

## Nervová tkáň

Neurony

Gliové buňky

- **CNS**: oligodendrocyty, astrocyty, ependymové buňky, mikroglie
- **PNS**: satelitové buňky, Schwannovy buňky

Synapse

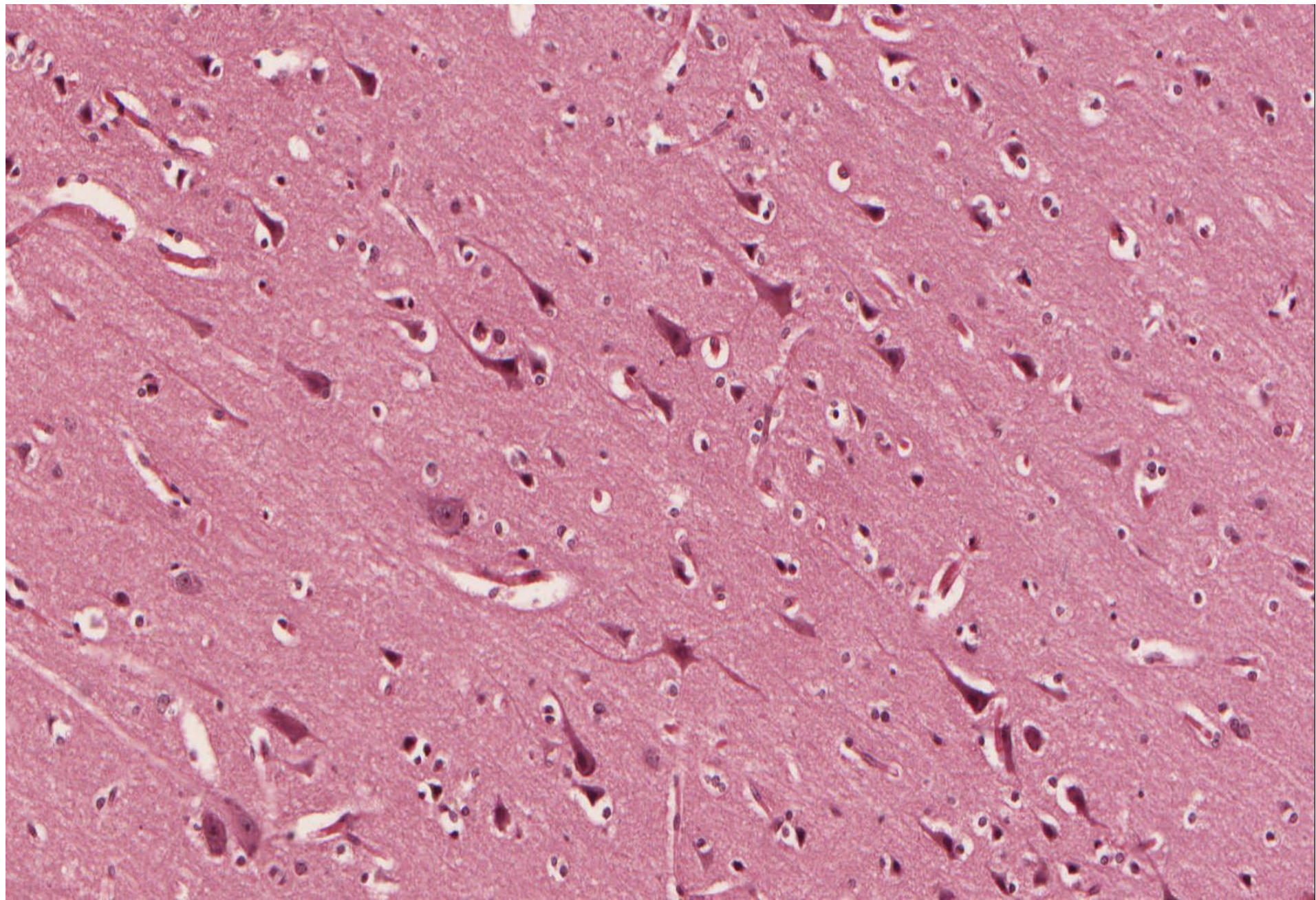
Myelinizace

Hemato-encefalická bariéra

# Cortex cerebri

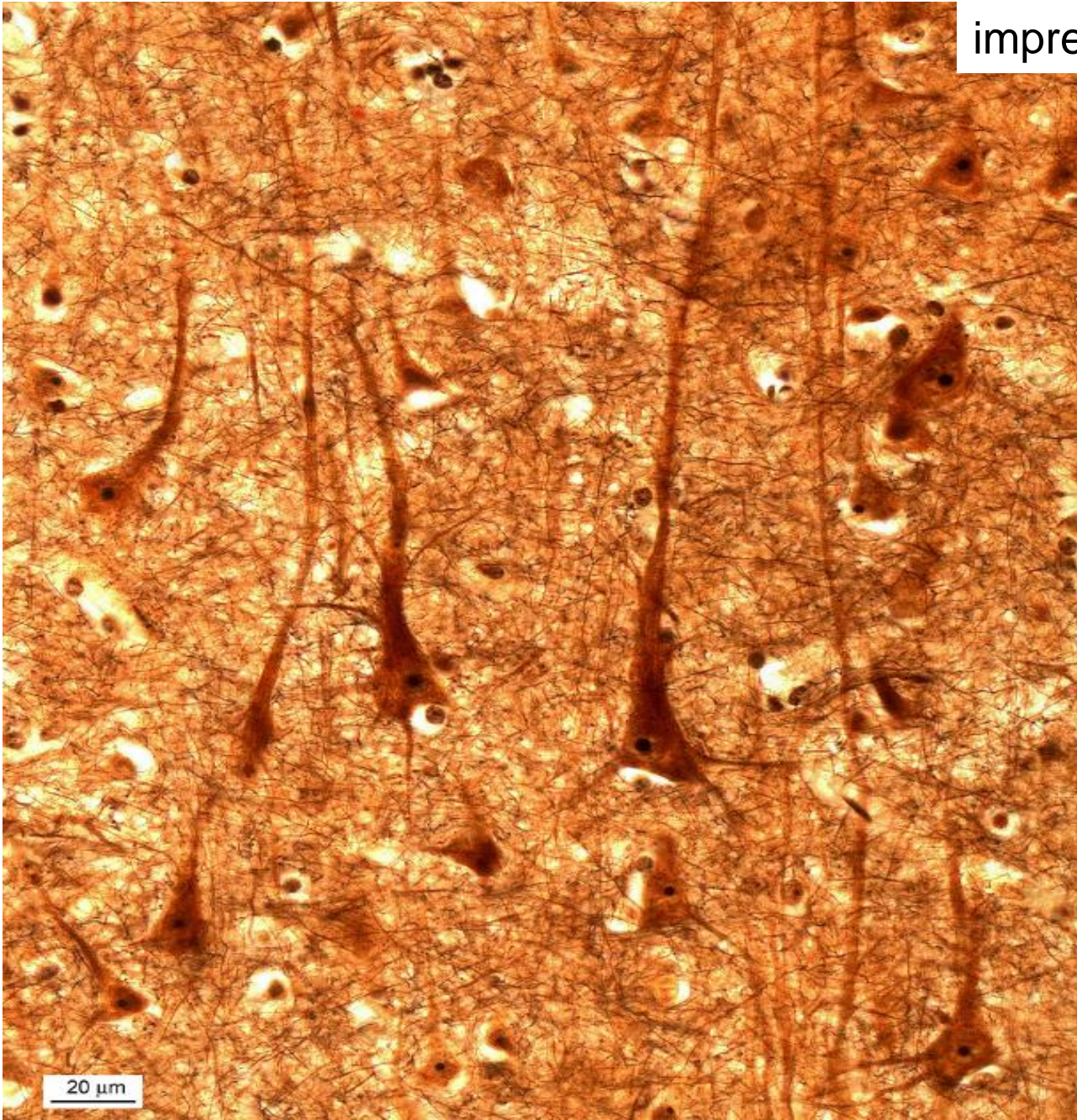


*Cortex cerebri* – pyramidové buňky – multipolární neurony



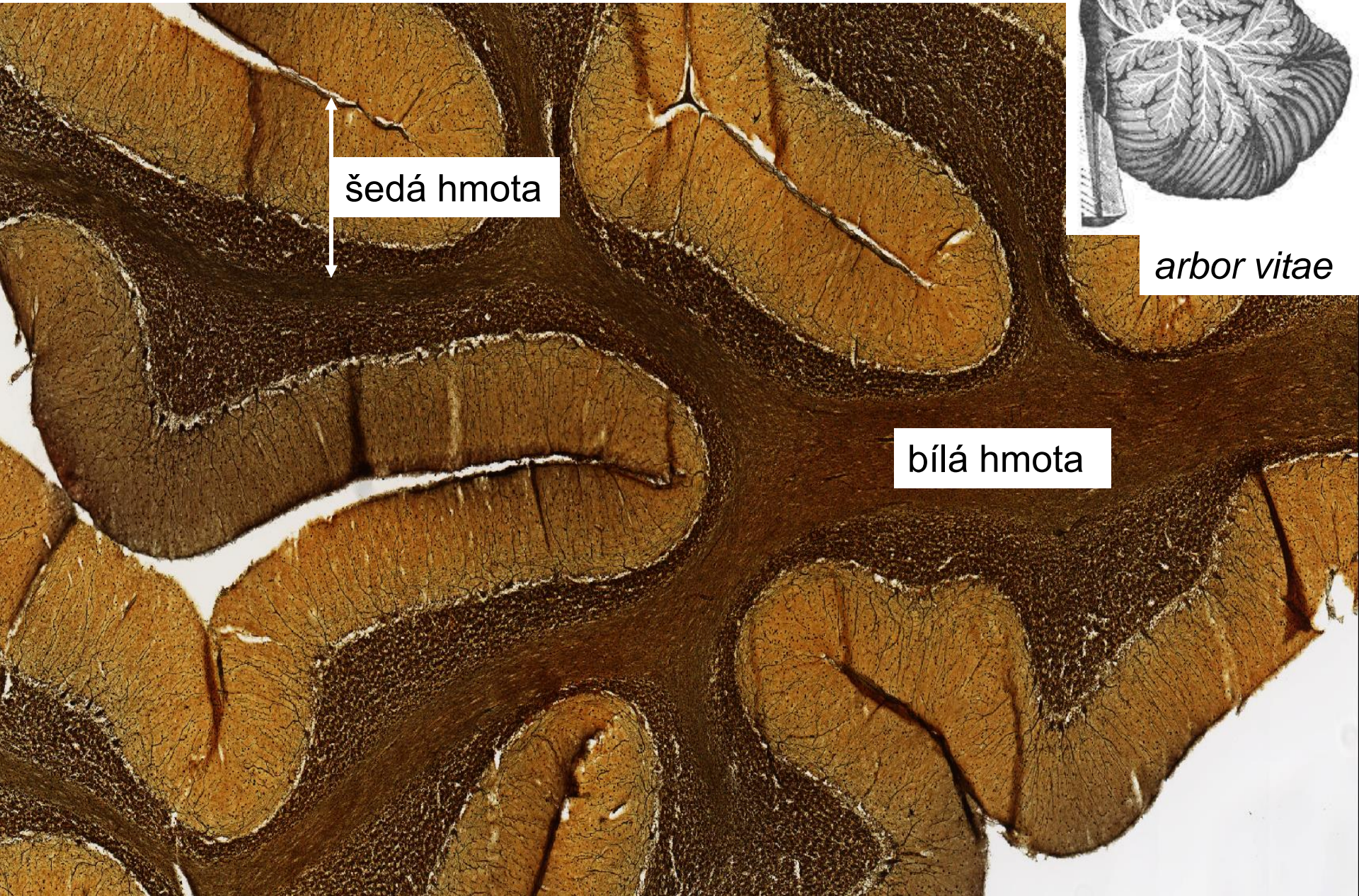
# *Cortex cerebri* – pyramidové buňky – multipolární neurony

impregnace



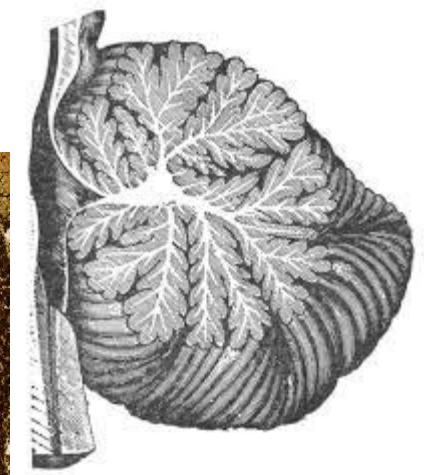
20 μm

# Cerebellum (impregnace)



šedá hmota

bílá hmota



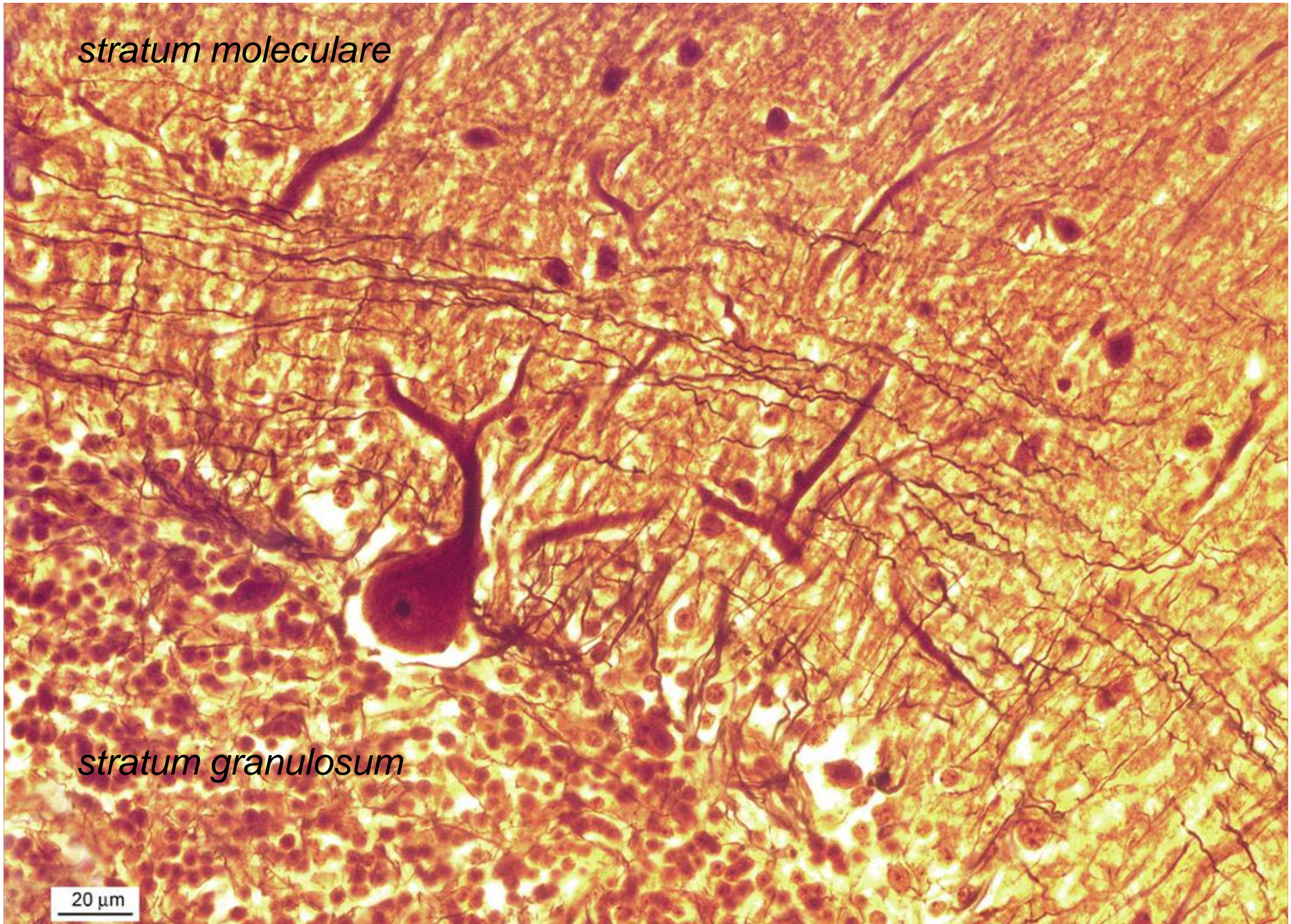
*arbor vitae*

# Cerebellum – Purkyňovy buňky

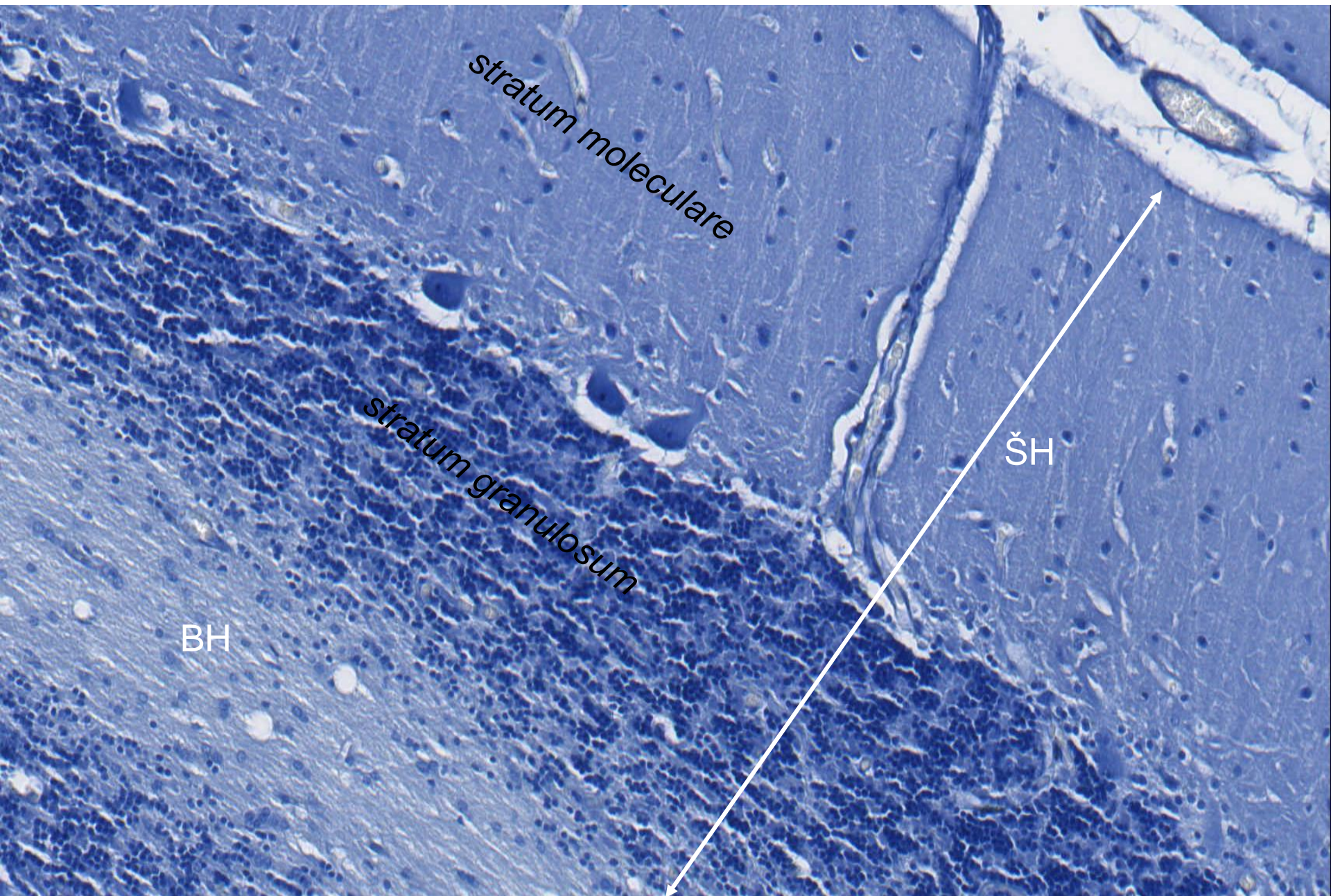
*stratum moleculare*

*stratum granulosum*

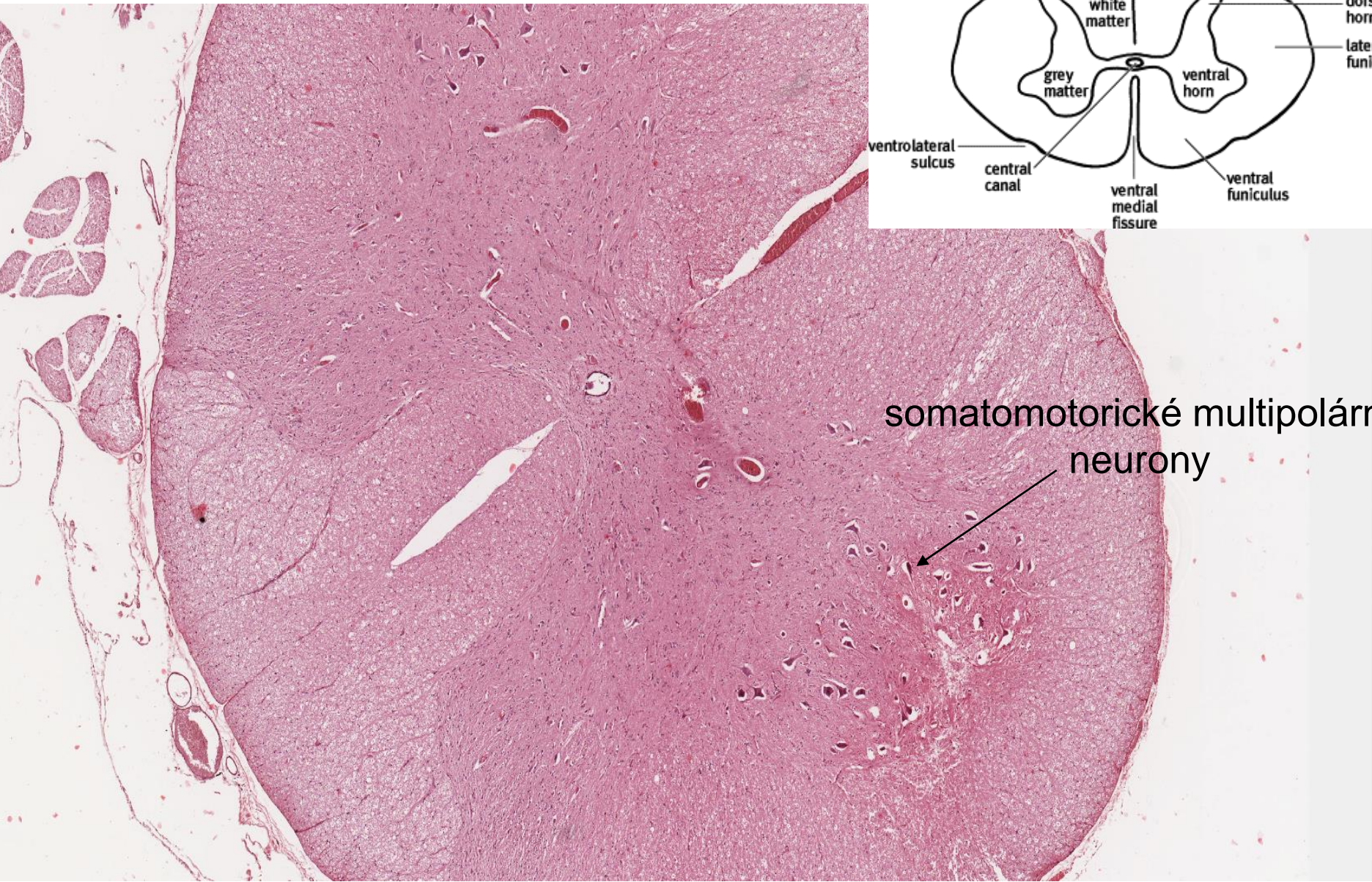
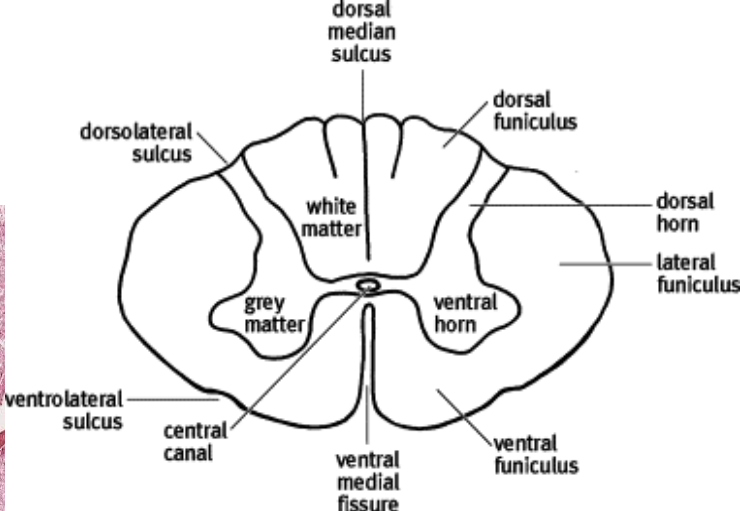
20  $\mu\text{m}$



# Cerebellum – Nisslova substance v Purkyňových buňkách (Nisslovo barvení)



# Medulla spinalis

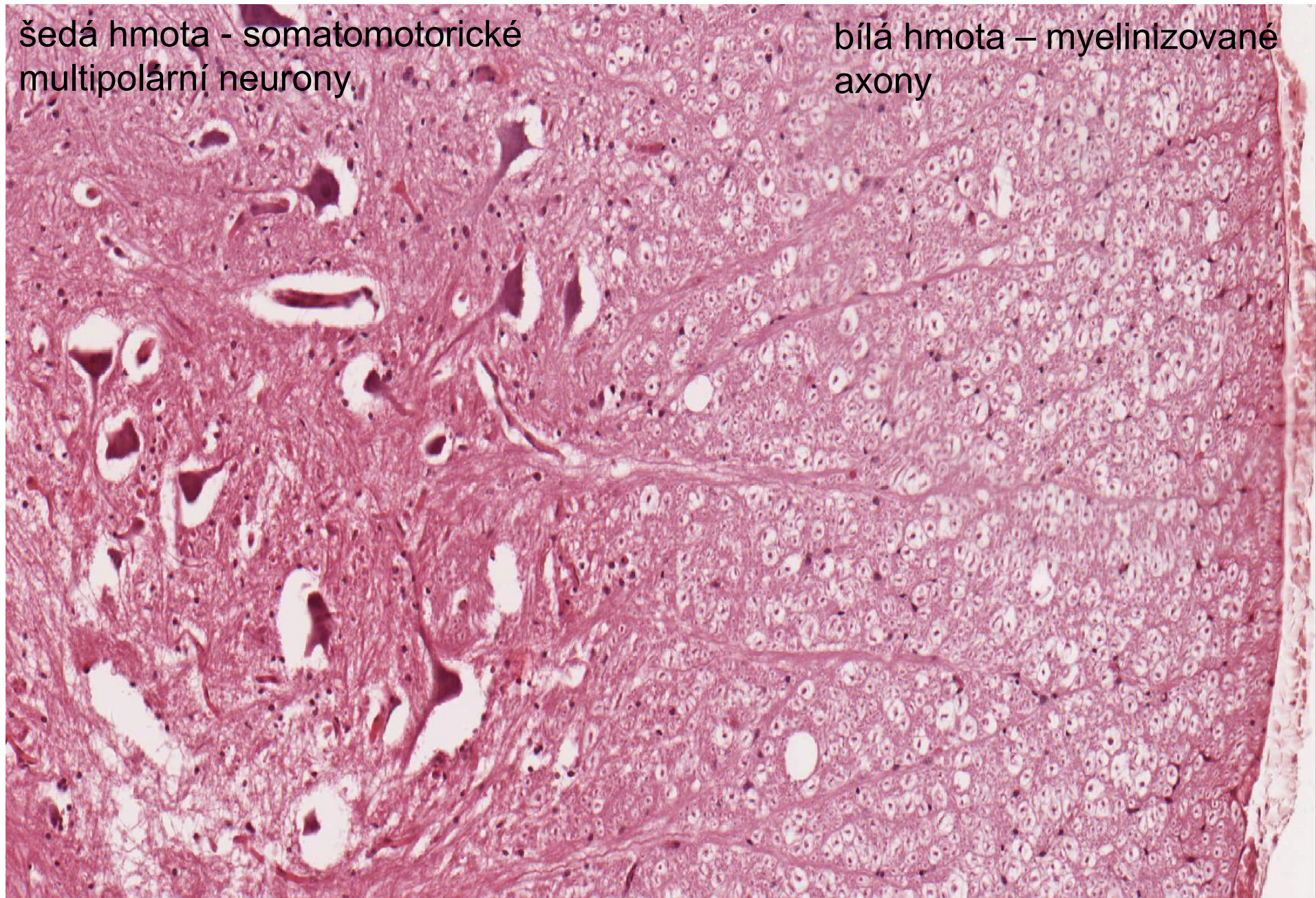




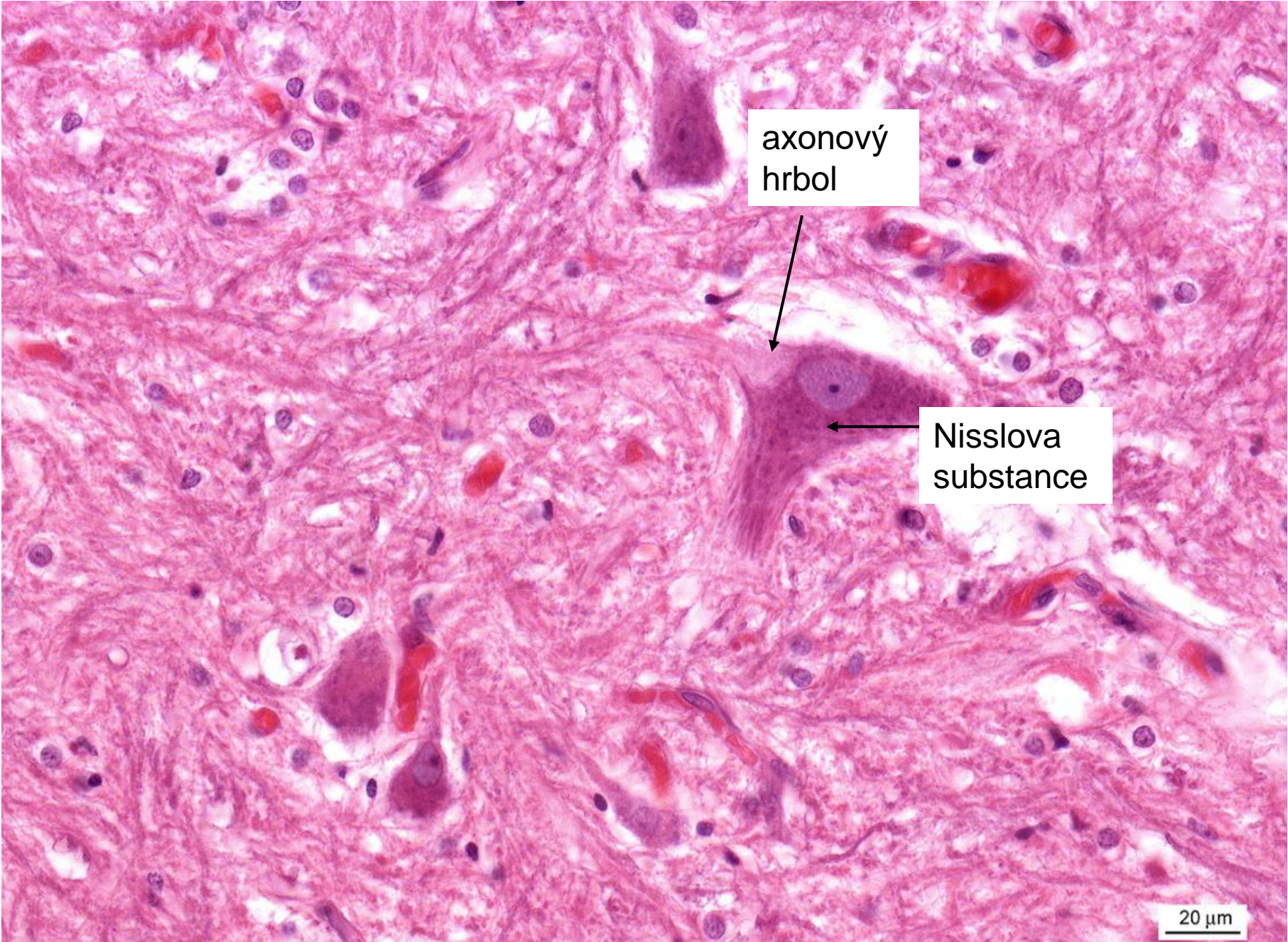
# *Medulla spinalis*

šedá hmota - somatomotorické  
multipolární neurony

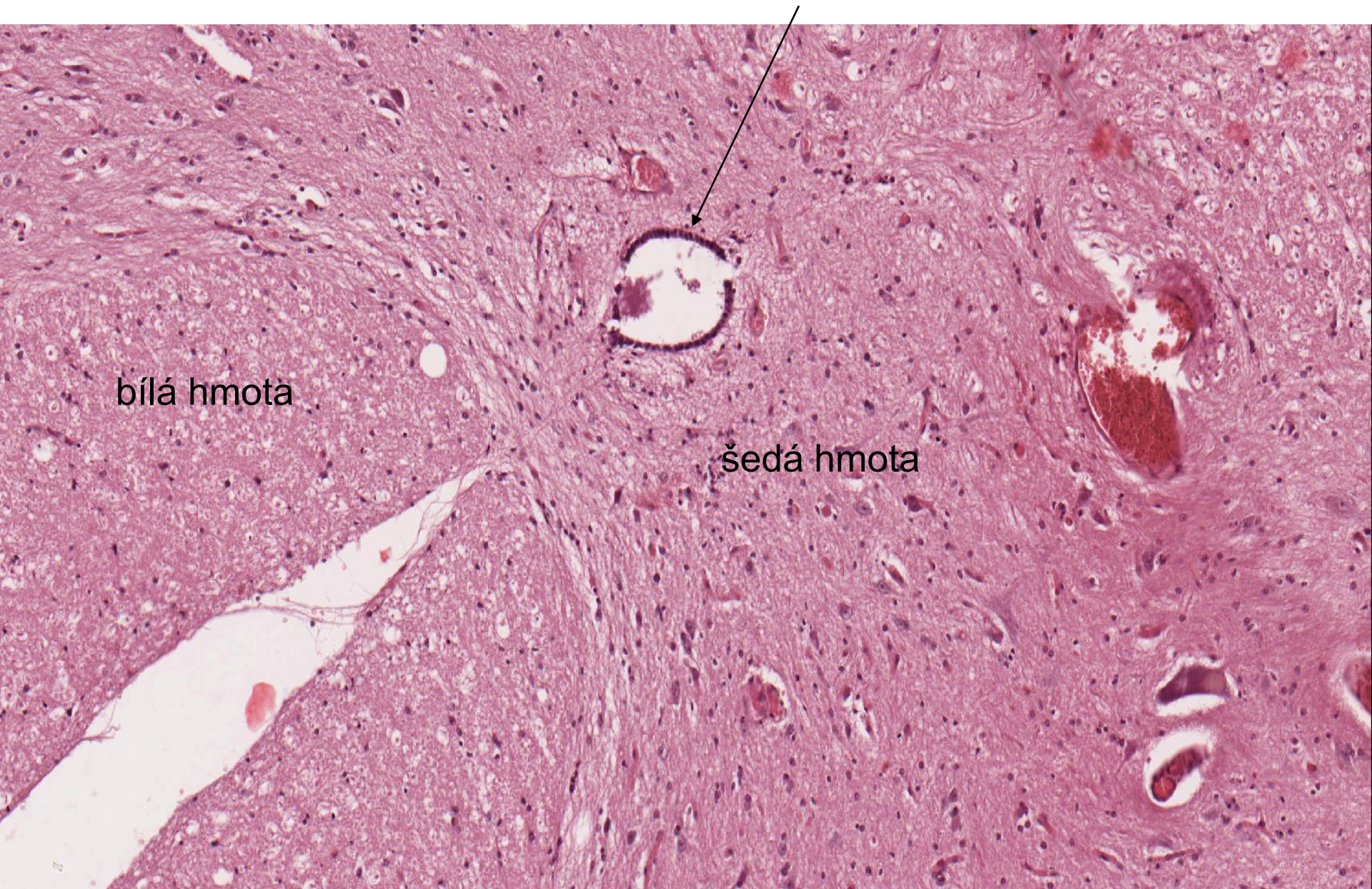
bílá hmota – myelinizované  
axony



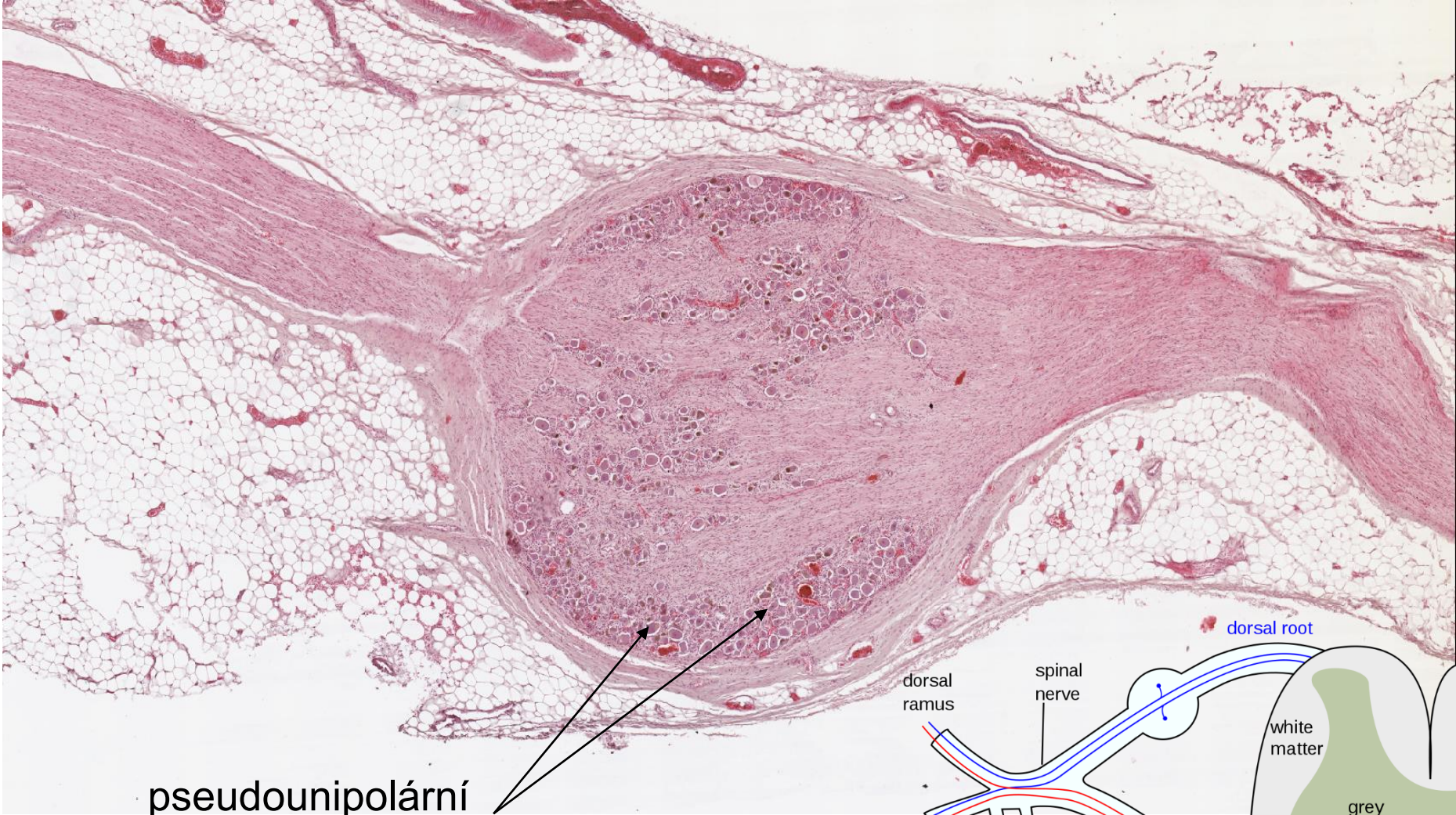
# Somatomotorický multipolární neuron – *medulla spinalis*



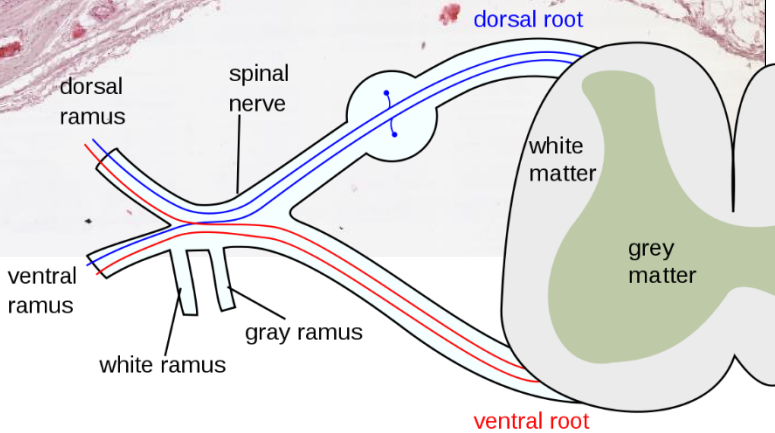
# *Medulla spinalis* – ependymové buňky



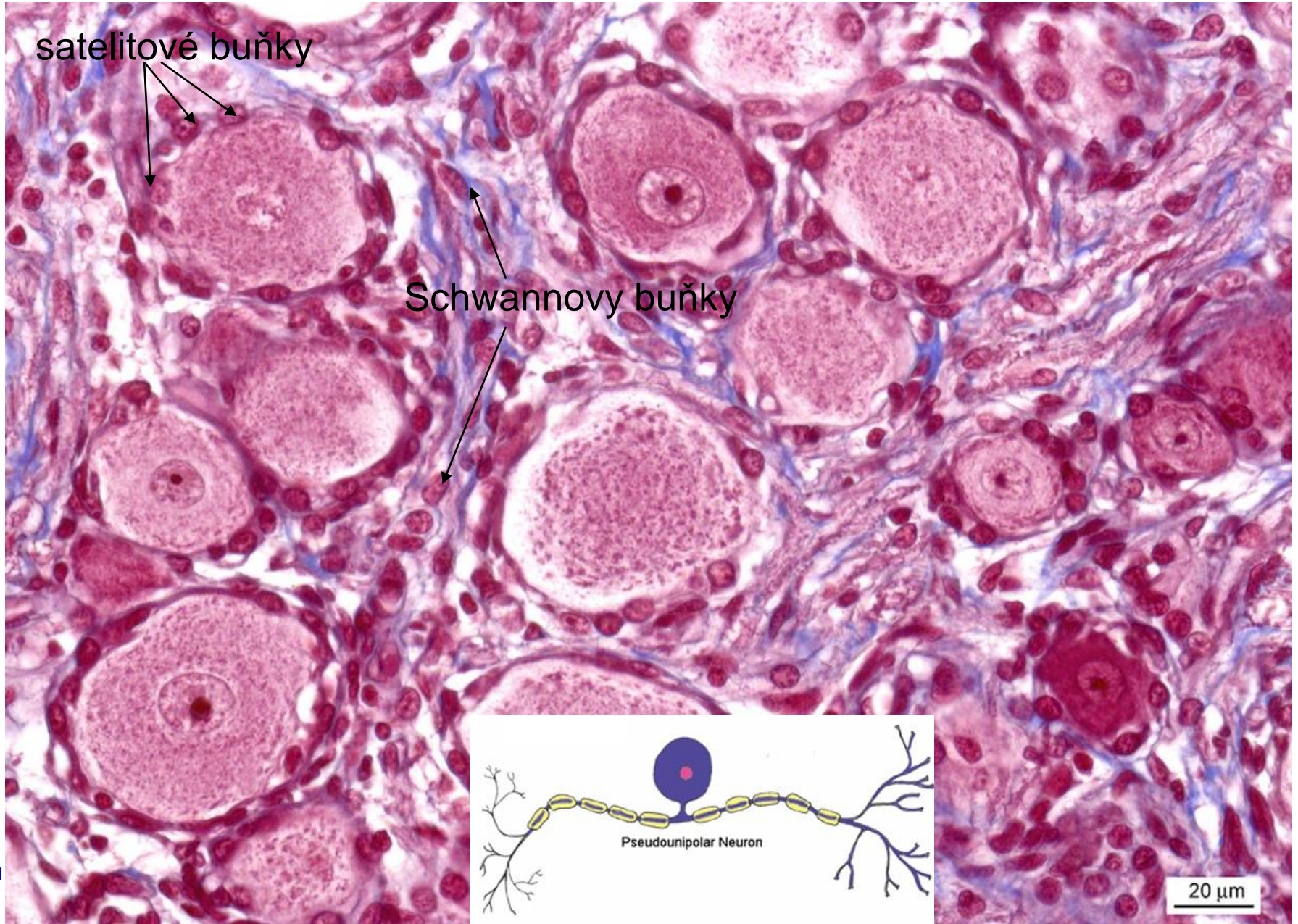
# Ganglion spinale (DRG)



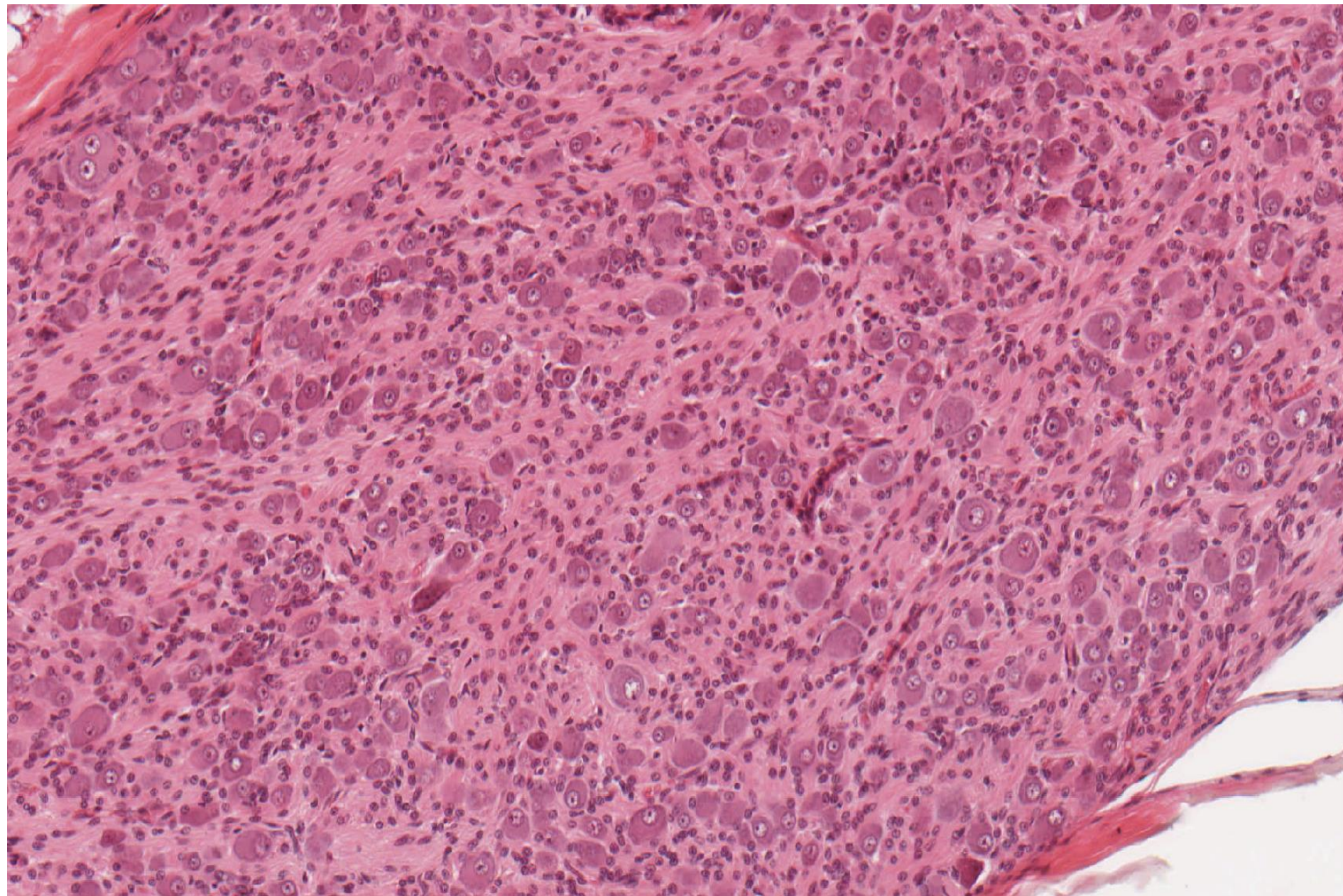
pseudounipolární  
neurony



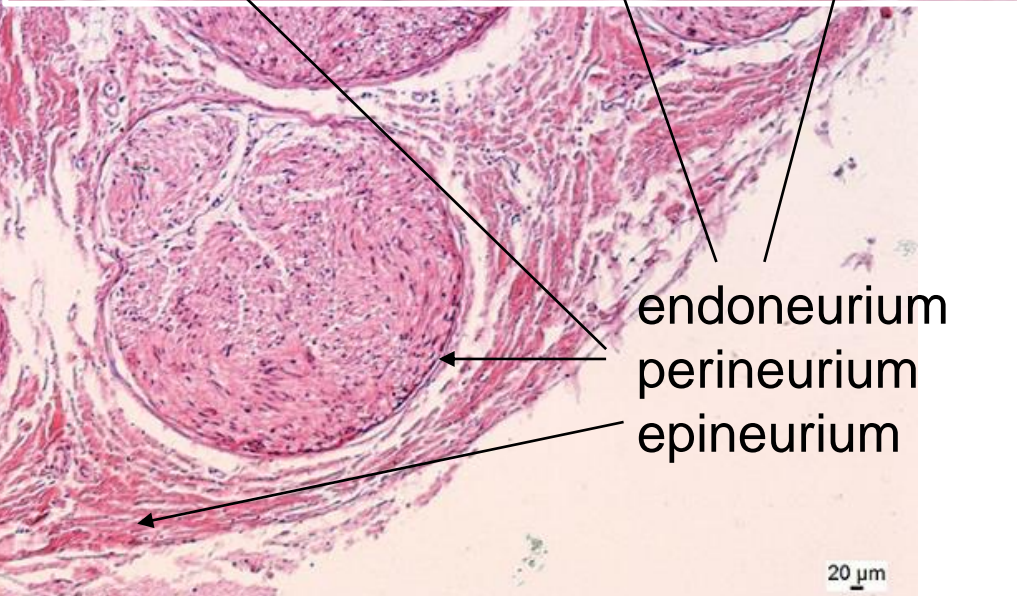
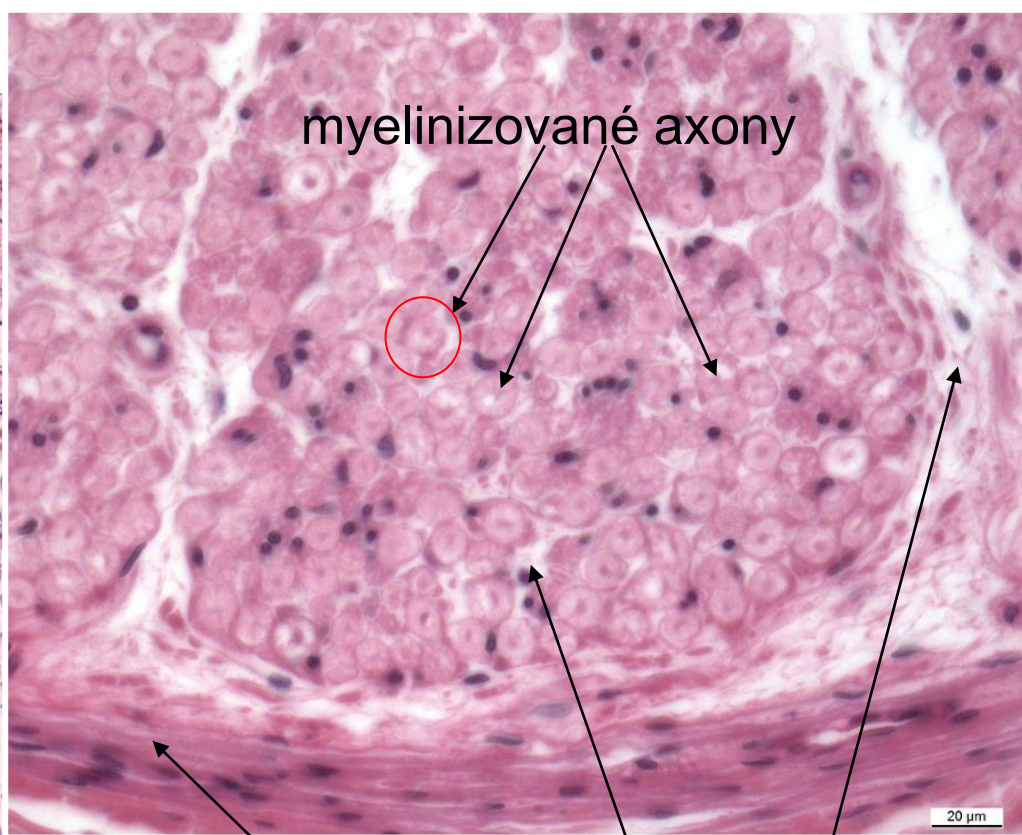
# *Ganglion spinale* (DRG) – pseudounipolární neuron



## Vegetativní ganglion – gangliové buňky (multipolární nn.), satelitové buňky

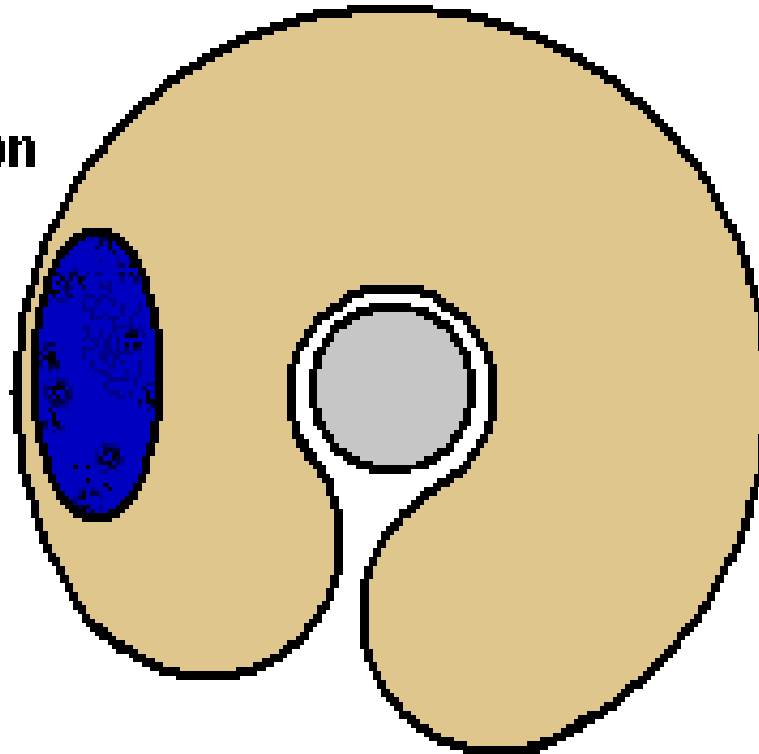


# Periferní nerv



# Vývoj myelinové pochvy

**Myelination of  
a peripheral axon**



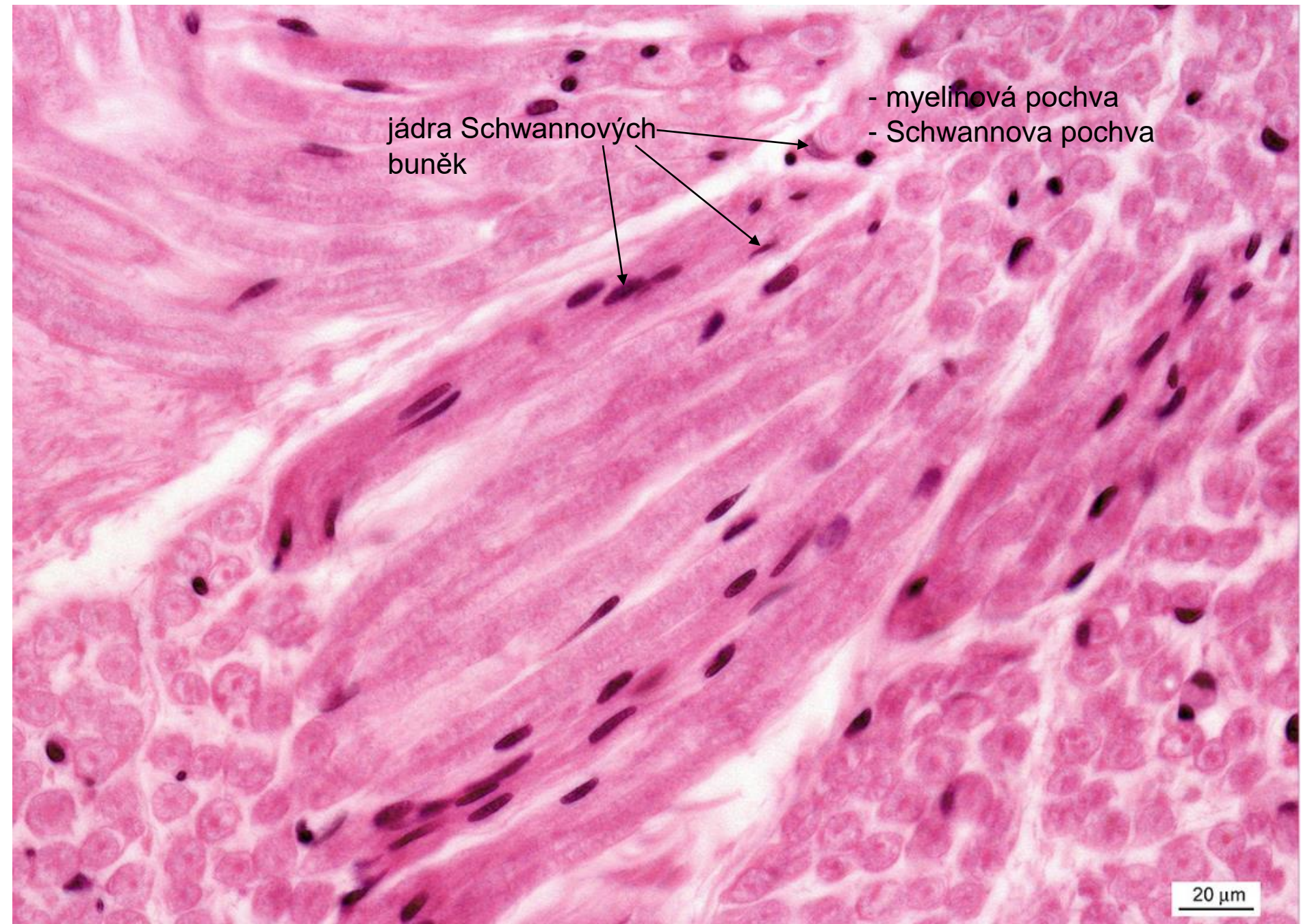


# Periferní nerv

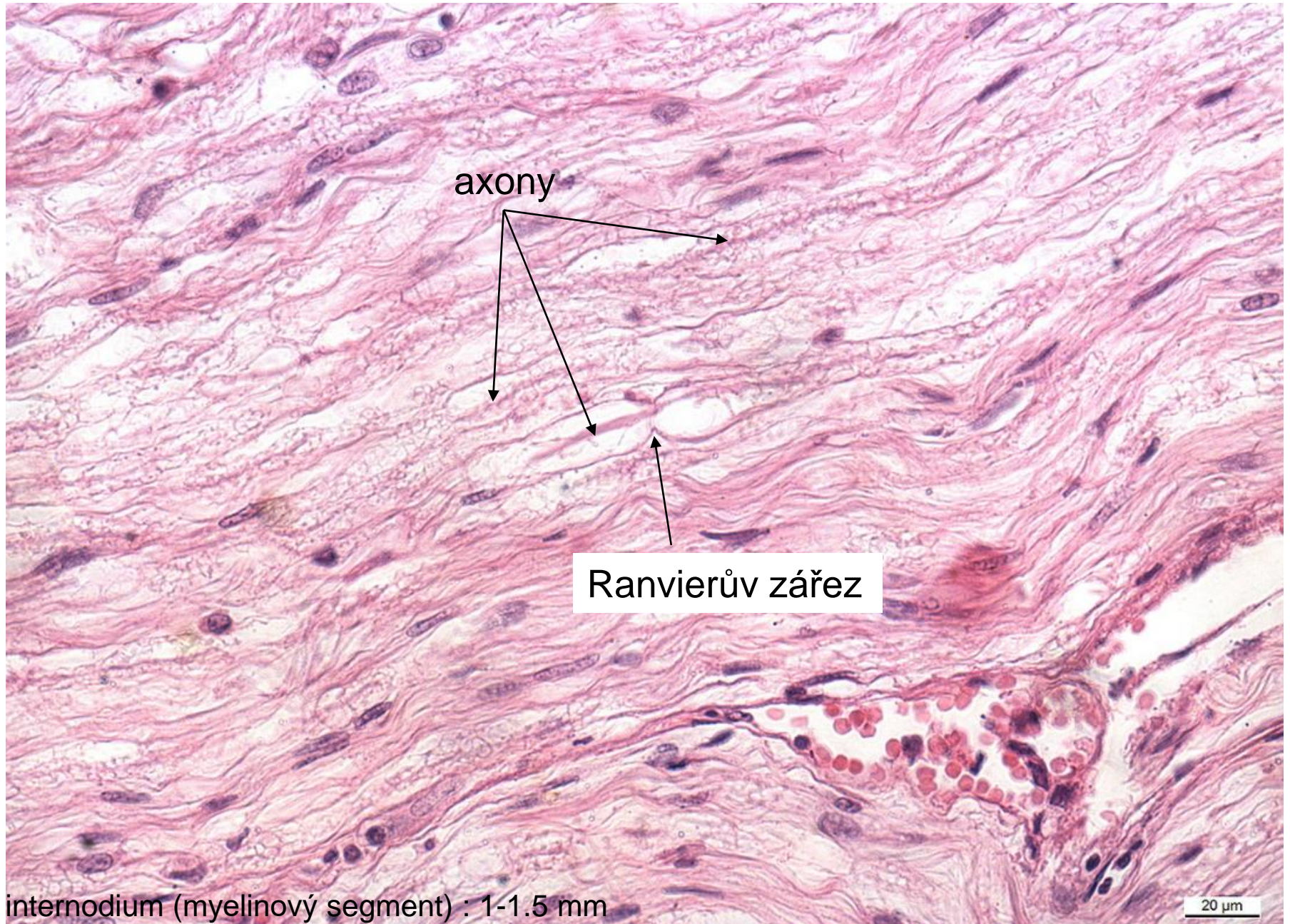
jádra Schwannových  
buněk

- myelinová pochva  
- Schwannova pochva

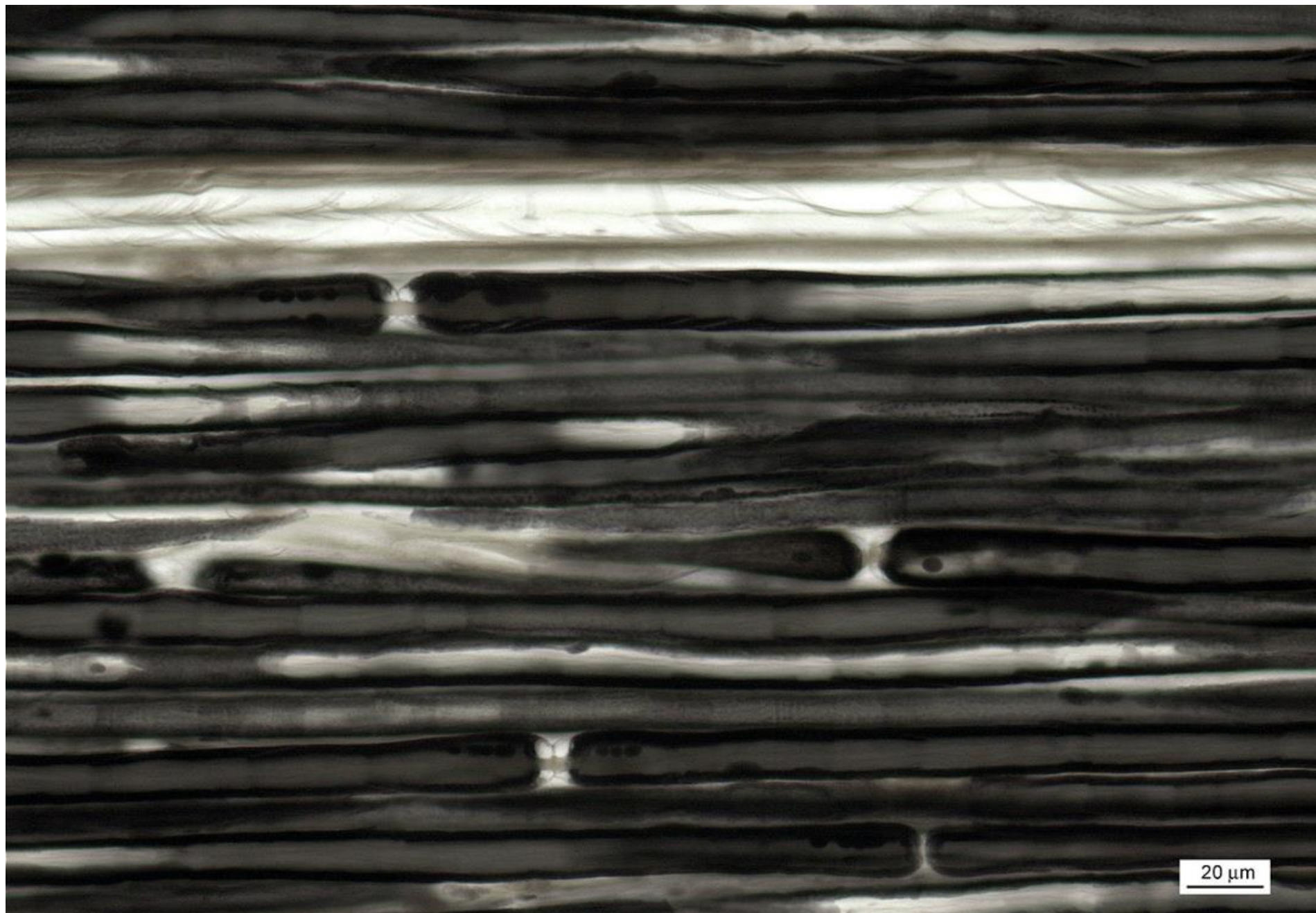
20  $\mu$ m



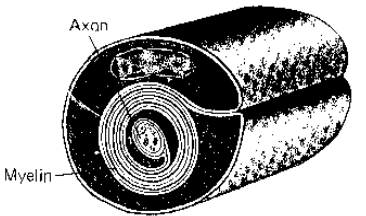
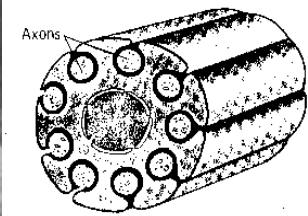
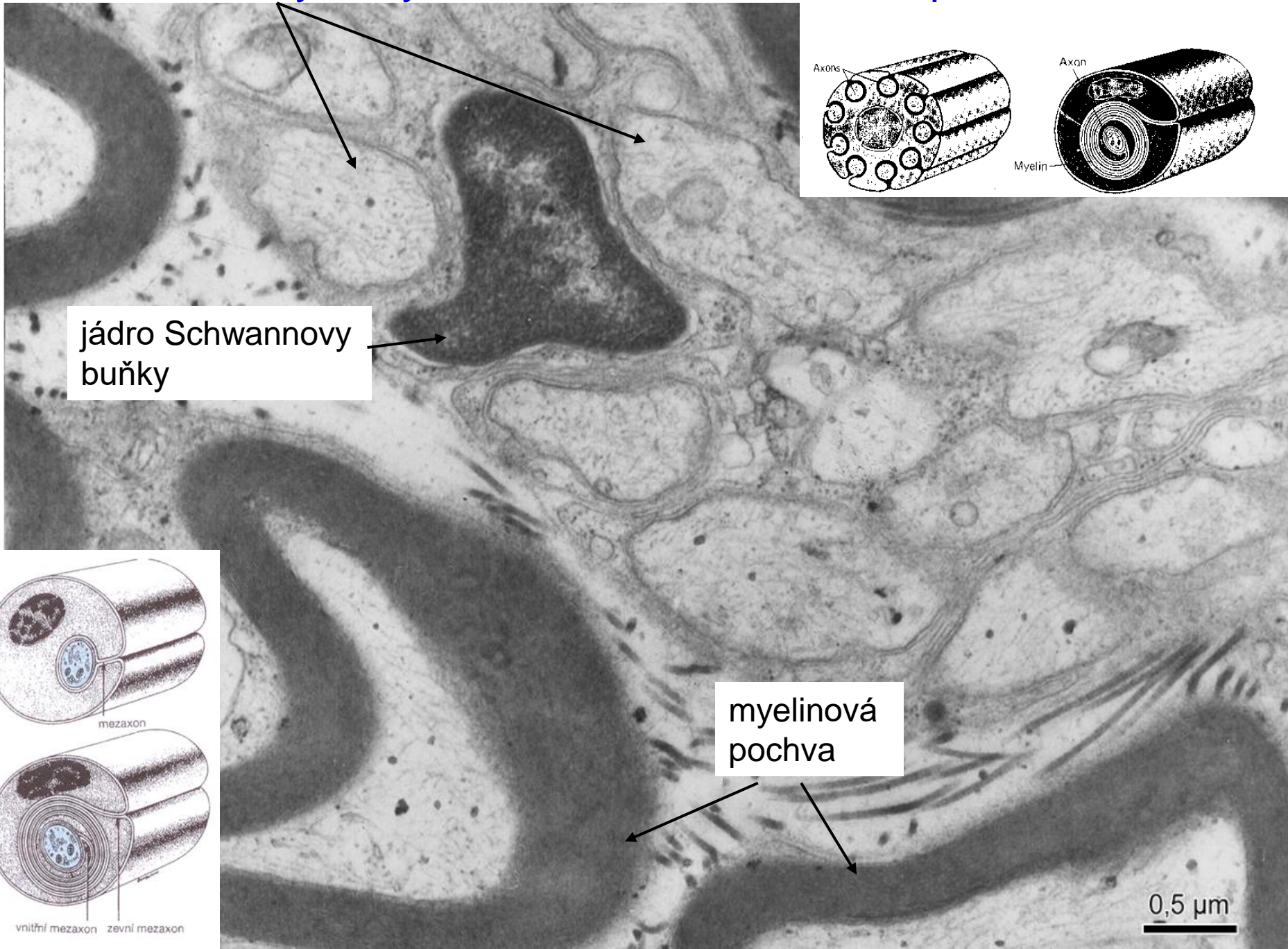
# Periferní nerv – podélný řez



Myelinové pochvy s Ranvierovými zářezy – periferní nerv (OsO<sub>4</sub>)



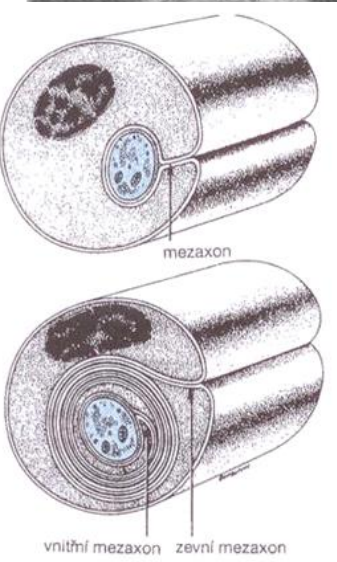
# Axony s myelinovou a Schwannovou pochvou



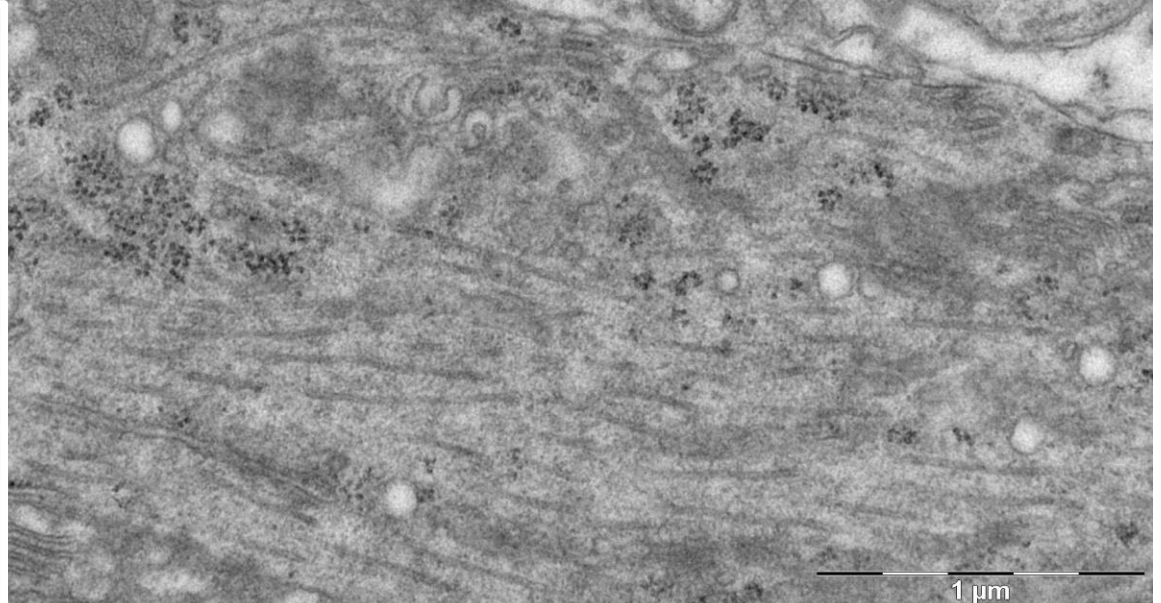
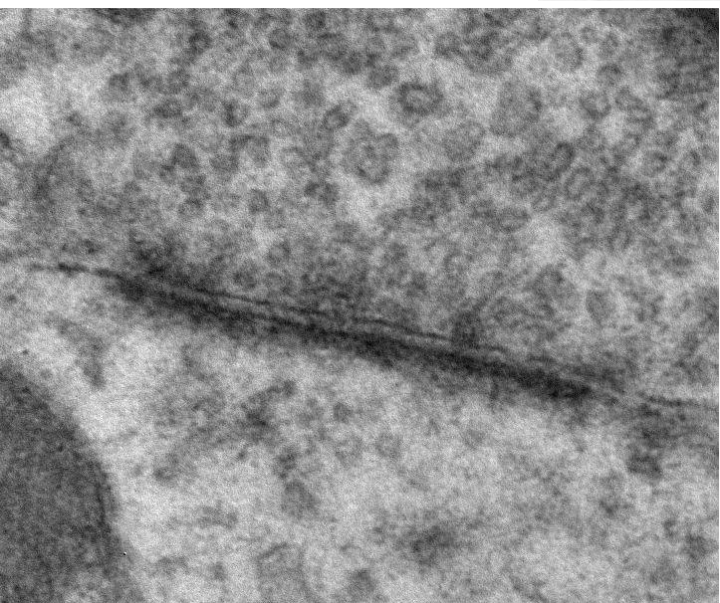
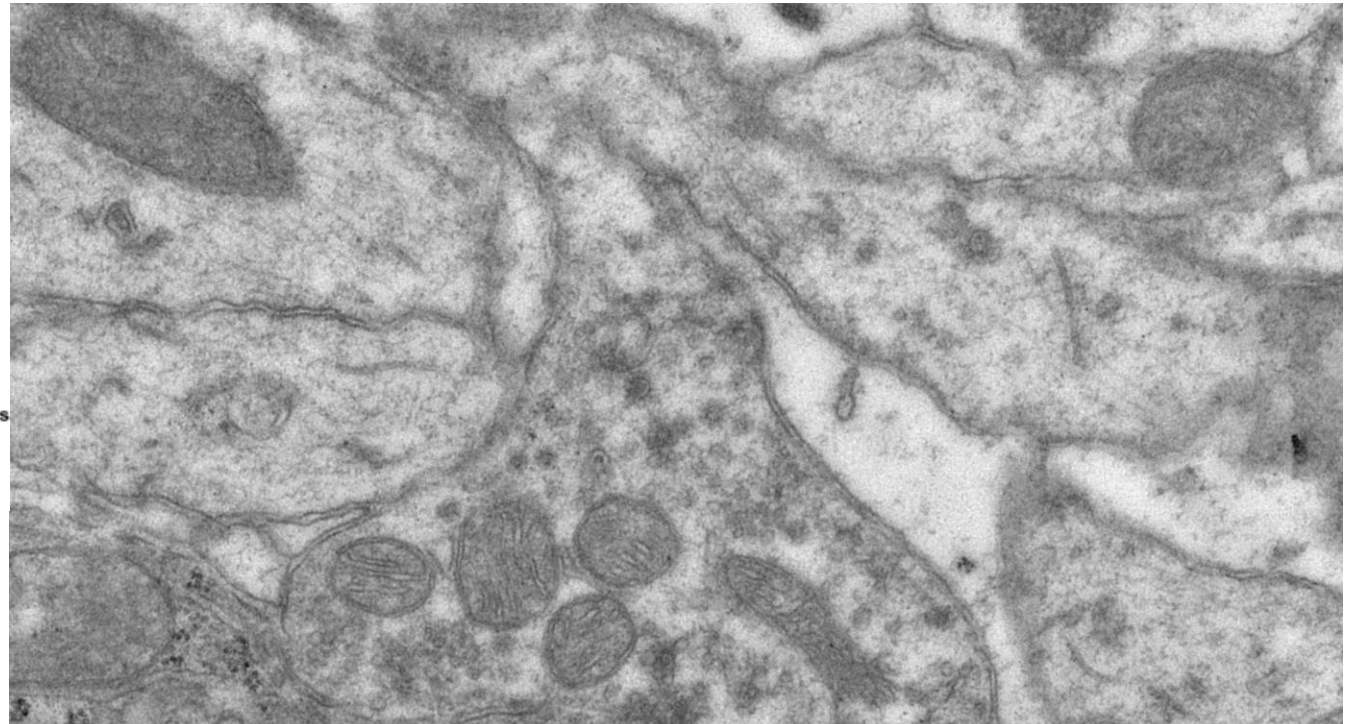
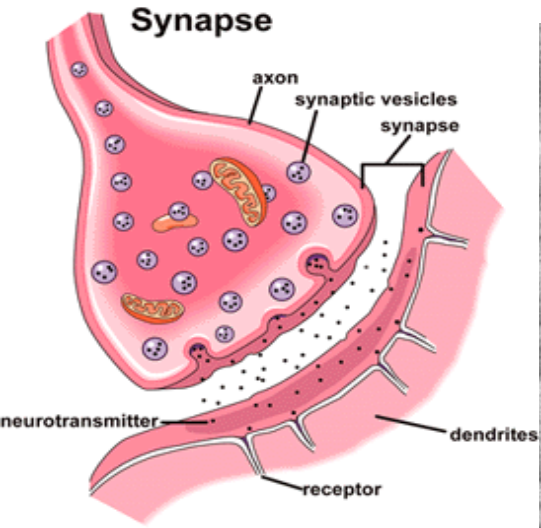
jádro Schwannovy buňky

myelinová pochva

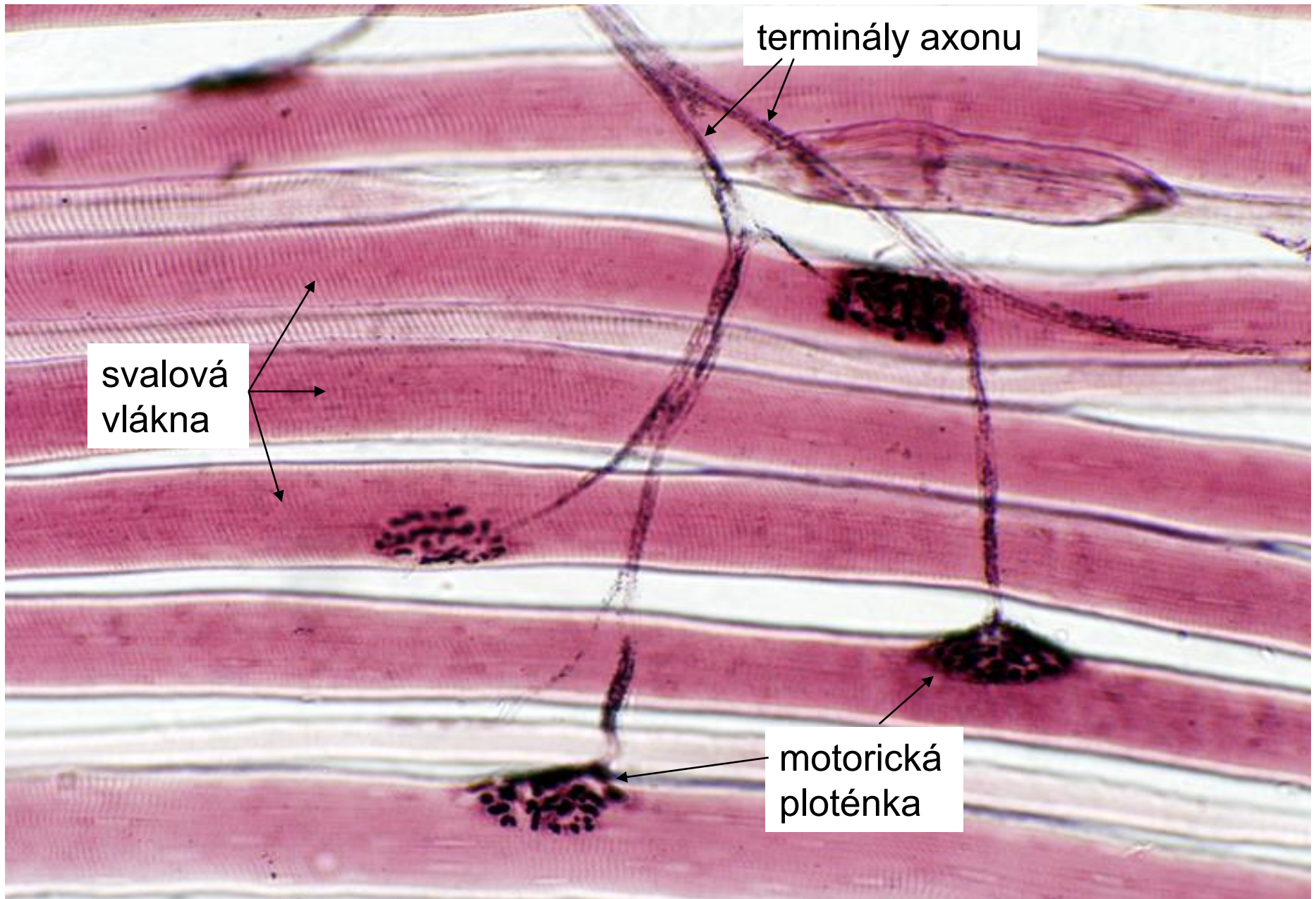
0,5  $\mu\text{m}$



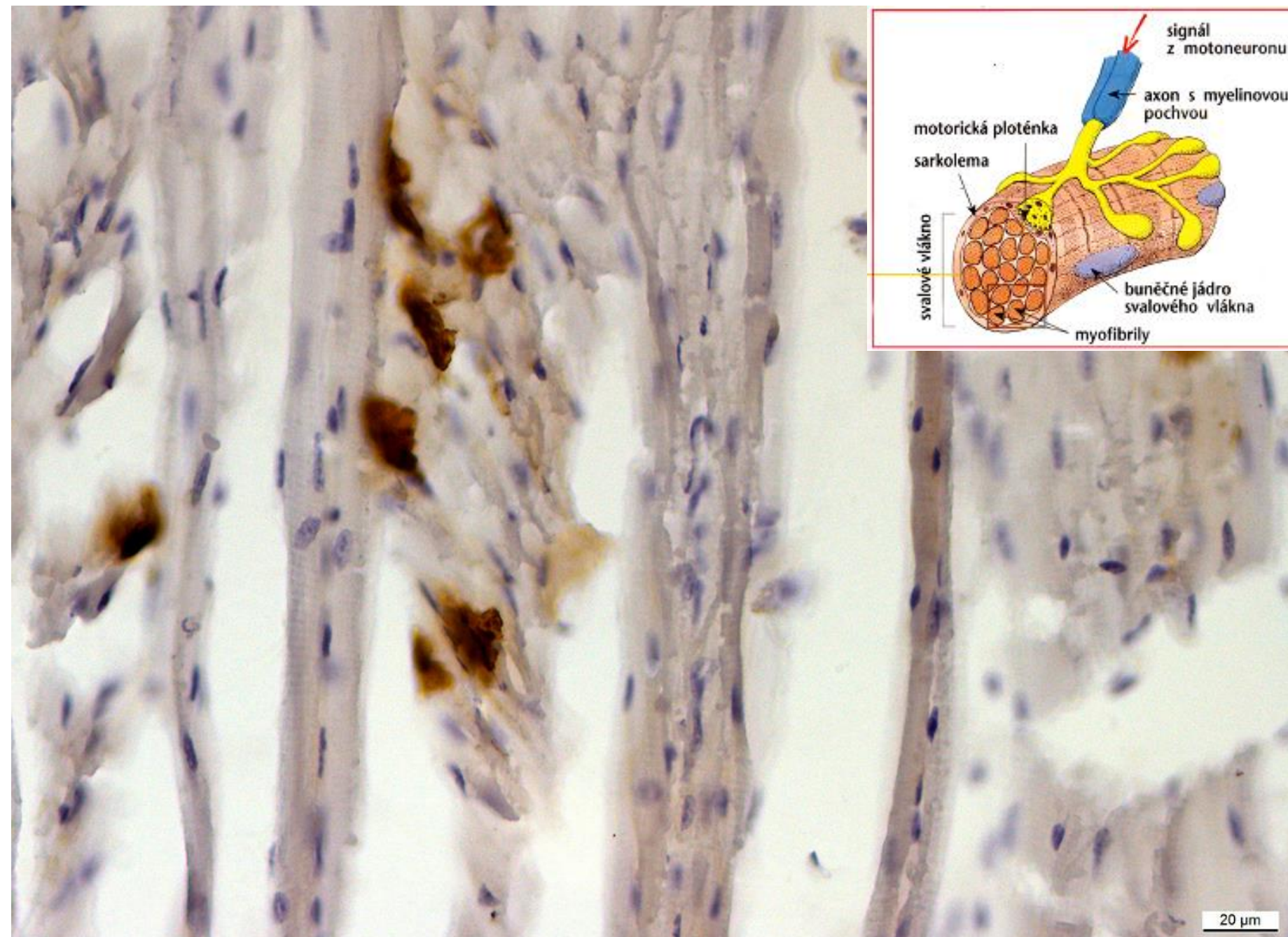
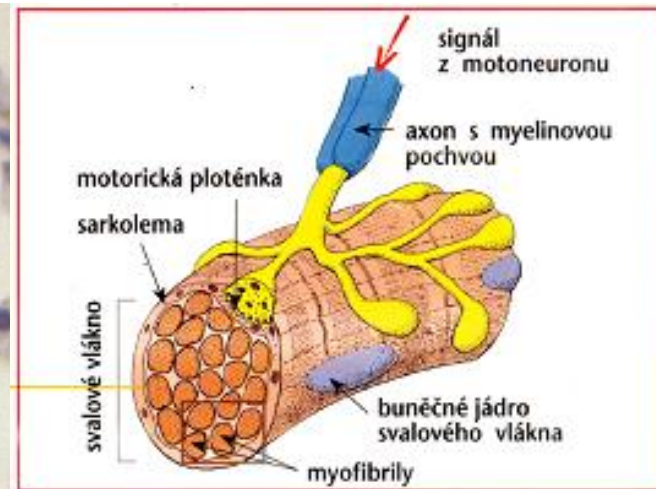
# Synapse



# Motorické ploténky v motorické jednotce



# Motorická ploténka (detekce acetylcholinesterázy)



# NEUROTRANSMITTERY

## **ADRENALINE** fight or flight

produced in stressful situations. Increases heart rate and blood flow, leading to physical boost and heightened awareness.

## **GABA** calming

Calms firing nerves in the central nervous system. High levels improve focus, low levels cause anxiety. Also contributes to motor control and vision.

## **NORADRENALINE** concentration

affects attention and responding actions in the brain. Contracts blood vessels, increasing blood flow.

## **ACETYLCHOLINE** learning

Involved in thought, learning and memory. Activates muscle action in the body. Also associated with attention and awakening.

## **DOPAMINE** pleasure

feelings of pleasure, also addiction, movement and motivation. People repeat behaviors that lead to dopamine release.

## **GLUTAMATE** memory

Most common neurotransmitter. Involved in learning and memory, regulates development and creation of nerve contacts.

## **SEROTONIN** mood

contributes to well-being and happiness. Helps sleep cycle and digestive system regulation. Affected by exercise and light exposure.

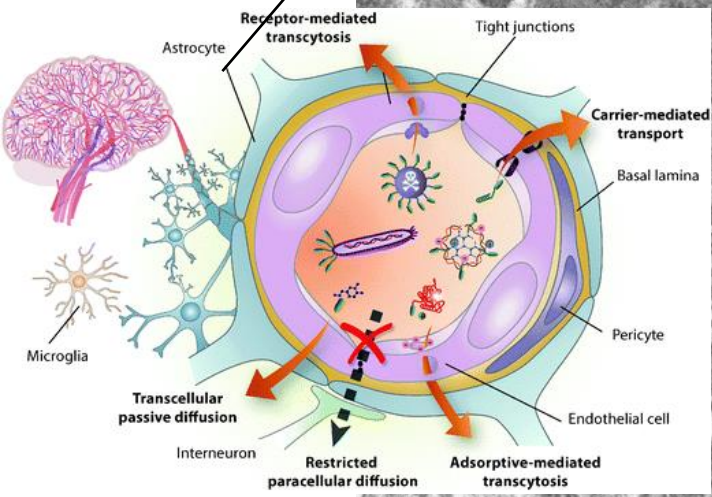
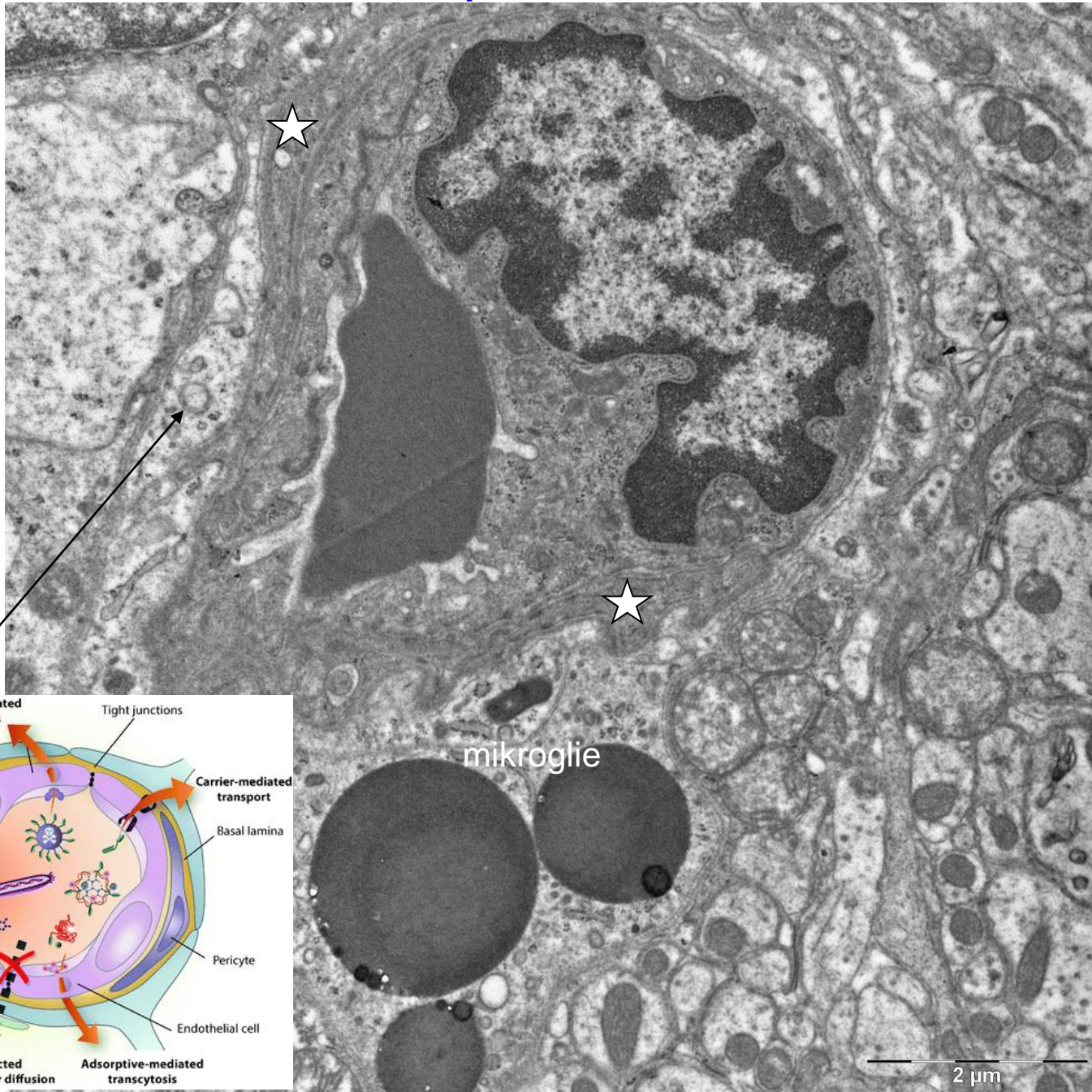
## **ENDORPHINS** euphoria

Released during exercise, excitement and sex, producing well-being and euphoria, reducing pain



# Hemato-encephalická bariéra

☆ pericyt



# NERVOVÁ TKÁŇ

## Preparáty:

Pyramidová buňka (75, 76. Cortex cerebri)

Purkyňova buňka (77. Cerebellum)

Nisslova substance (78. Cerebellum nebo 79. Medulla spinalis)

Somatomotorický multipolární neuron (79. Medulla spinalis)

Pseudounipolární neuron (81. Ganglion spinale)

Periferní nerv (84, 85. Periferní nerv – příčný řez)

Periferní nerv (86, 87. Periferní nerv – podélný řez)

## Atlas EM:

Neuron – cortex cerebri (3, 48), Purkyňova buňka (49)

Oligodendrocyt (50)

Synapse (51)

Hemato-encephalická bariéra (52)

Periferní nervy (53, 54)