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**CNS
BLOCK**

PRACTICAL LECTURE (NERVOUS SYSTEM)

Done By:

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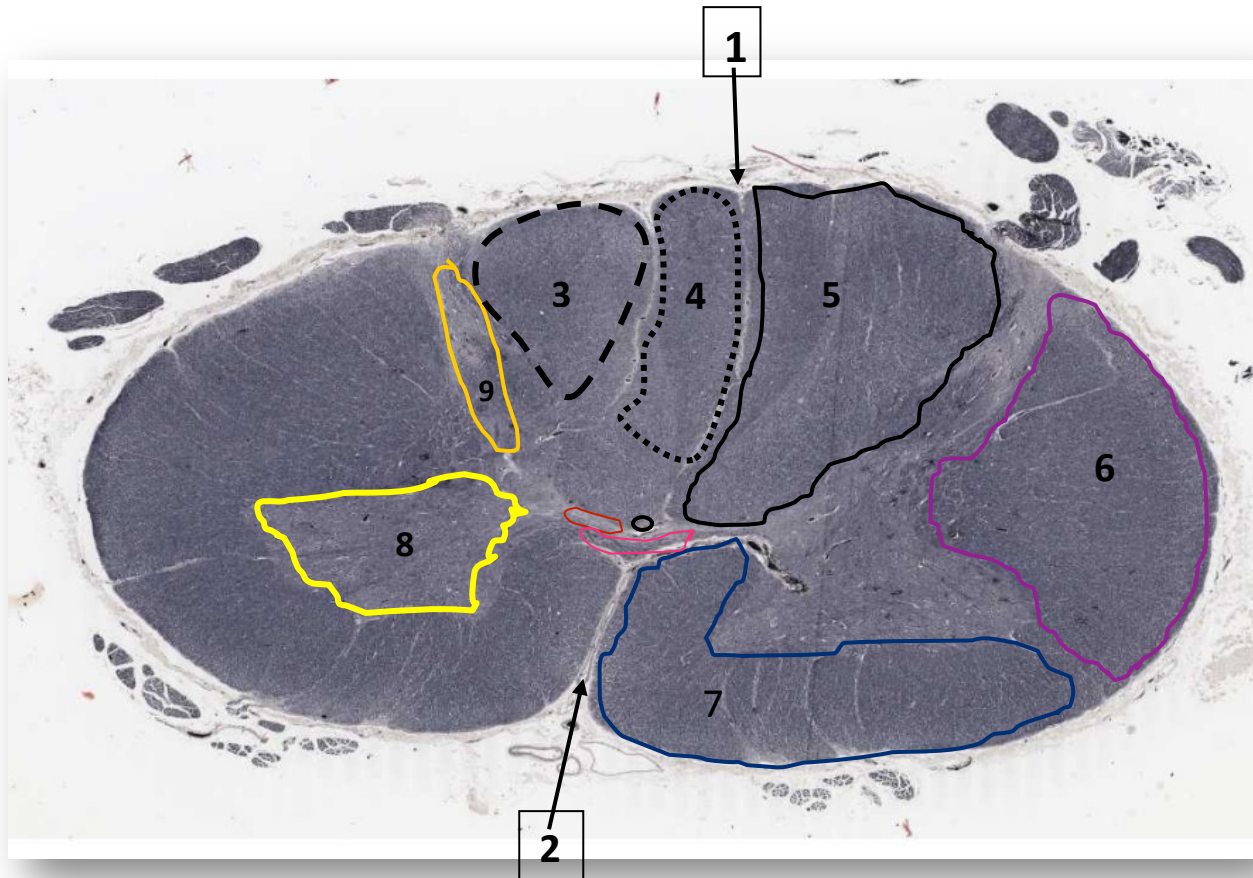
Nada Alouda



Important Notes:

- The doctor said students should study the internal structure of brainstem because it may come in the exam as Histology questions.
- It's good to know the differences between (cervical, thoracic and lumbar spinal cord) so you can easily identify the spinal cord section whether cervical, thoracic, or lumbar.
- The types of neurons & where they are located.
- The location of sensory & motor tracts in a spinal cord section.

Cervical Spinal Cord



1- Dorsal median sulcus.

2- Ventral median fissure.

3- Cuneate tract.

4- Gracile tract.

5- Posterior (dorsal) white column.

6- Lateral white column.

7- Anterior white column.

8- Anterior gray horn.

9- Posterior gray horn.

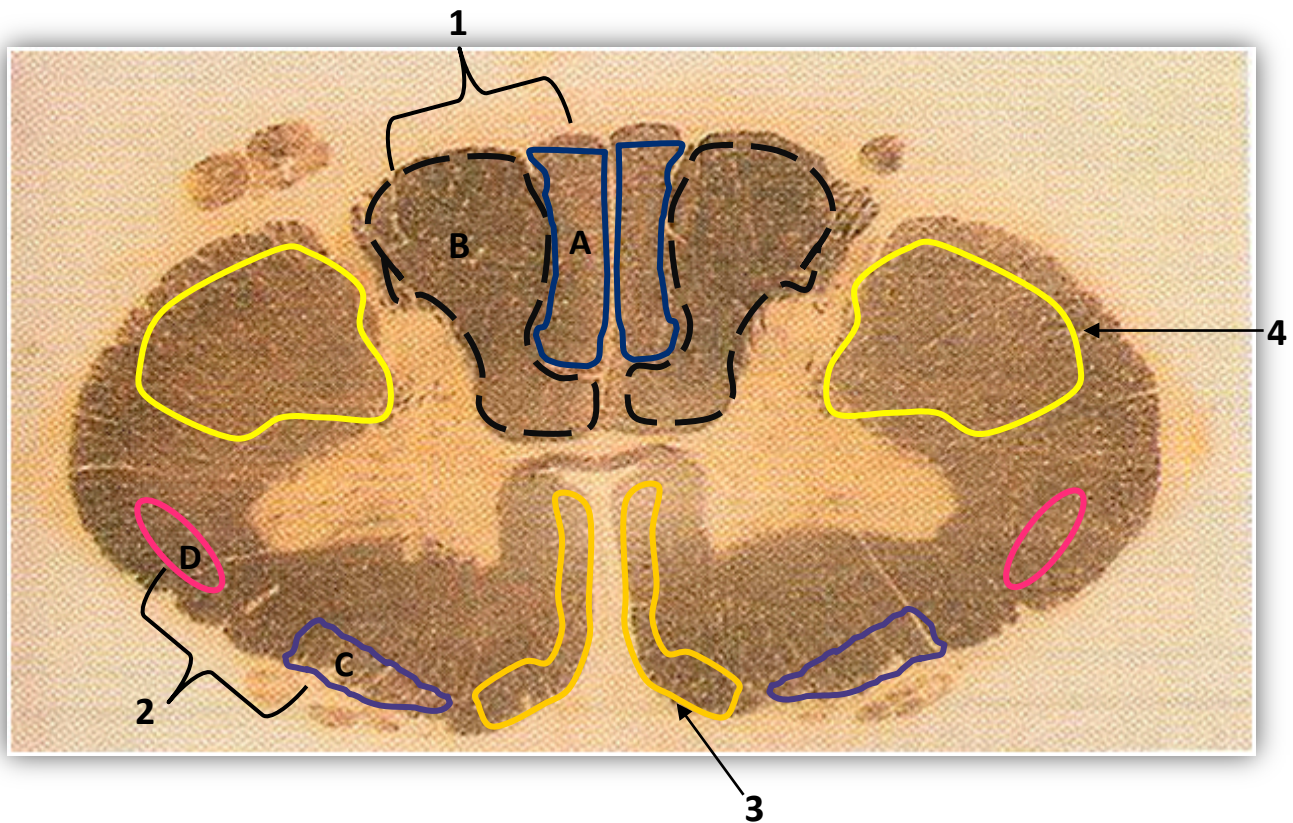
○ - Central canal.

○ - Gray commissure.

○ - Anterior white commissure.

Q1: Identify the section? **Cervical Spinal Cord.** Q2: "localization". **The answer will be one of these.**

Some tracts at the level of Cervical Spinal Cord



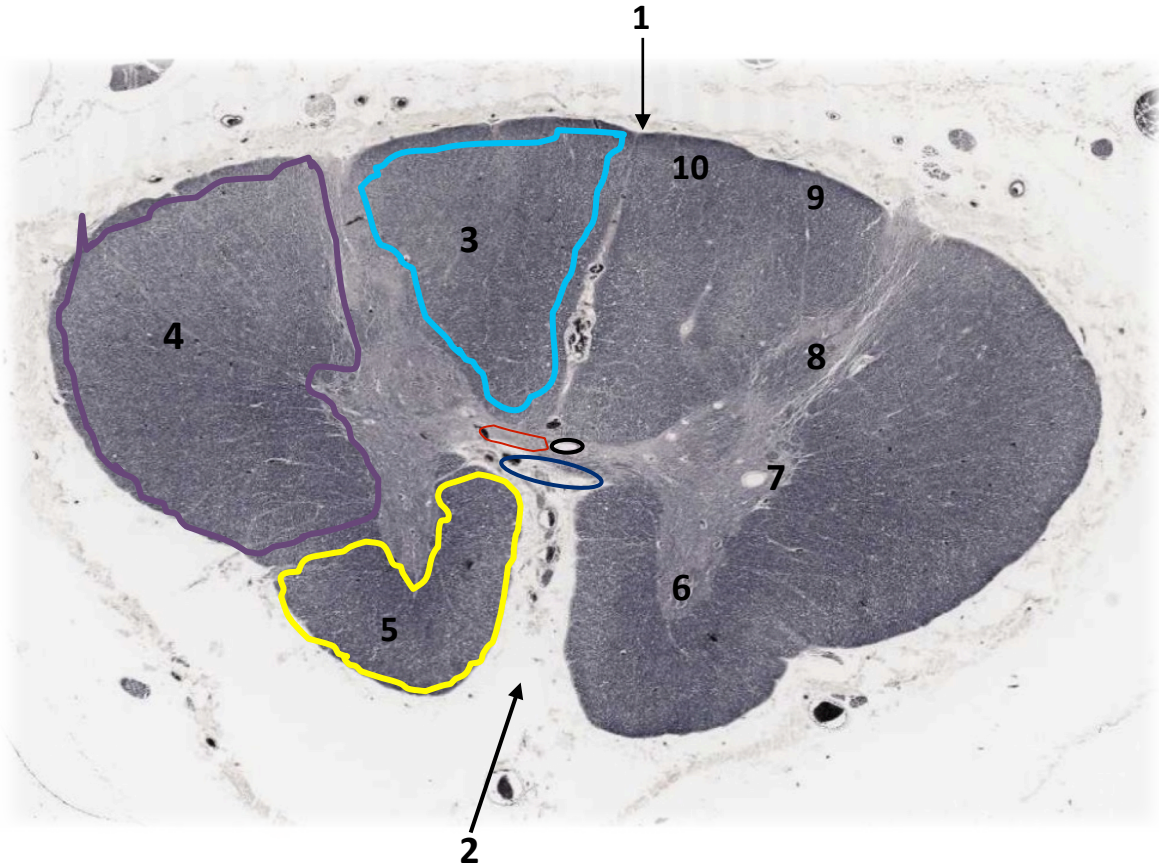
Sensory tracts

- 1- Dorsal (Posterior) columns:
 - A) Gracile.
 - B) Cuneate.
- 2- Spinothalamic tracts:
 - C) Anterior.
 - D) Lateral.

Motor tracts

- 3- Anterior corticospinal tract.
- 4- Lateral corticospinal tract.

Thoracic Spinal Cord



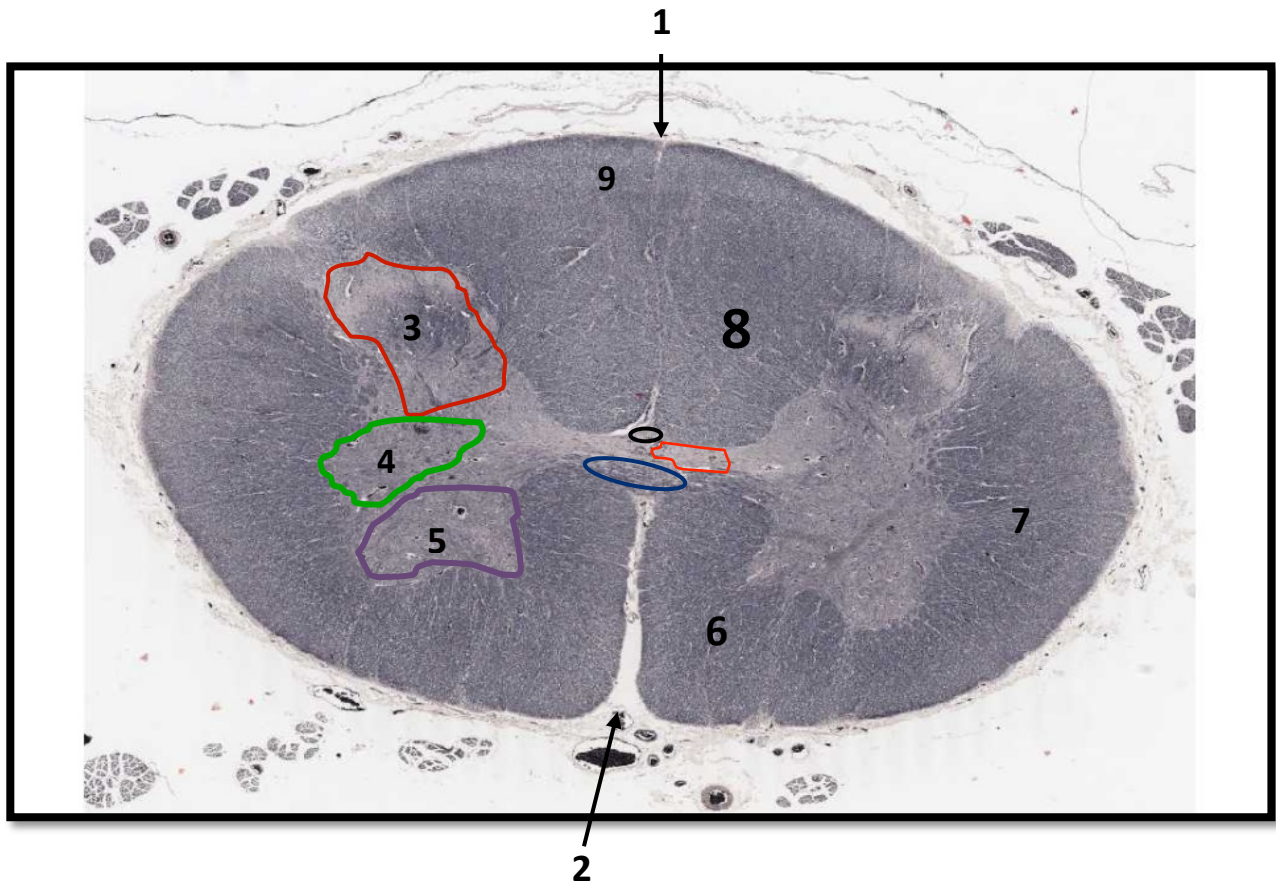
- 1- Dorsal median sulcus.
- 2- Ventral median fissure.
- 3- Dorsal white column.
- 4- Lateral white column.
- 5- Anterior white column.
- 6- Anterior gray horn.

- 7- Lateral gray horn (**characteristic of thoracic segments**).
- 8- Dorsal gray horn.
- 9- **Cuneate tract**.
- 10- **Gracile tract**.
- - Central canal.
- - Gray commissure.
- - Anterior white commissure.

Q1: Identify the section?

Q2: "localization"

Lumbar Spinal Cord



Q1: Identify the section?

Q2: "localization"

1- Dorsal median sulcus.

2- Ventral median fissure.

3- Dorsal gray horn.

4- Lateral gray horn (characteristic of upper lumbar segments).

5- Anterior gray horn.

6- Anterior white column.

7- Lateral white column.

8- Dorsal white column.

9- Gracile tract.

- Central canal.

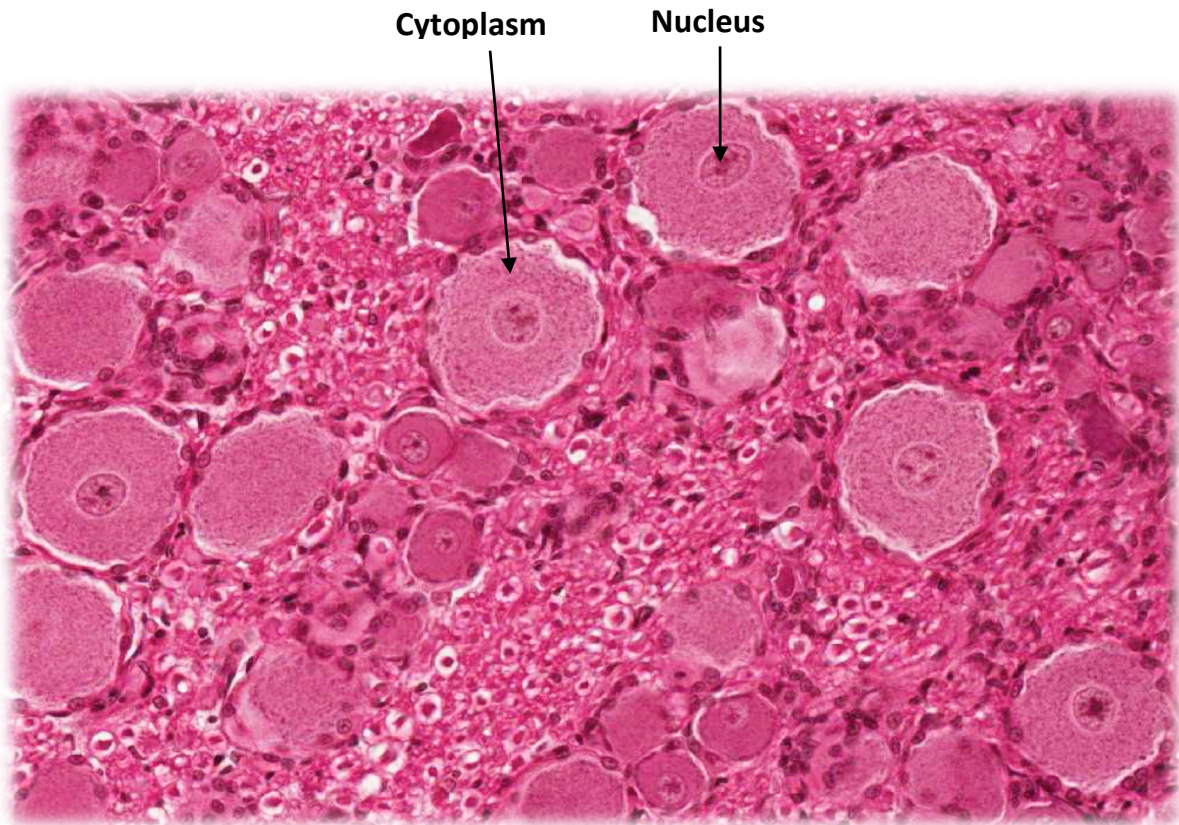
- Gray commissure.

- Anterior white commissure.

There is **NO cuneate** tract in the level of lumbar spinal cord because it receives fibers from upper thoracic & cervical levels (upper part of the body).

- **Gracile** tract contains fibers received at sacral, lumbar, & lower thoracic levels (lower part of the body) & seen throughout the length of spinal cord.

Unipolar Neurons (in spinal ganglion)



Site: 1- Mesencephalic nucleus of trigeminal nerve.

2- Dorsal root (spinal) ganglion.

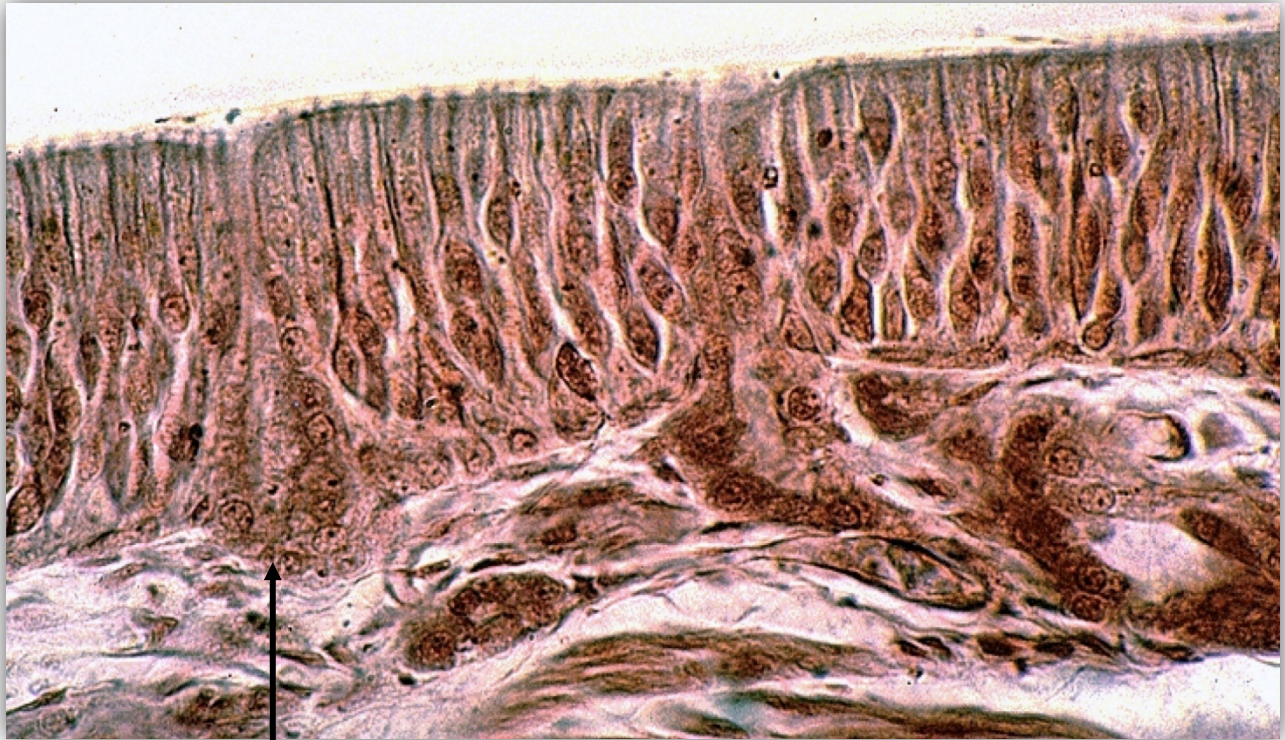
Q1: Identify the structure? **Unipolar Neurons.**

Q2: Name **one** site of this structure? **Dorsal root of spinal ganglion.**



Bipolar Neurons

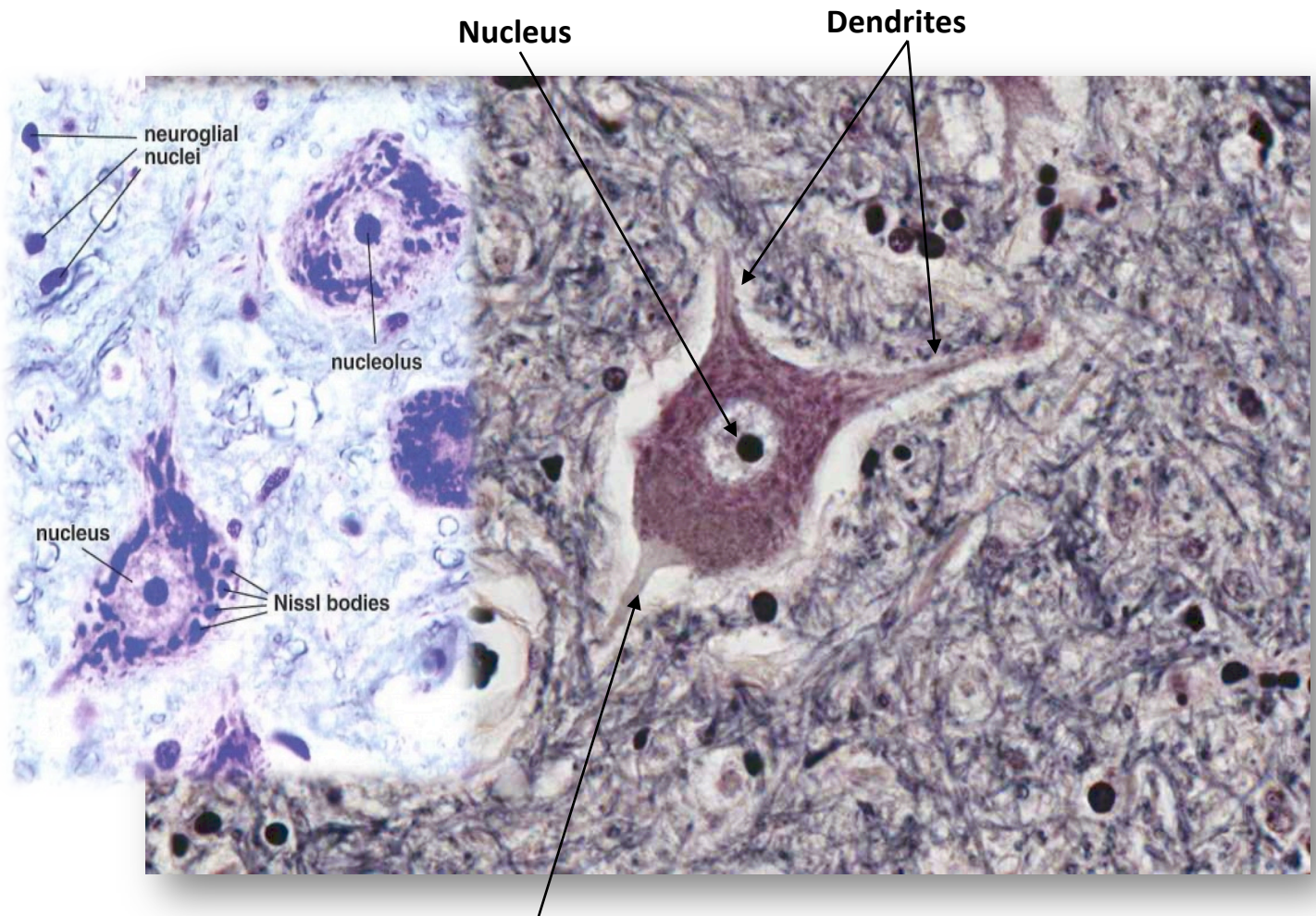
(In olfactory epithelium)



Bowman's gland

Site: Retina & olfactory epithelium.

Multipolar **Stellate** Neuron (anterior horn cells of the spinal cord)



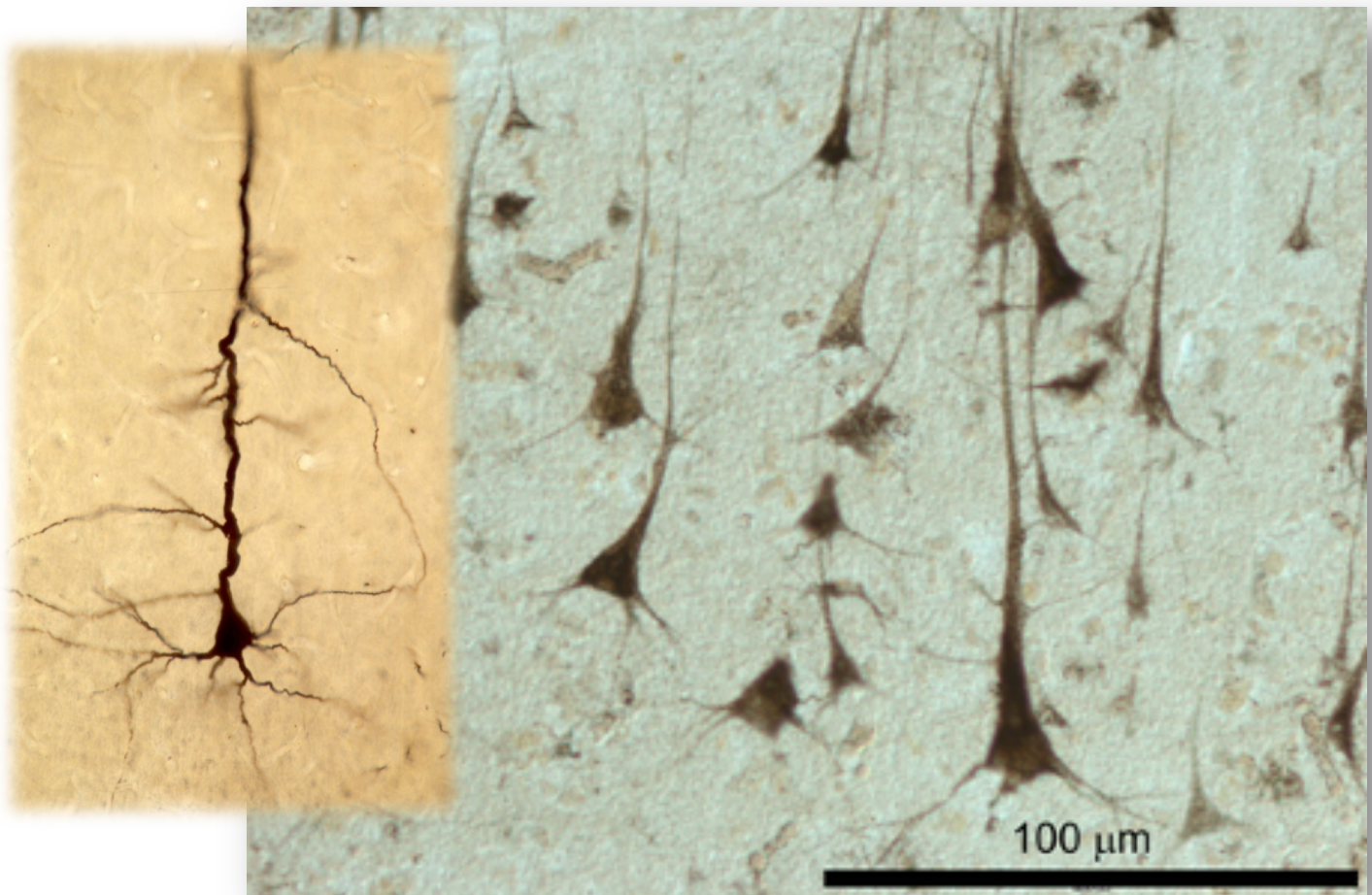
More likely (Axon of the nerve)

Site: Anterior horn cells of the spinal cord.

Q1: Identify? **Multipolar stellate neuron.**

Q2: The site / example?

Multipolar **Pyramidal** Neurons (in cerebrum)

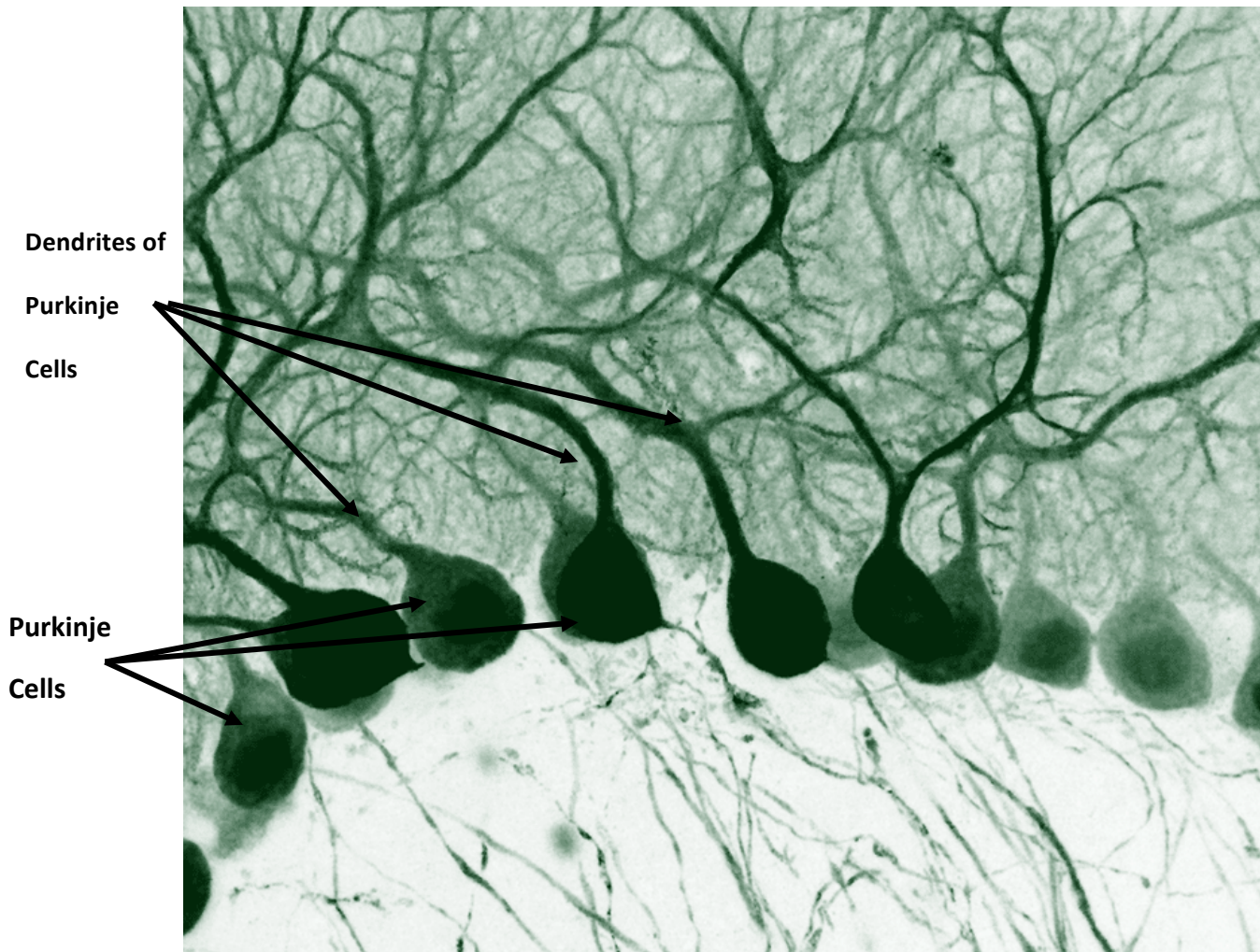


Site: in motor area 4 of the cerebral cortex.

Q1: Identify? **Multipolar pyramidal neurons.**

Q2: The site / example?

Multipolar **Pyriform** Neurons (**Purkinje cells of cerebellum**)



Site: Purkinje cells of cerebellar cortex.

Q1: Identify? **Multipolar pyriform neurons.**

Q2: The site / example? **Purkinje cells of cerebellar cortex.**

Good Luck

