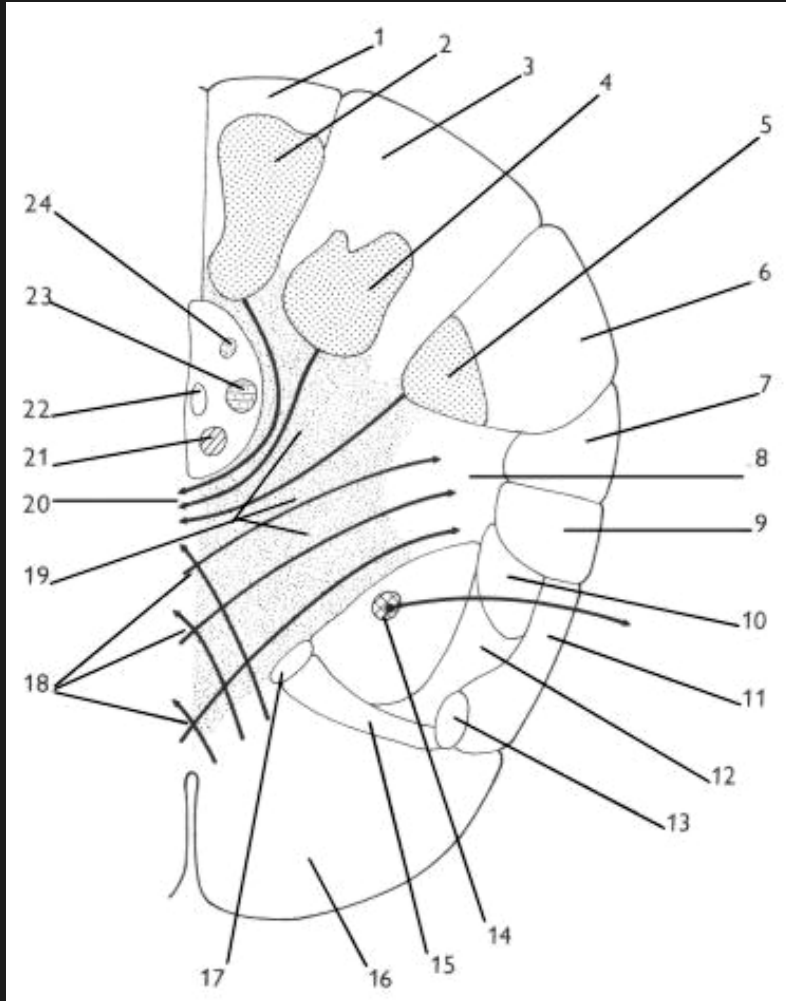
**GSA** CN V

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

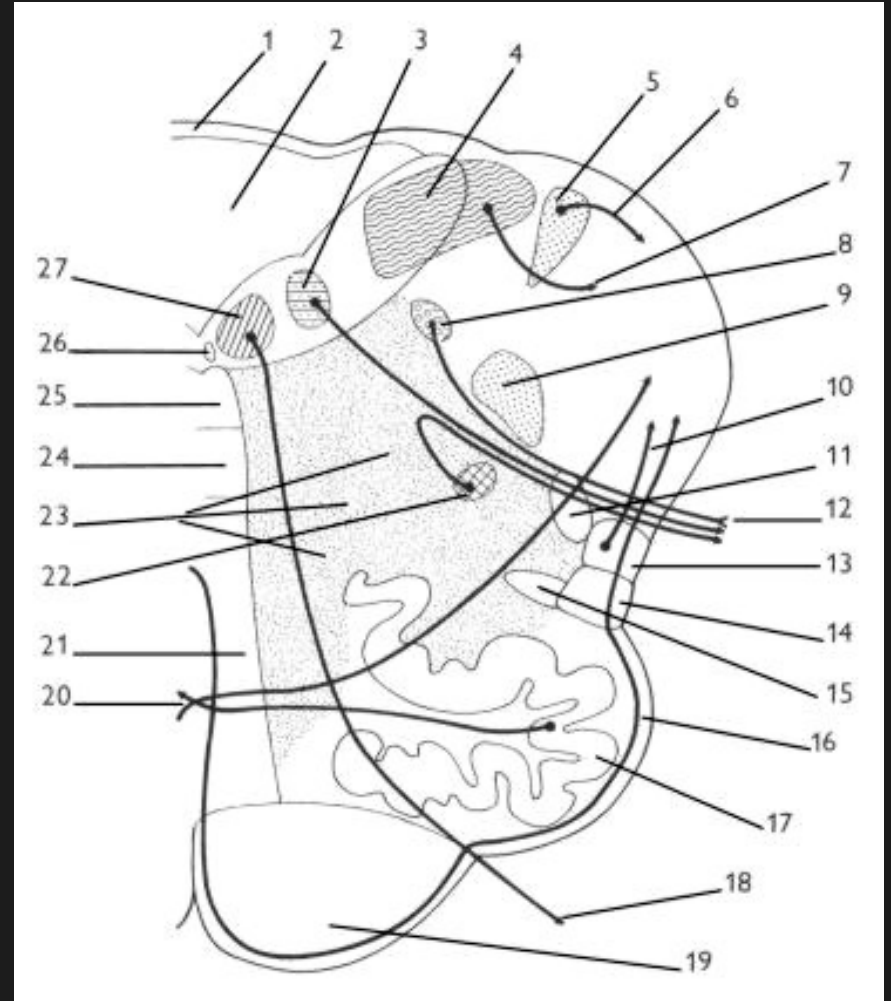
Ncl. gustatorius



# Medulla oblongata

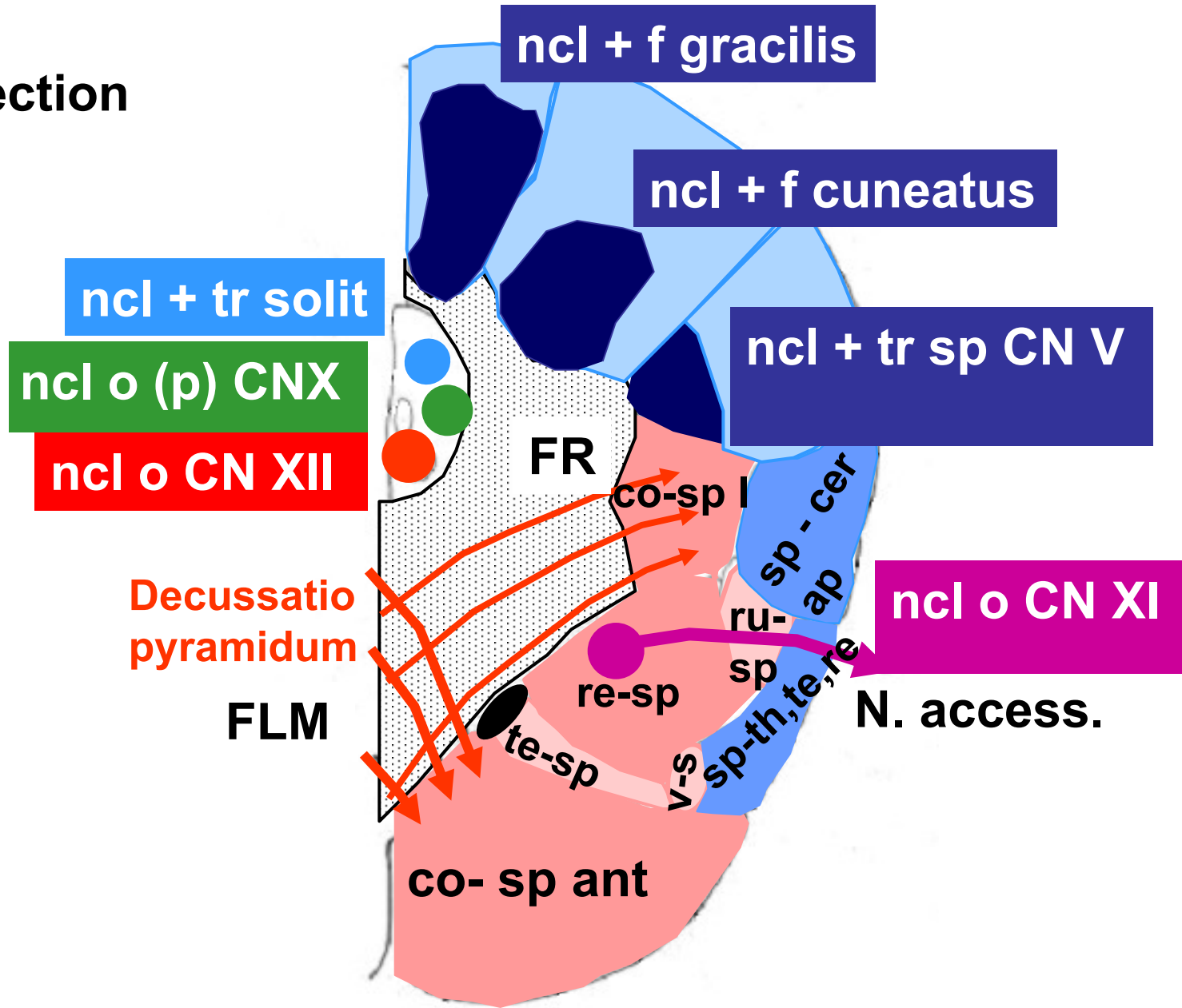
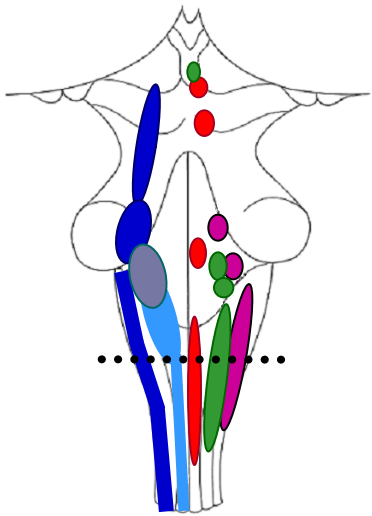


Caudal section

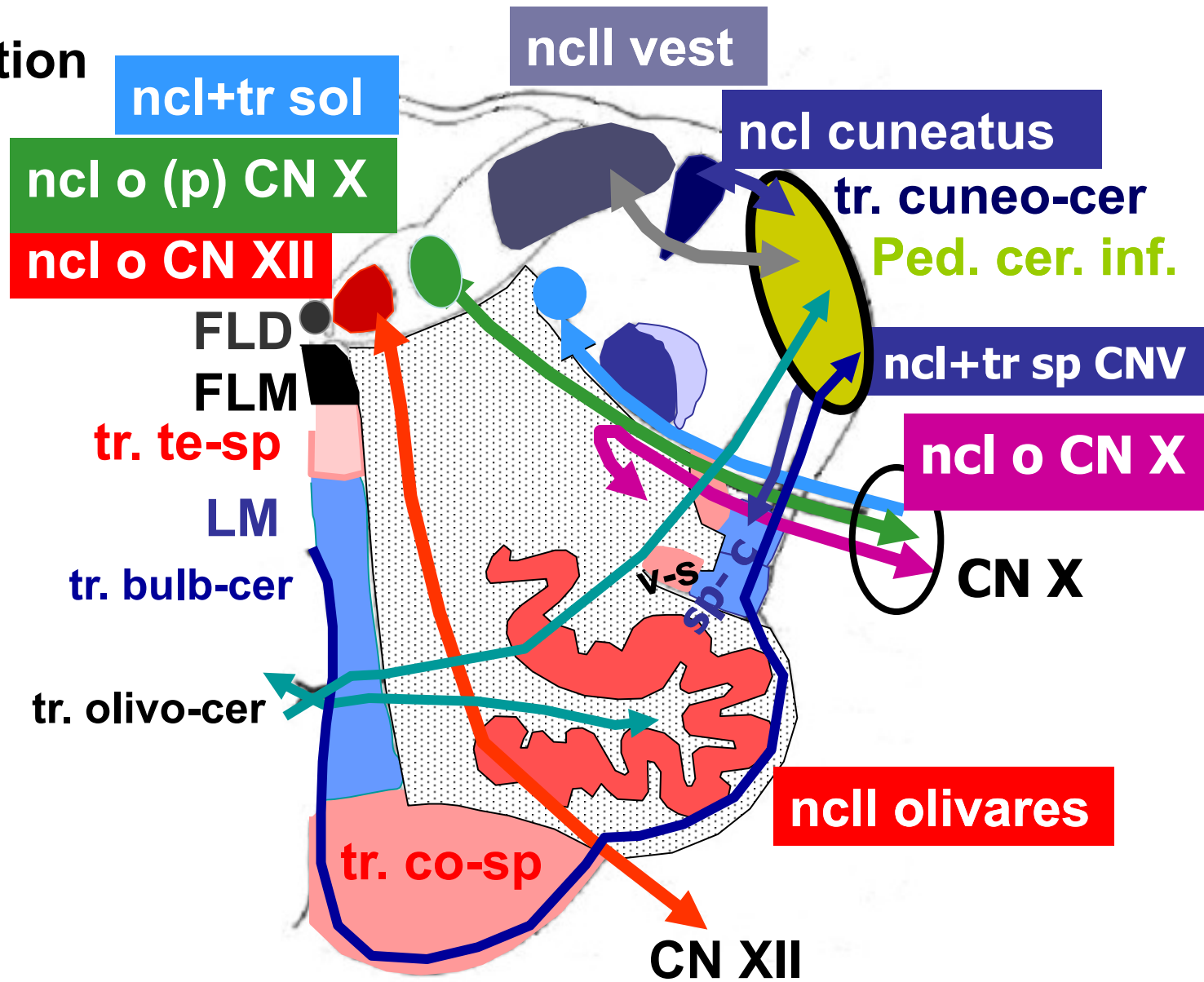
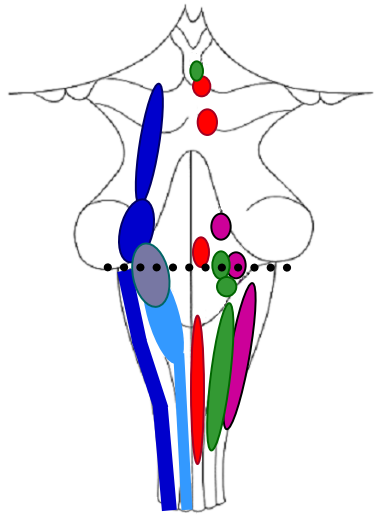


Rostral section

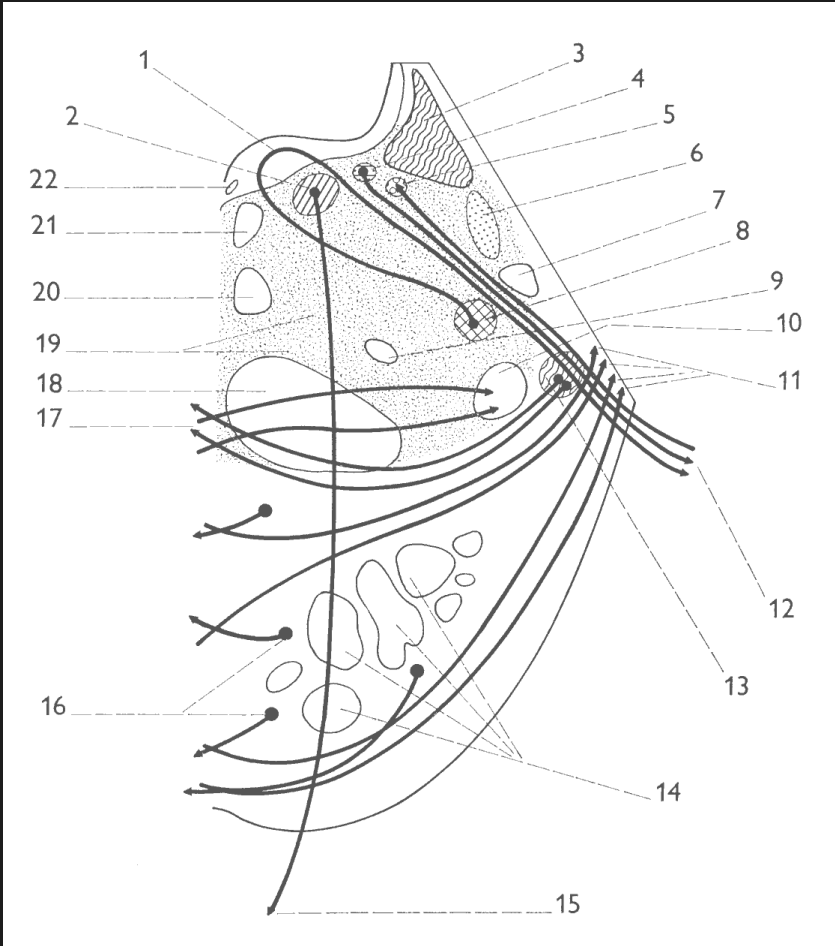
# Caudal section



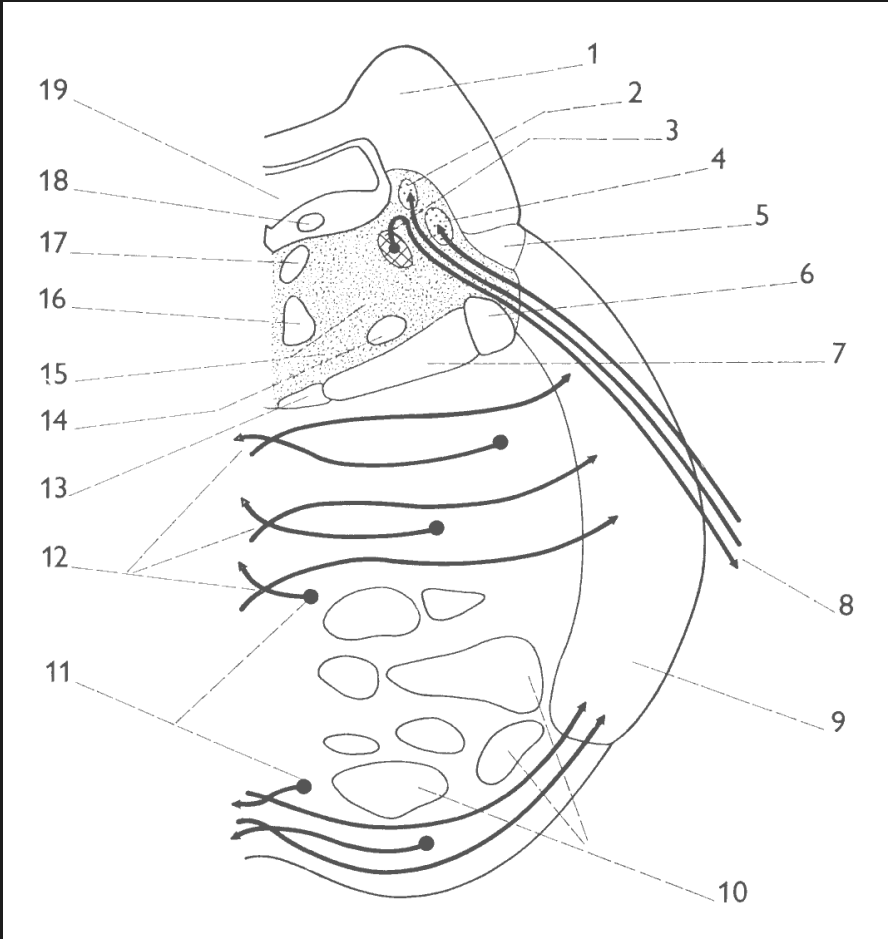
# Rostral section



# Pons Varoli

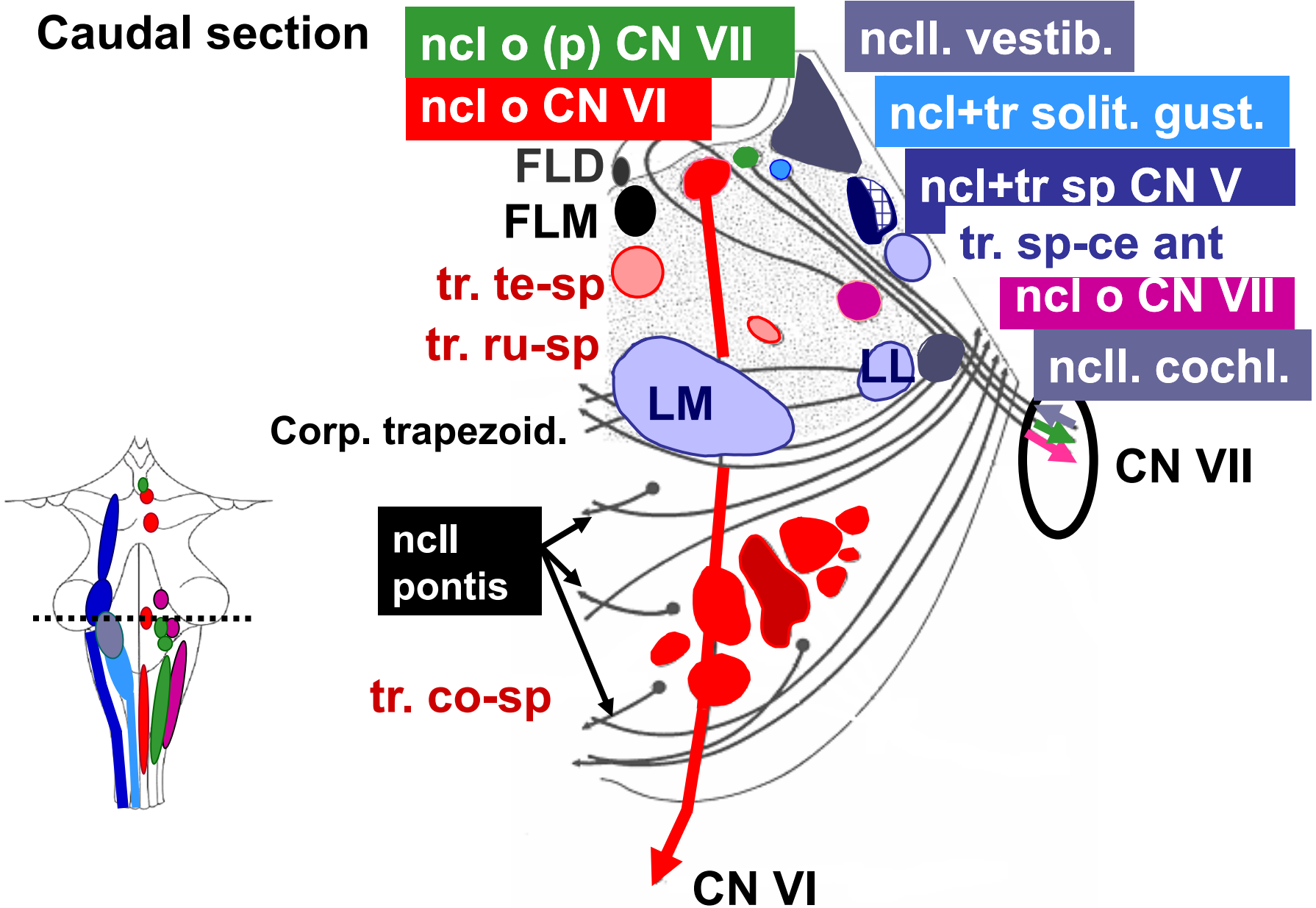


**Caudal section**

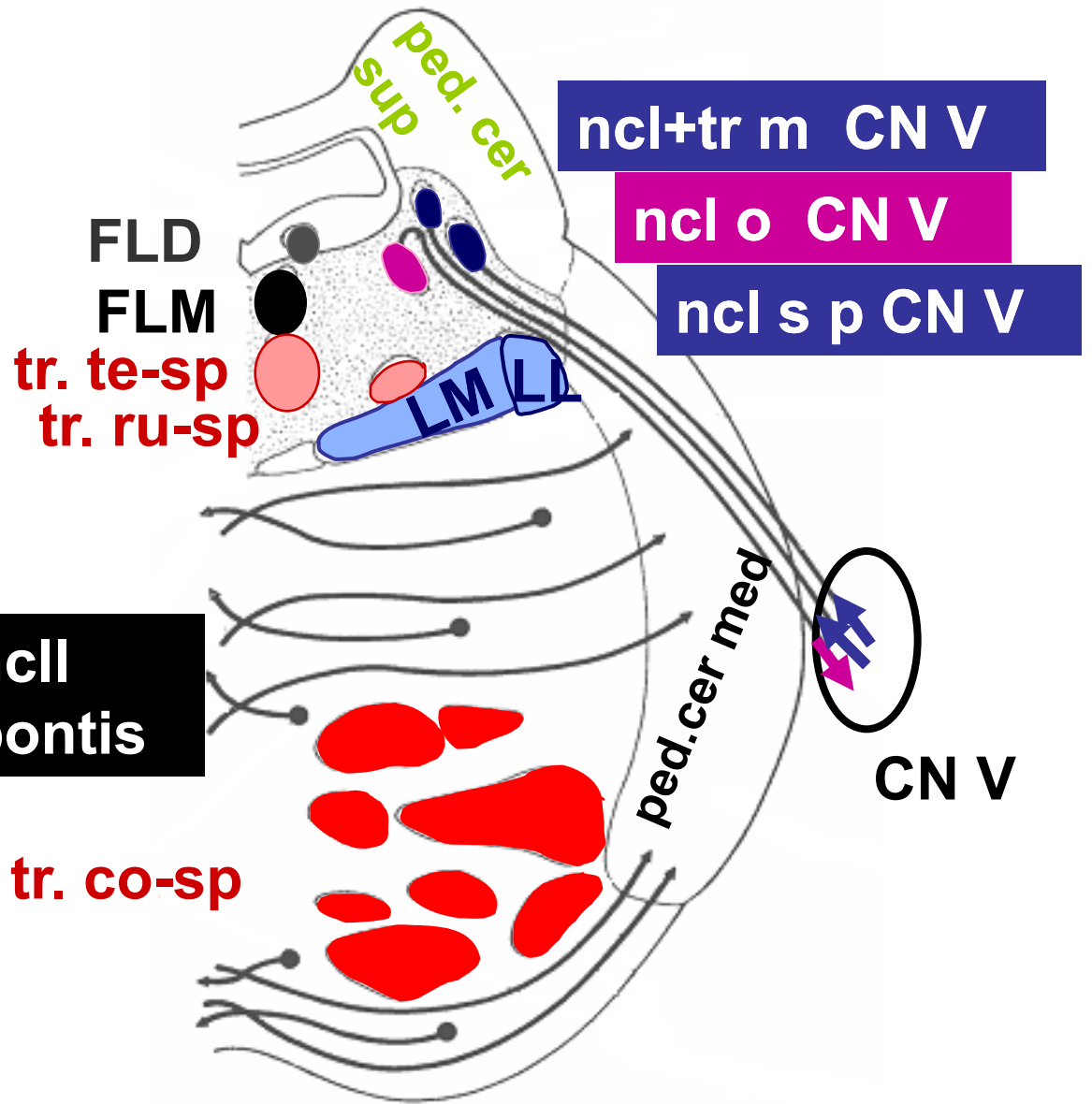
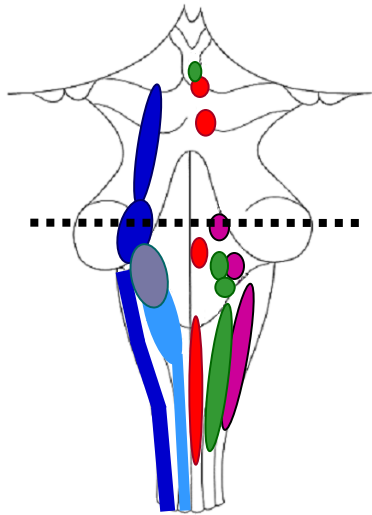


**Rostral section**

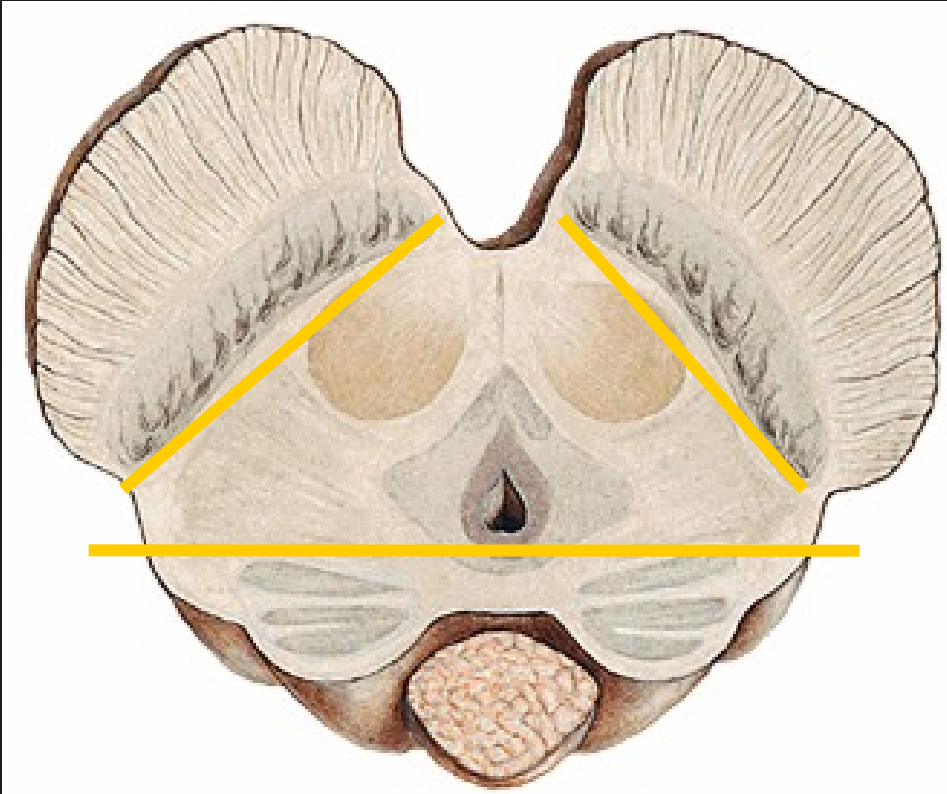
# Caudal section



# Rostral section



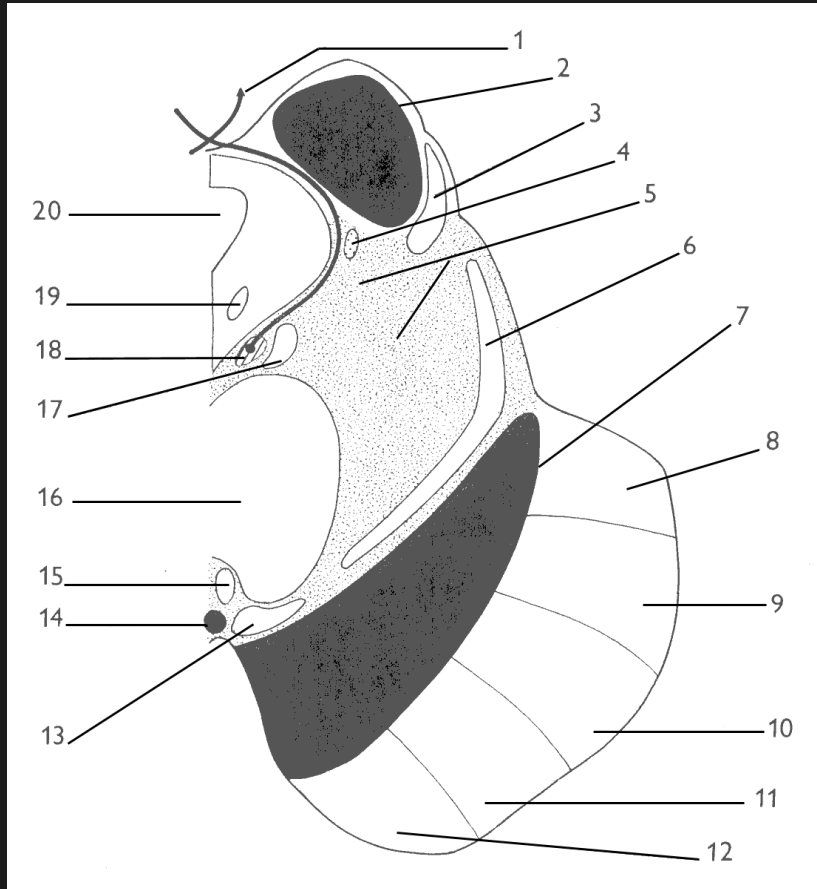
# Mesencephalon



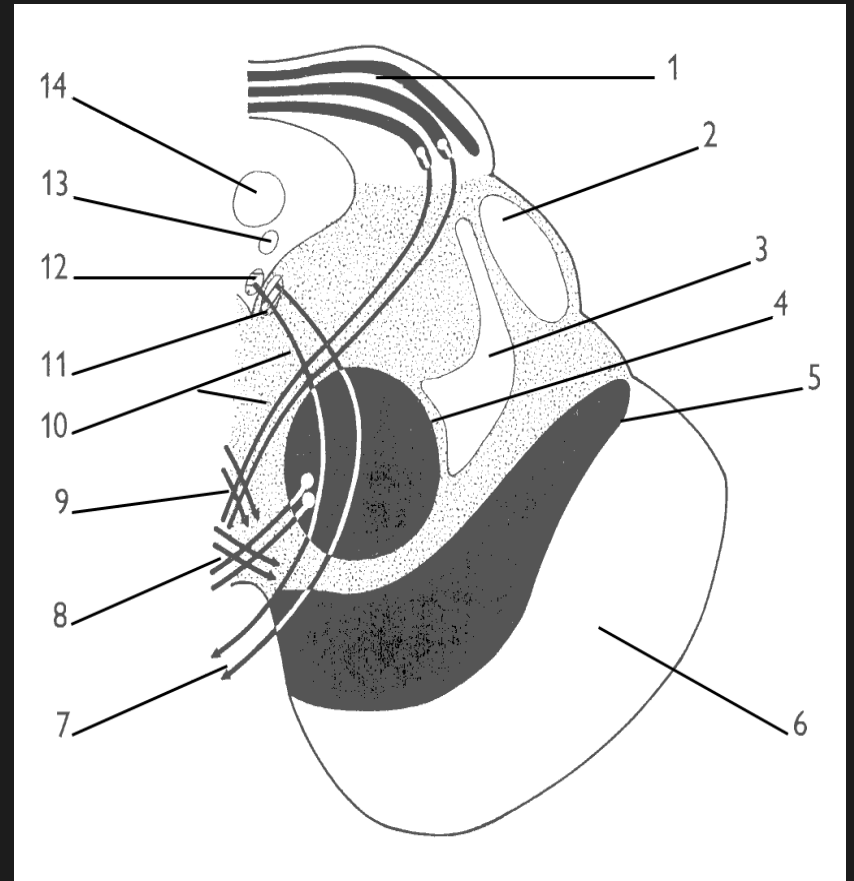
**crura cerebri**

**tegmentum**

**tectum**



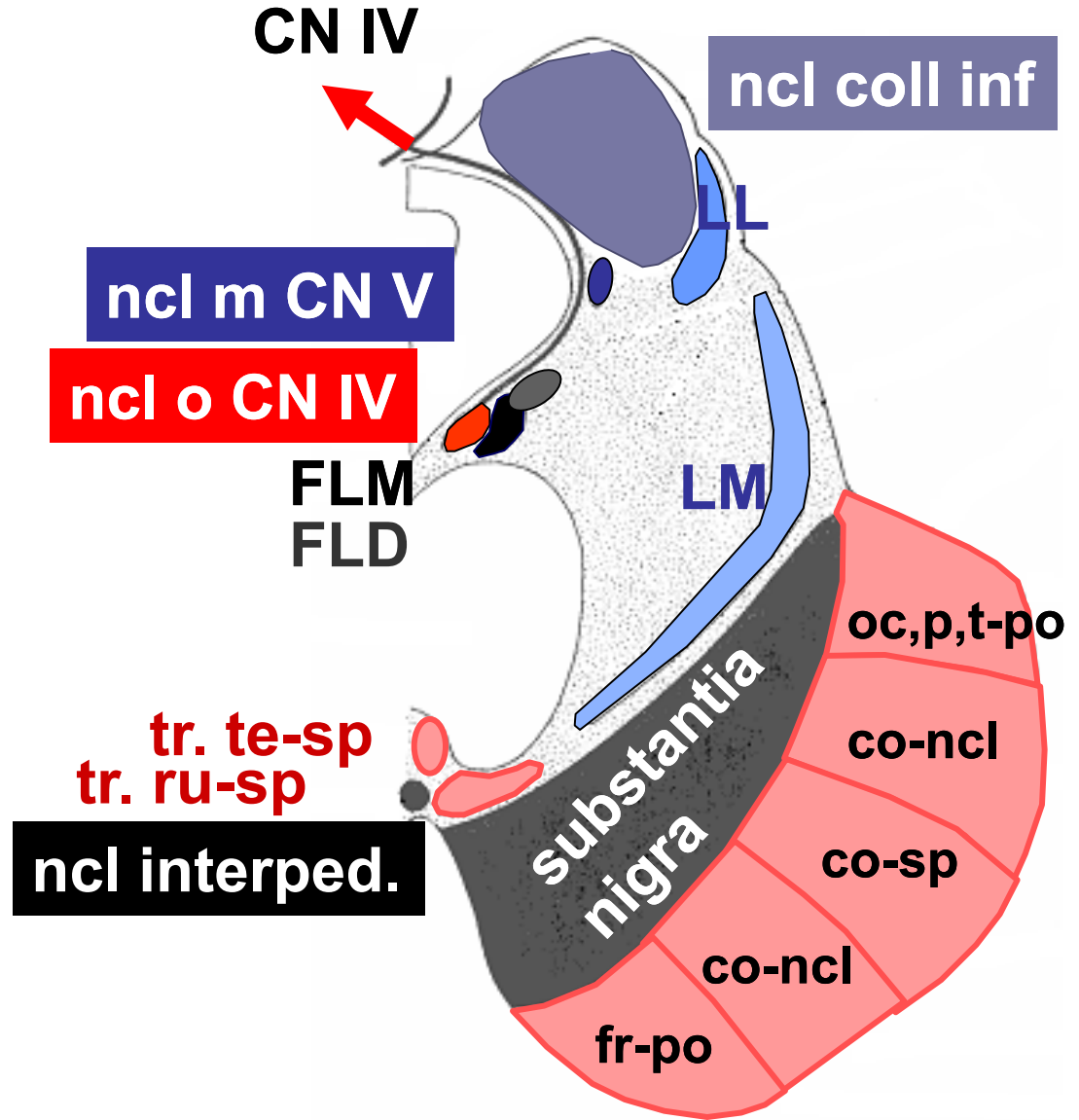
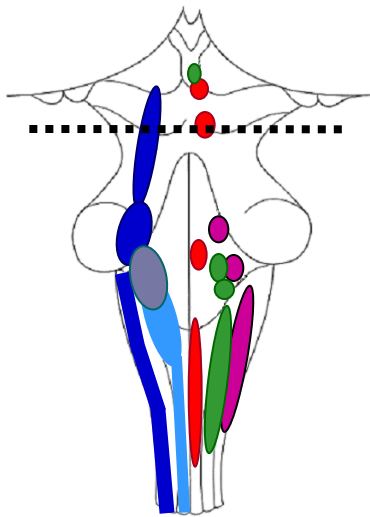
**Caudal section**



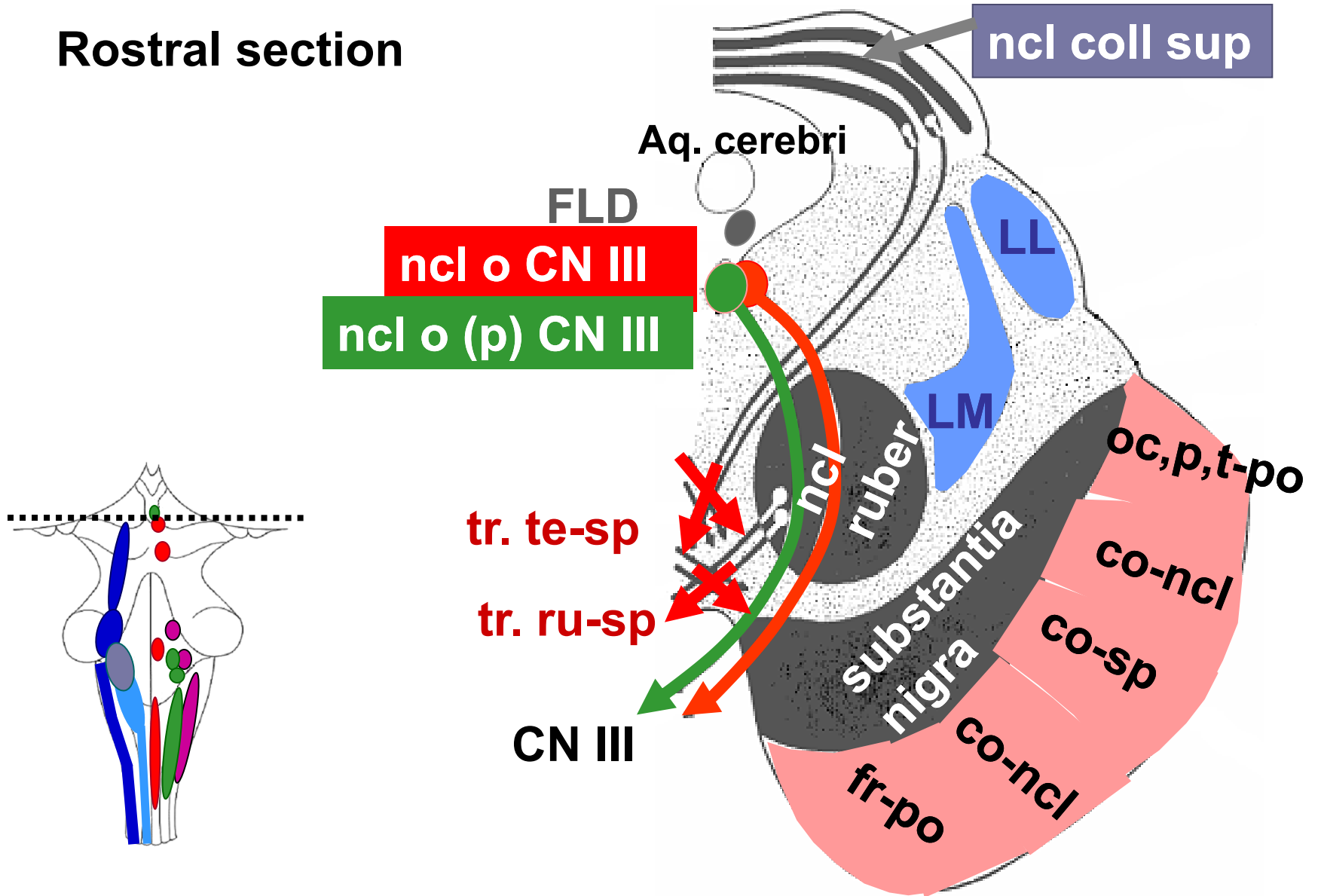
**Rostral section**



# Caudal section

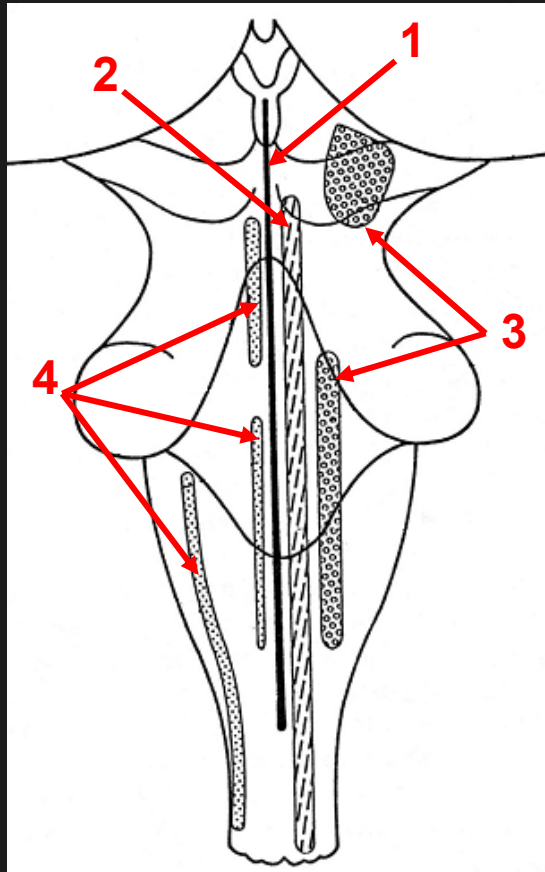


# Rostral section



# Reticular formation

between afferent and motor systems  
spinal cord – diencephalon



## Nuclei of RF

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

# Function

**Patterned cranial nerve activities**

**Pattern generation**

**Posture, locomotion**

**Salivary secretion, lacrimation**

**Bladder control**

**Respiratory rhythm**

**Vital centers (circulation, respiration)**

**Conveys somatic and visceral information to the cerebellum**

**Arousal ( Ascending reticular activating system)**

**Sleeping and waking, attention and mood, sensory modulation, blood pressure control**

