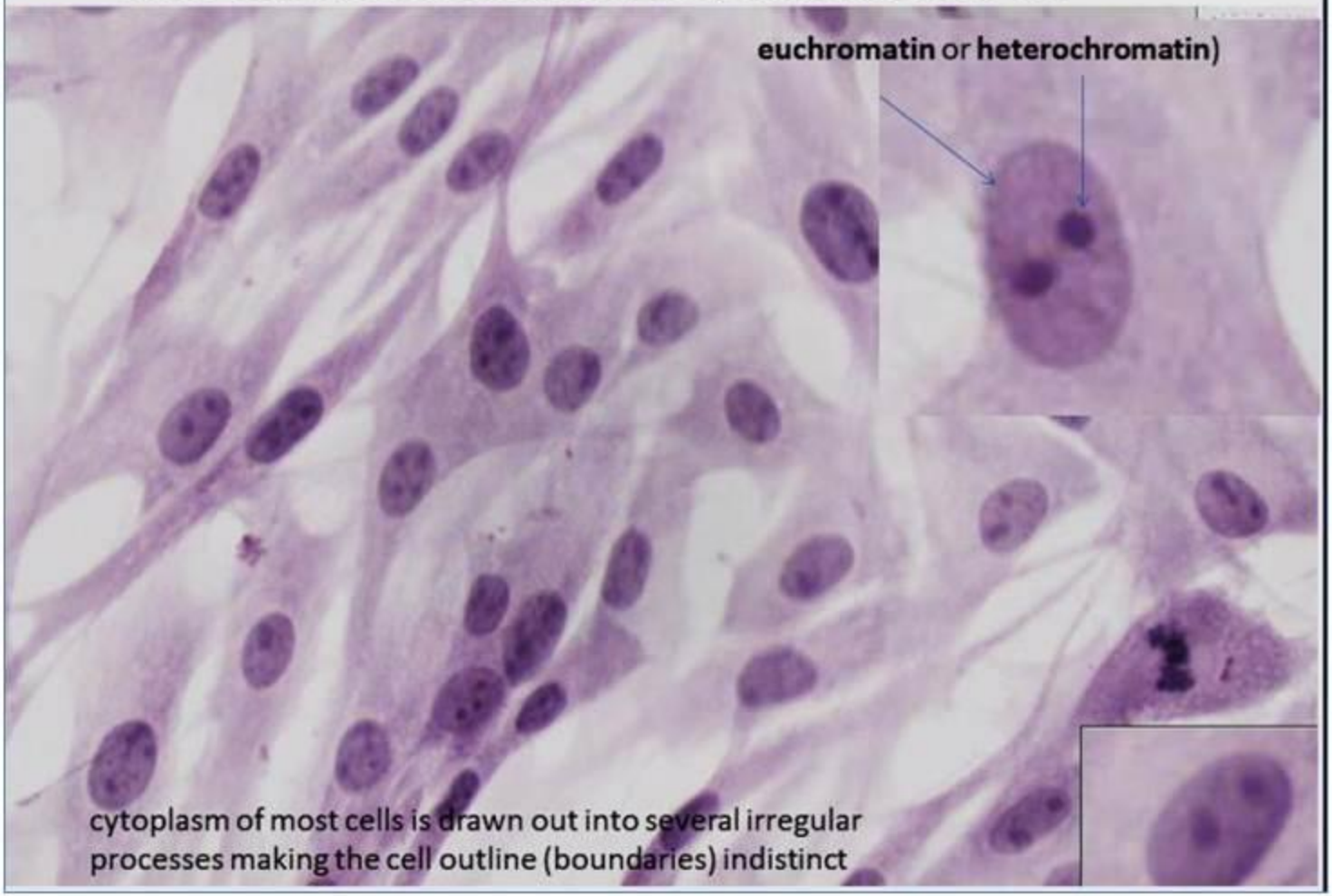
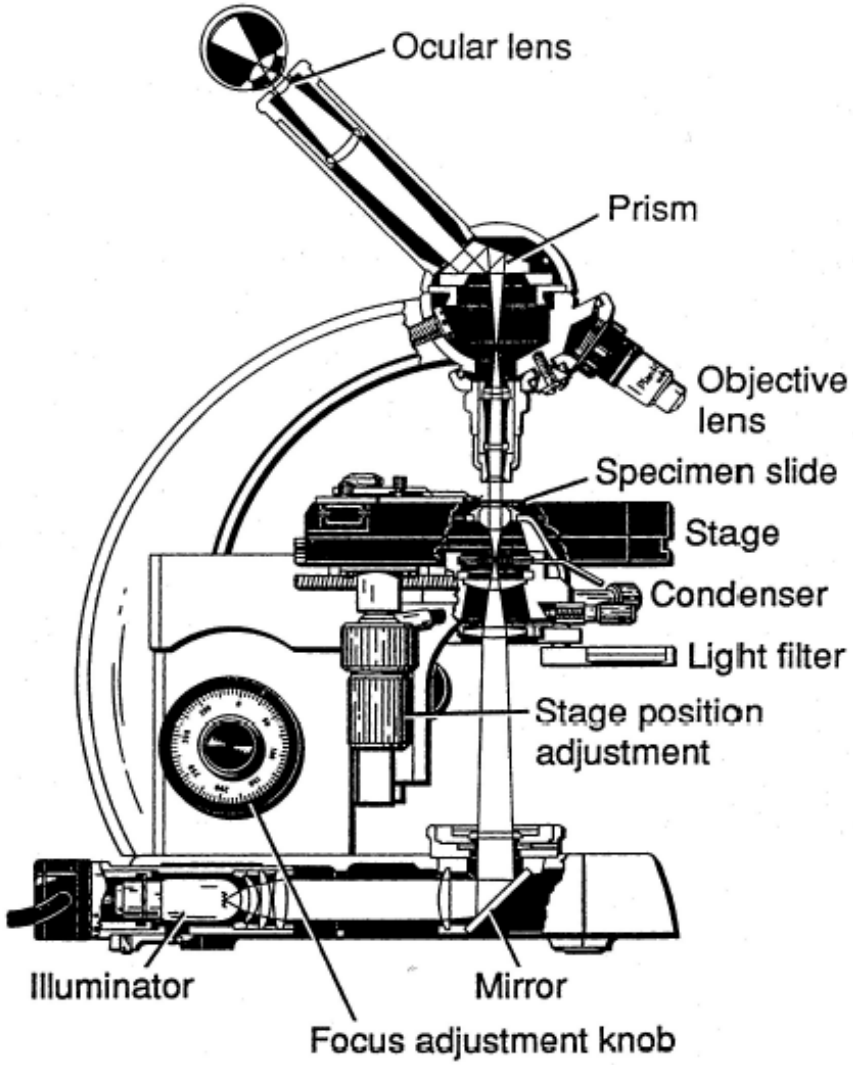
# LABORATORY EXERCISES FOR GENERAL CYTOLOGY

- Slide #1 (E-Cell). Tissue culture of equine fibroblasts.
- MOST CELLS HAVE MULTIPLE NUCLEOLI; SOME HAVE JUST ONE



# The Microscope

Light (bright field) used with stained specimens



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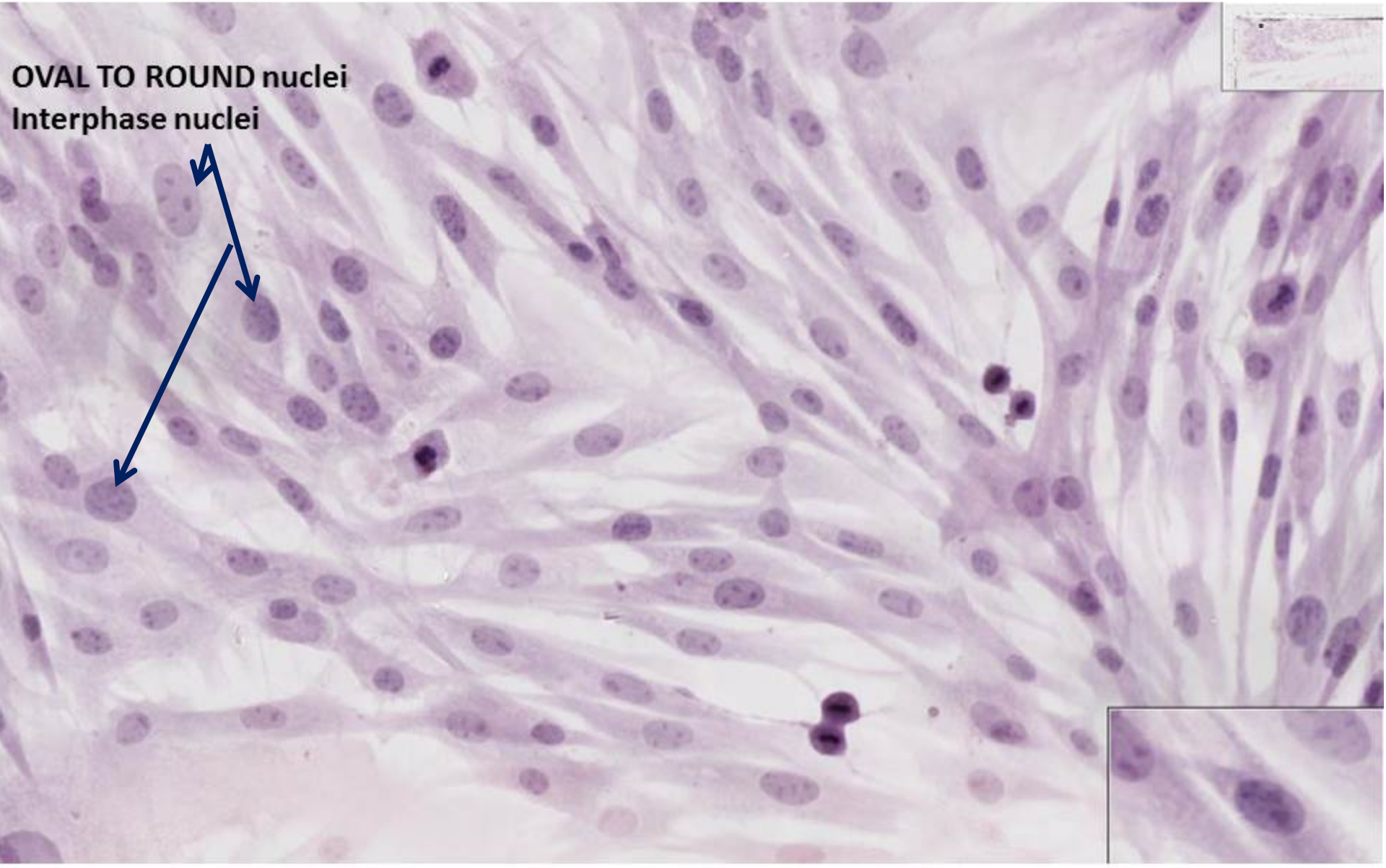

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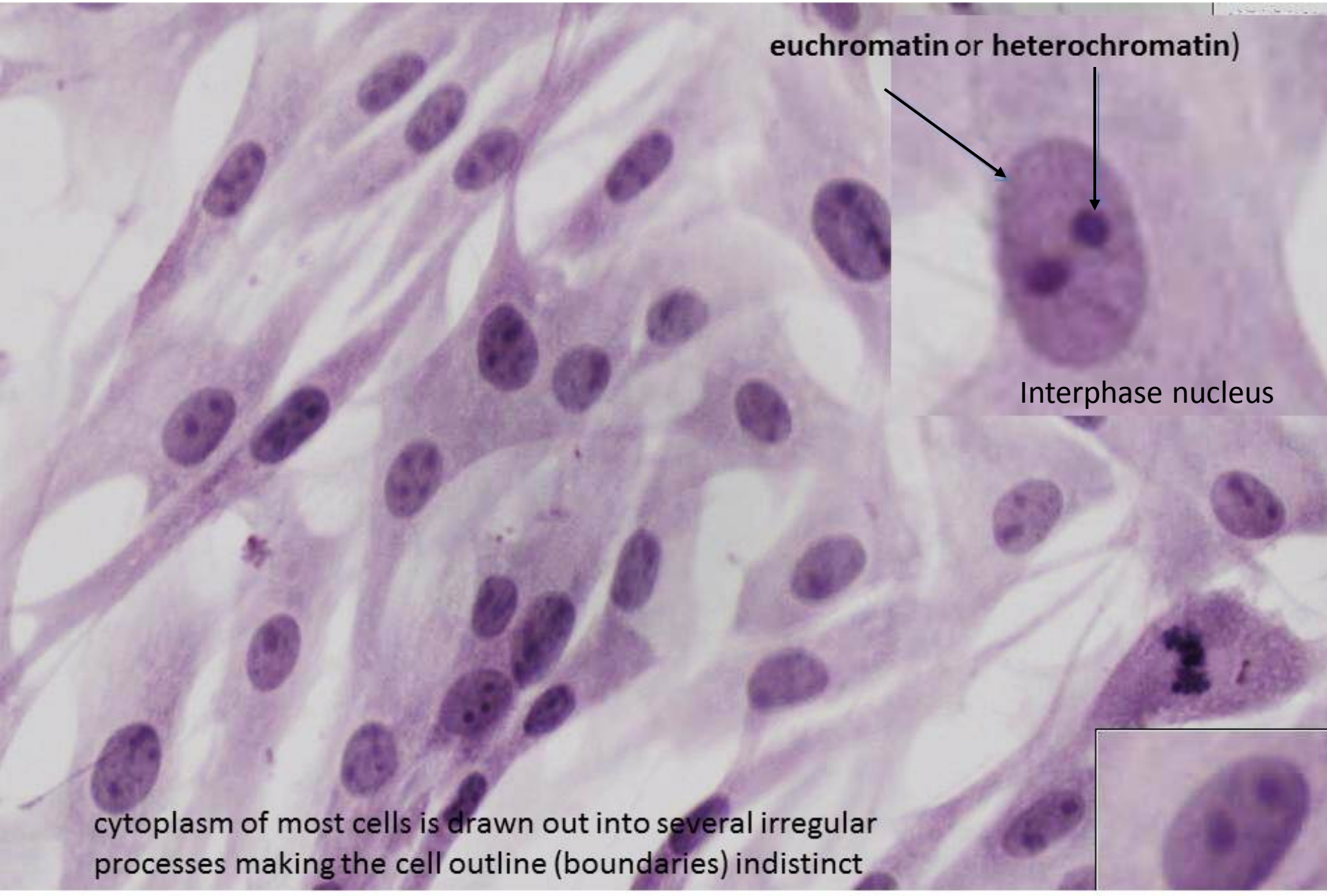


**DIVIDING CELLS**

VISIBLE CHROMOSOMES

LOSS OF NUCLEAR ENVELOPE

IS VISIBLE

IN THE PROCESS OF SEPARATING

INTO TWO DAUGHTER CELLS

CHROMOSOMES ARE VISIBLE

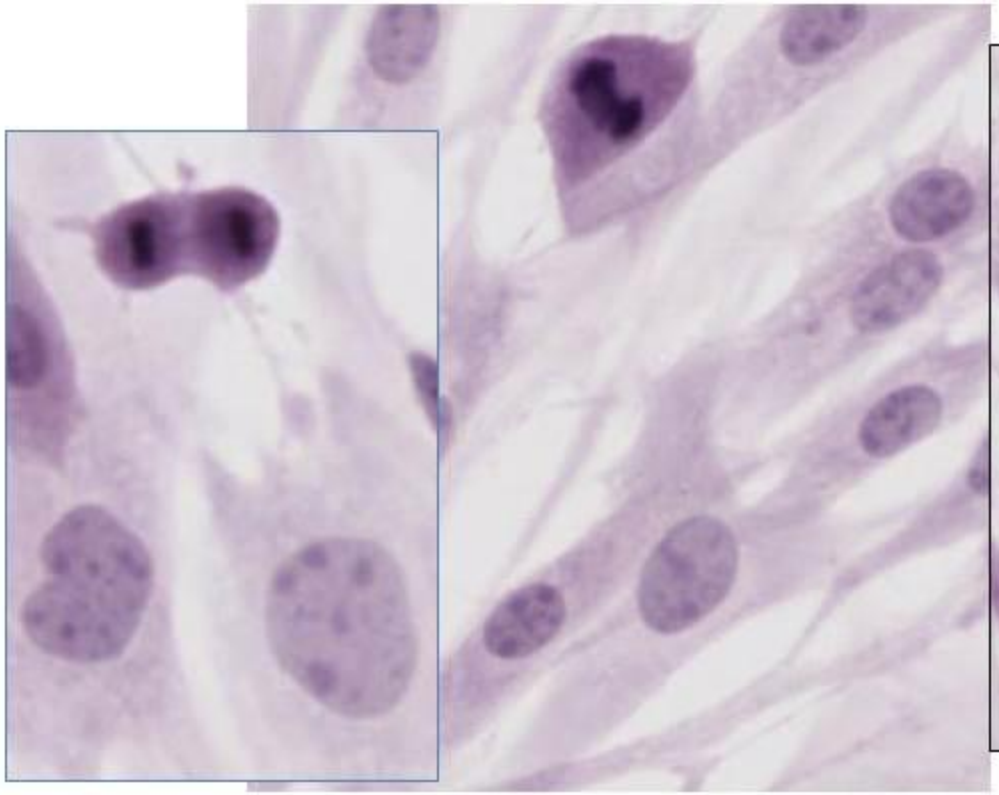
**NON-DIVIDING CELLS**

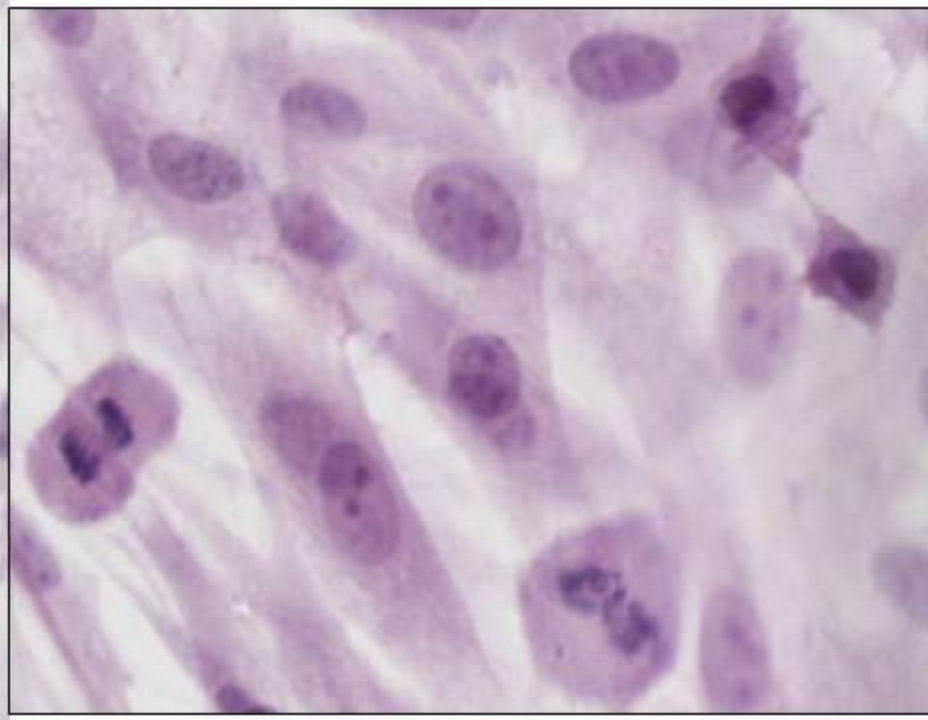
NUCLEOLUS MAY BY VISIBLE

NUCLEAR ENVELOPE OR "BOUNDARY"

NUCLEUS IS EUCHROMATIC OR

HETEROCHROMATIC, BUT NO





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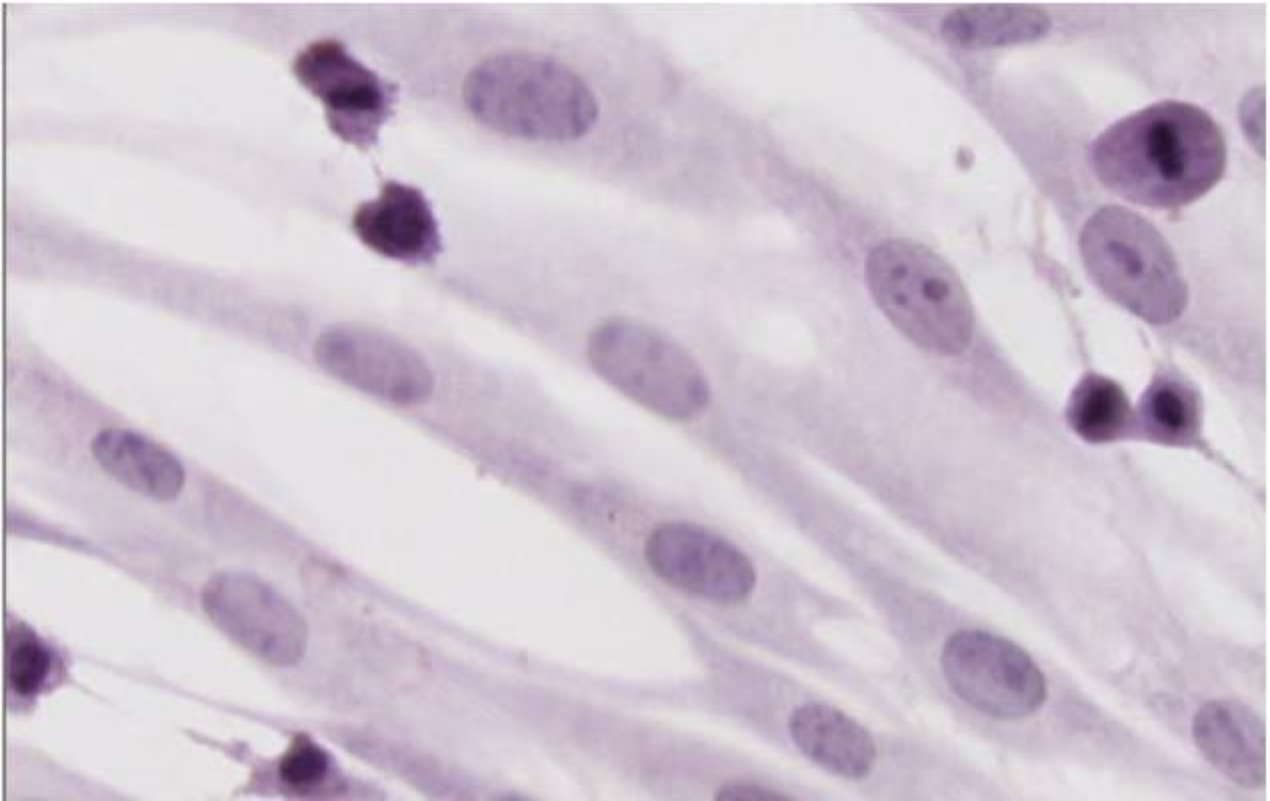
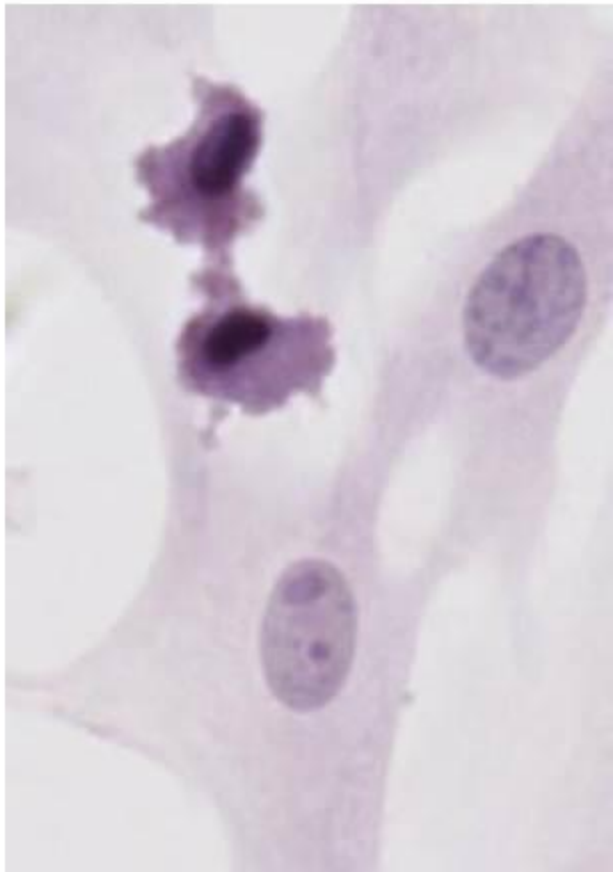
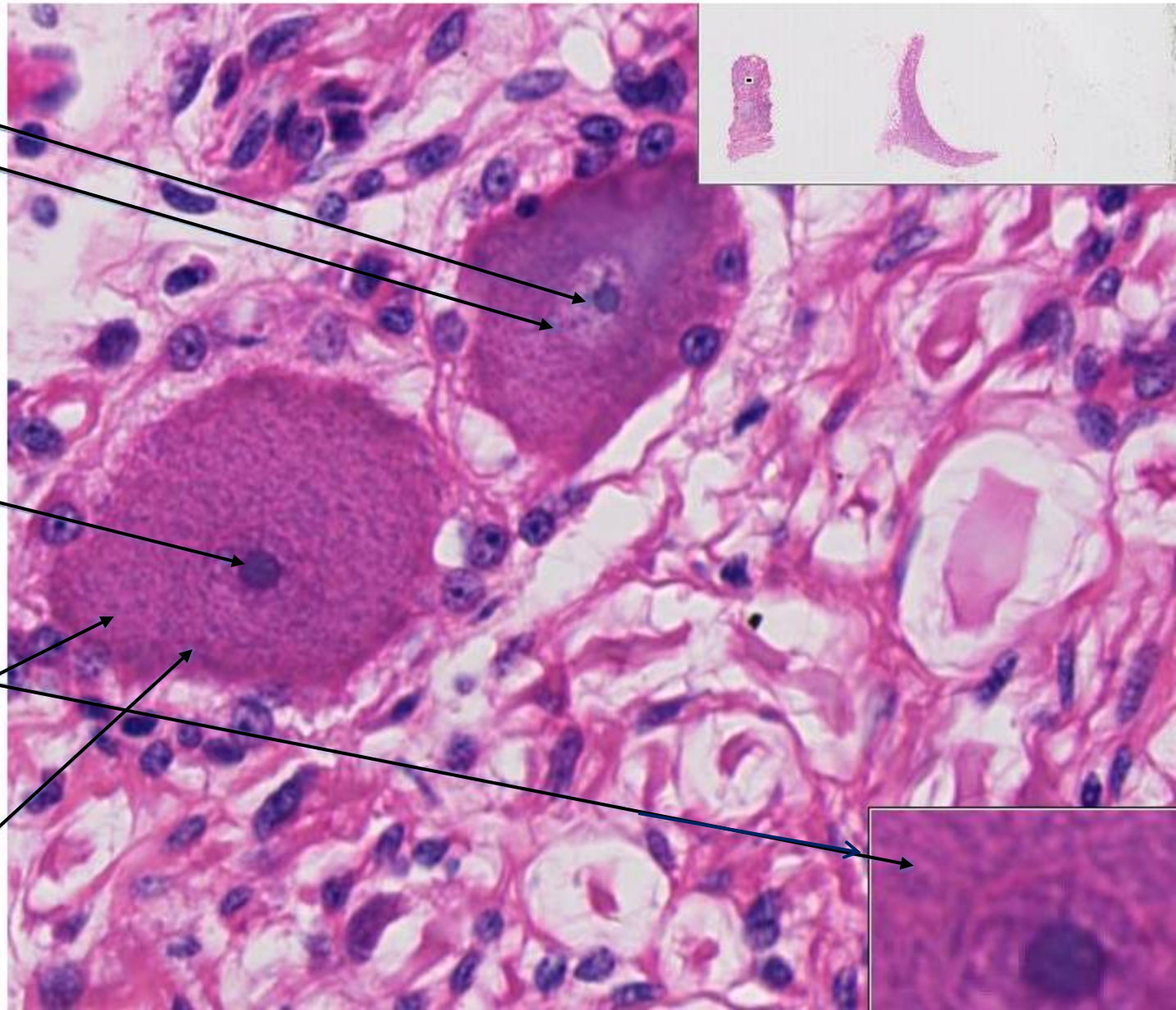




# Slide #11 (Ed 904-186A/184) Ganglia from a donkey.



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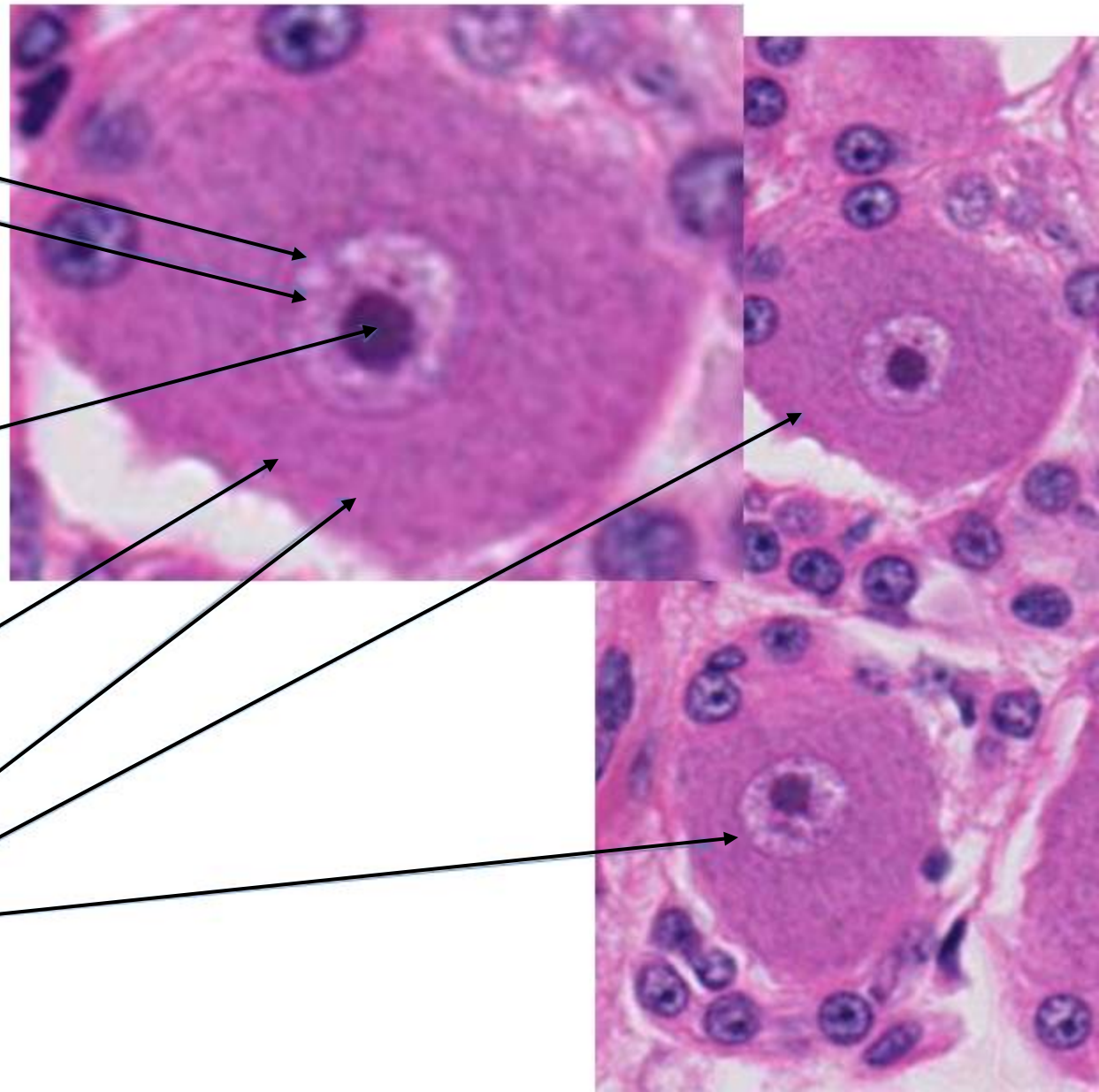

EUCHROMATIC and
LARGE, ROUND

ONE (1) NUCLEOLUS;
ROUND SHAPE

"Nissl bodies"

cytoplasm of the
large neurons –
basophilic?

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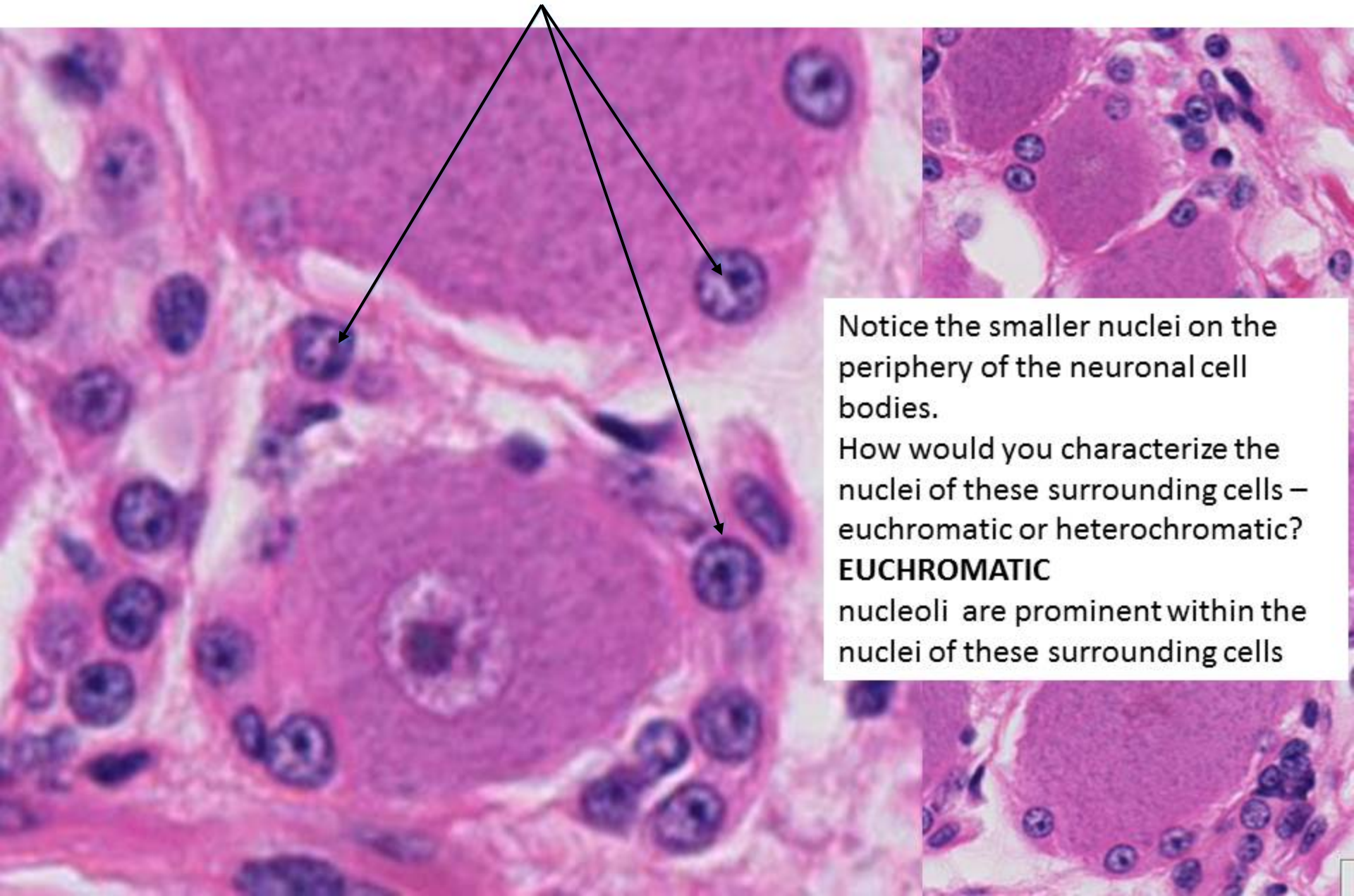


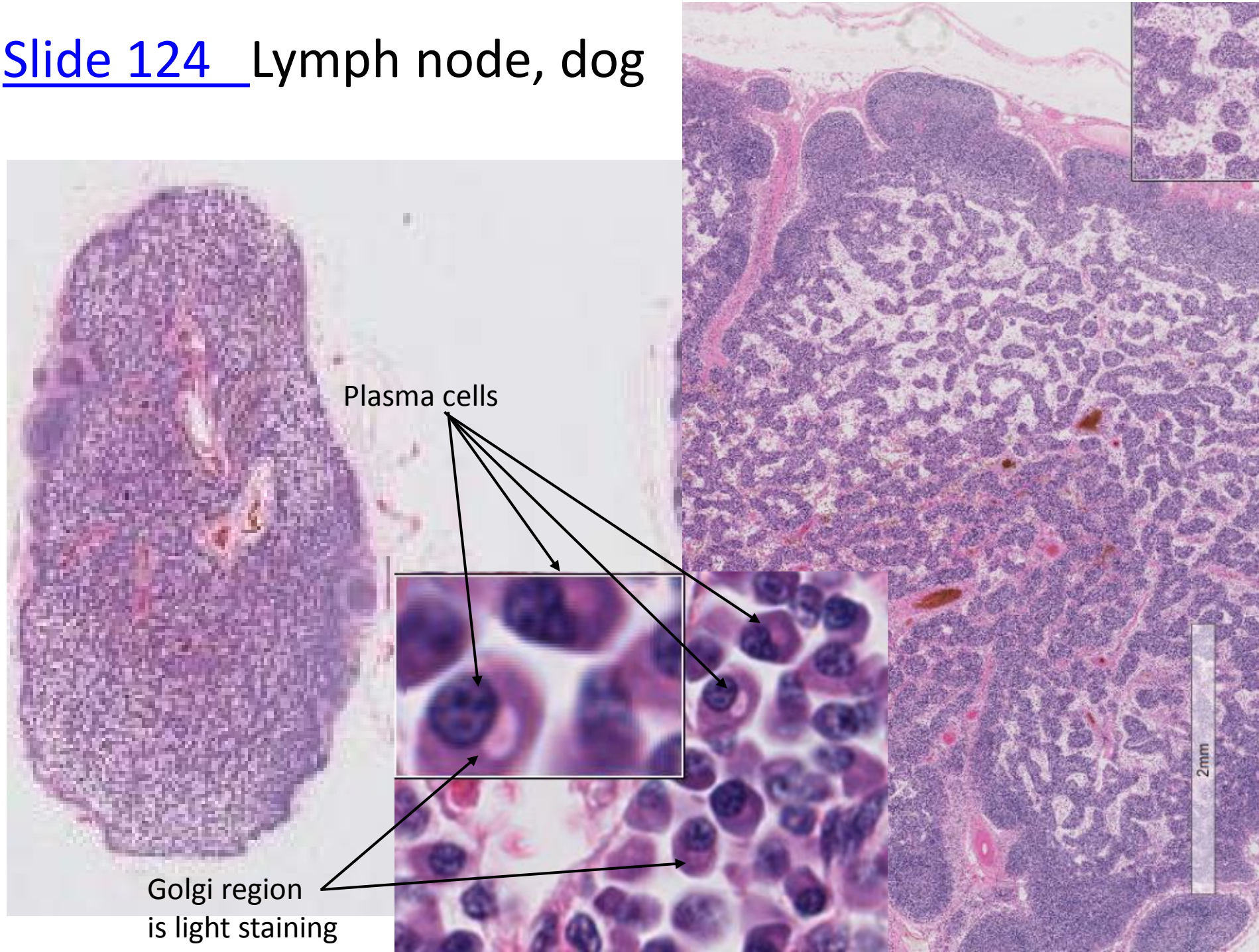
Notice the smaller nuclei on the periphery of the neuronal cell bodies.

How would you characterize the nuclei of these surrounding cells – euchromatic or heterochromatic?

**EUCHROMATIC**

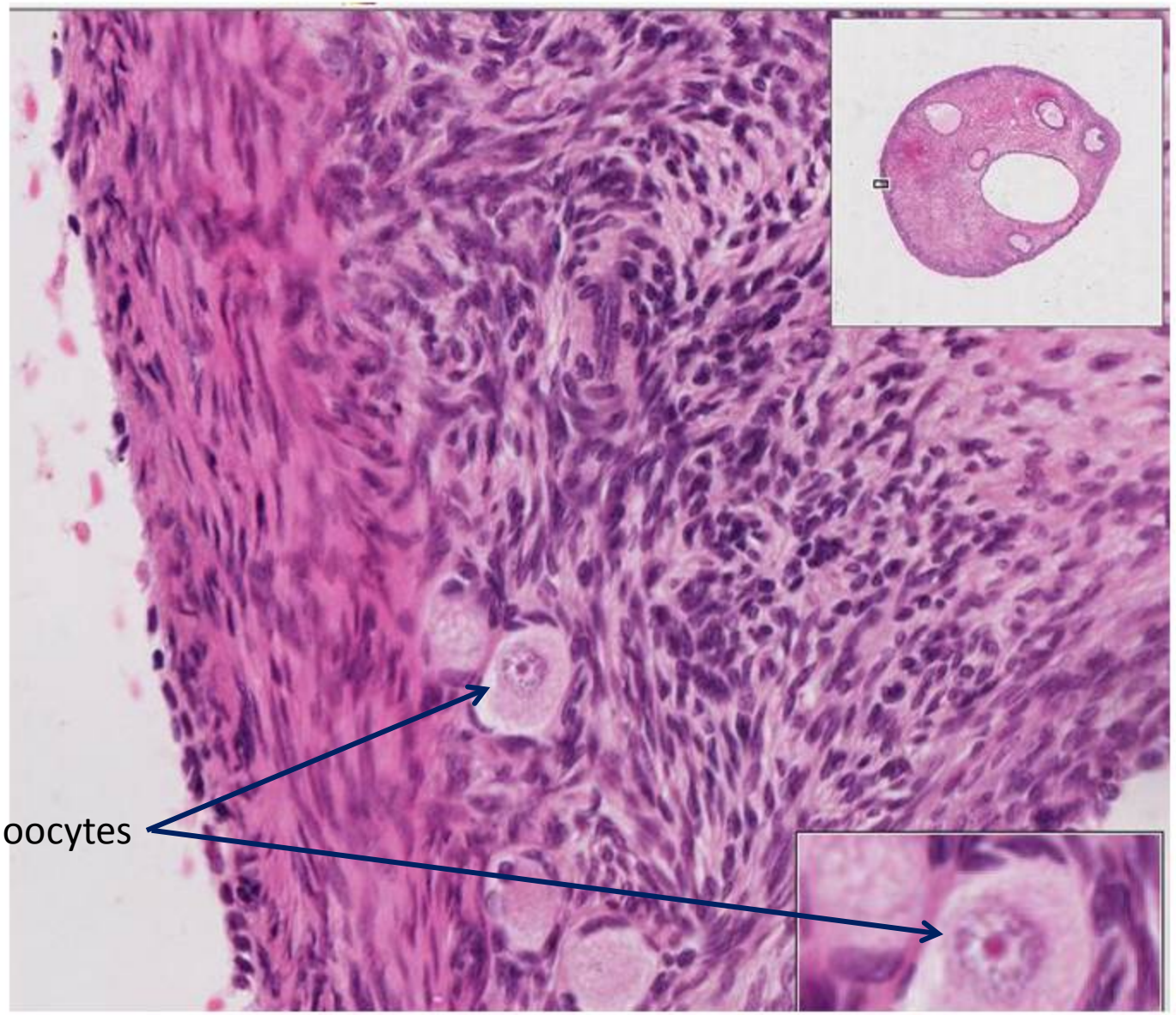
nucleoli are prominent within the nuclei of these surrounding cells

# Slide 124 Lymph node, dog



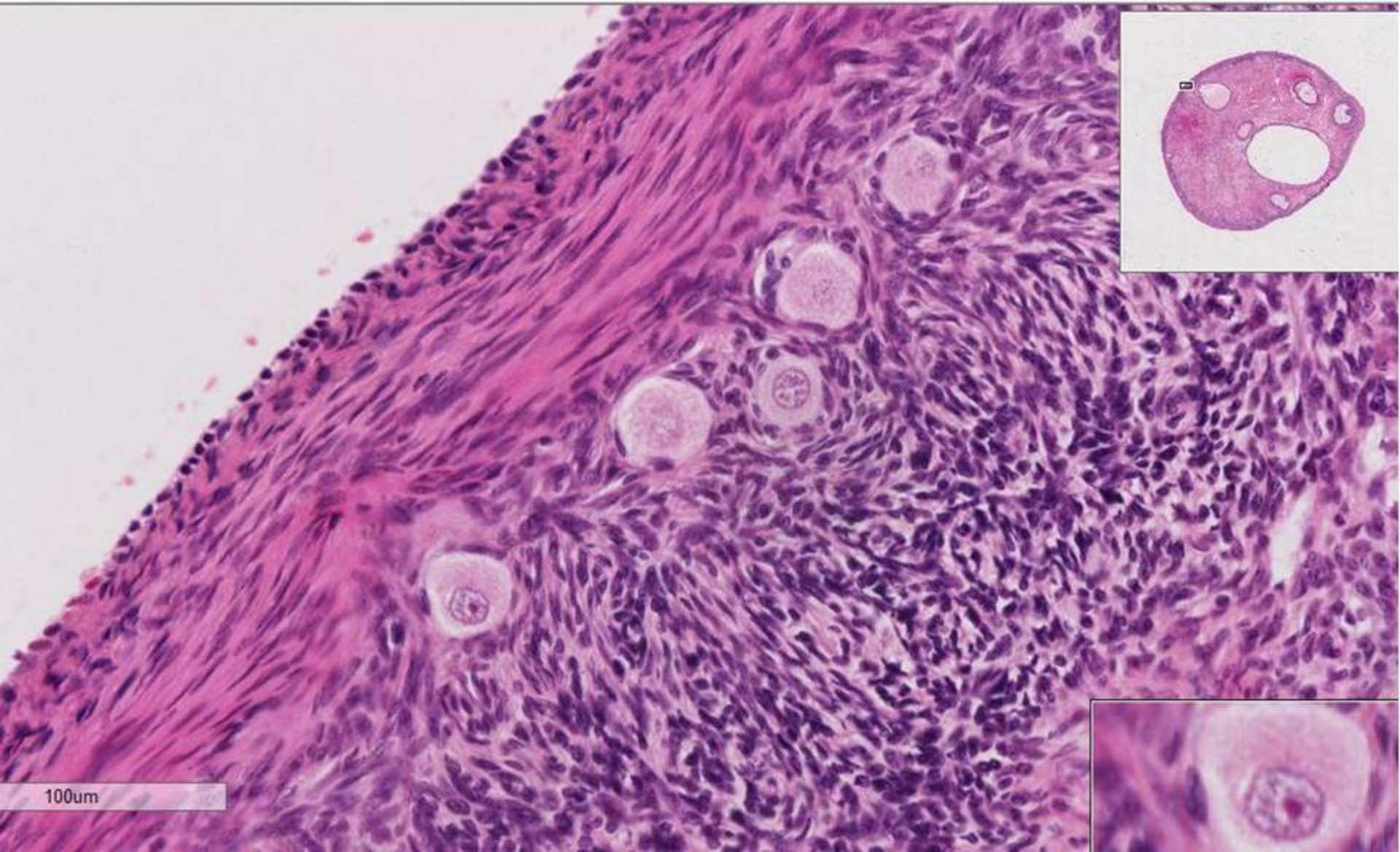
# DEMO SLIDE BOX 194 – Demo Slide # 194.

## Ovary, **cat Demo 138**



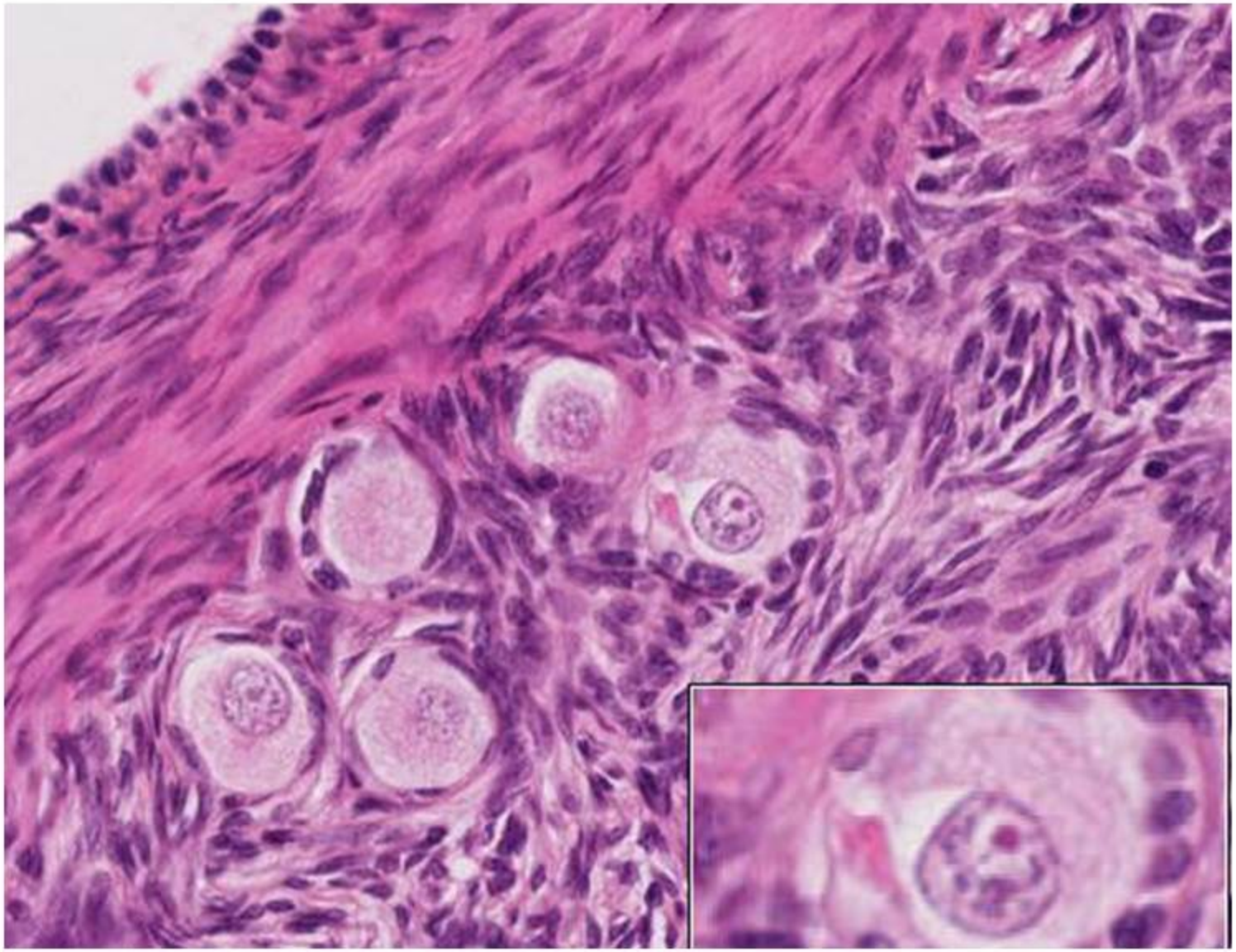
DEMO SLIDE BOX 194 – Demo Slide # 194.

Ovary, **cat Demo 138**



# DEMO SLIDE BOX 194 – Demo Slide # 194.

Ovary, cat **Demo 138**

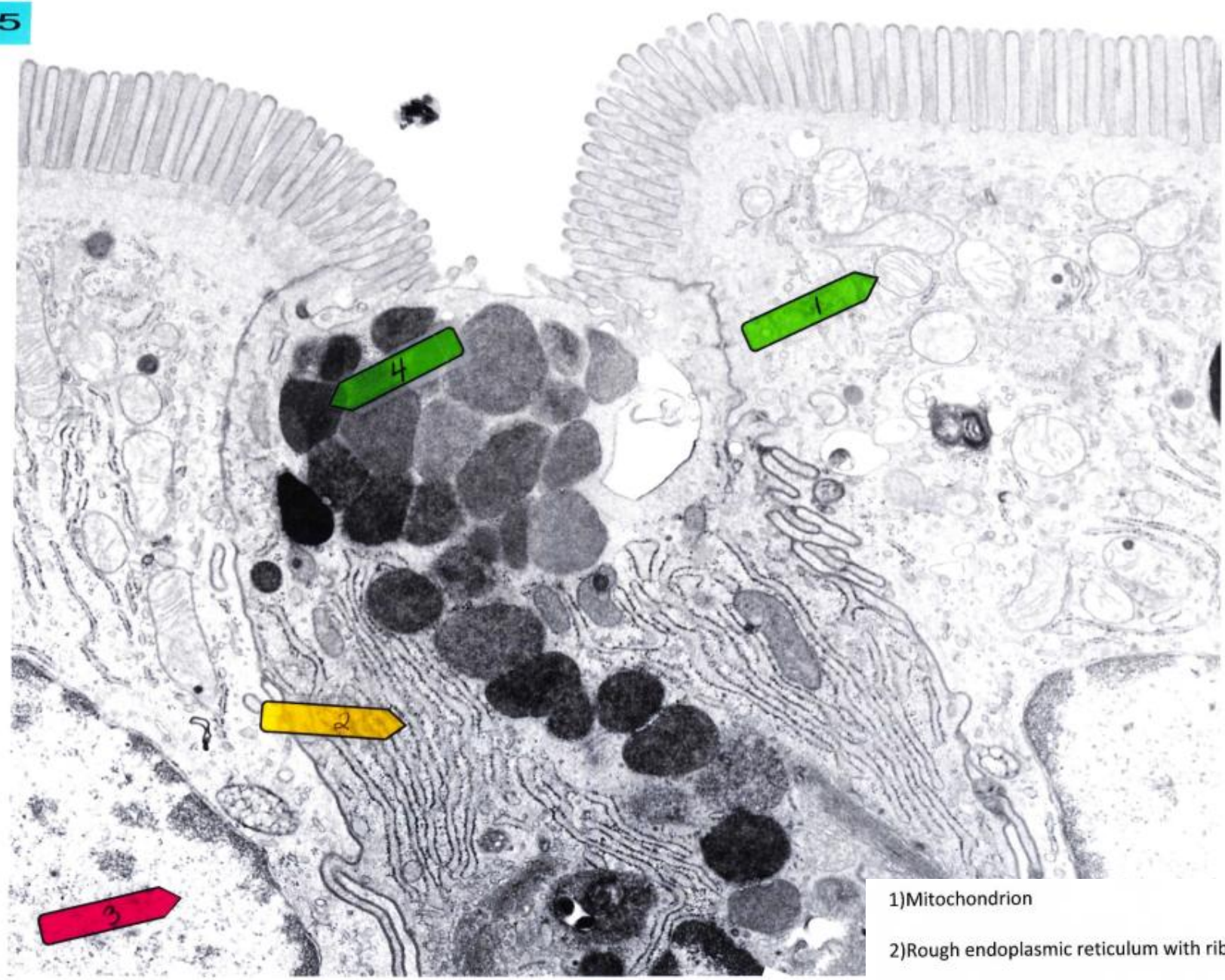


**Electron Photomicrographs (EM's) 5, 8, 9, 13, 16, 17, 18, 22, 28, 29, 33, 34, 35, 37, 39, & 55**

Locate the following structures (not all structures will be on all EM's):

**Plasma membrane**
**Nucleus**
**euchromatin**
**heterochromatin**
**nucleolus**
**Rough endoplasmic reticulum (rER)**
**Free ribosomes/ polysomes**
**Smooth endoplasmic reticulum (sER)**
**Golgi apparatus (complex)**
**Mitochondria (singular = mitochondrion)**
**cristae**

TEM 5



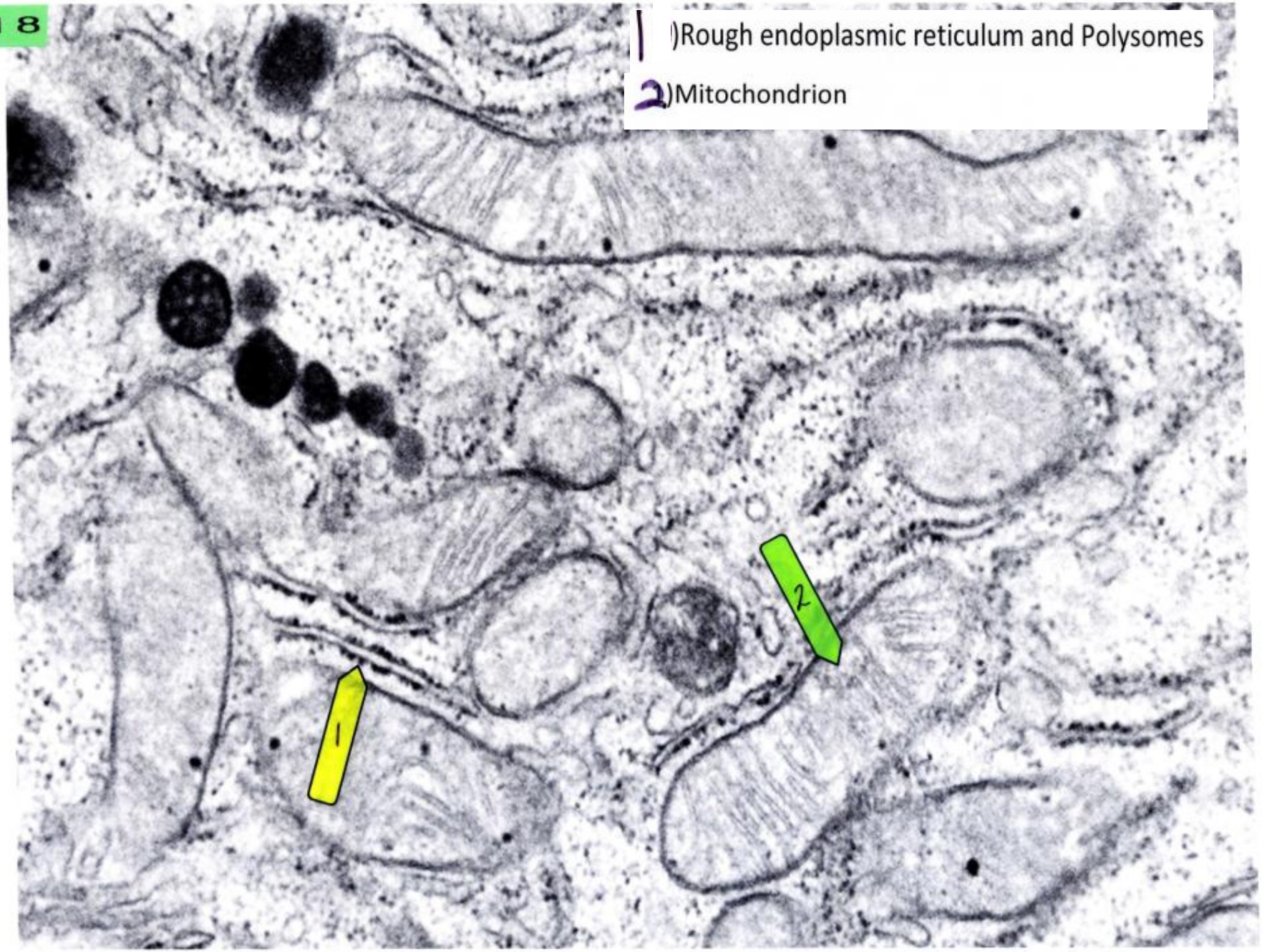

1)Mitochondrion

2)Rough endoplasmic reticulum with ribosomes

3)Nucleus

4)Secretory Granules

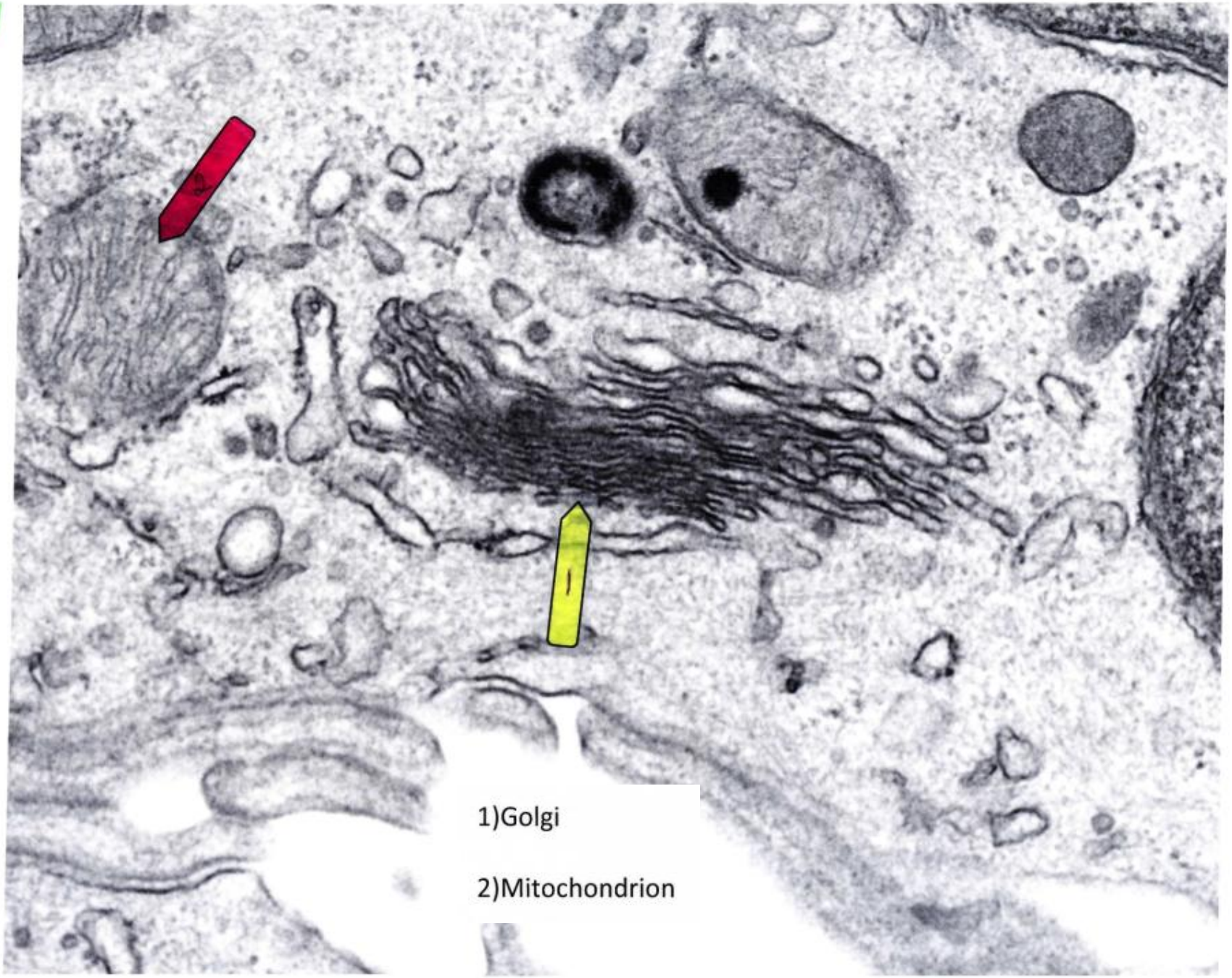
TEM 8

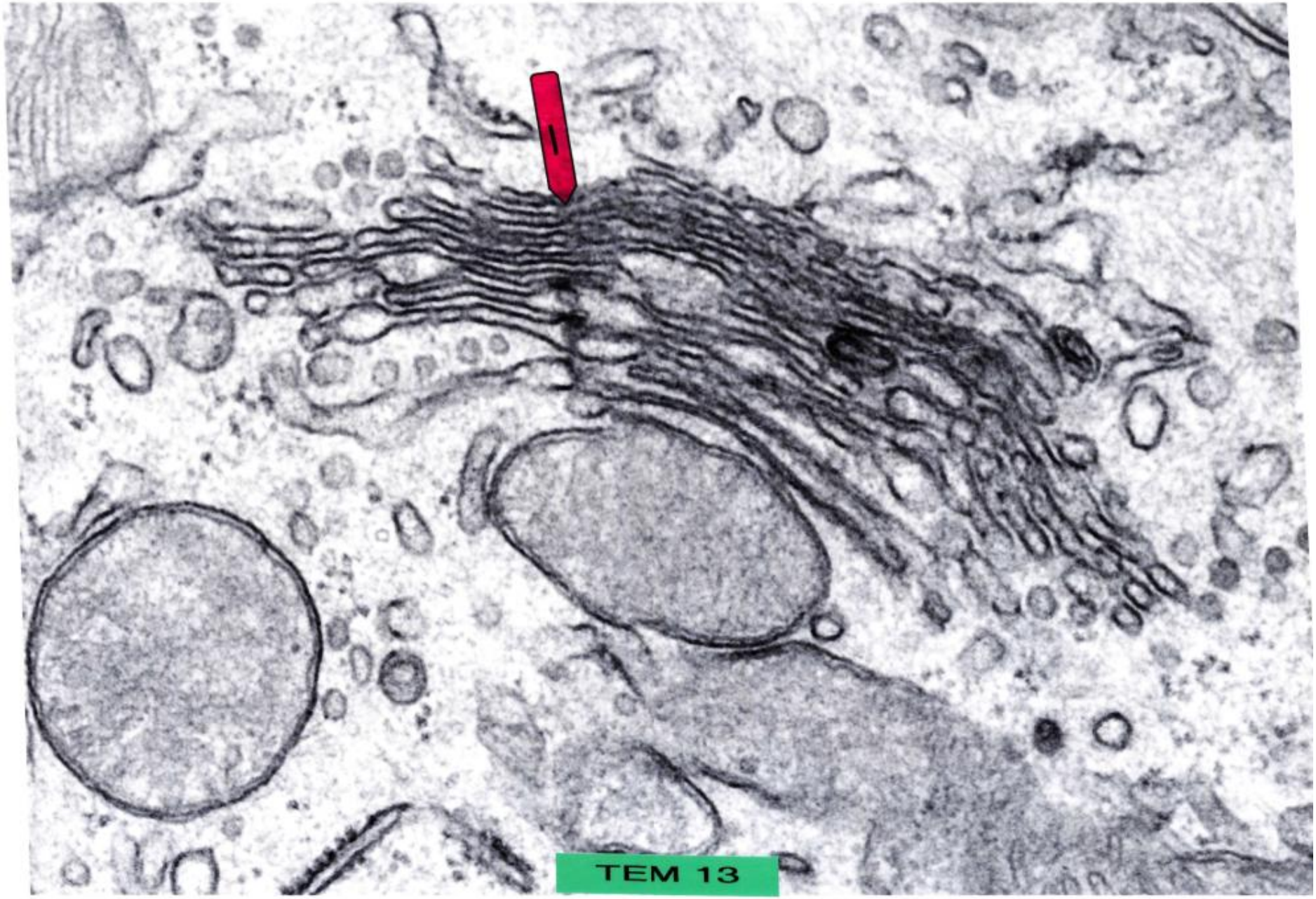



1) Rough endoplasmic reticulum and Polysomes

2) Mitochondrion

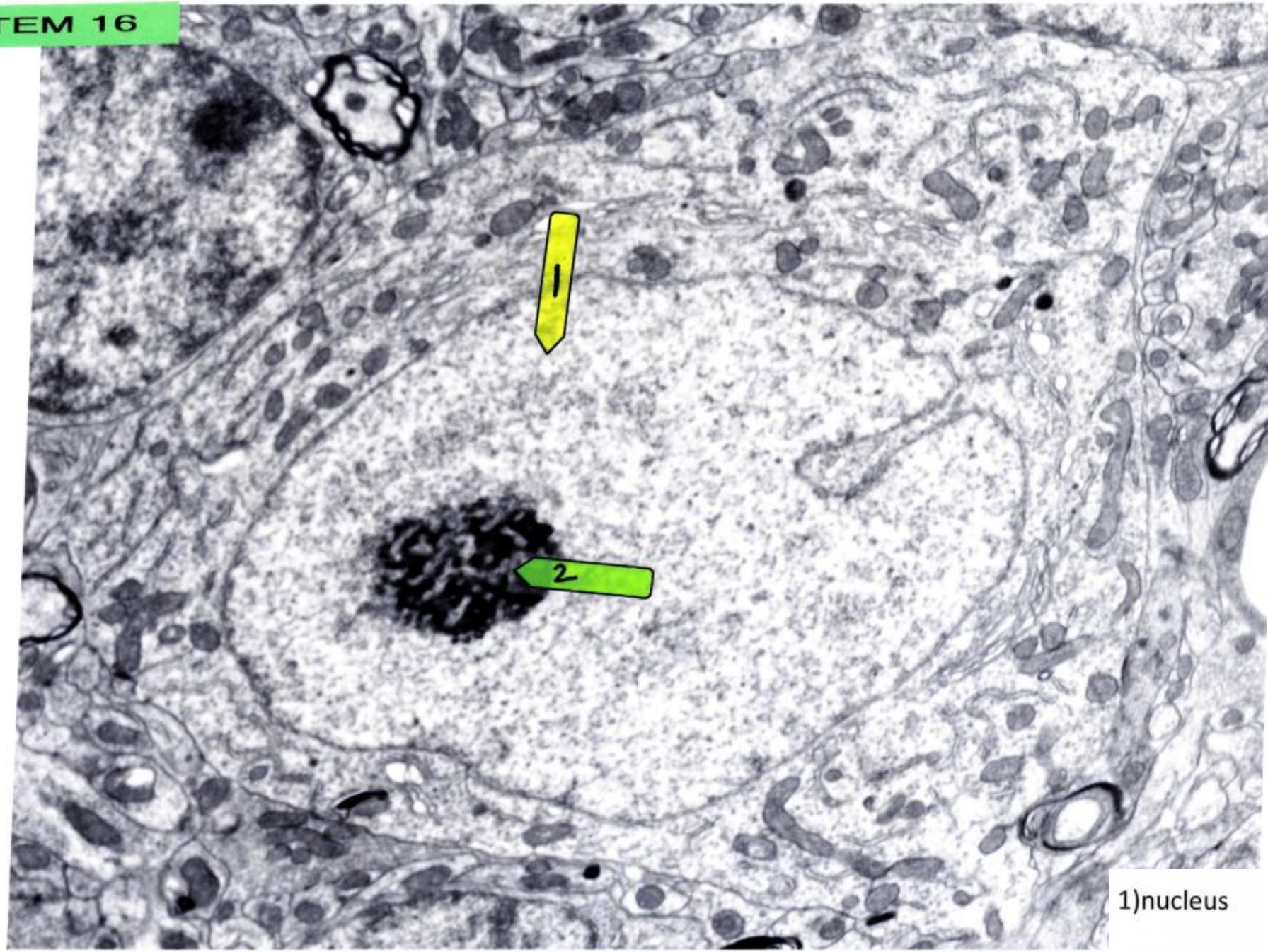
TEM9






1)Golgi Complex

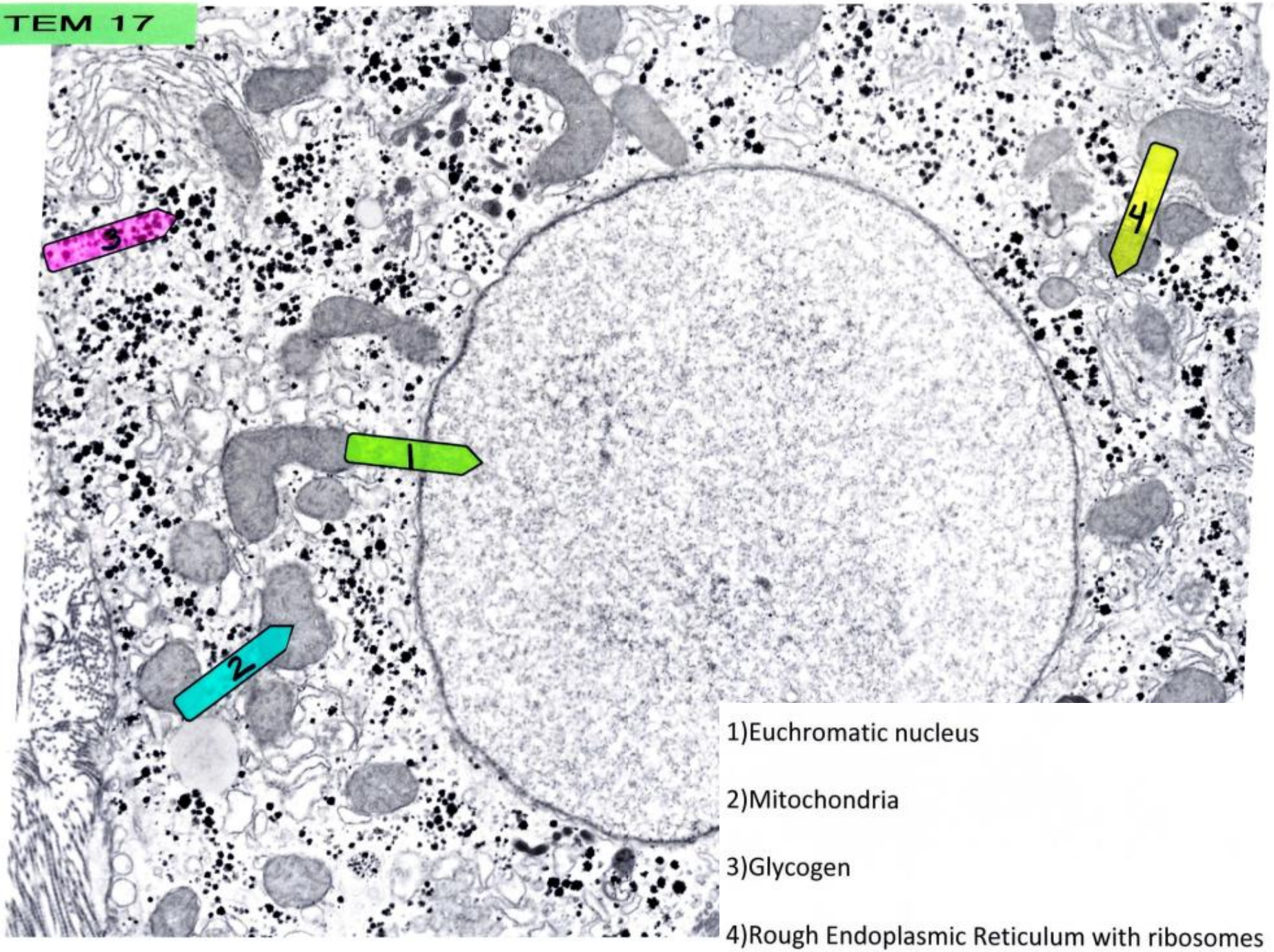
TEM 16




1)nucleus

2)Nucleolus

TEM 17




1)Euchromatic nucleus

2)Mitochondria

3)Glycogen

4)Rough Endoplasmic Reticulum with ribosomes

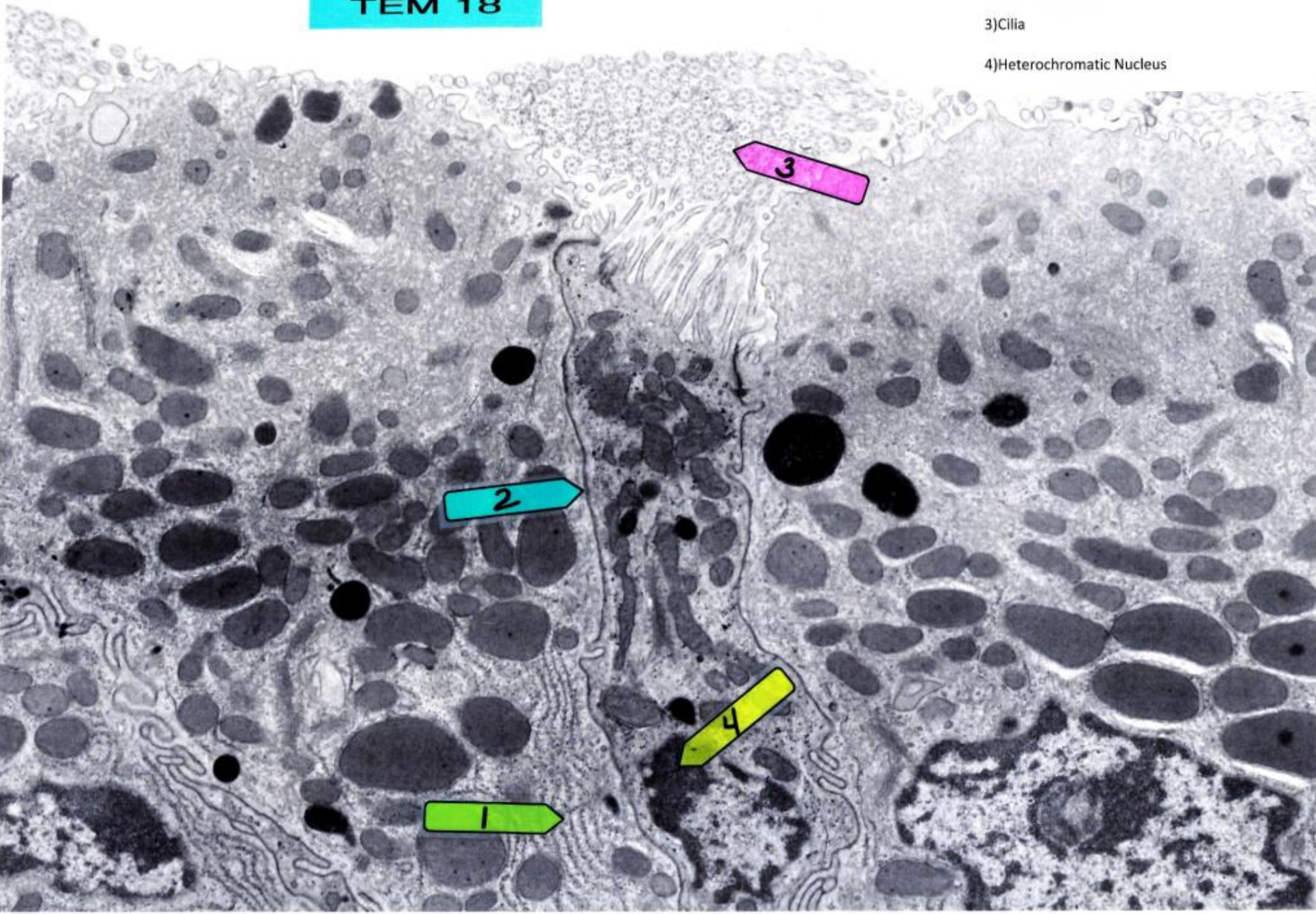
# TEM 18

1)Rough Endoplasmic Reticulum with ribosomes

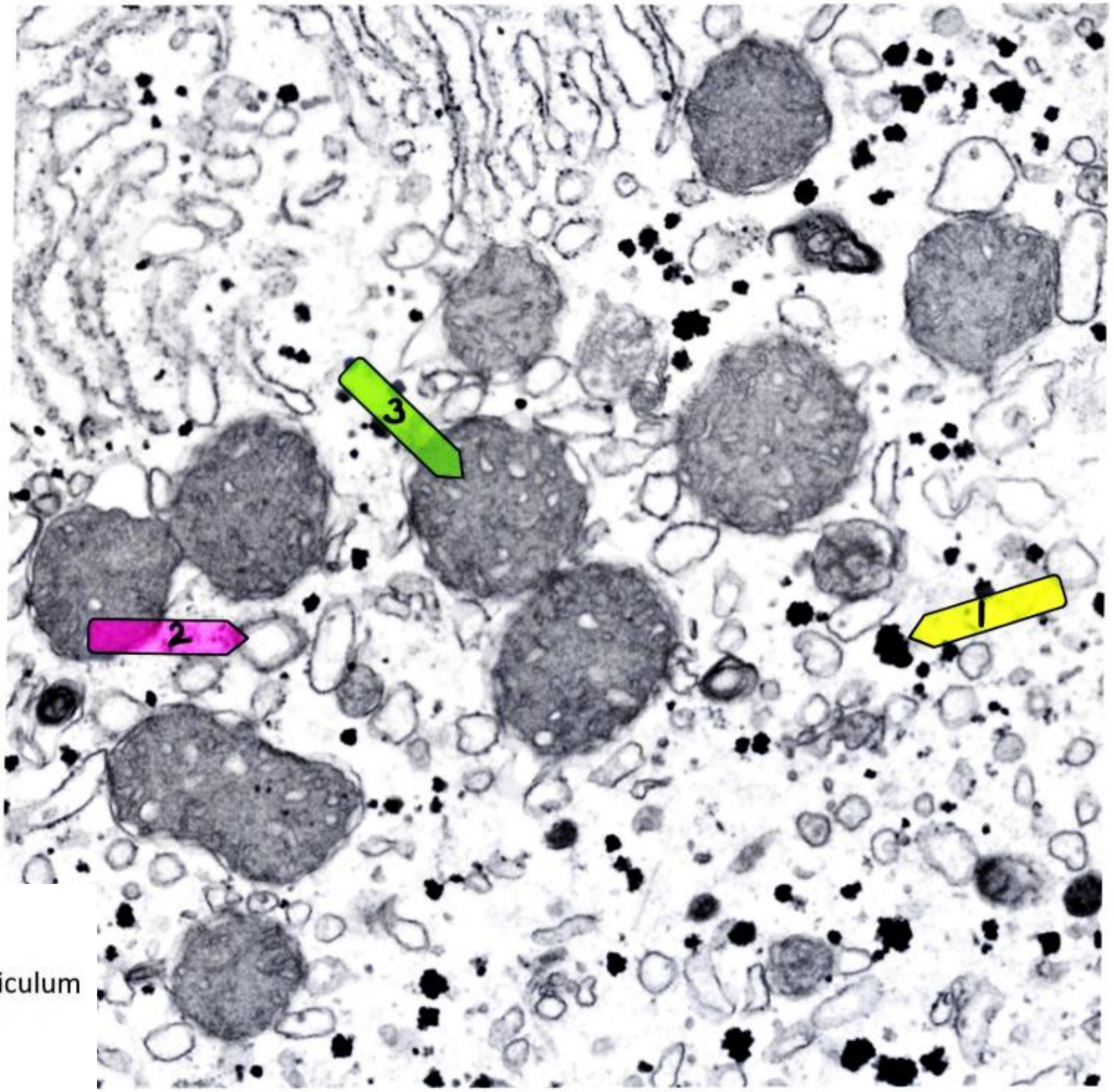
2)Plasma Membrane

3)Cilia

4)Heterochromatic Nucleus



TEM 22

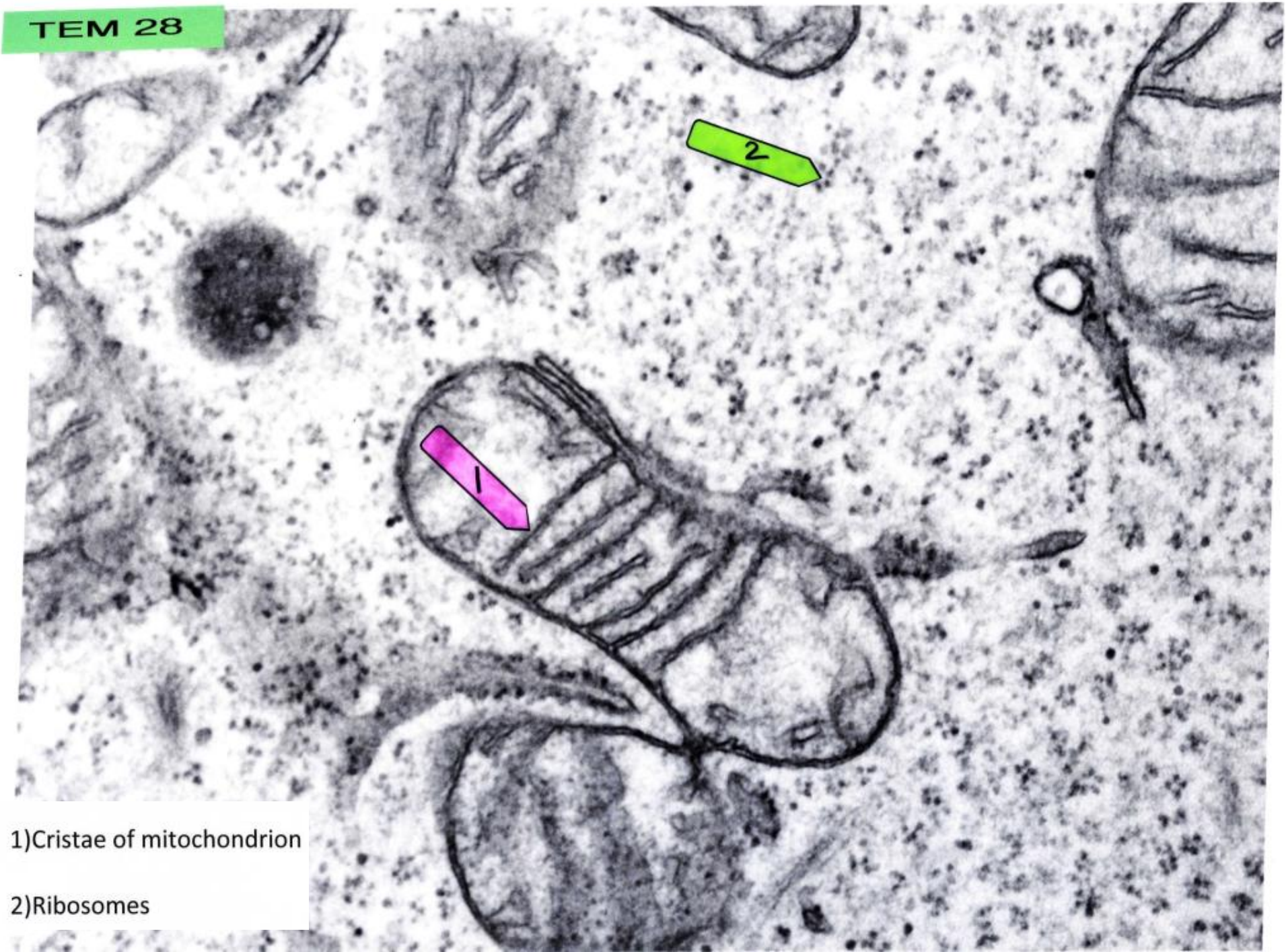



1)Glycogen

2)Smooth Endoplasmic Reticulum

3)Mitochondrion

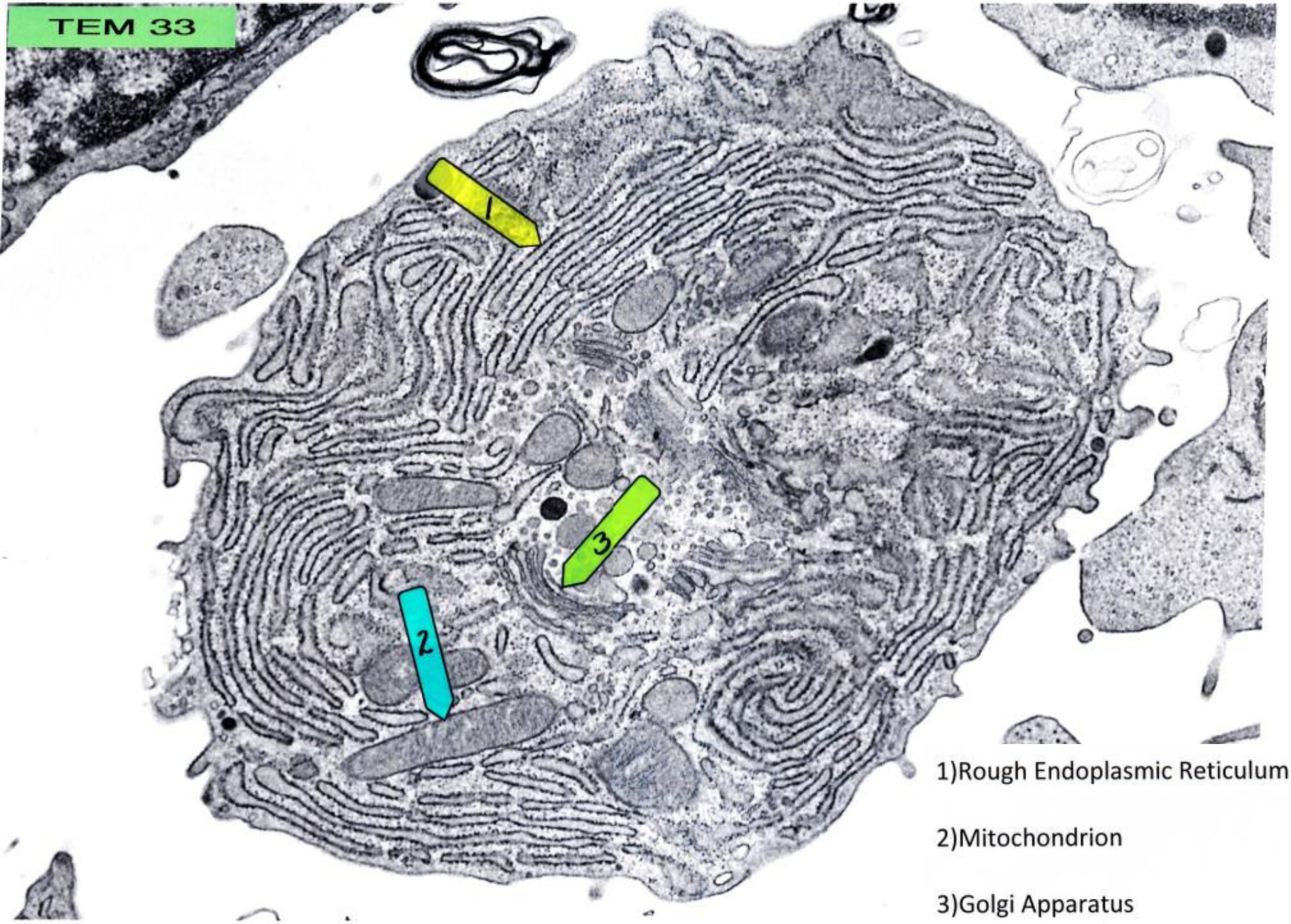
TEM 28




1)Cristae of mitochondrion

2)Ribosomes

TEM 33



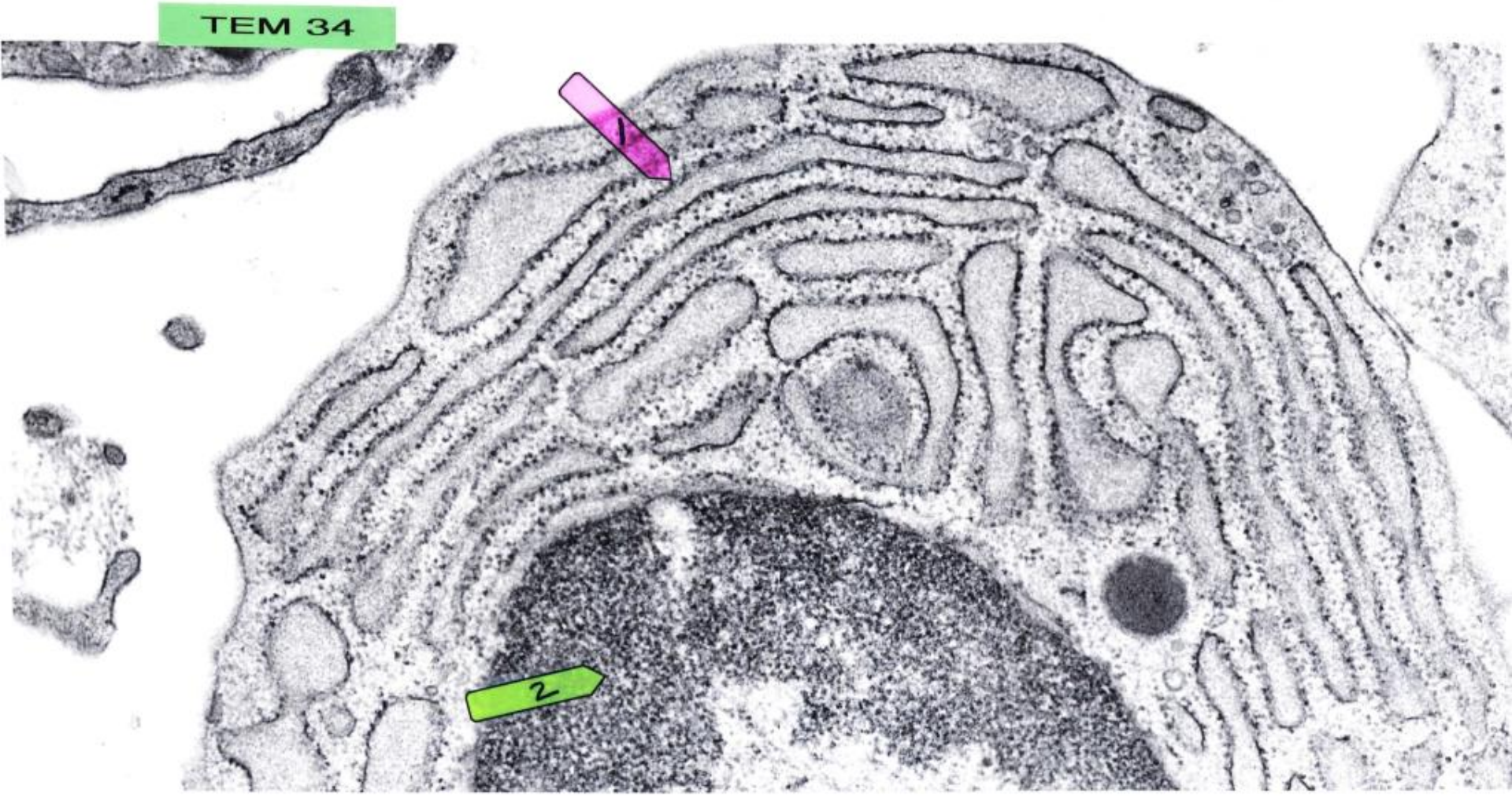

1)Rough Endoplasmic Reticulum

2)Mitochondrion

3)Golgi Apparatus

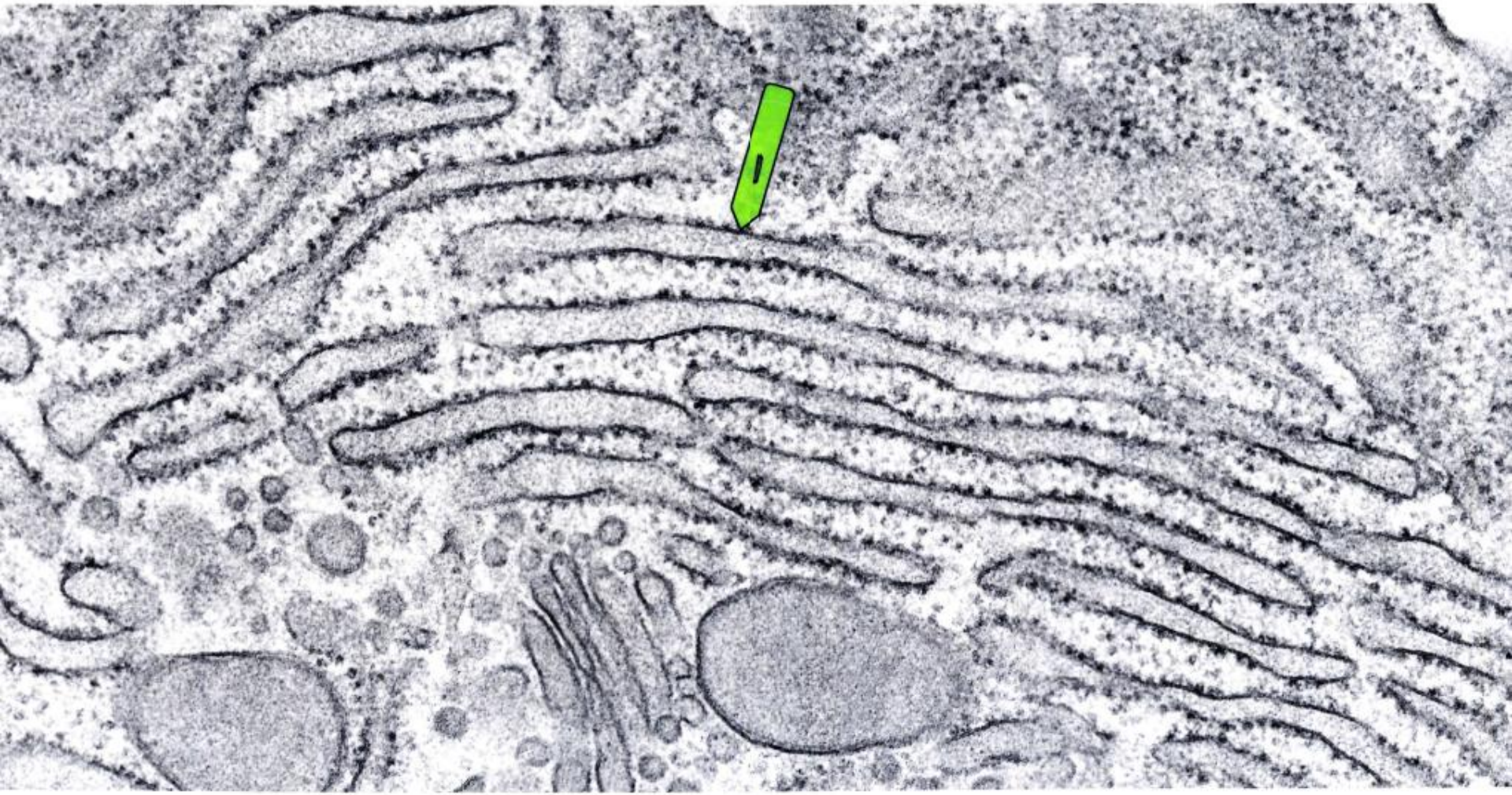
1)Rough Endoplasmic Reticulum

2)Heterochromatin



TEM 35

1)Rough Endoplasmic Reticulum

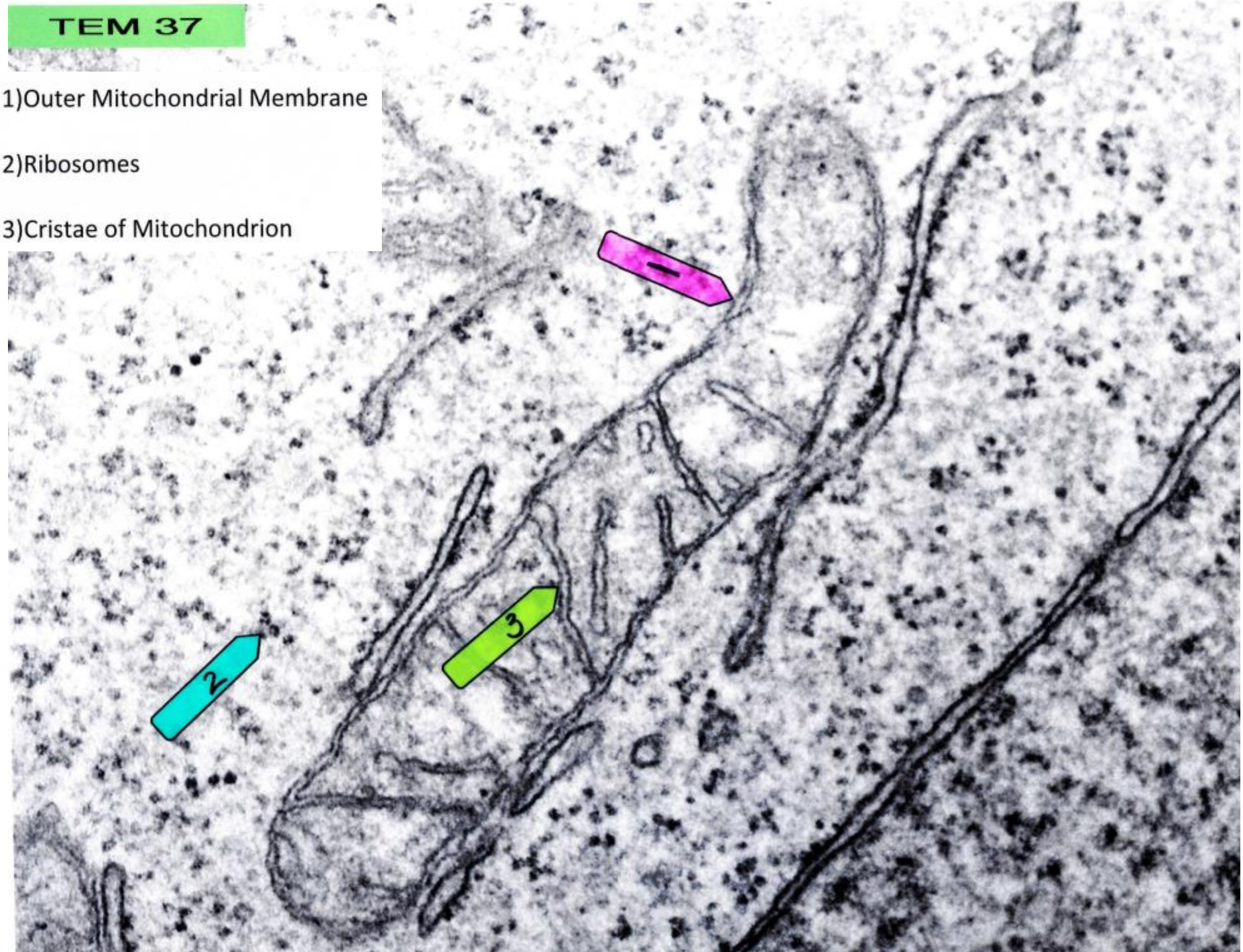


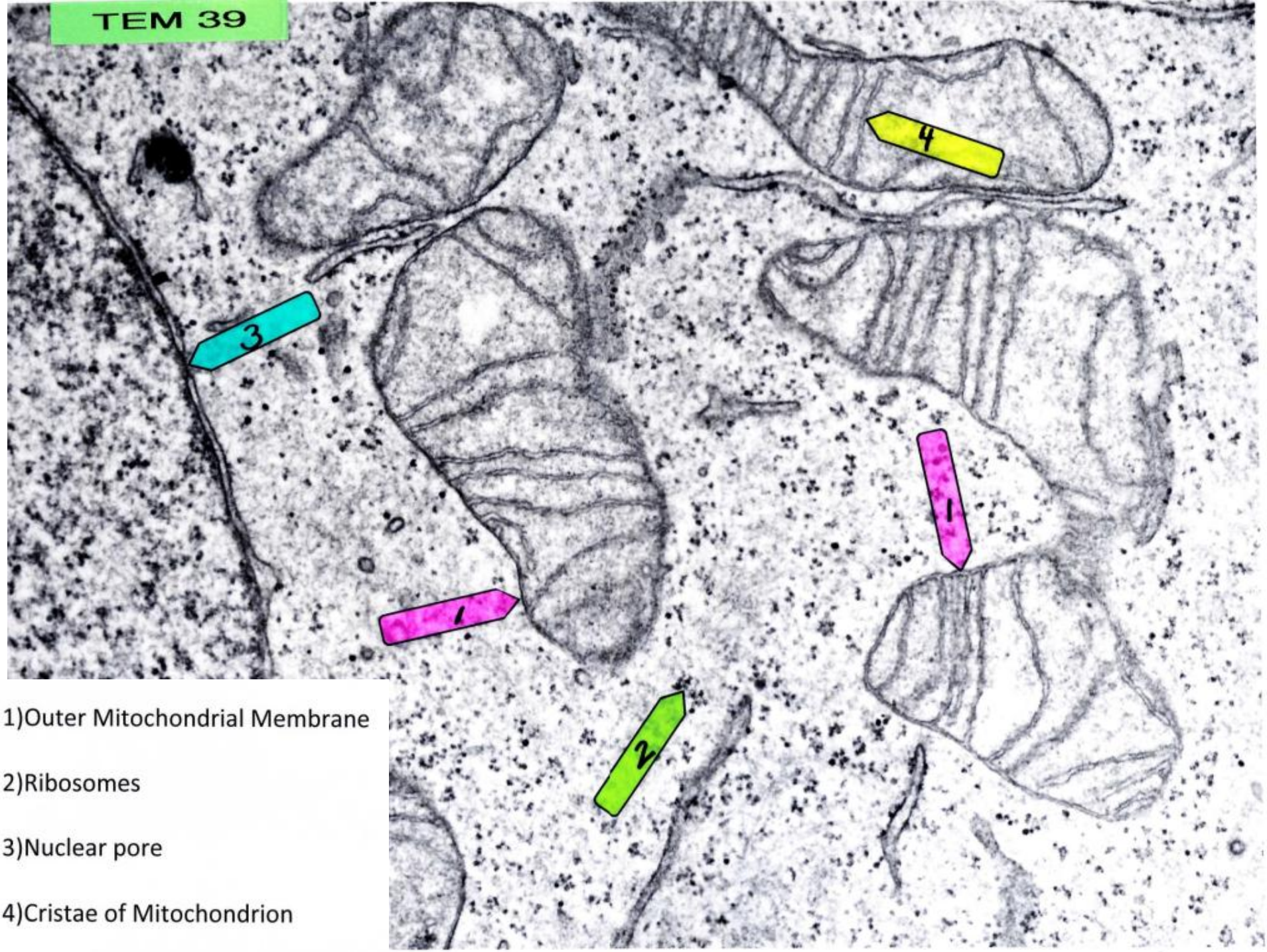
TEM 37

1)Outer Mitochondrial Membrane

2)Ribosomes

3)Cristae of Mitochondrion






1)Outer Mitochondrial Membrane

2)Ribosomes

3)Nuclear pore

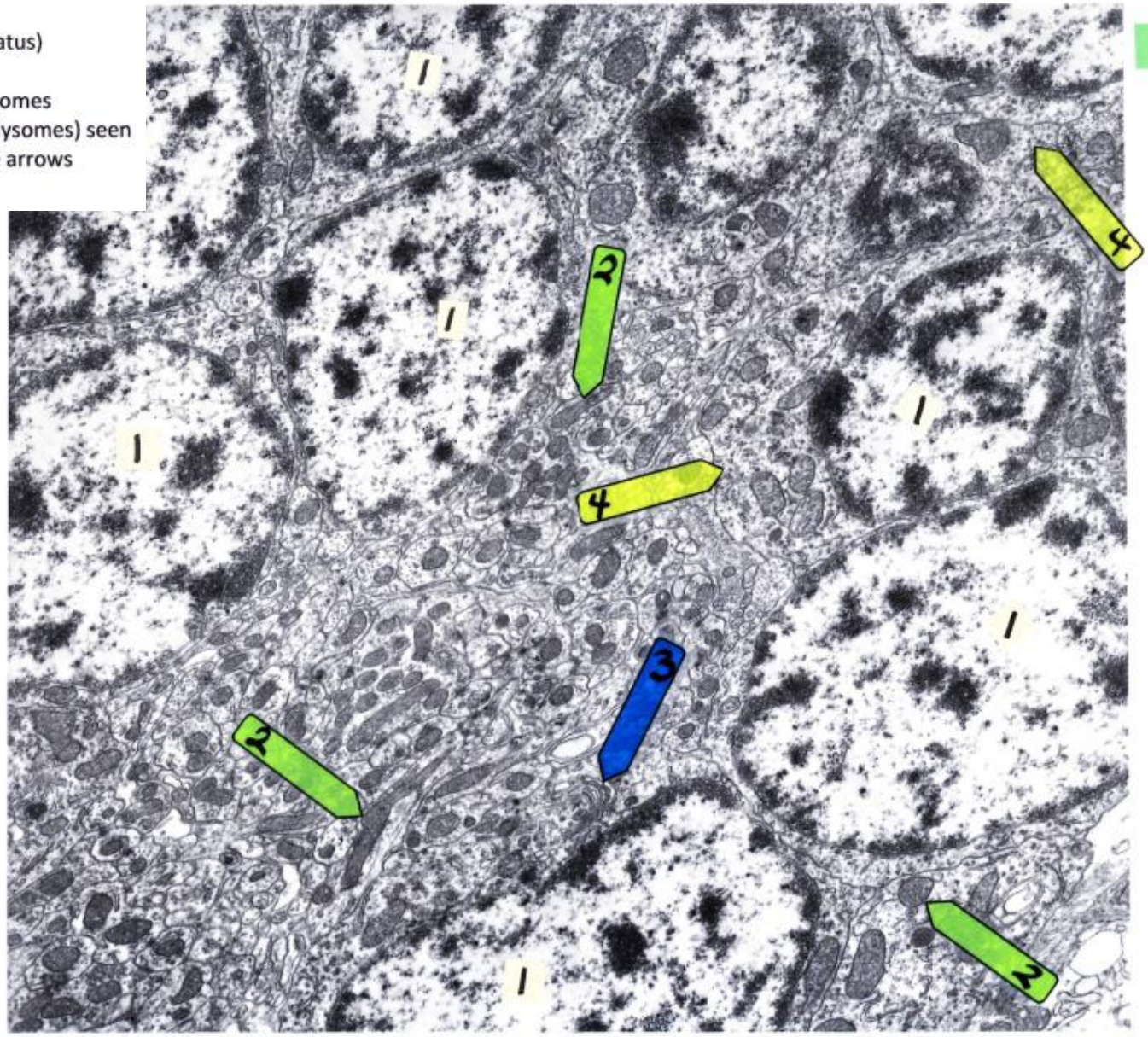
4)Cristae of Mitochondrion

1) nucleus of neuron

2) mitochondrion

3) Golgi complex (apparatus)

4) small clusters of ribosomes (polyribosomes or polysomes) seen around the tips of the arrows labeled # 4



Some EMs at
http://peer.tamu.edu/toolkit2.asp