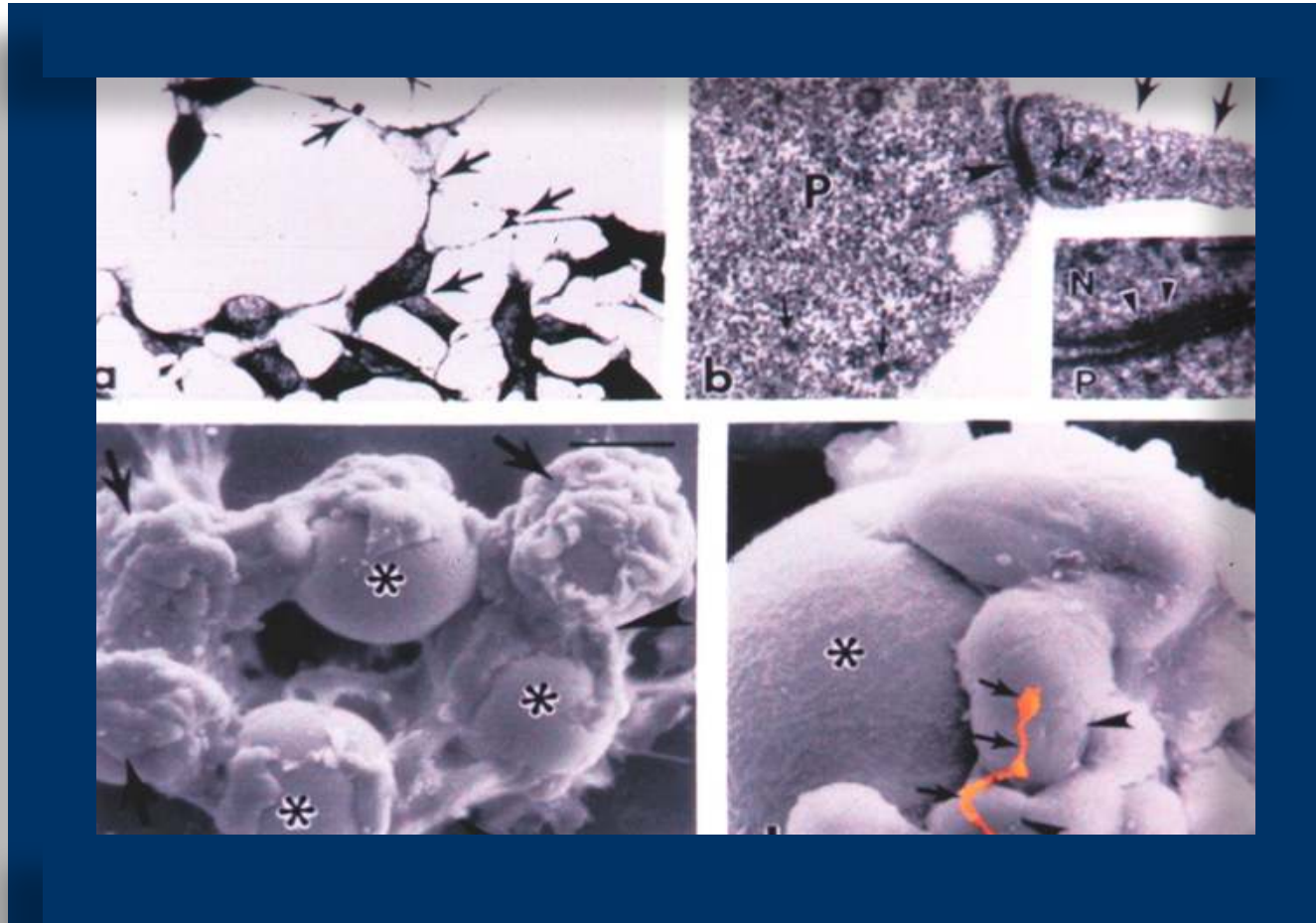


BASICS OF NEUROBIOLOGY

The cell

ZSOLT LIPOSITS

Immortalized gonadotropin-releasing hormone-synthesizing neurons



Organism
Organ systems
Organs

Tissues

Cells

Cell organelles

Organic and inorganic compounds

Macroscopy

Light microscopy
Electron microscopy

Molecular biology
Biochemistry
Genetics

Basics of Neurobiology: The cell

Epithelia

Covering
Glandular
Sensory
Pigmented

Connective tissues

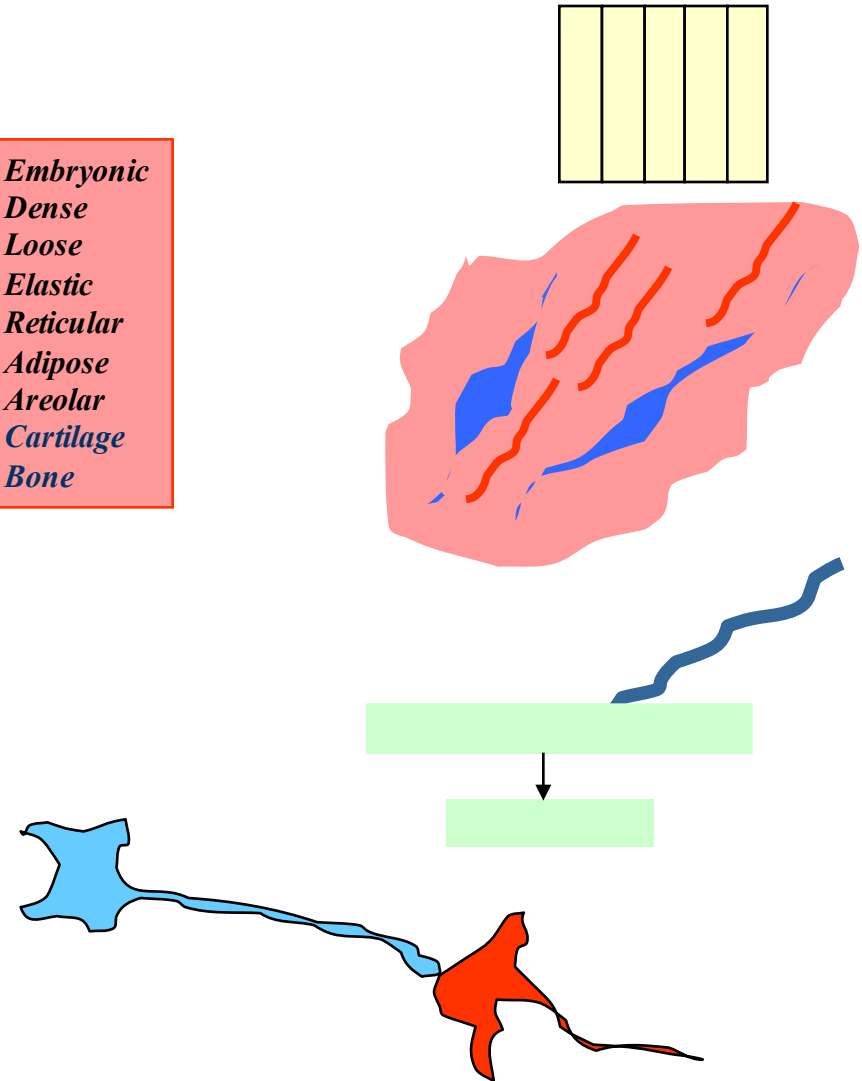
Embryonic
Dense
Loose
Elastic
Reticular
Adipose
Areolar
Cartilage
Bone

Muscle tissues

Smooth
Striated
Cardiac

Nervous tissue

Neurons
Glia



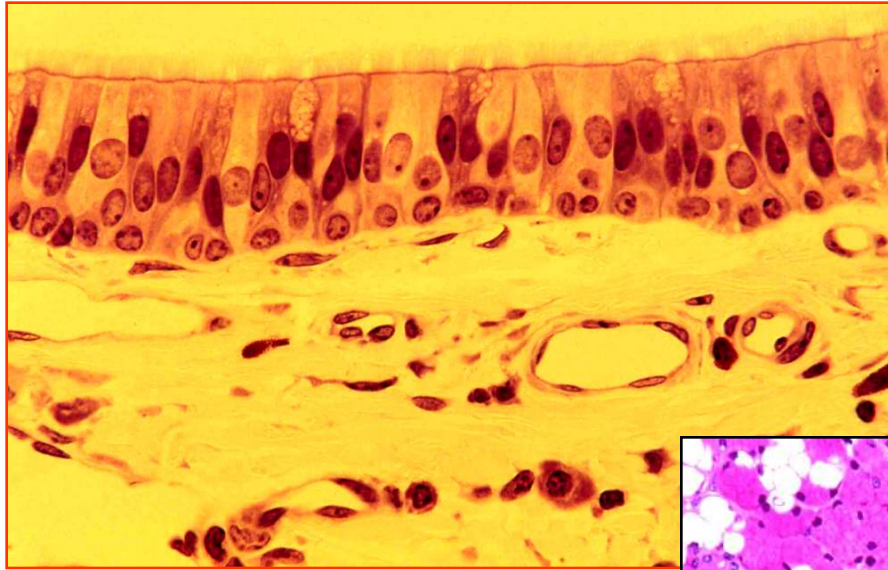
Basics of Neurobiology: The cell

INTEGRATION OF TISSUES



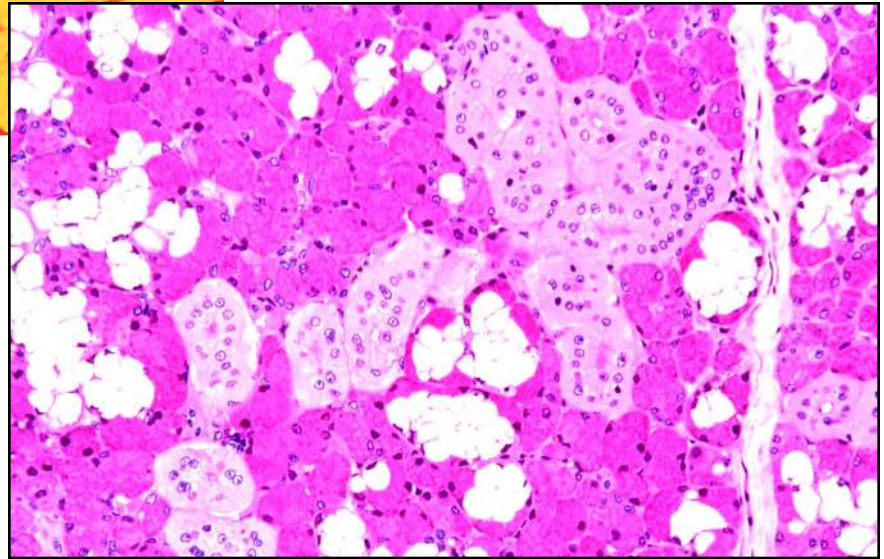
MOTONEURON AXON TERMINALS- **STRIATED MUSCLE FIBERS**

Basics of Neurobiology: The cell



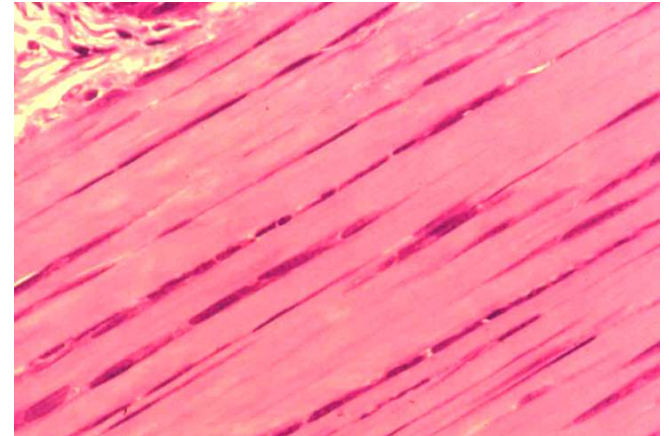
LINING EPITHELIUM

GLANDULAR EPITHELIUM

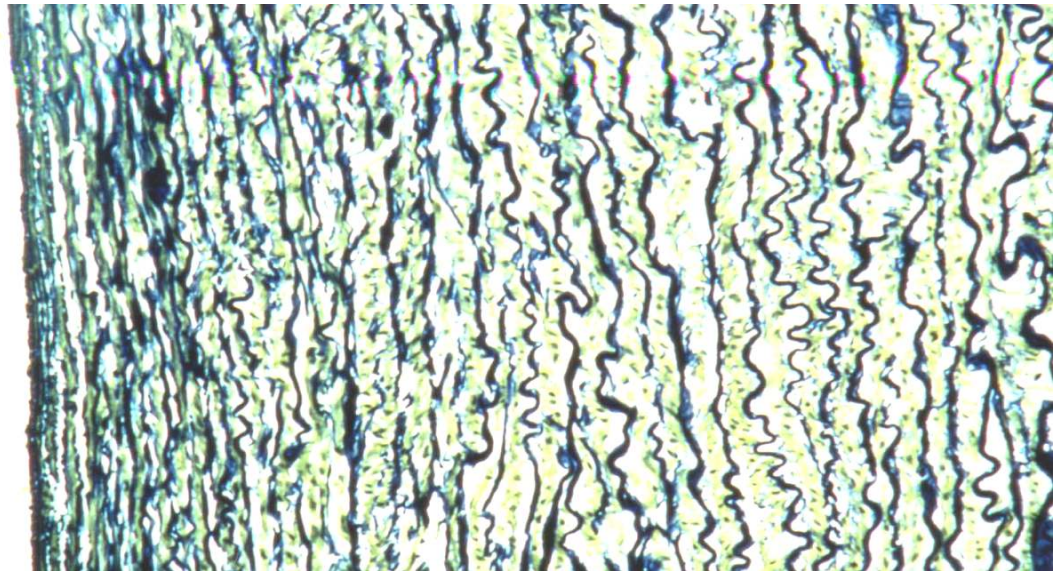


Basics of Neurobiology: The cell

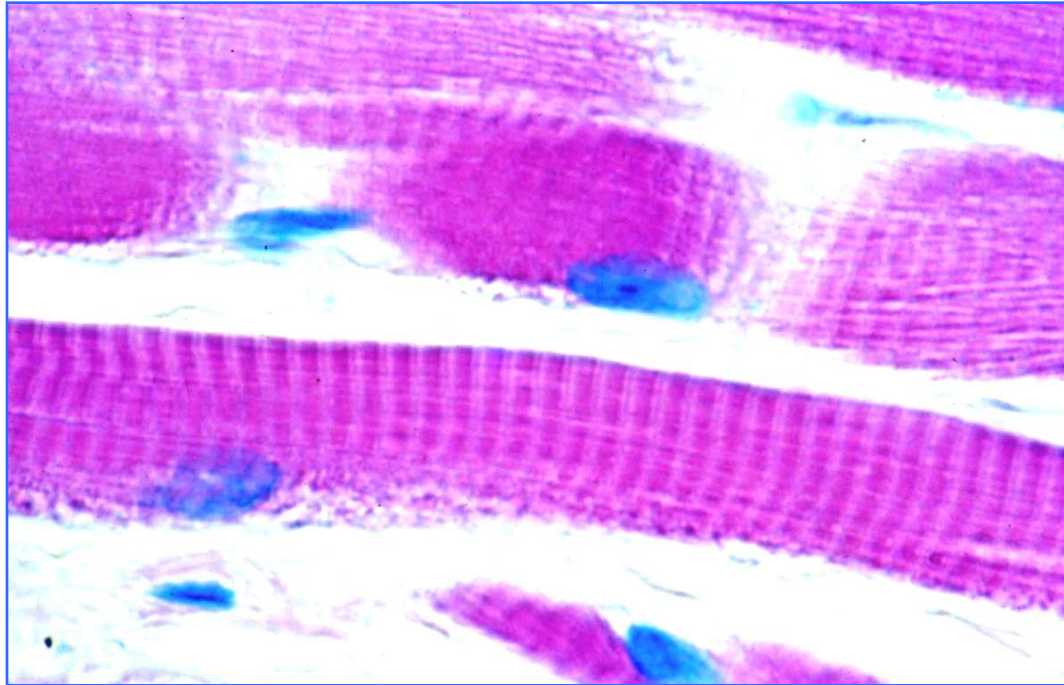
DENSE FIBROUS CONNECTIVE TISSUE (TENDON)



ELASTIC CONNECTIVE TISSUE

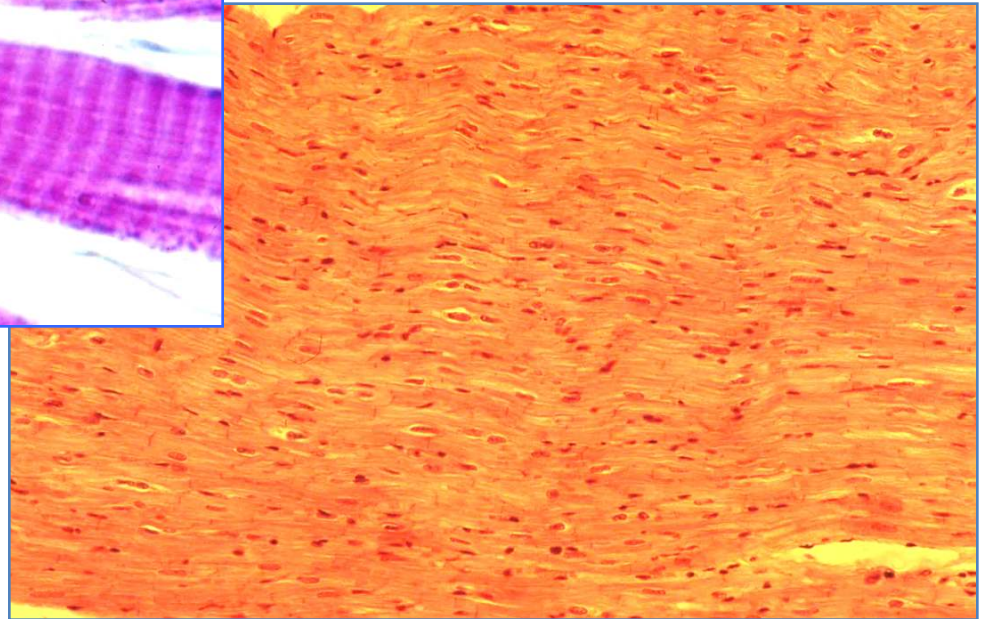


Basics of Neurobiology: The cell

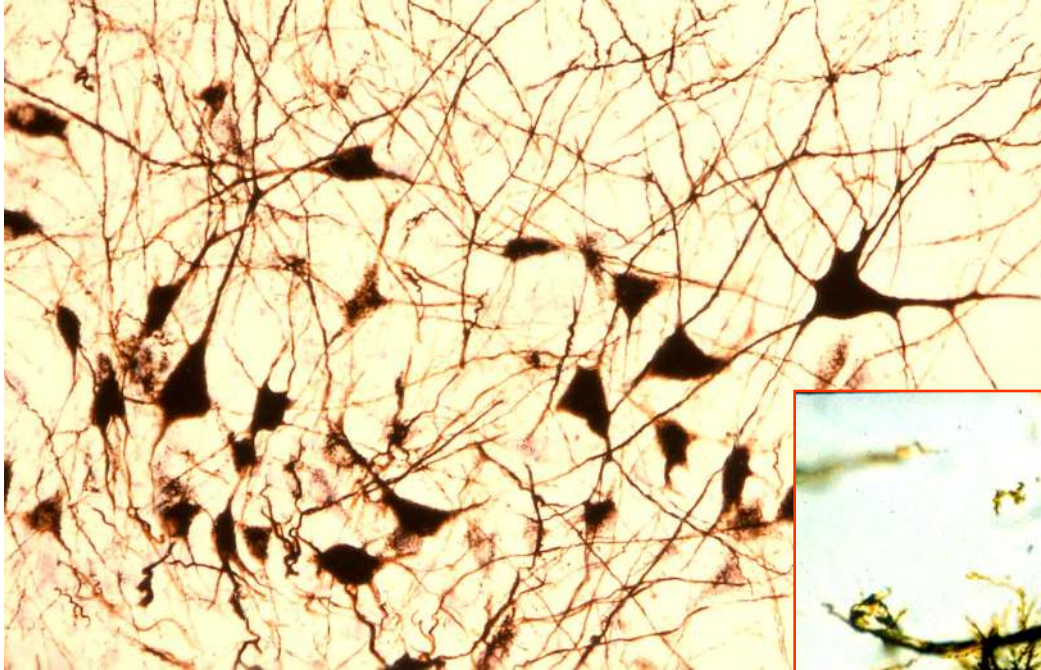


← STRIATED MUSCLE

CARDIAC MUSCLE →



Basics of Neurobiology: The cell

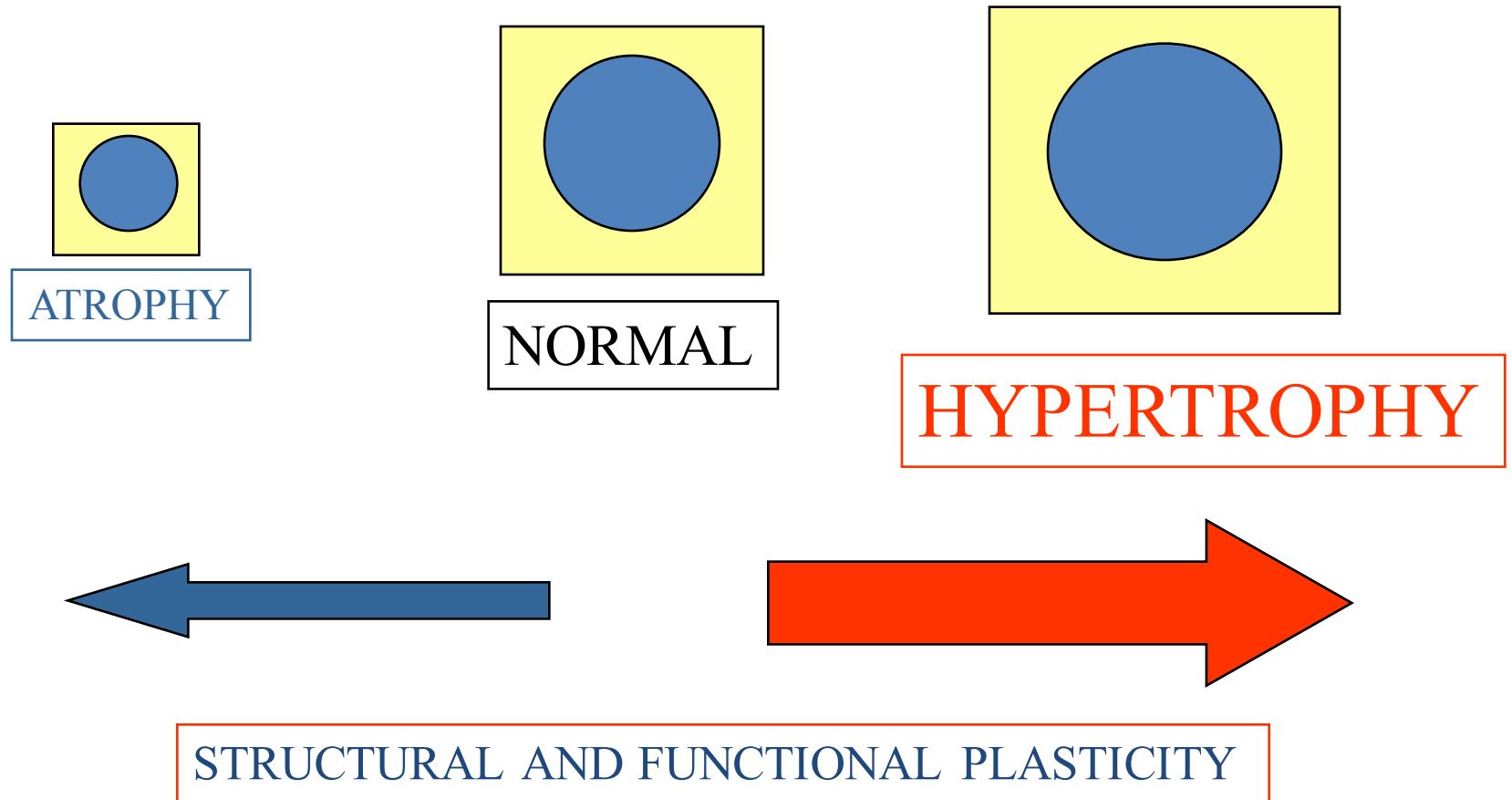


← NEURON

GLIA →

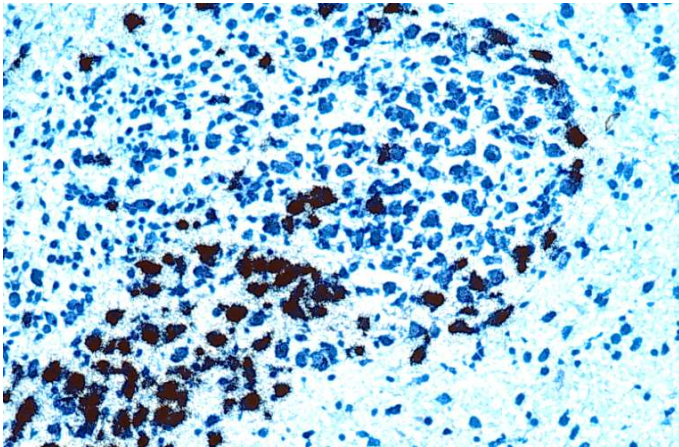
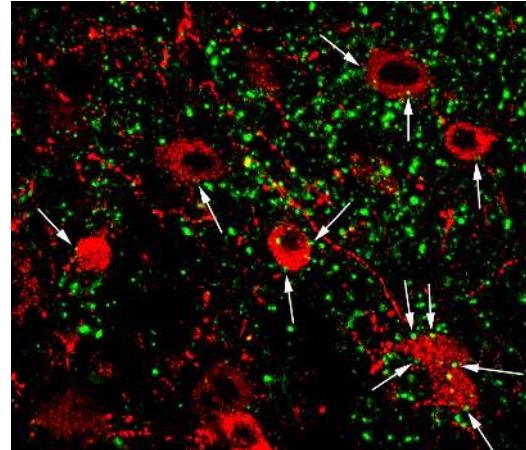
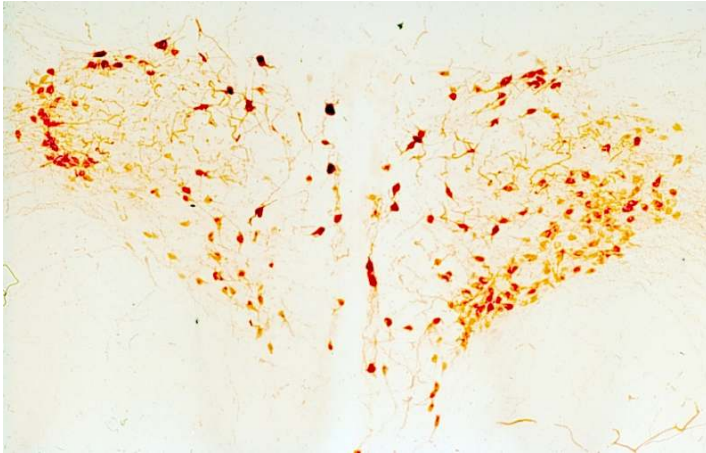


Basics of Neurobiology: The cell



Basics of Neurobiology: The cell

IMMUNOCYTOCHEMISTRY

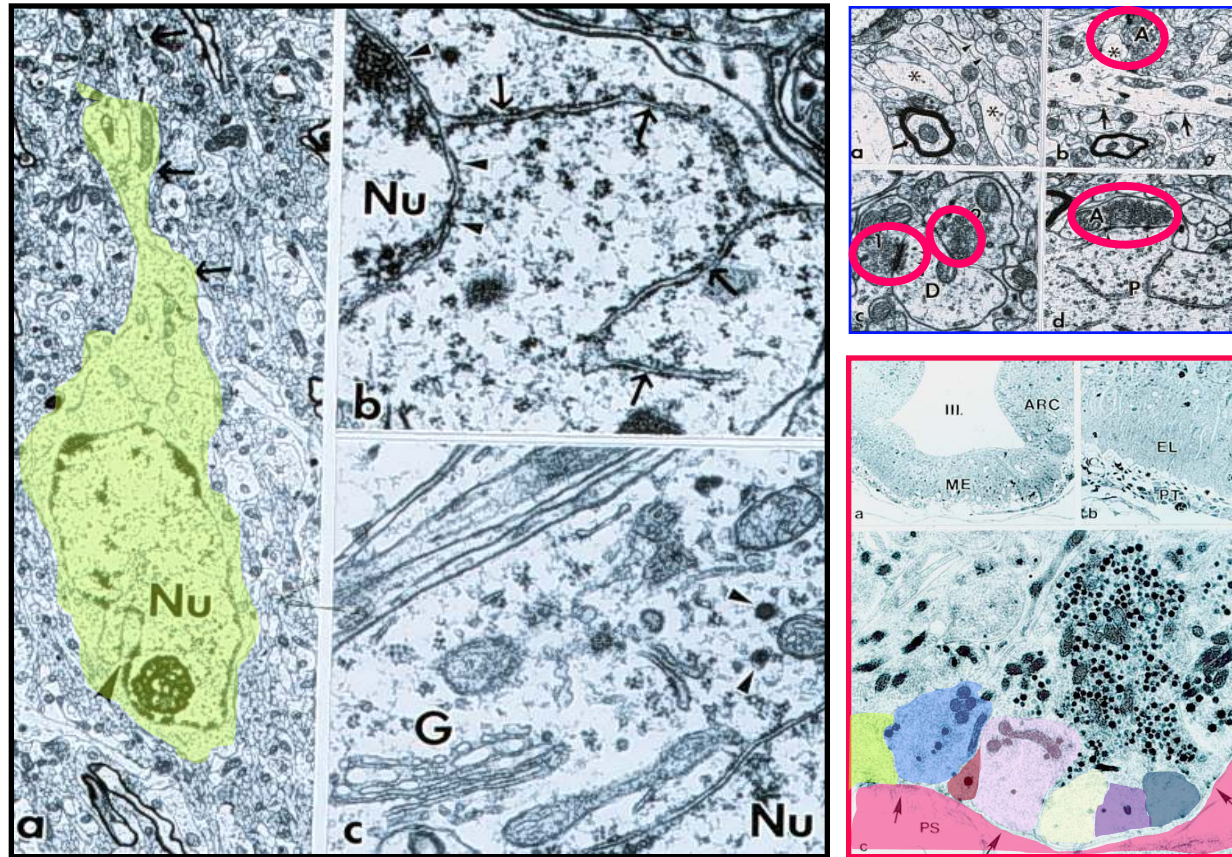


IN SITU HYBRIDIZATION HISTOCHEMISTRY

CHEMICAL NEUROANATOMY

Basics of Neurobiology: The cell

ELECTRONMICROSCOPY. ULTRASTRUCTURE OF NEURONS

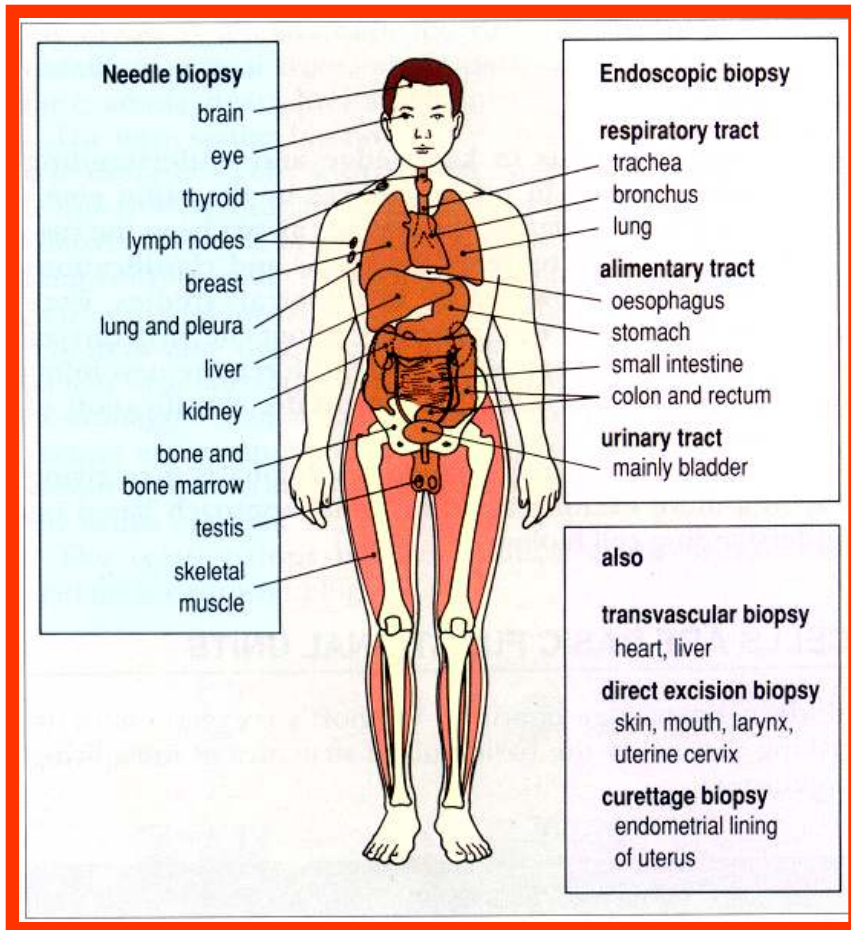


Basics of Neurobiology: The cell

FUNCTIONAL CLASSIFICATION OF CELLS

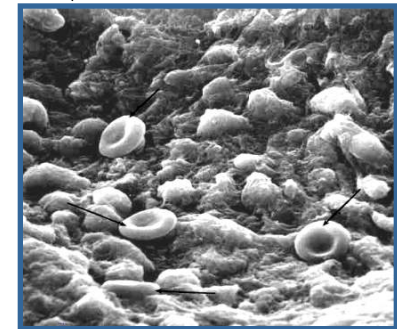
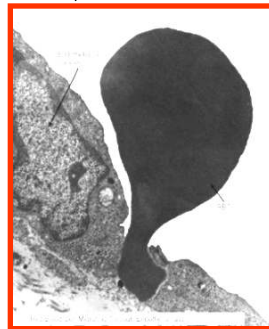
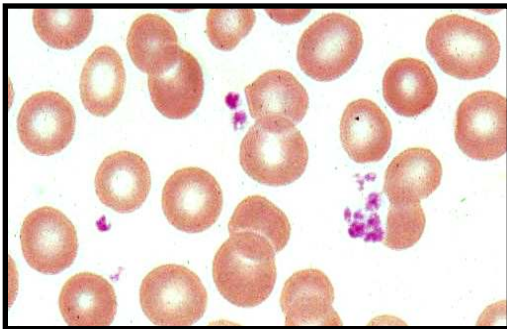
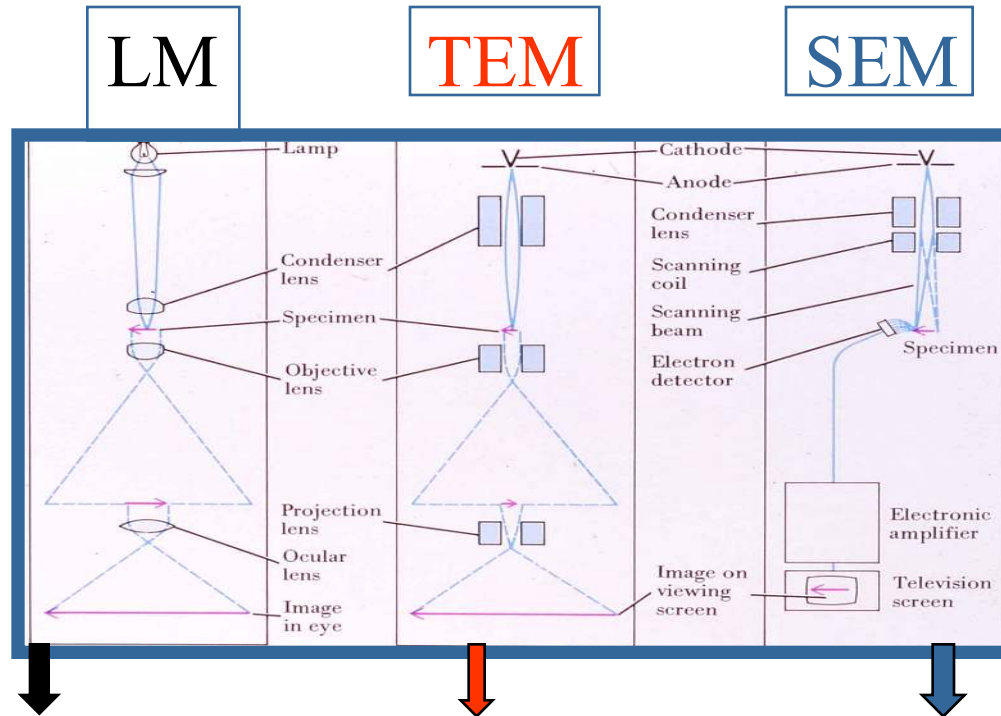
CELL TYPE	EPITHELIAL	SUPPORT	CONTRACTILE	NERVE	GERM	BLOOD	IMMUNE	ENDOCRINE
Example	gut and blood vessel lining, covering skin	fibrous support tissue, cartilage, bone	muscle	brain	spermatozoa ova	circulating red and white cells	lymphoid tissues (nodes and spleen)	thyroid and adrenal
Function	barrier, absorption, secretion	organize and maintain body structure	movement	direct cell communication	reproduction	oxygen transport, defense	defense	indirect cell communication
Special features	tightly bound together by cell junctions	produce and interact with extracellular matrix material	filamentous proteins cause contraction	release chemical messengers onto surface or other cells	haploid chromosome set	proteins bind oxygen, proteins destroy bacteria	recognize and destroy foreign material	secrete chemical messengers

Basics of Neurobiology: The cell



B
I
O
P
S
Y

Basics of Neurobiology: The cell

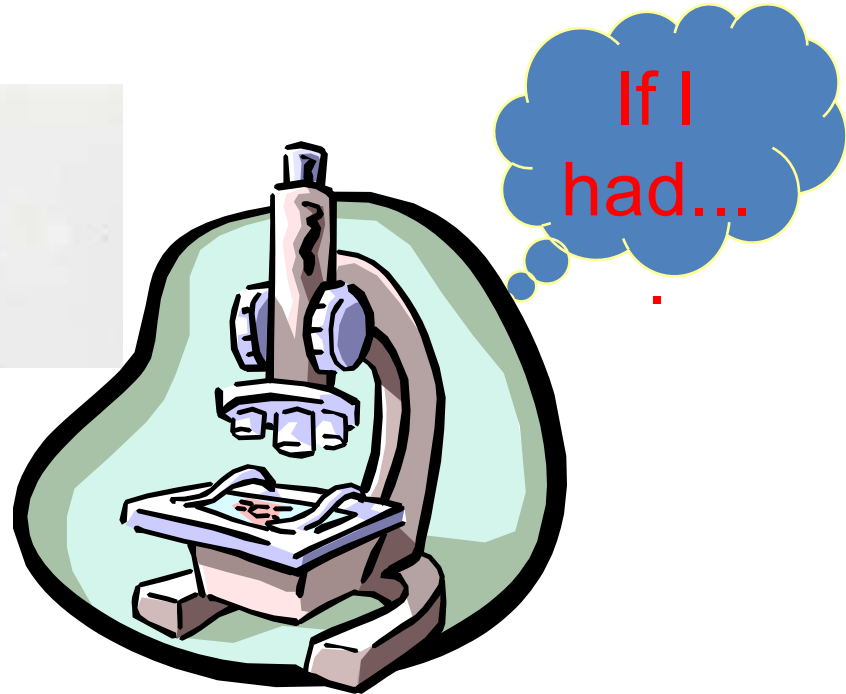


On-line histology

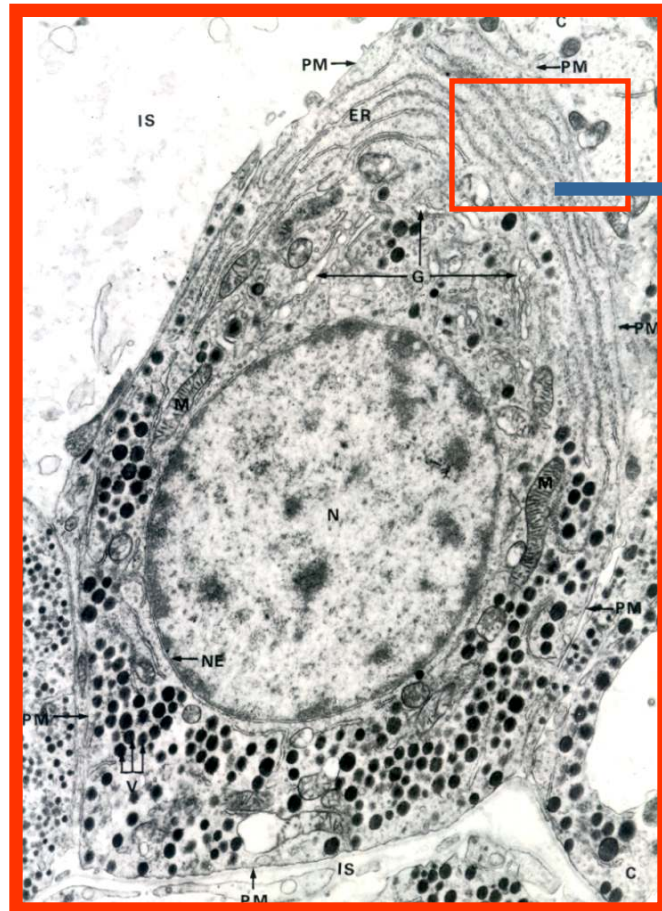
<http://www.meddean.luc.edu/lumen/MedEd/Histo/virtualhistology.htm>



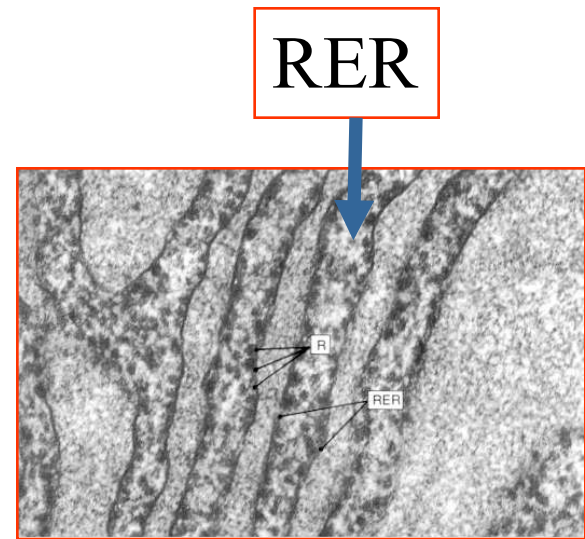
LM morphology



Basics of Neurobiology: The cell



Ultrastructure



Function

Protein synthesis