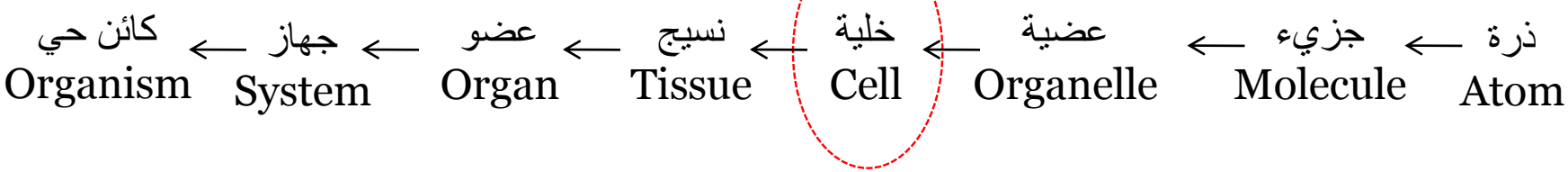
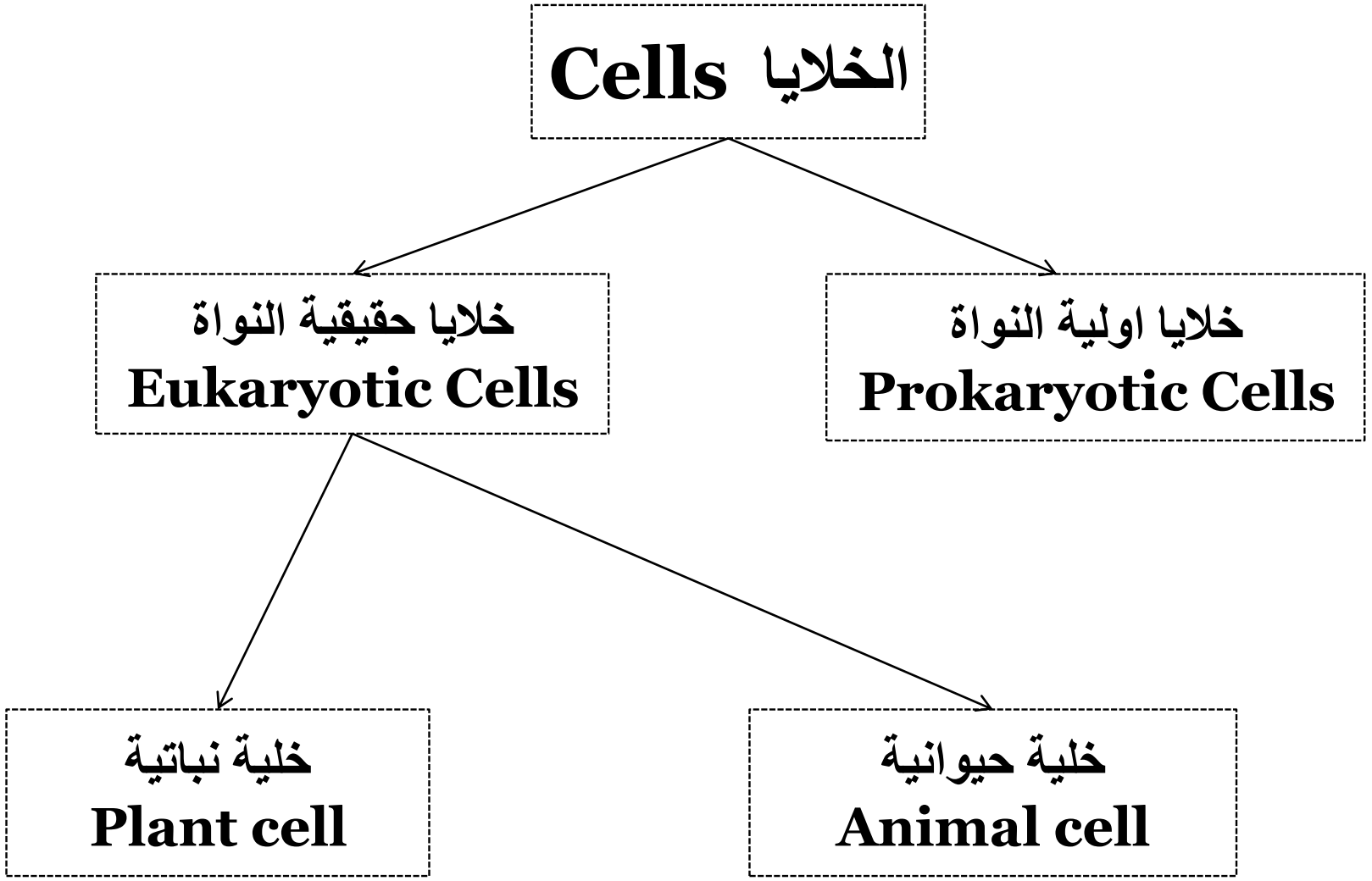
WELCOME

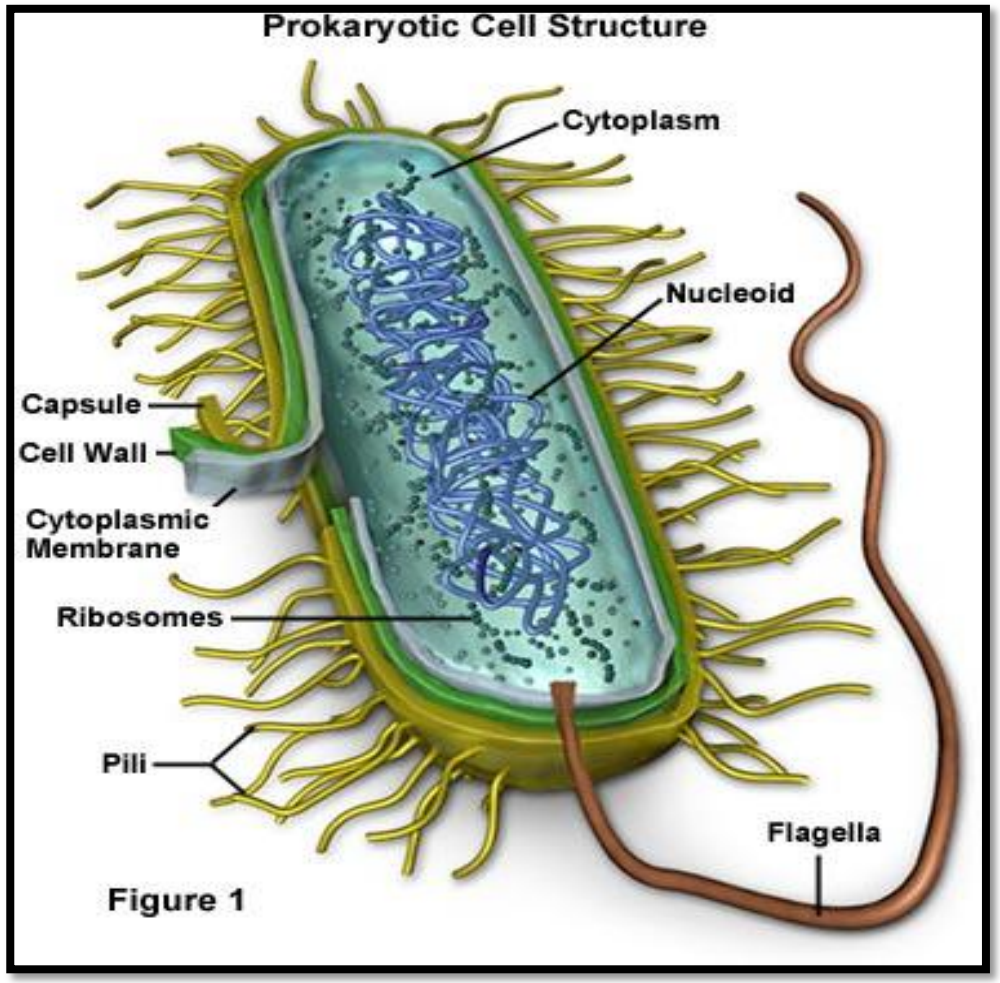
# LAP2

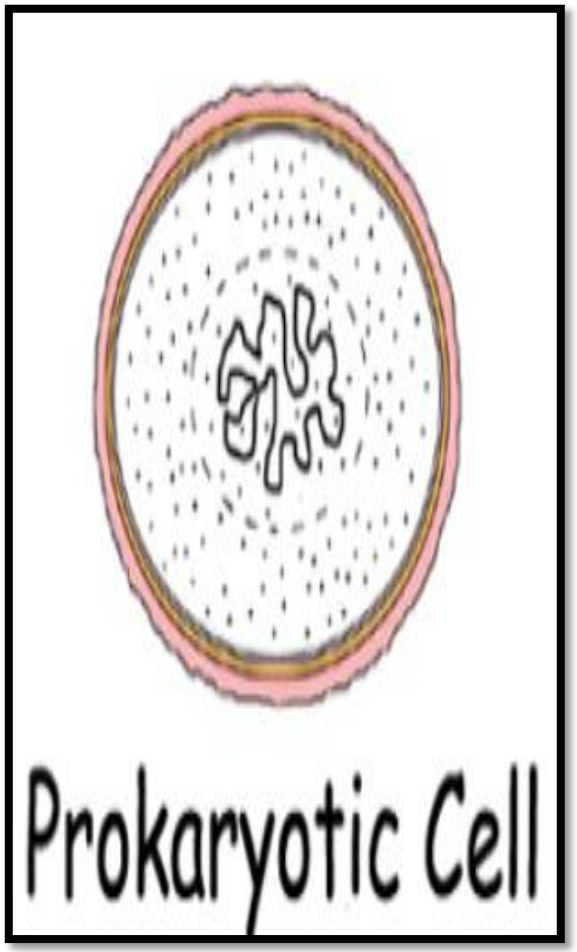
# Cell الخلية


ذرة
Atom
جزيء
Molecule
عضية
Organelle
خلية
Cell
نسيج
Tissue
عضو
Organ
جهاز
System
كائن حي
Organism

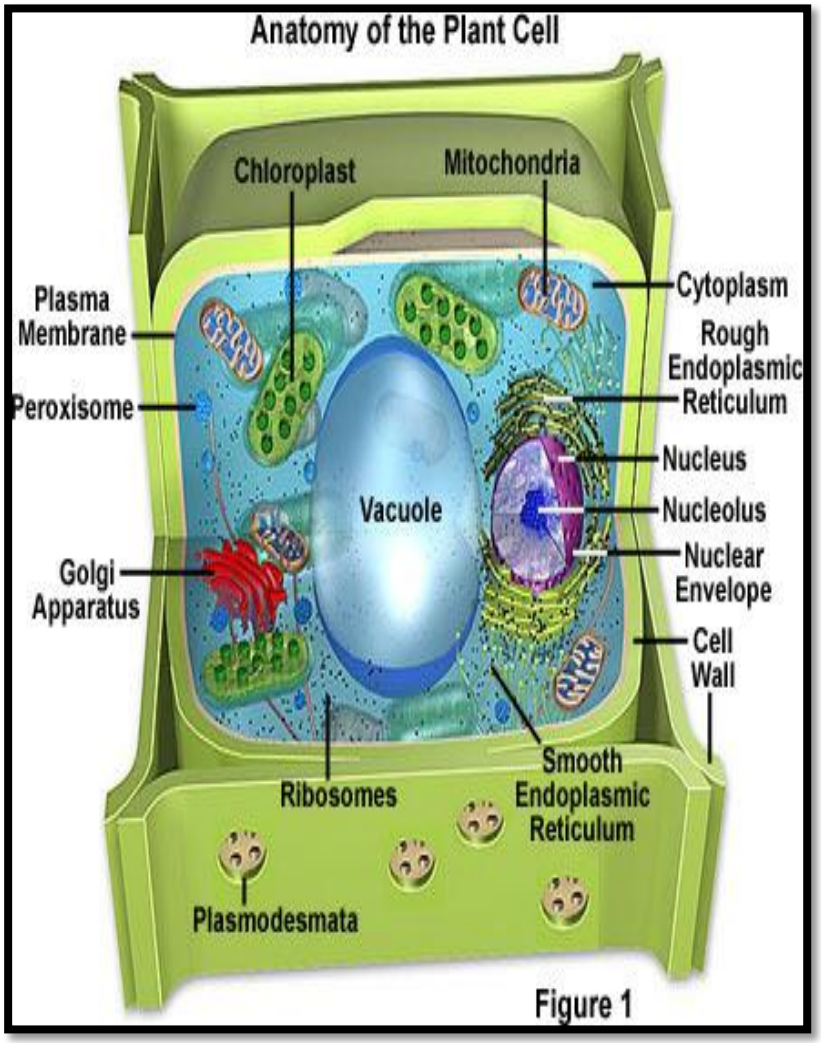

Cells الخلايا
خلايا حقيقية النواة
Eukaryotic Cells
خلايا اولية النواة
Prokaryotic Cells
خلية نباتية
Plant cell
خلية حيوانية
Animal cell

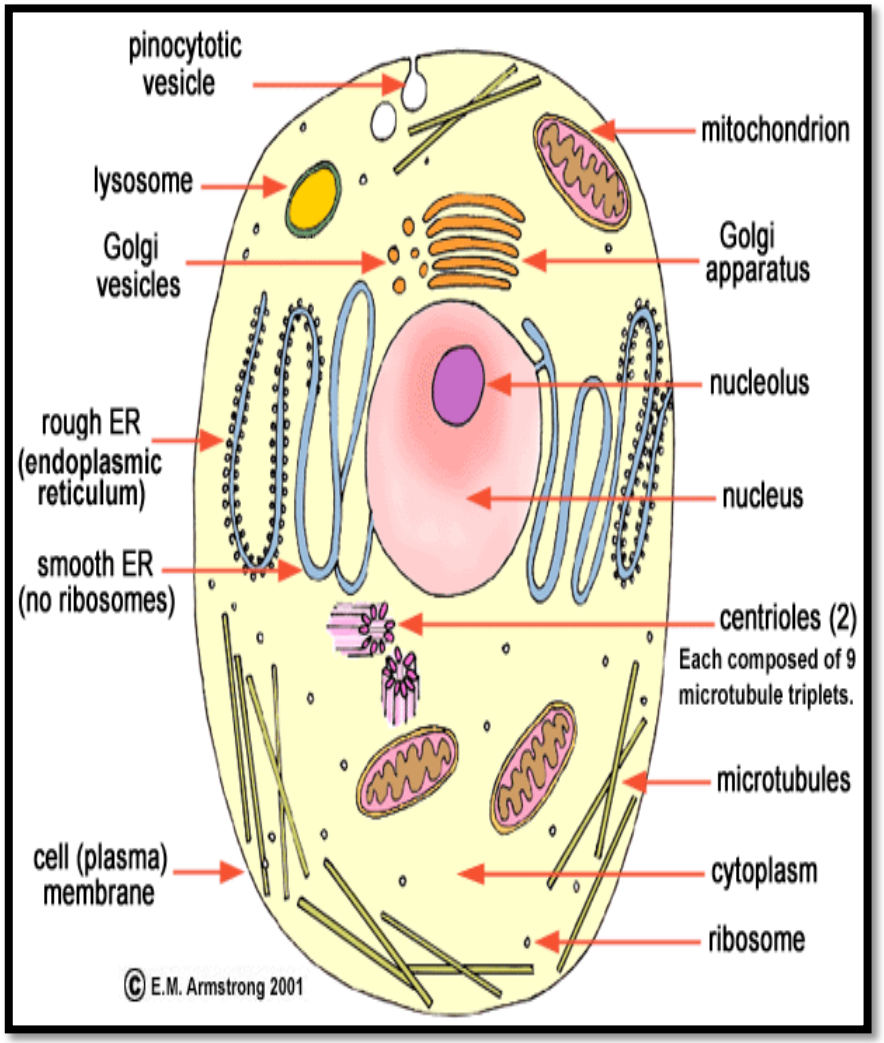
# خلايا اولية النواة
# Prokaryotic Cells



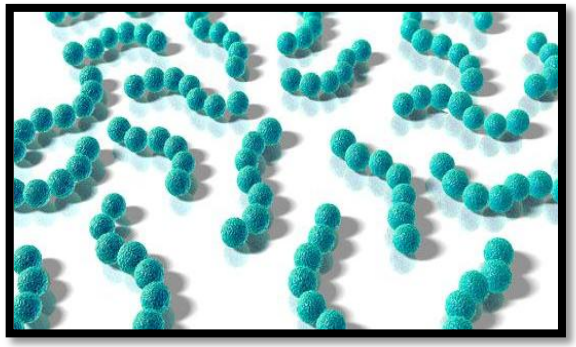
# خلايا حقيقية النواة
# Eukaryotic Cells



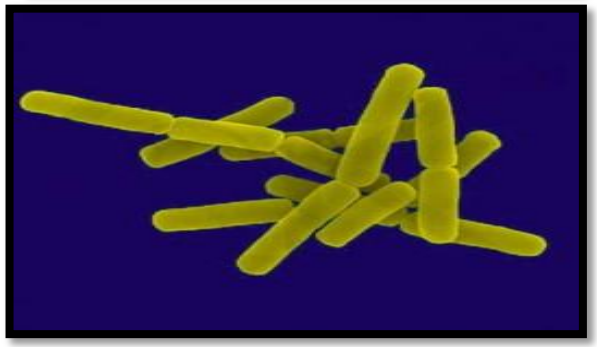



# أ- دراسة الخلايا الأولية النواة Prokaryotic Cells

- مثال: البكتيريا Bacteria ... و السيانوبكتيريا Cyanobacteria.
- أشكال البكتيريا:

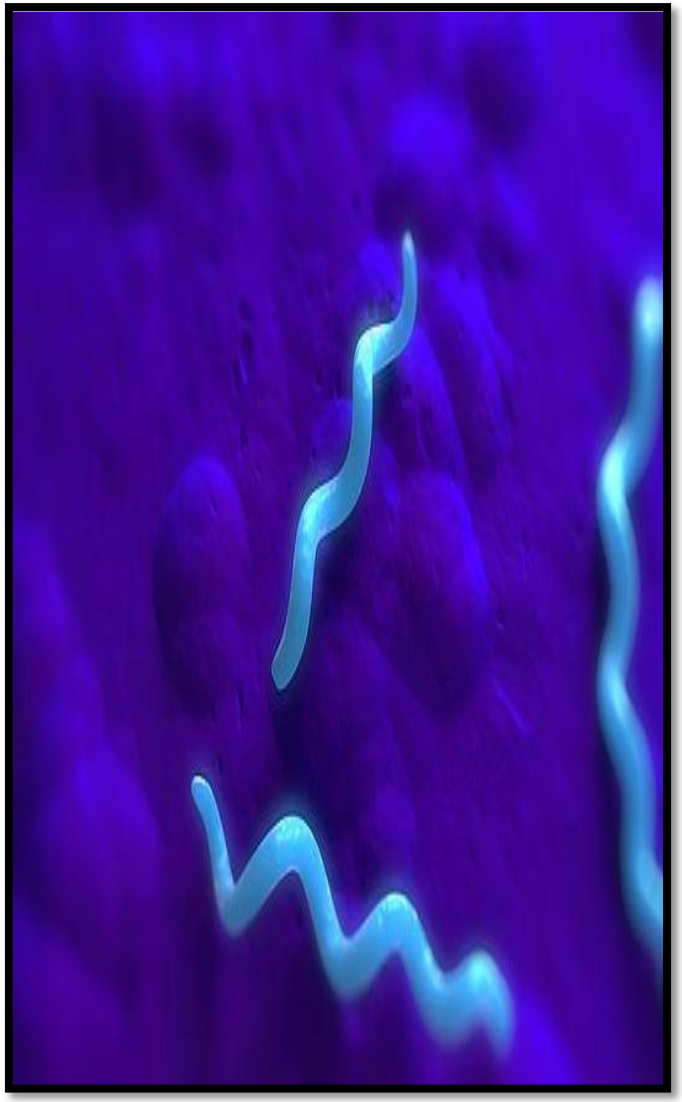


١- مستديره Spherical أو كروية.

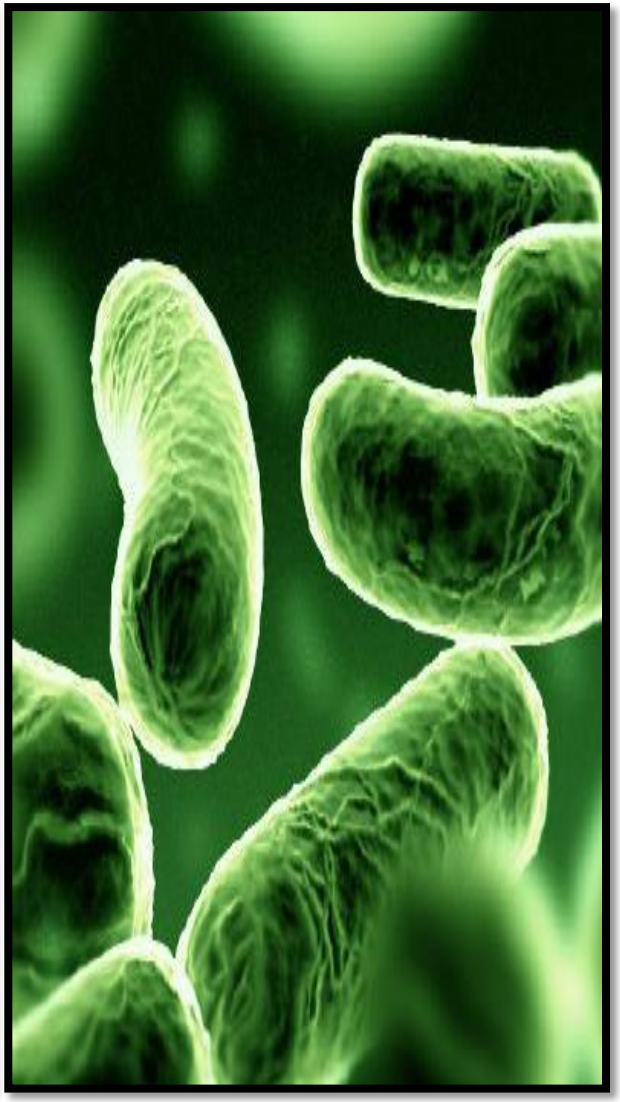


٢- أسطوانية Cylindrical أو عصوية.

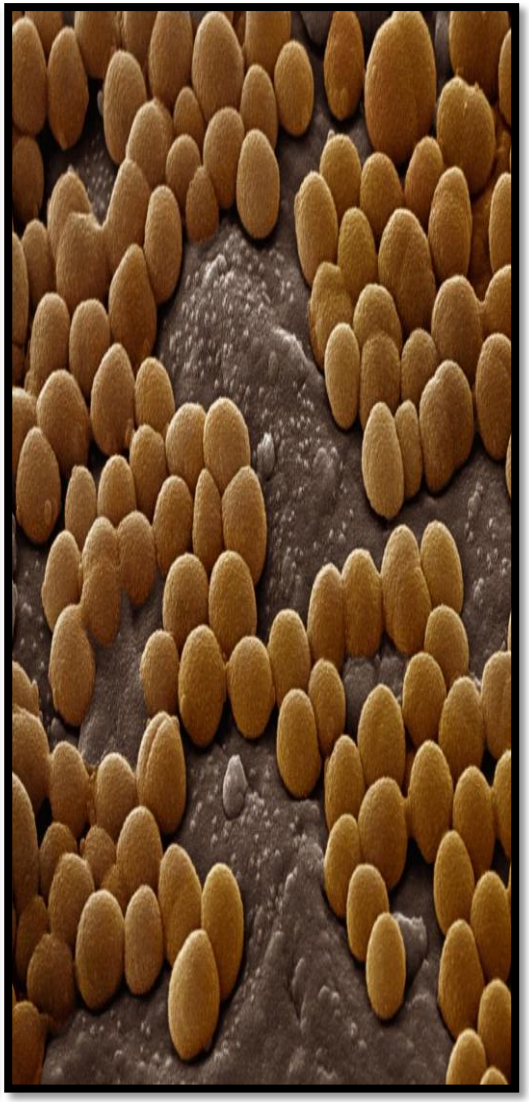
٣- حلزونية Spiral.



Spiral

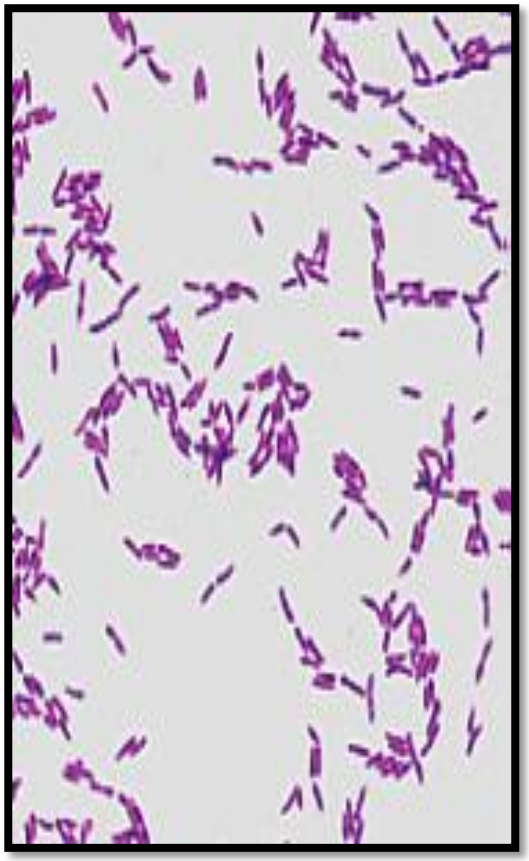


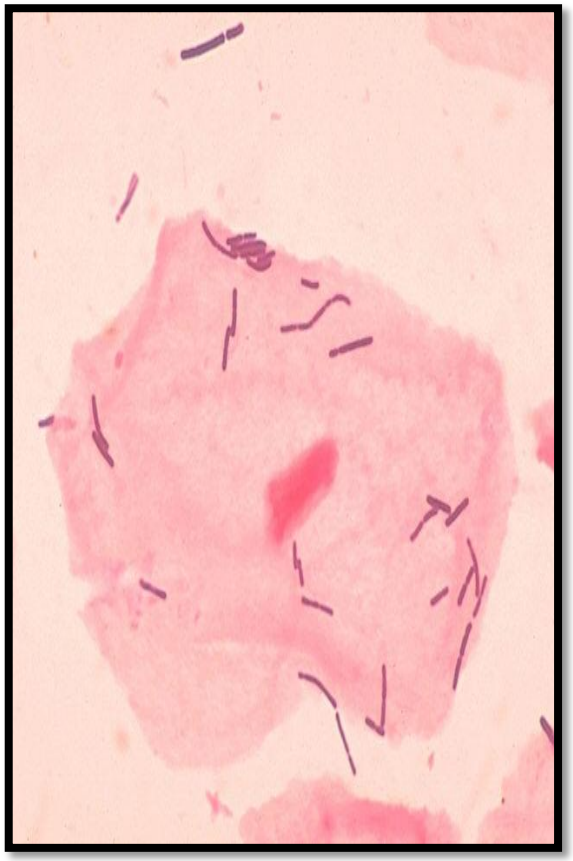
Cylindrical



Spherical

# فحص شريحة توضح بكتيريا اللبن (بكتيرياعصوية).

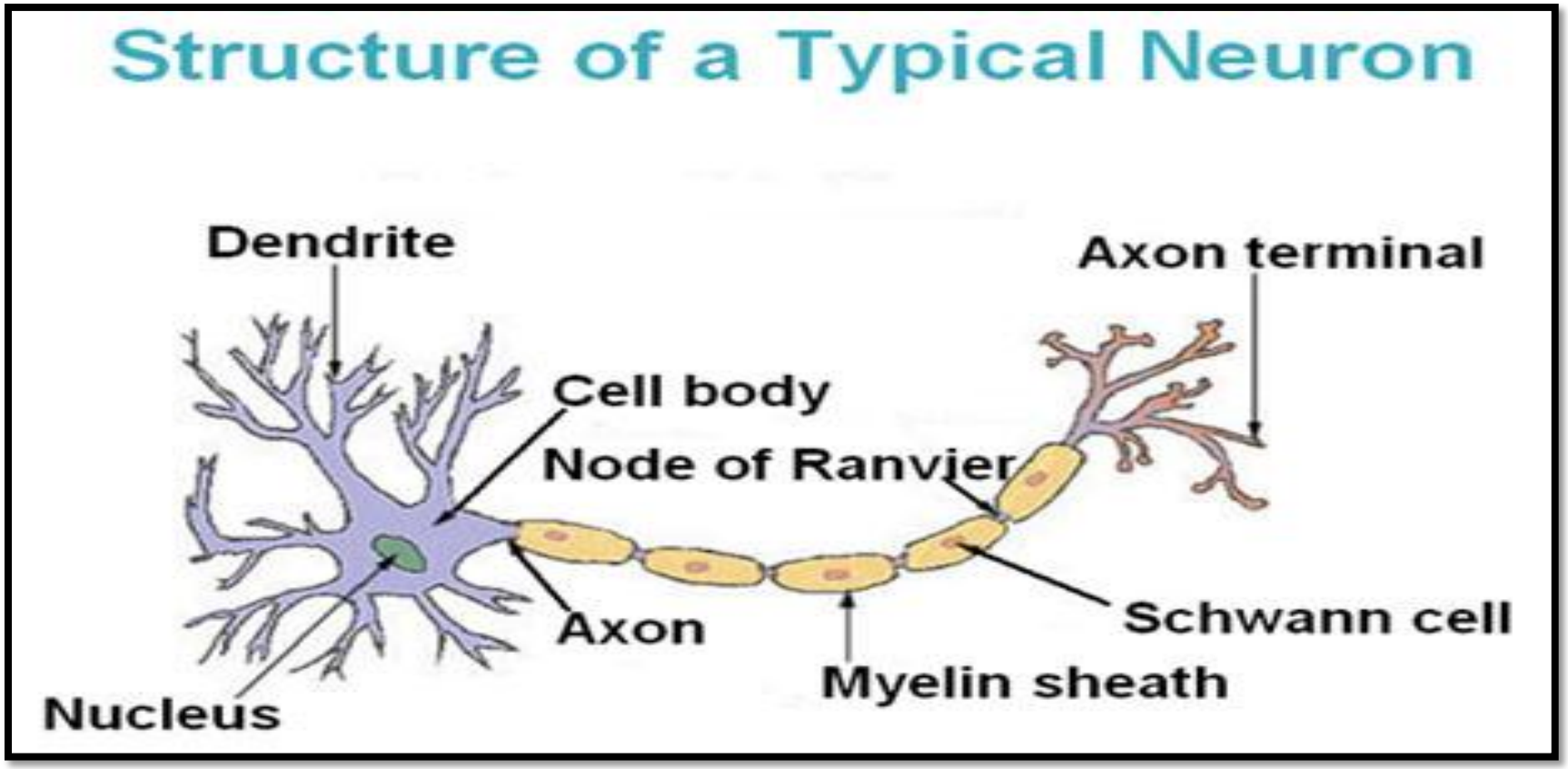


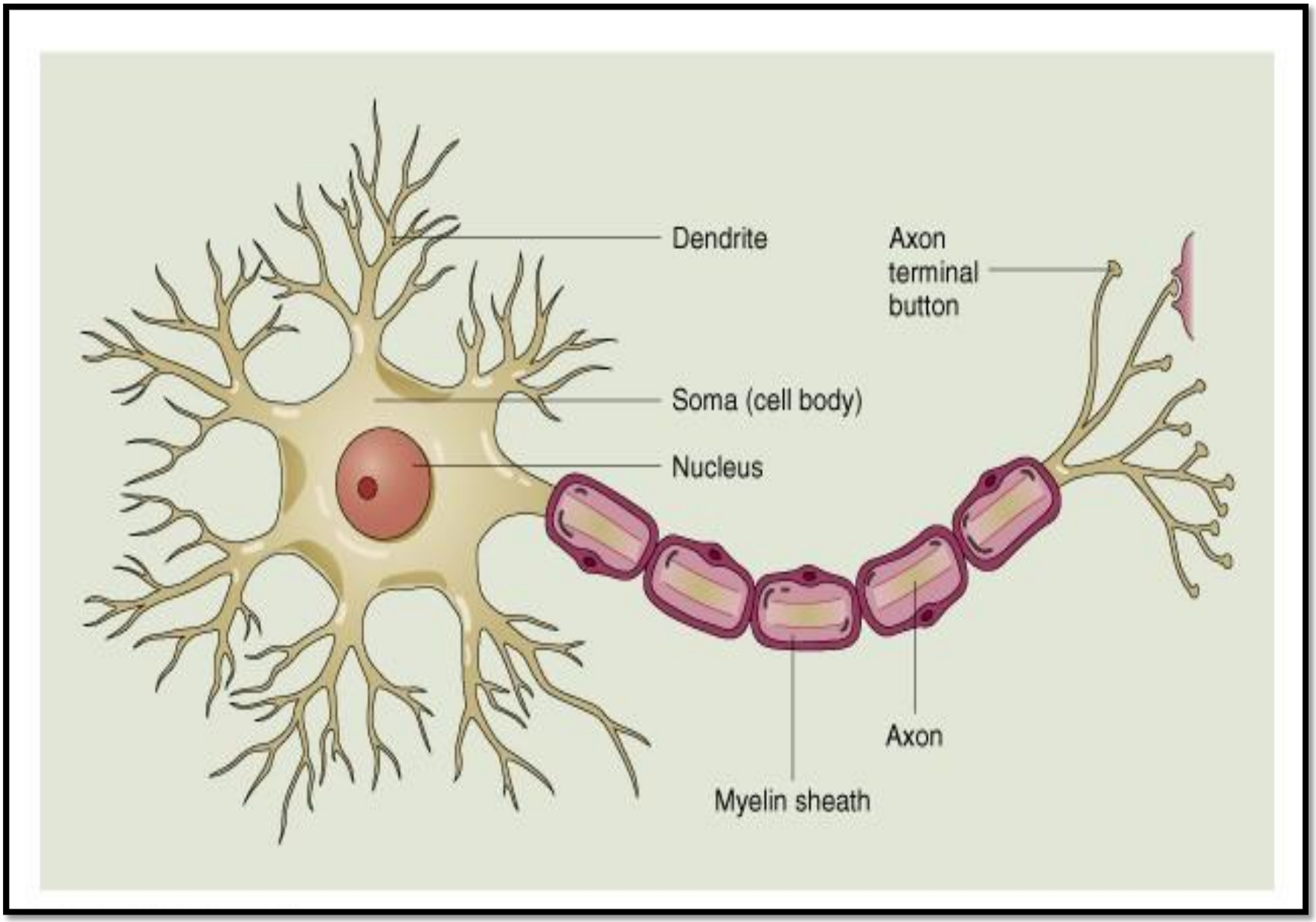


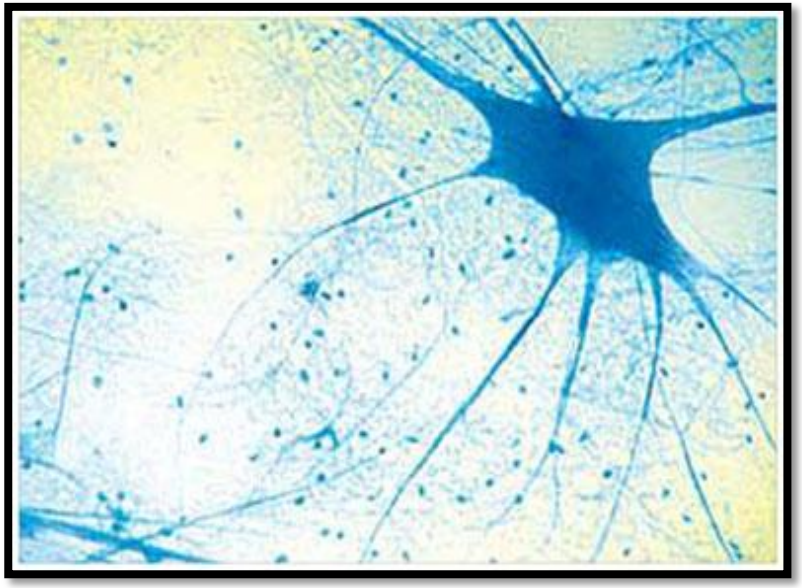
# ب- دراسة الخلايا حقيقية النواة Eukaryotic Cells

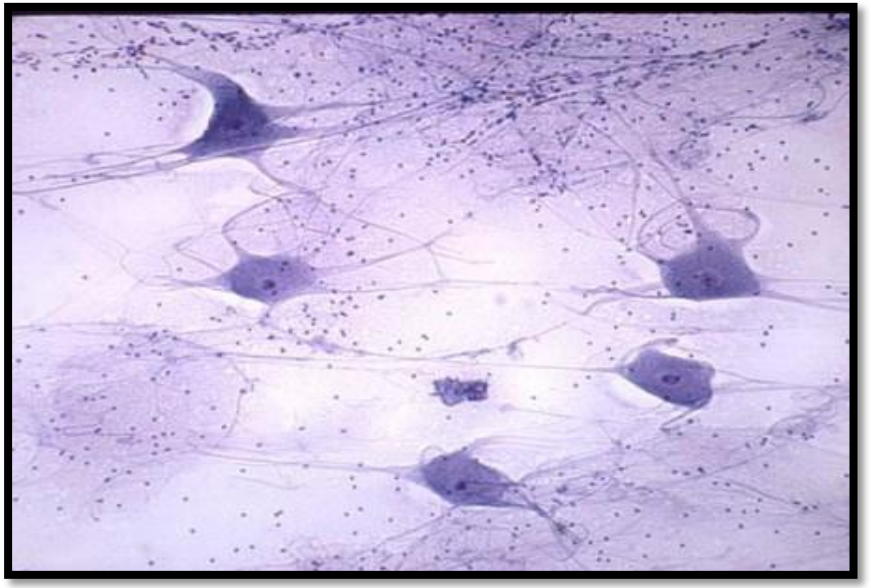
١- فحص خلايا من نسيج حيواني:

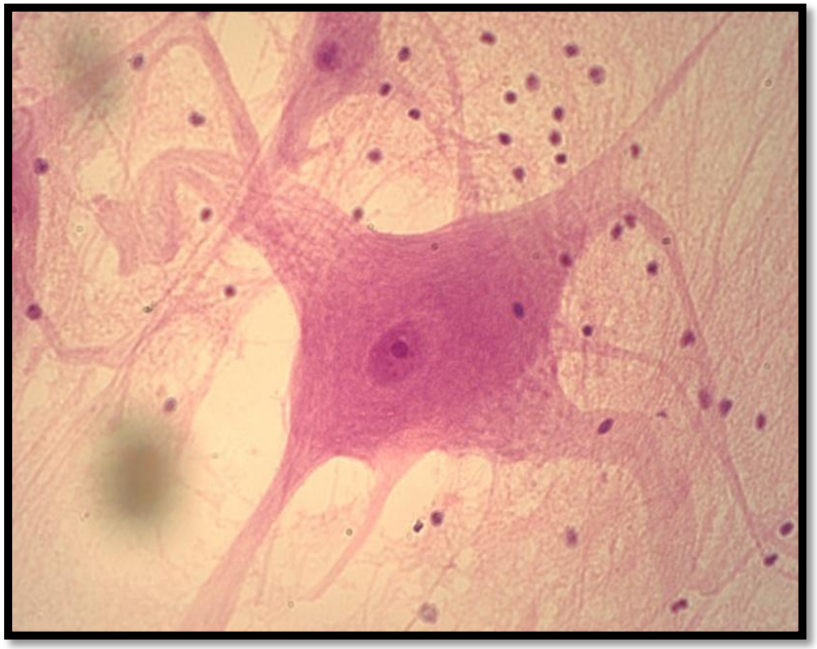
A- فحص شريحة توضح مسحة عصبية.




Dendrite
Axon terminal button
Soma (cell body)
Nucleus
Axon
Myelin sheath





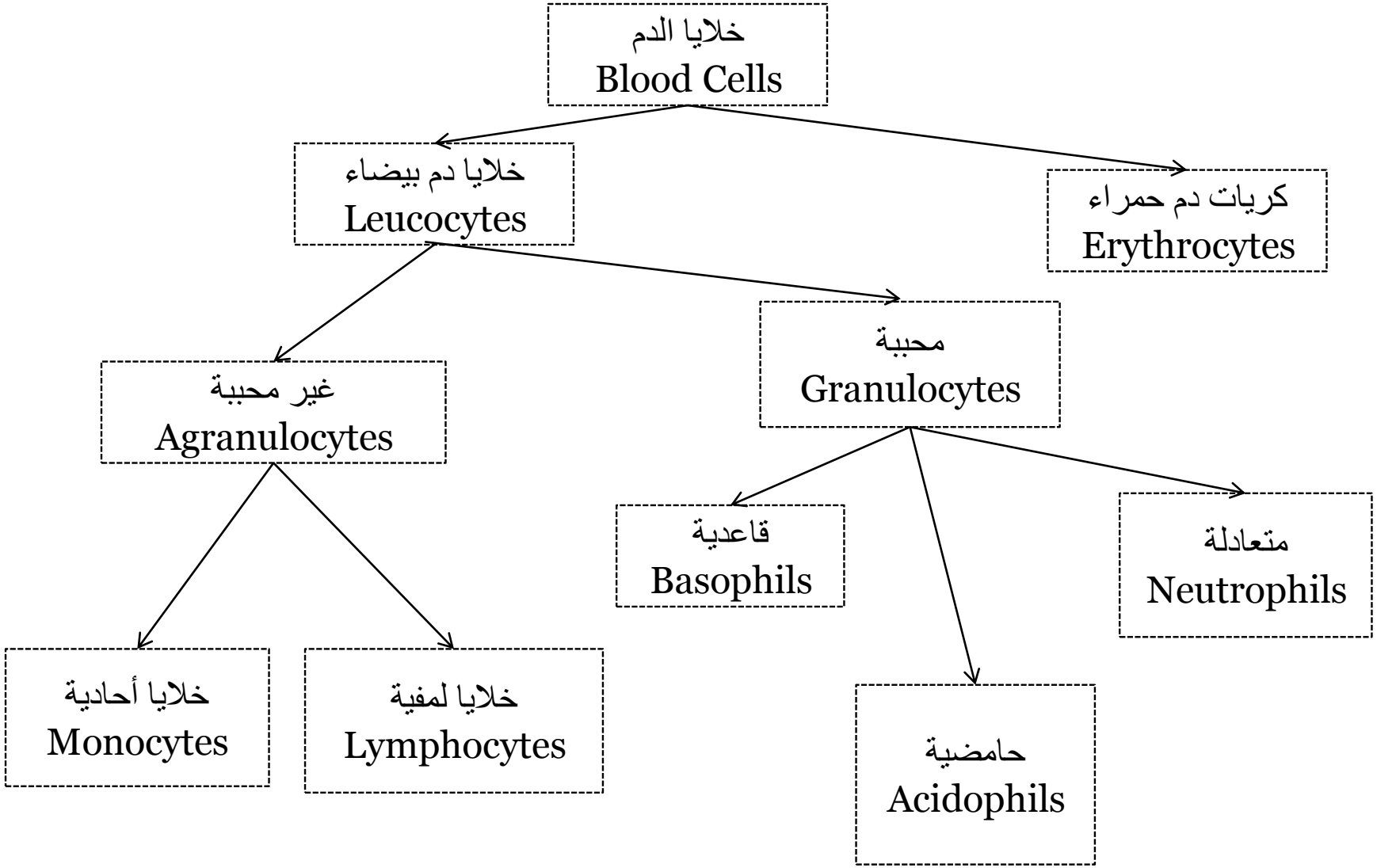


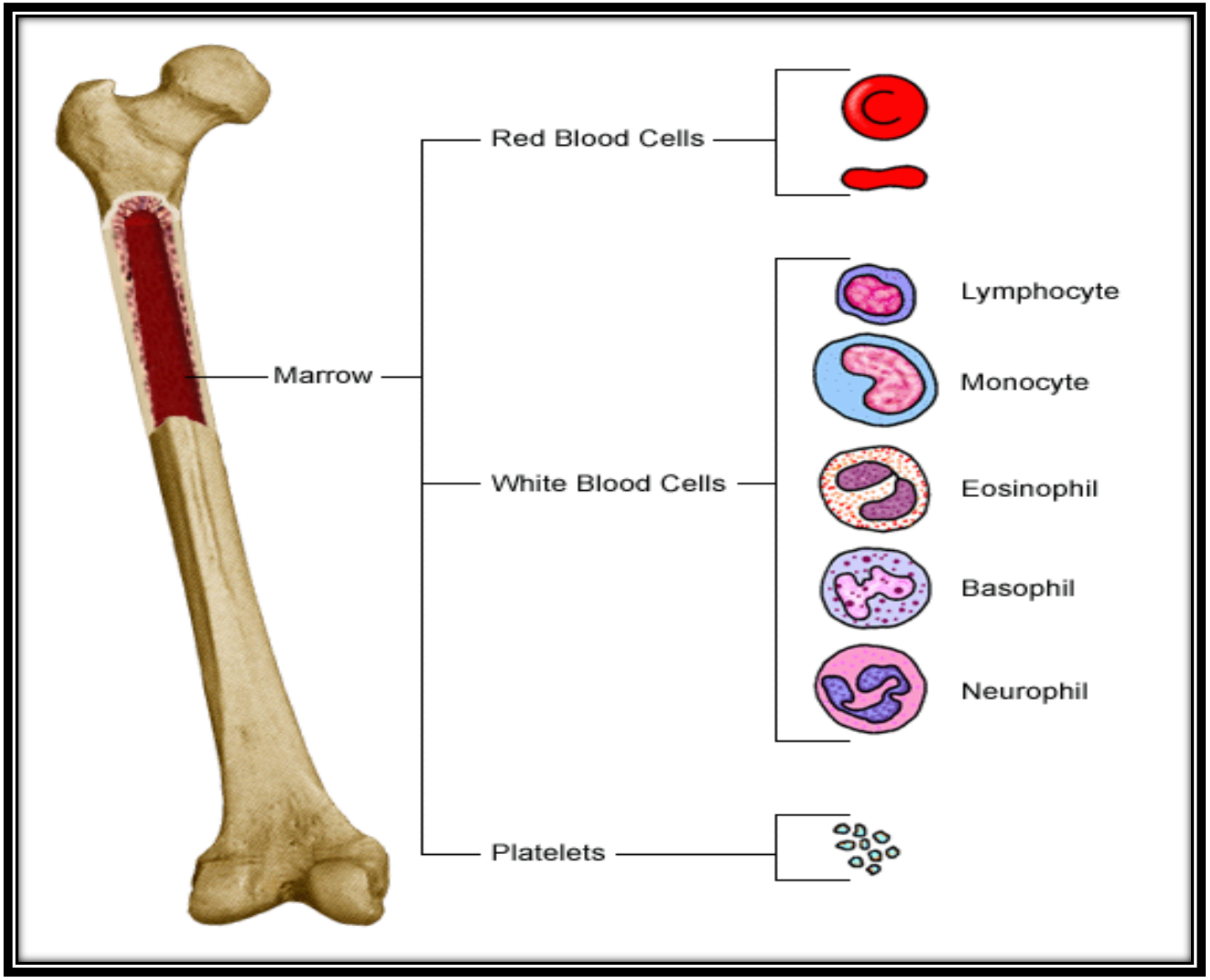
Nerve Cells and Astrocyte

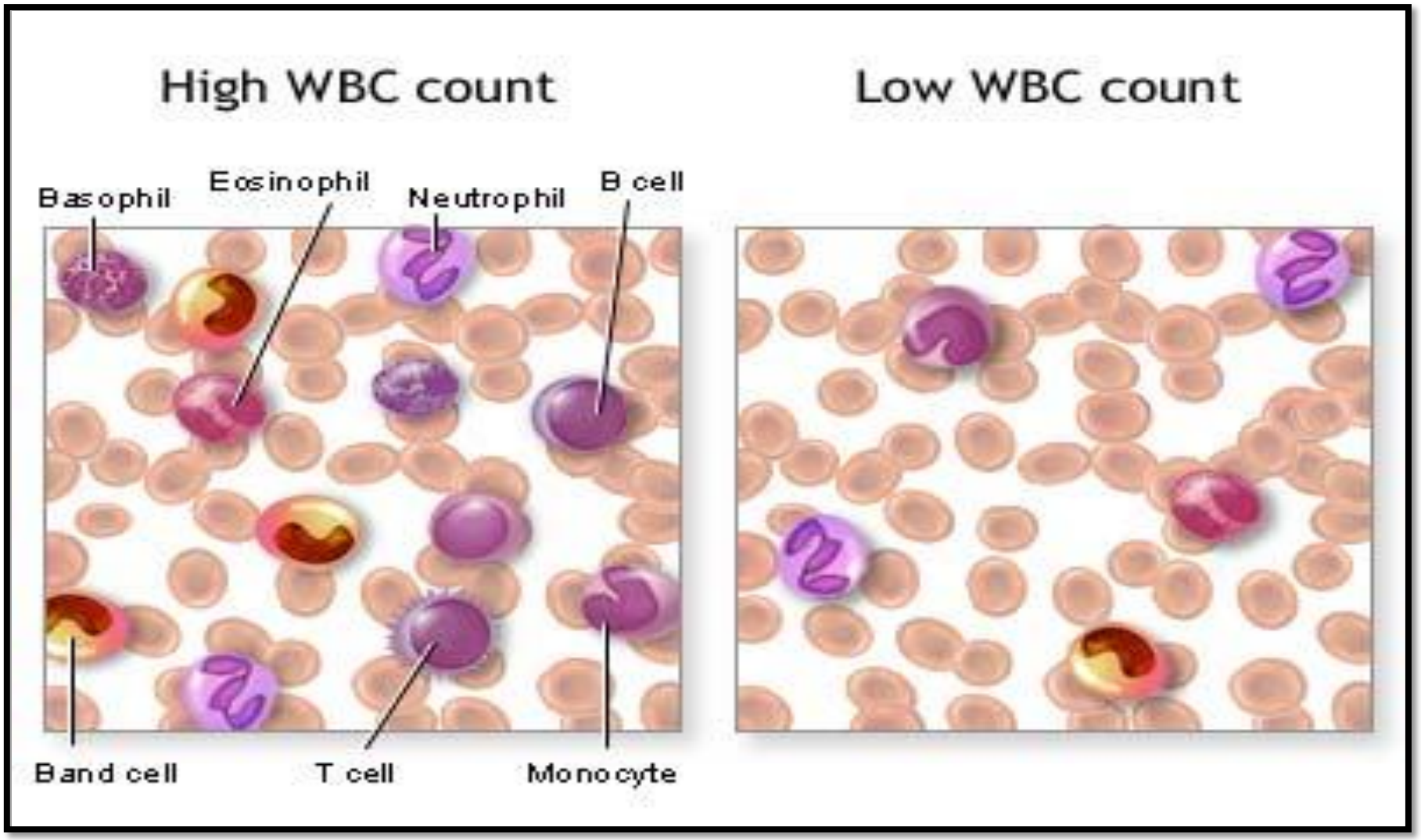
# Human Blood Smear

RANDAH AL-SHEHRI

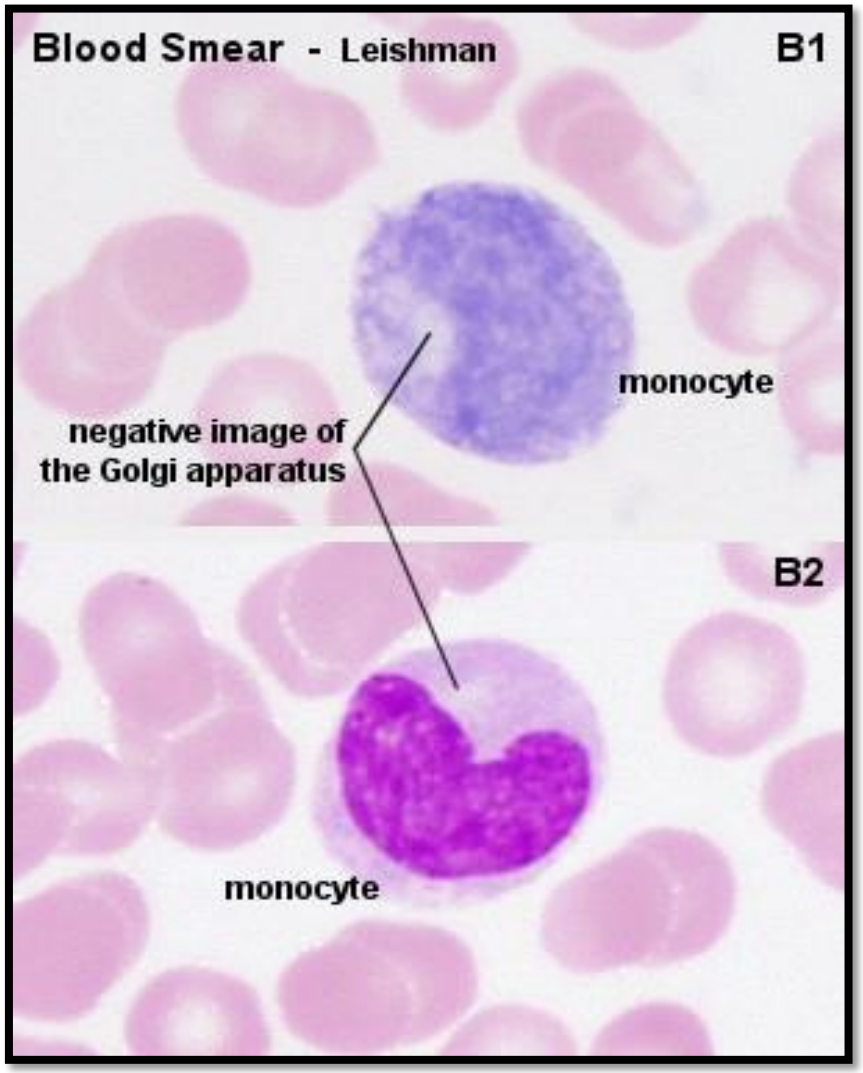
# B- فحص شريحة توضح سحبة من دم الإنسان Human Blood Smear.

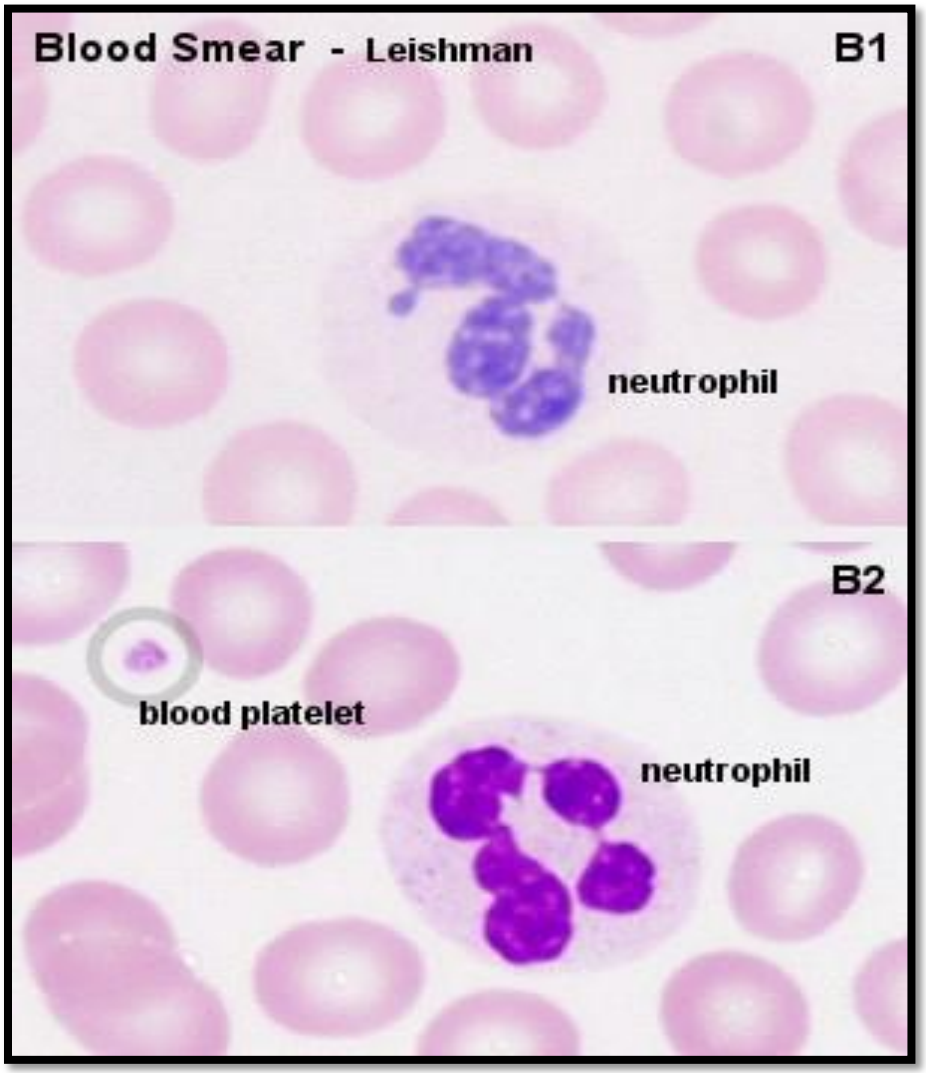


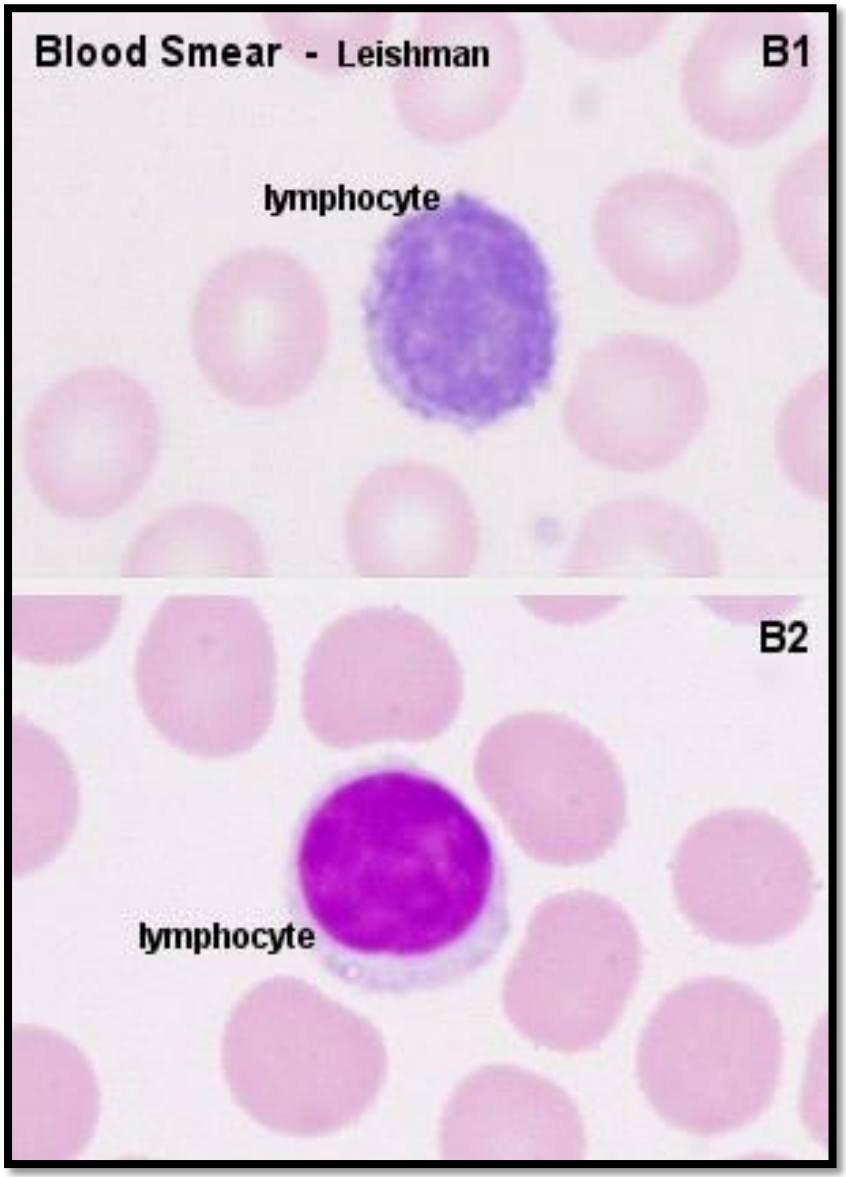

Marrow
Red Blood Cells
White Blood Cells
Platelets
Lymphocyte
Monocyte
Eosinophil
Basophil
Neurophil

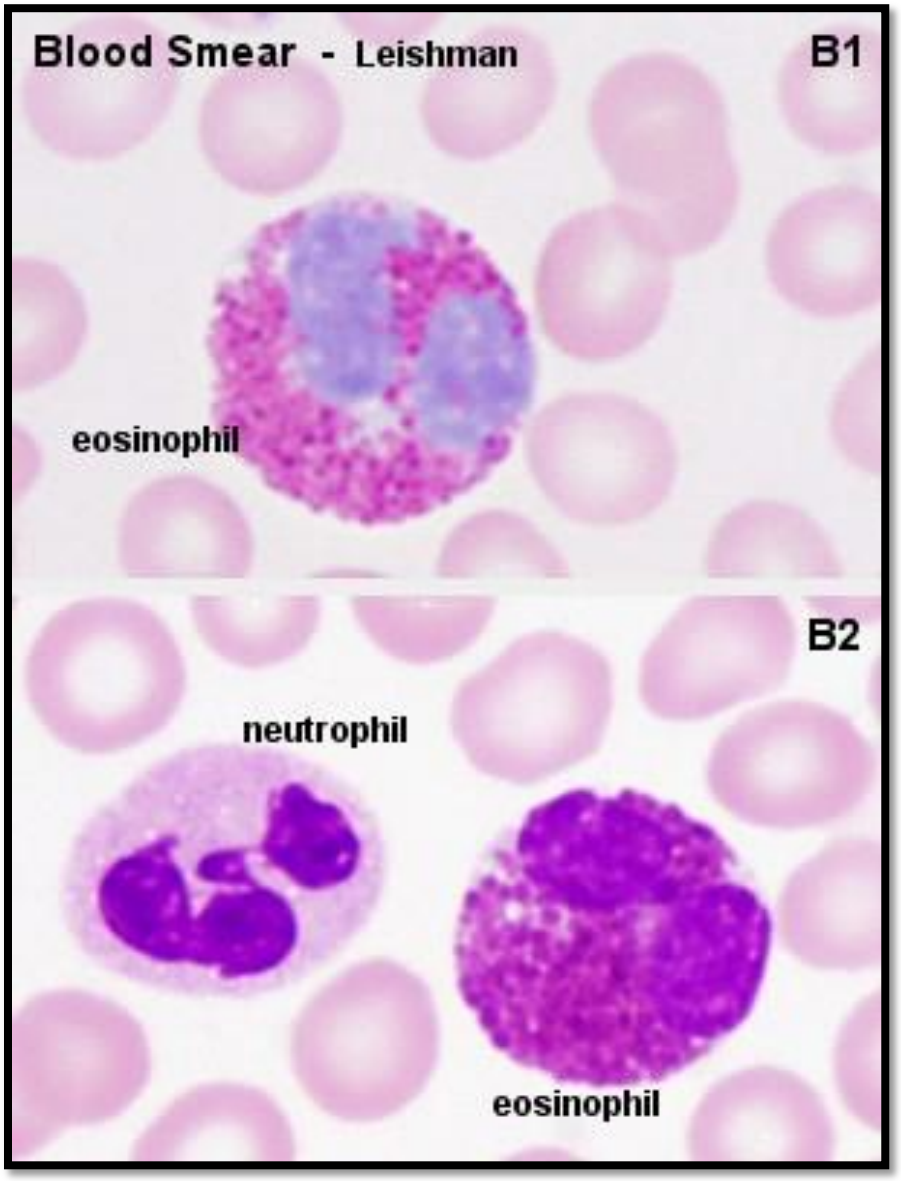



# Human Blood Smear

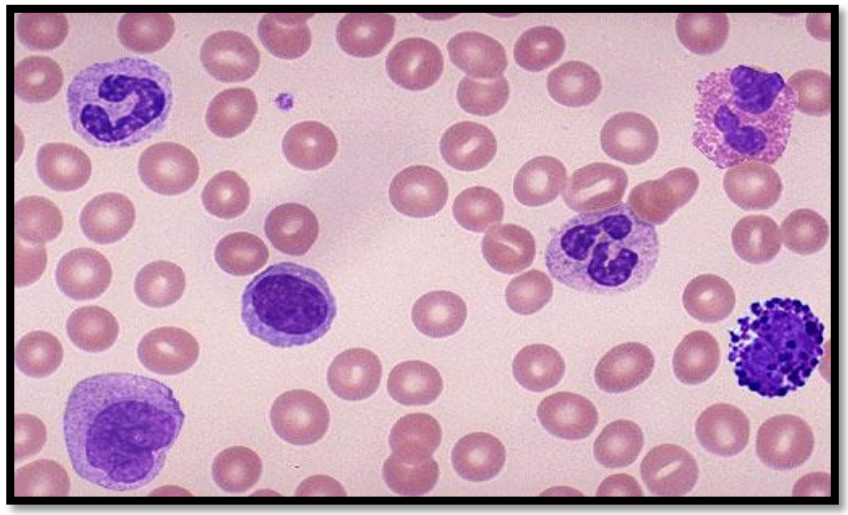

Blood Smear - Leishman
B1
monocyte
negative image of
the Golgi apparatus
B2
monocyte

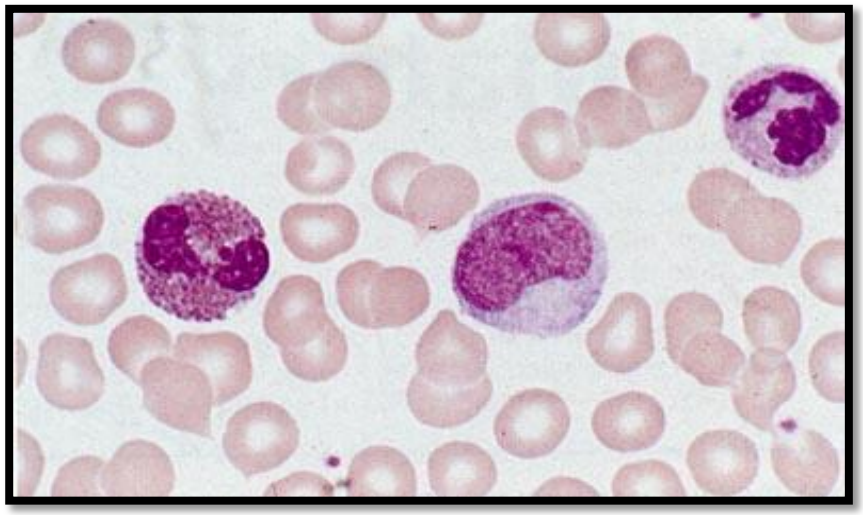

Blood Smear - Leishman
B1
neutrophil
B2
blood platelet
neutrophil

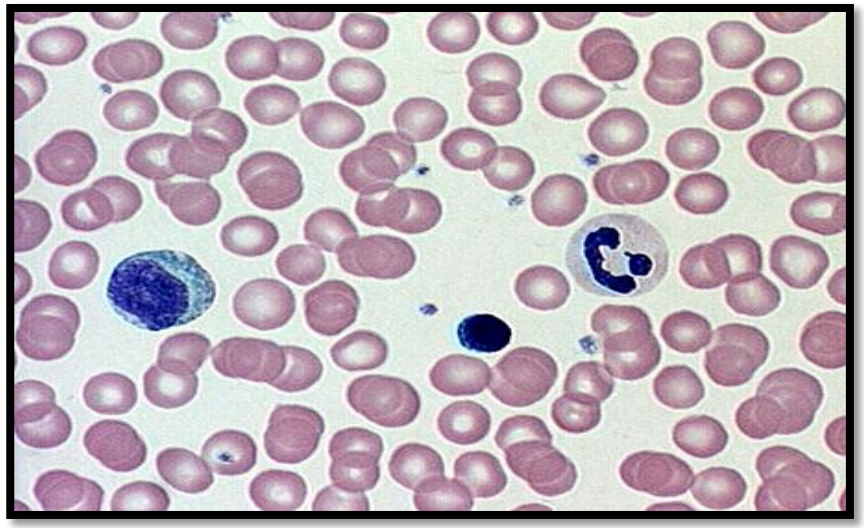

Blood Smear - Leishman
B1
lymphocyte
B2
lymphocyte

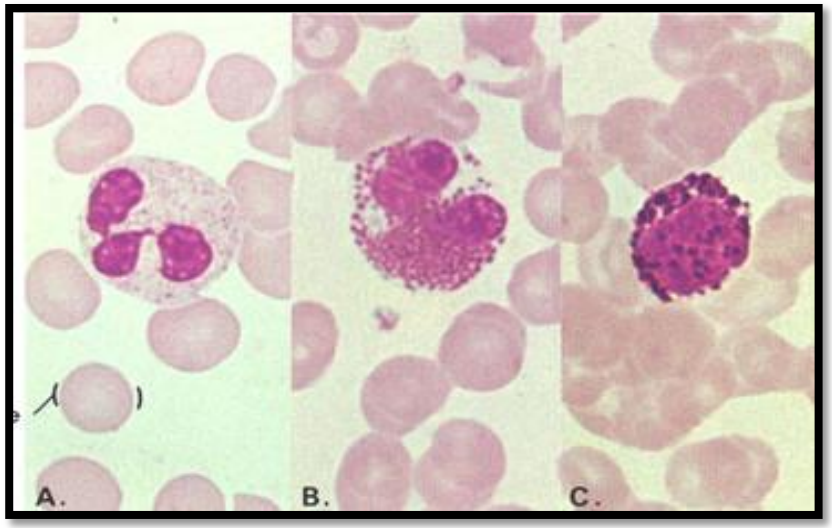

Blood Smear - Leishman
B1
eosinophil
B2
neutrophil
eosinophil

# Human Blood Smear

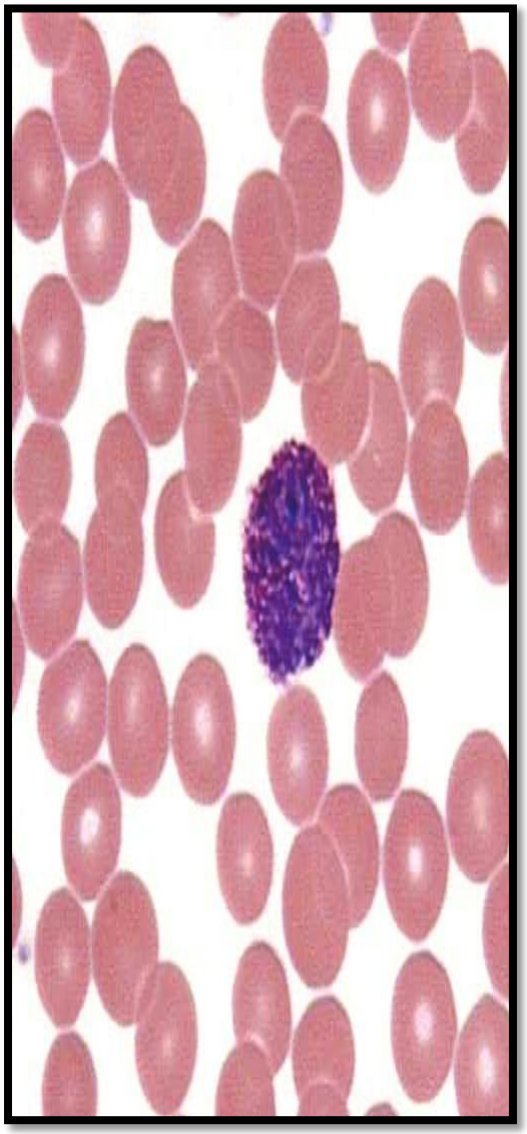


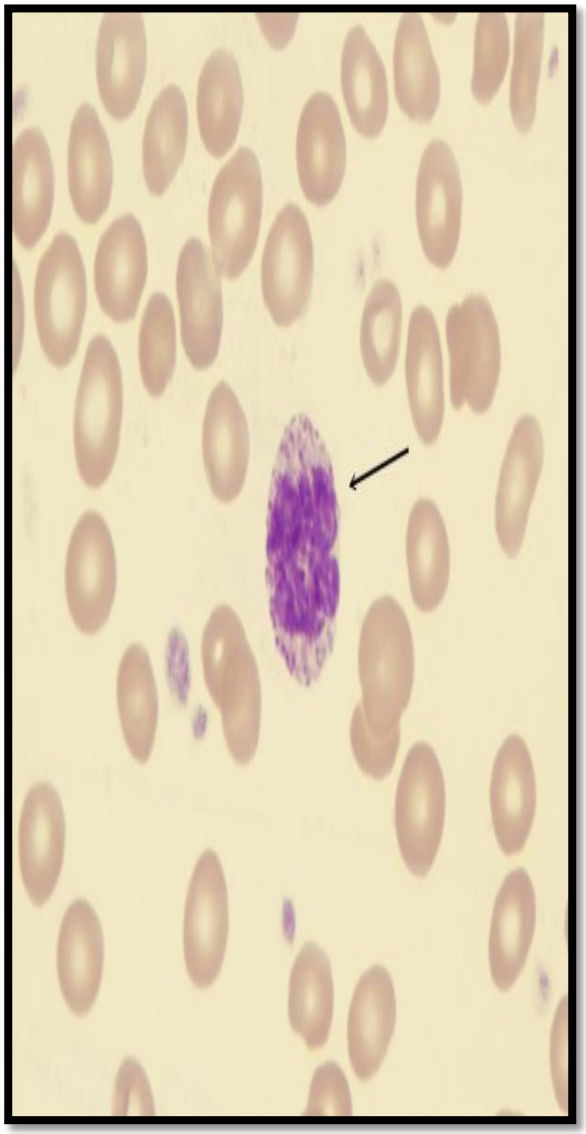


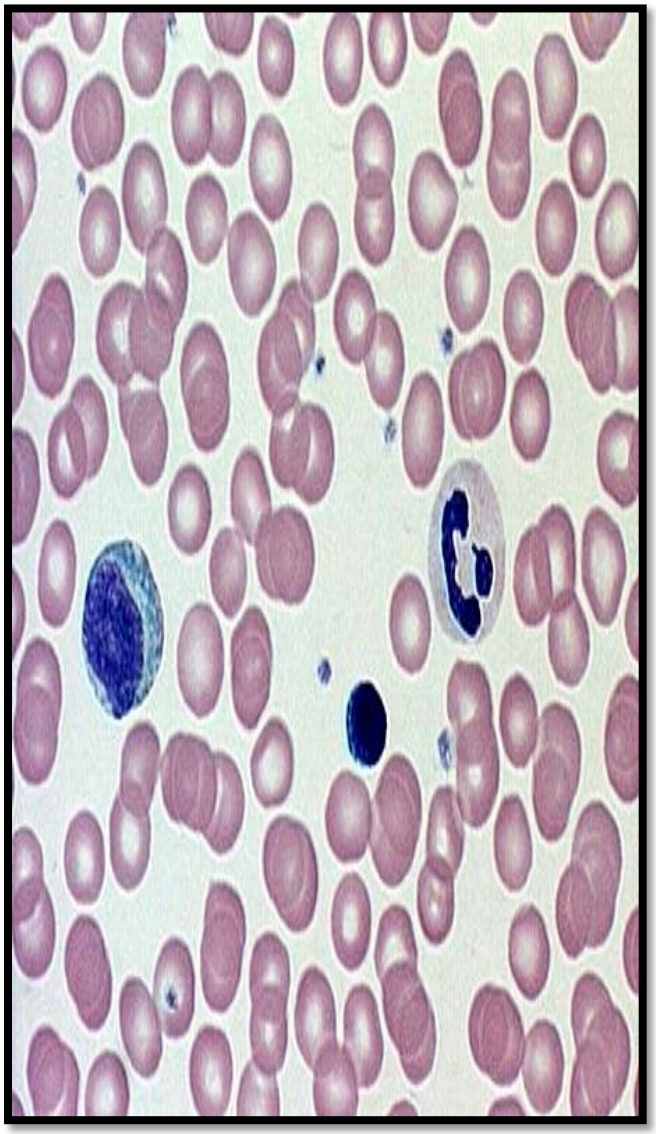




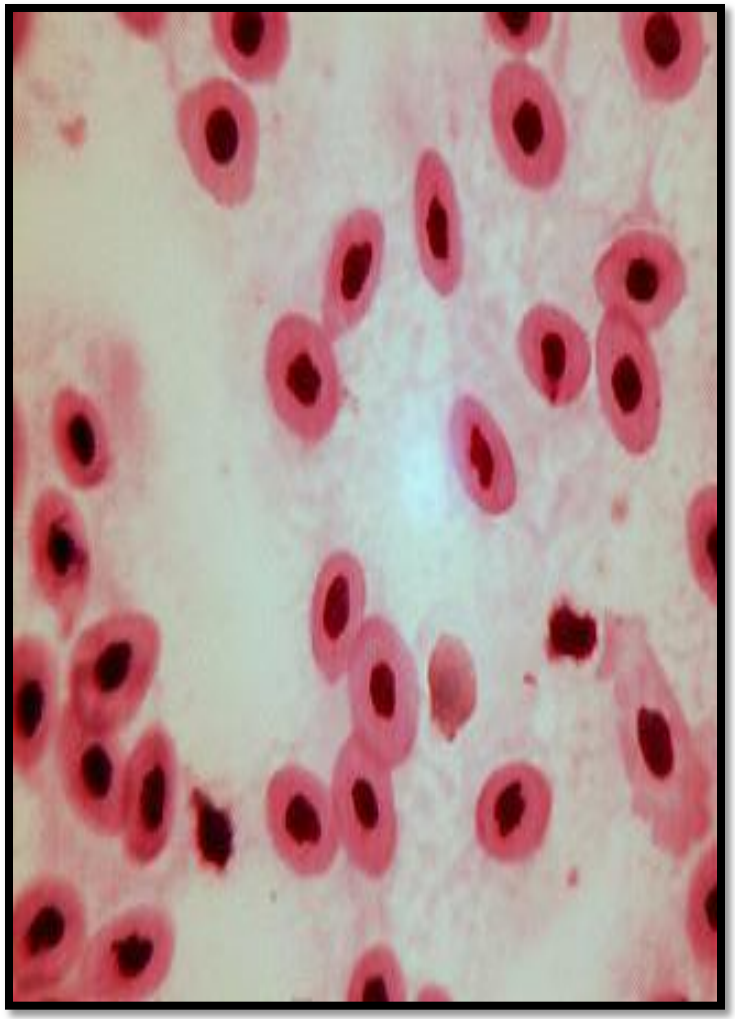
# Human Blood Smear

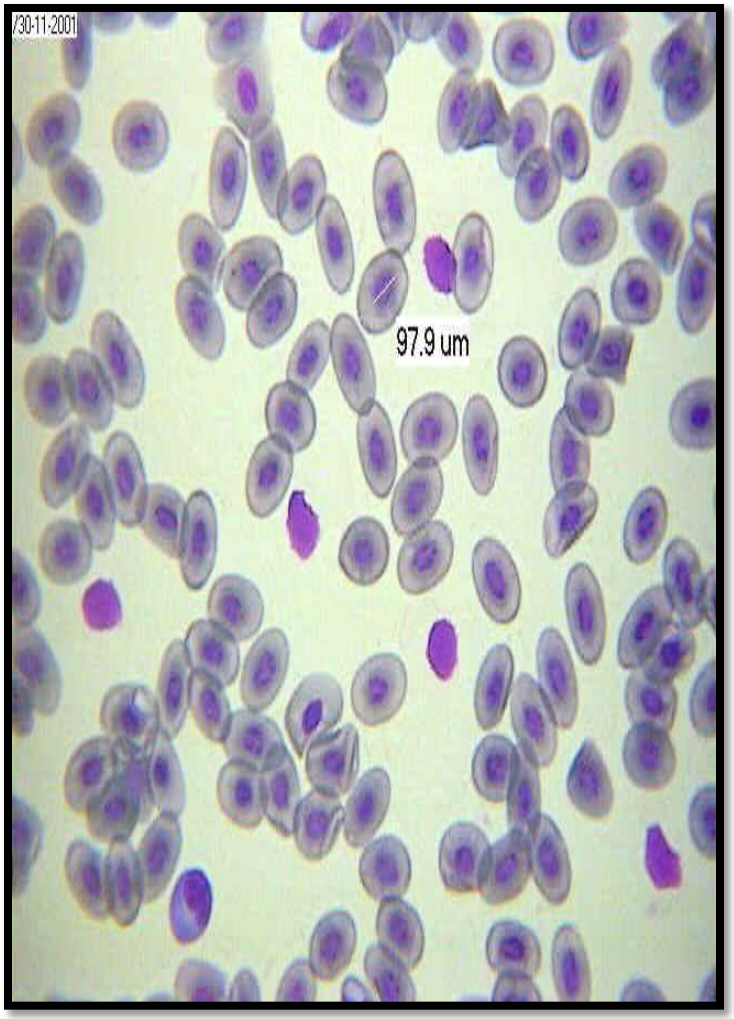


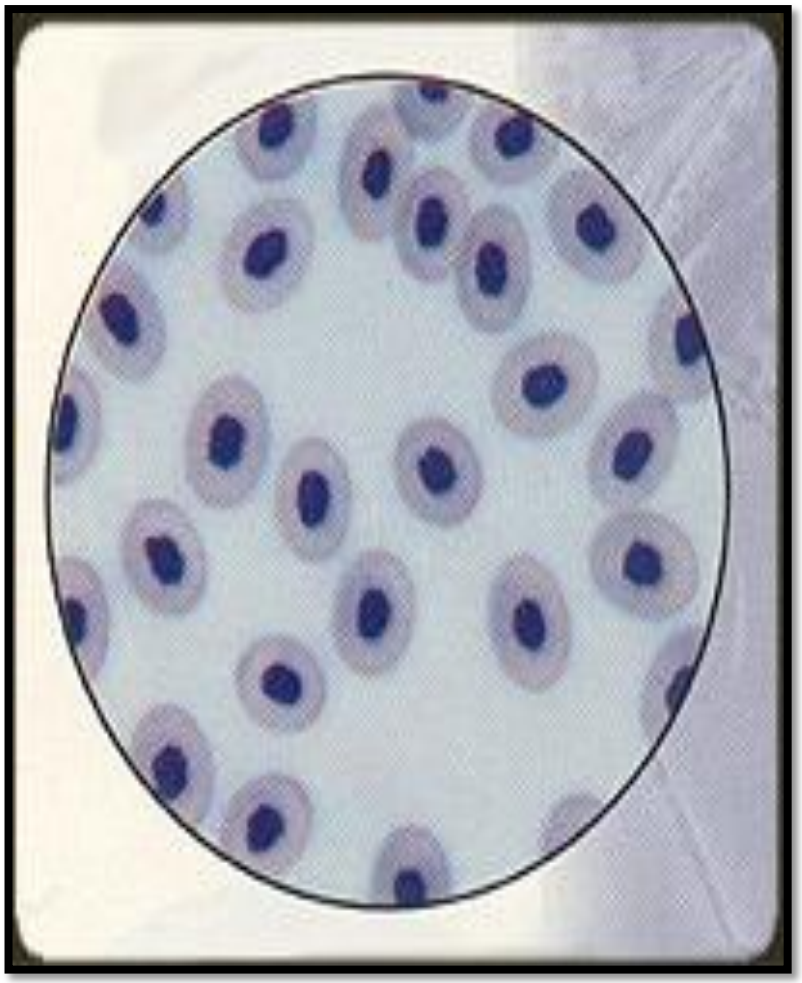




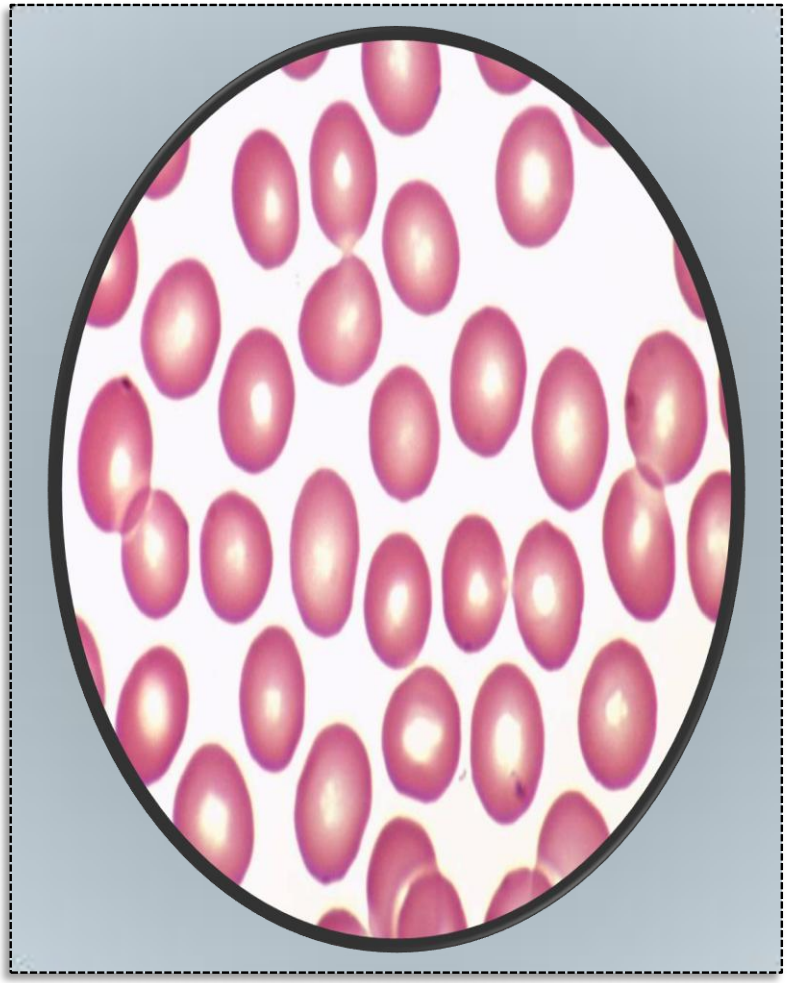
C- فحص سحبة من دم البرمائيات (الضفدع) Frog Blood Smear.







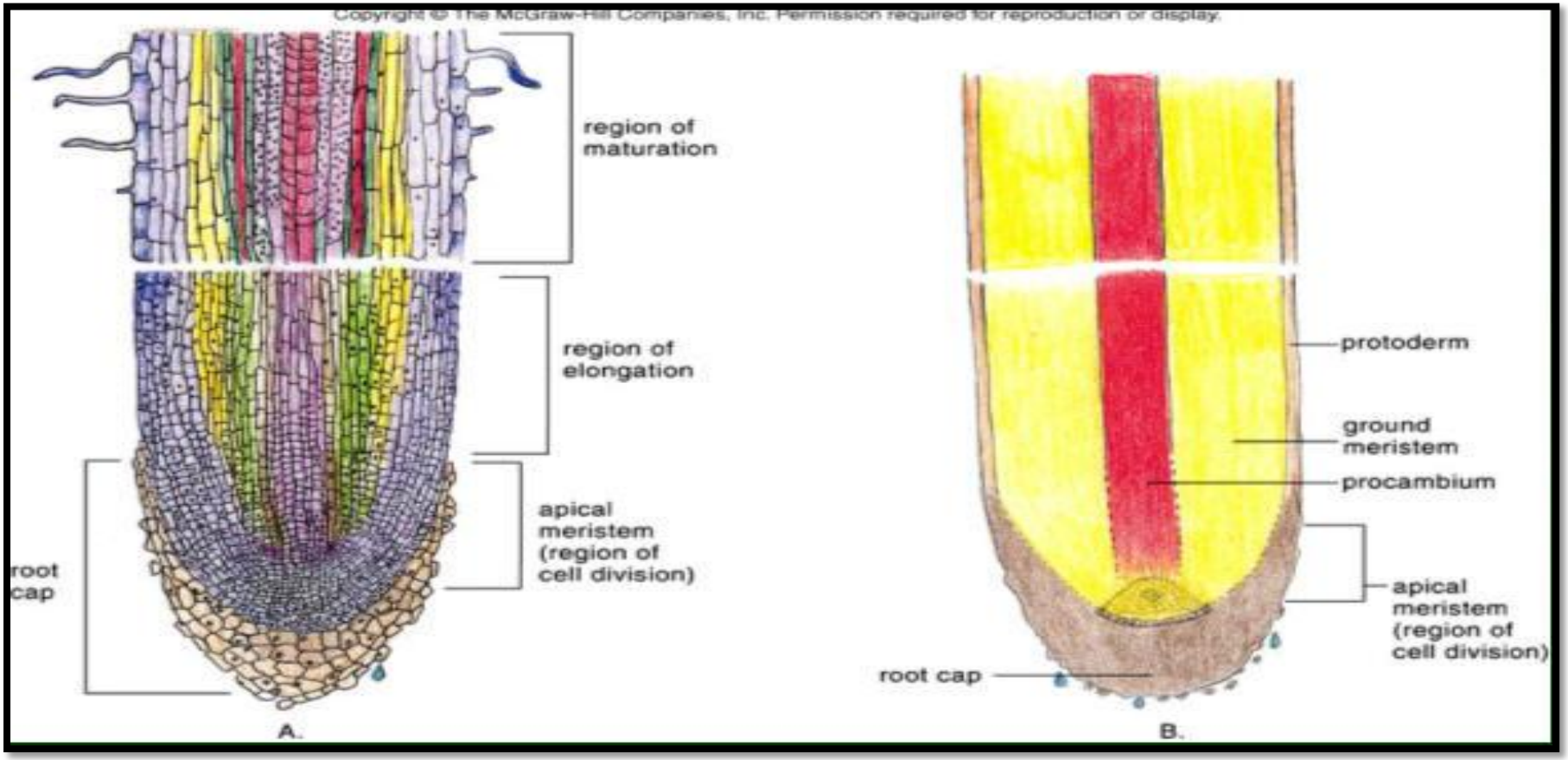
**Frog Blood Smear**

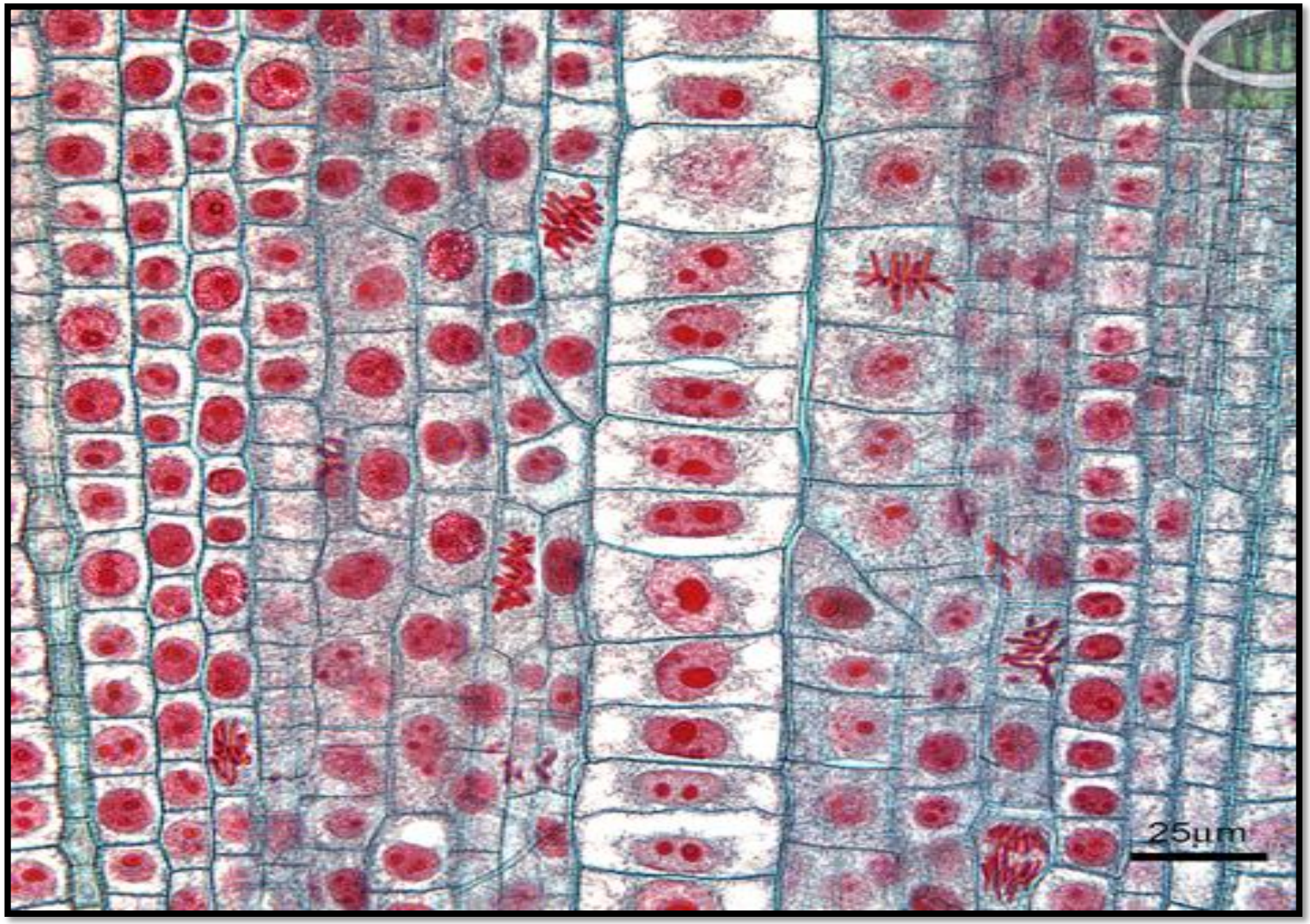


**Human Blood Smear**

## ٢- فحص خلايا من نسيج نباتي:

فحص شريحة توضح منطقة القمة النامية لجذر نبات البصل.




25µm

# Cell Division انقسام الخلية

**الإنقسام**
**Division**

**غير مباشر**
**Mitosis**

١- يحدث في الخلايا الجسديه.
٢- الهدف منه النمو وتعويض الأنسجة التالفة.
٣- يحدث فيه تضاعف للمادة الوراثية.
٤- الناتج : خليتين مشابهتين للخلية الأصلية ..وعدد الكروموزومات 2N

**اختزالي**
**Meiosis**

١- يحدث في الخلايا الجنسية.
٢- الهدف منه التكاثر.
٣- يحدث فيه اختزال للمادة الوراثية.
٤- الناتج : ٤ خلايا عدد الكروموزومات فيها N

# أطوار الإنقسام الغير مباشر Mitosis

١) الطور البيني Interphase.

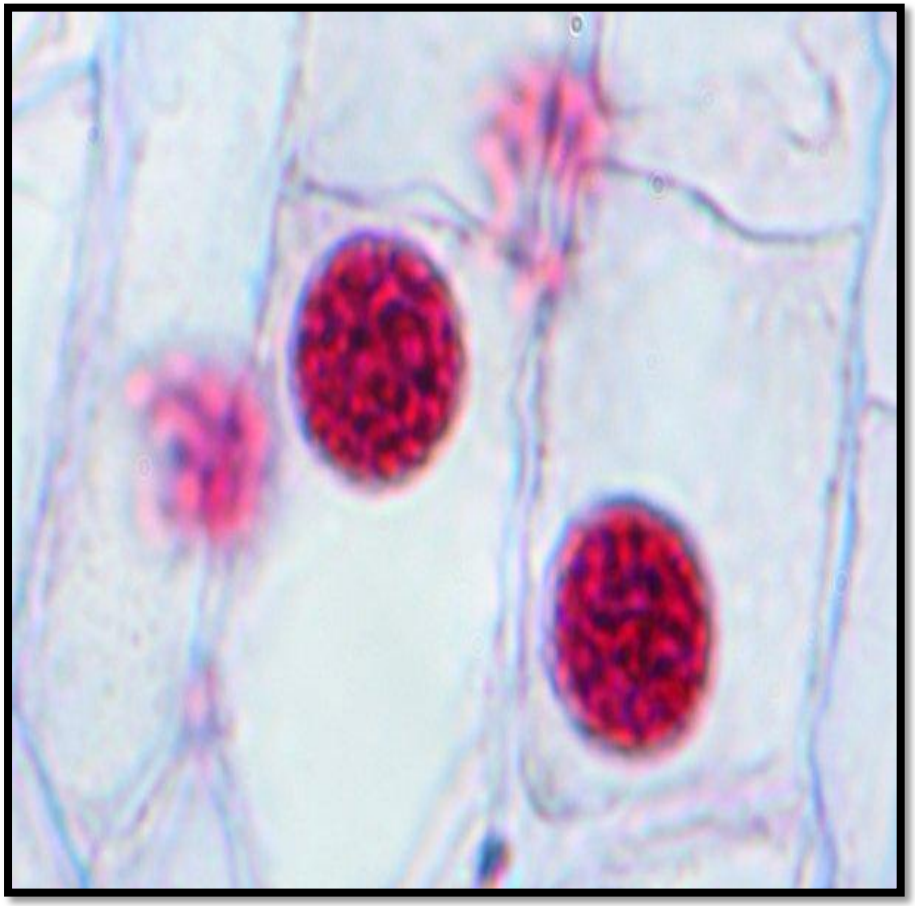
٢) الطور التمهيدي Prophase.

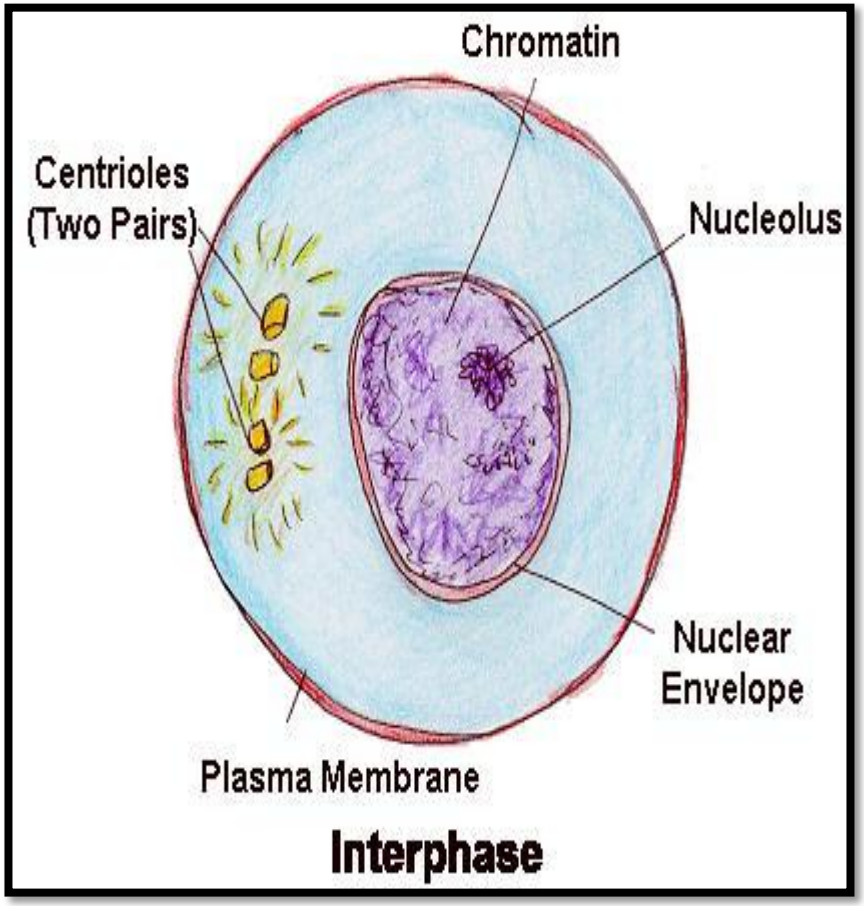
٣) الطور الإستوائي Metaphase.

٤) الطور الإنفصالي Anaphase.

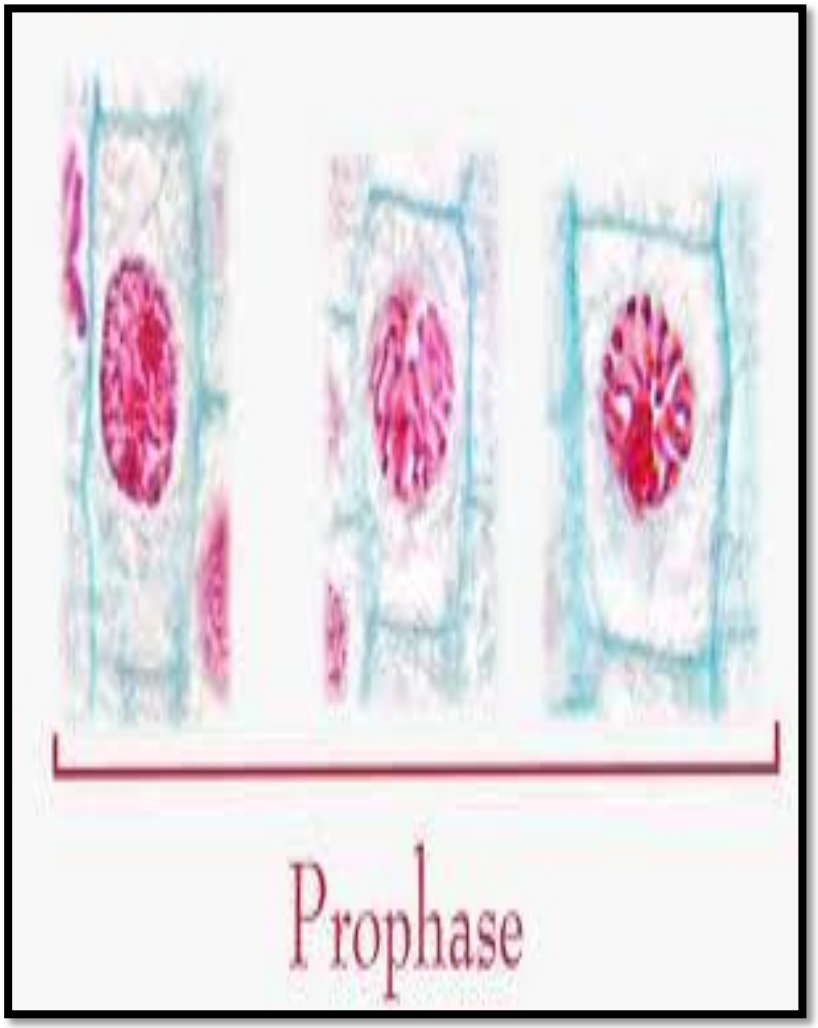
٥) الطور النهائي Telophase.

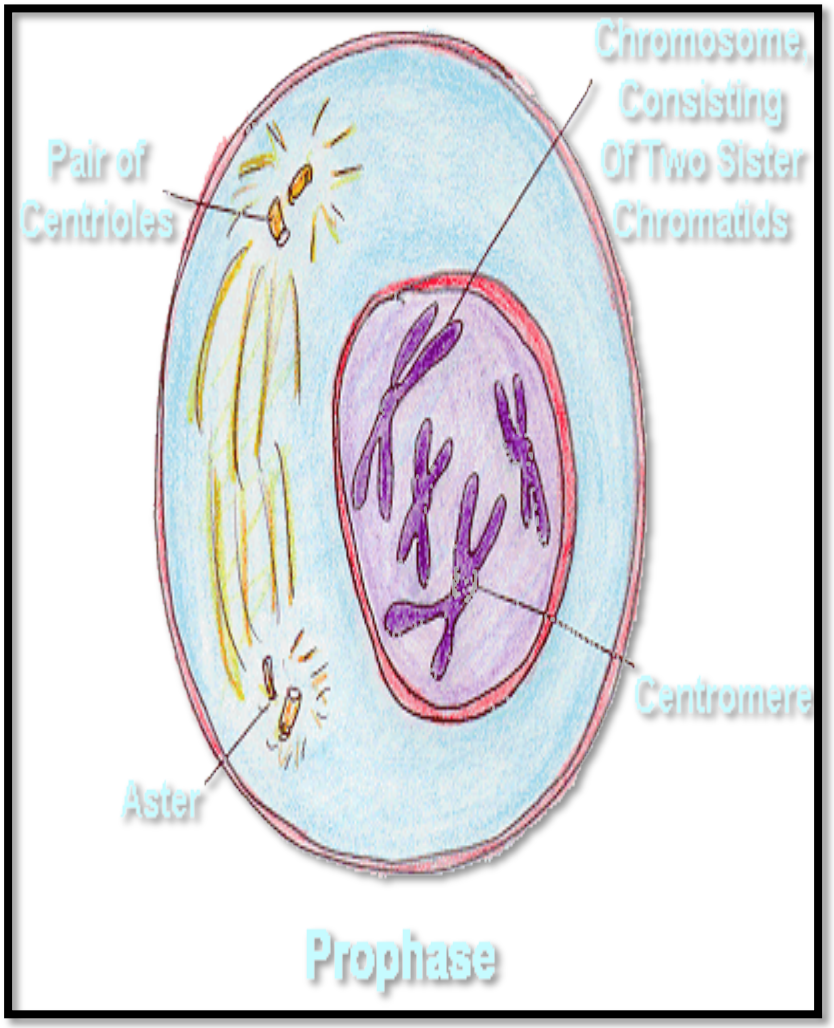
## ١) الطور البيني Interphase.



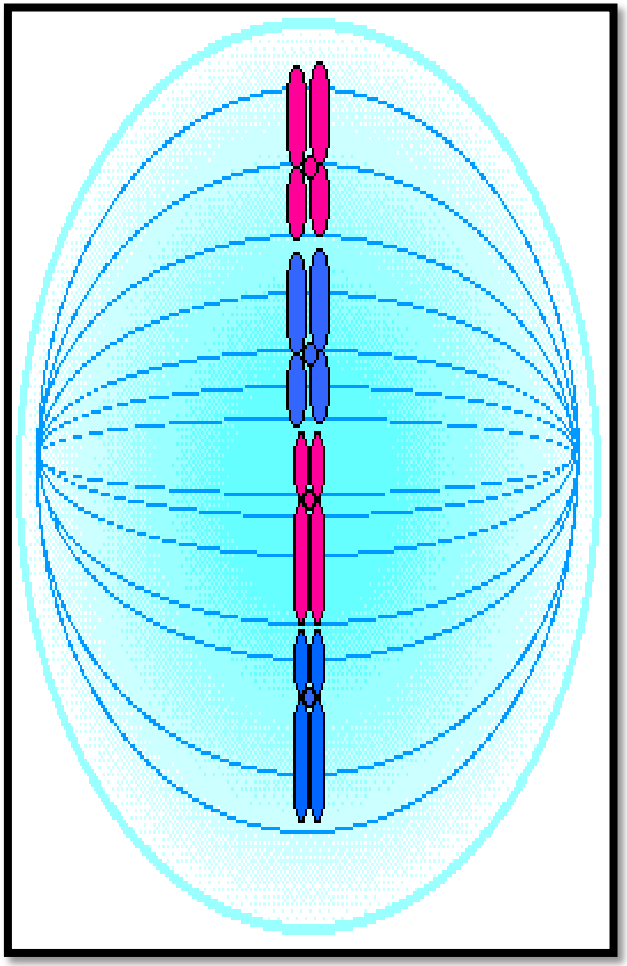


# ٢) الطور التمهيدي Prophase

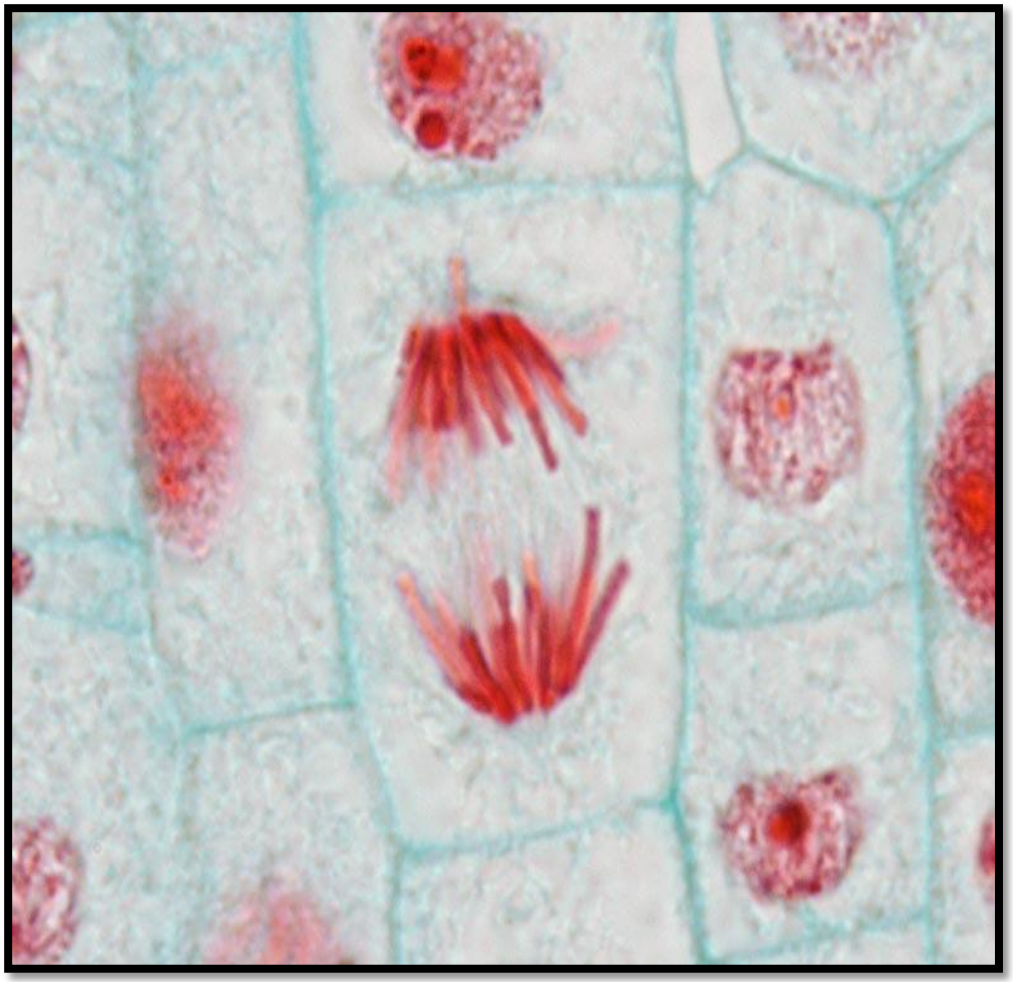


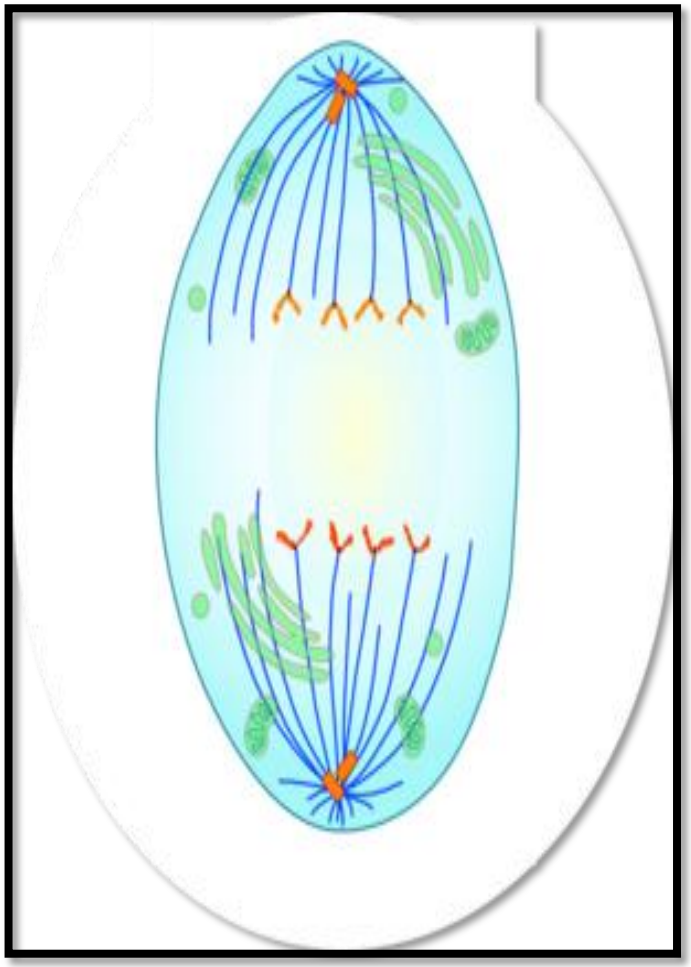



## ٣) الطور الإستوائي Metaphase.

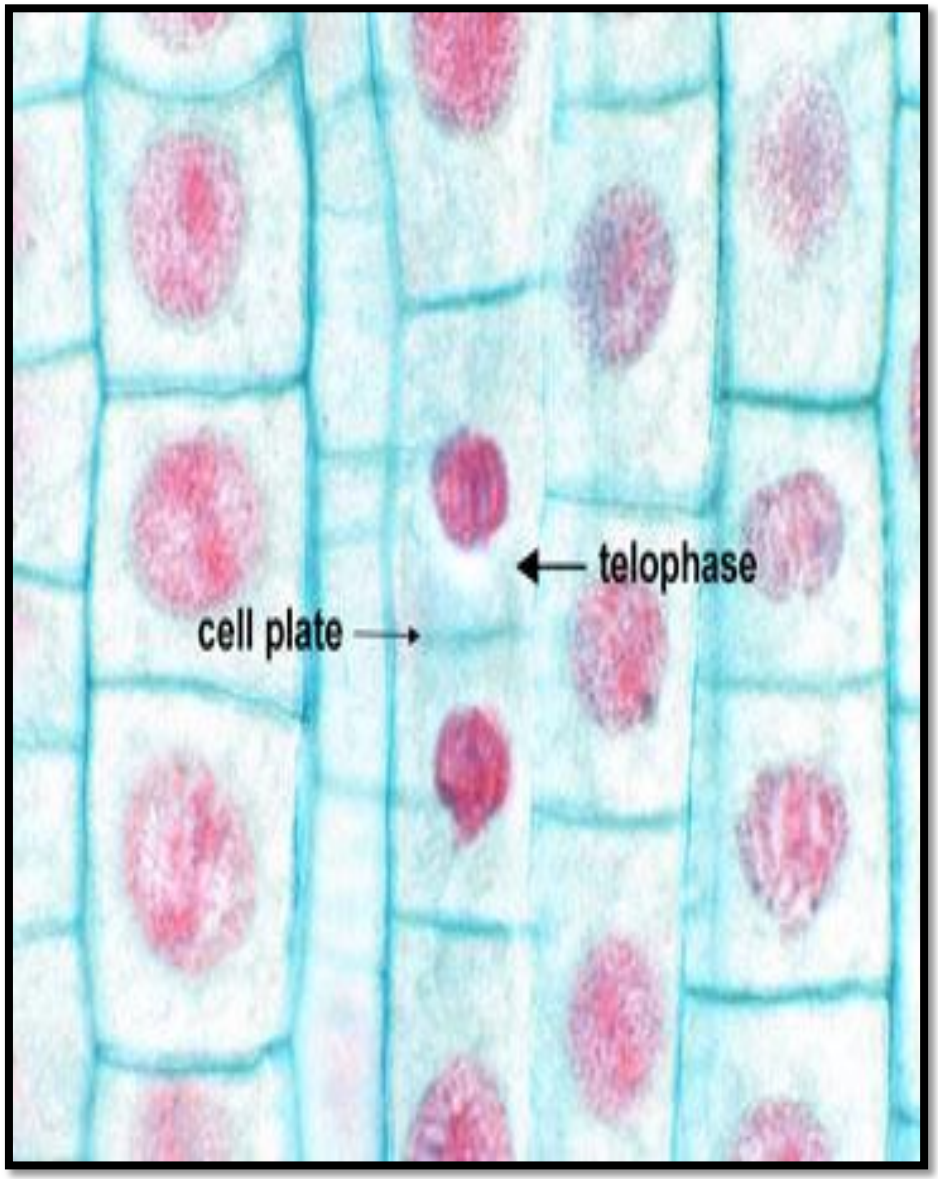


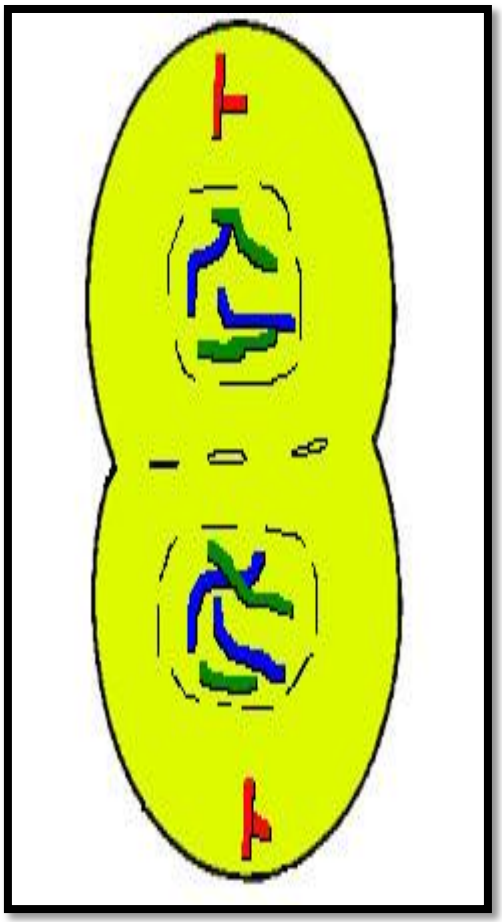
# ٤) الطور الإنفصالي Anaphase.



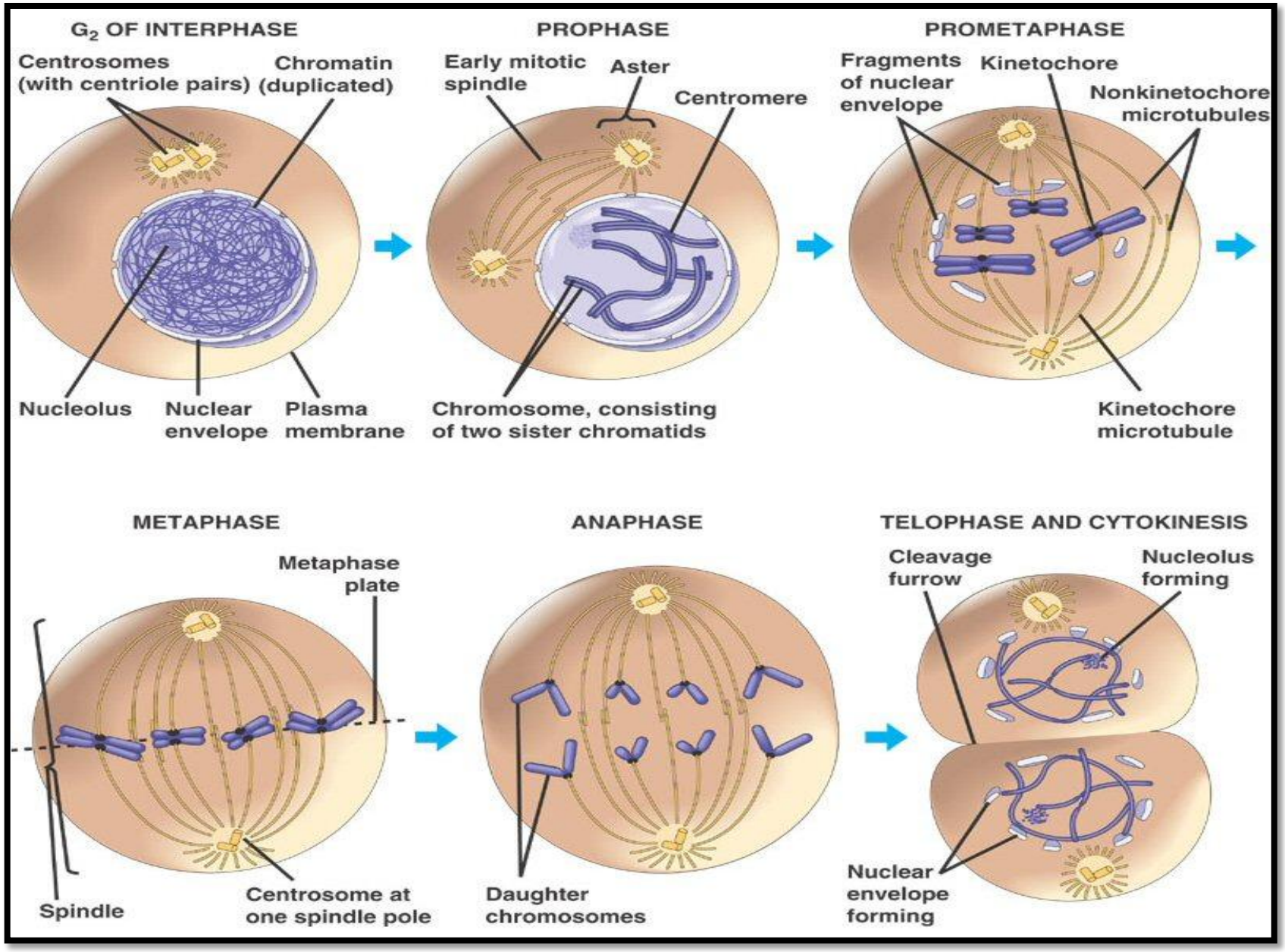


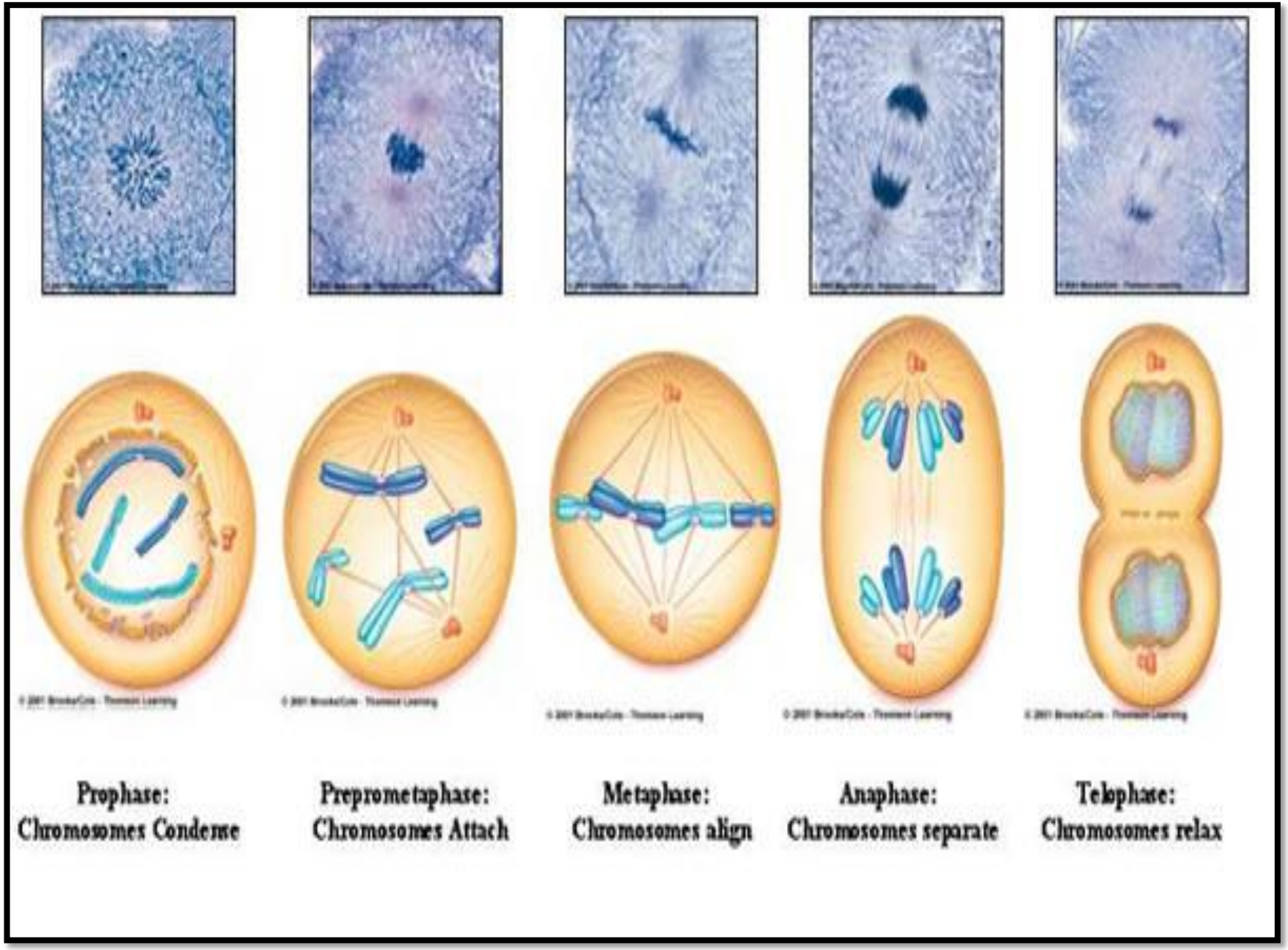
## ٥) الطور النهائي Telophase.

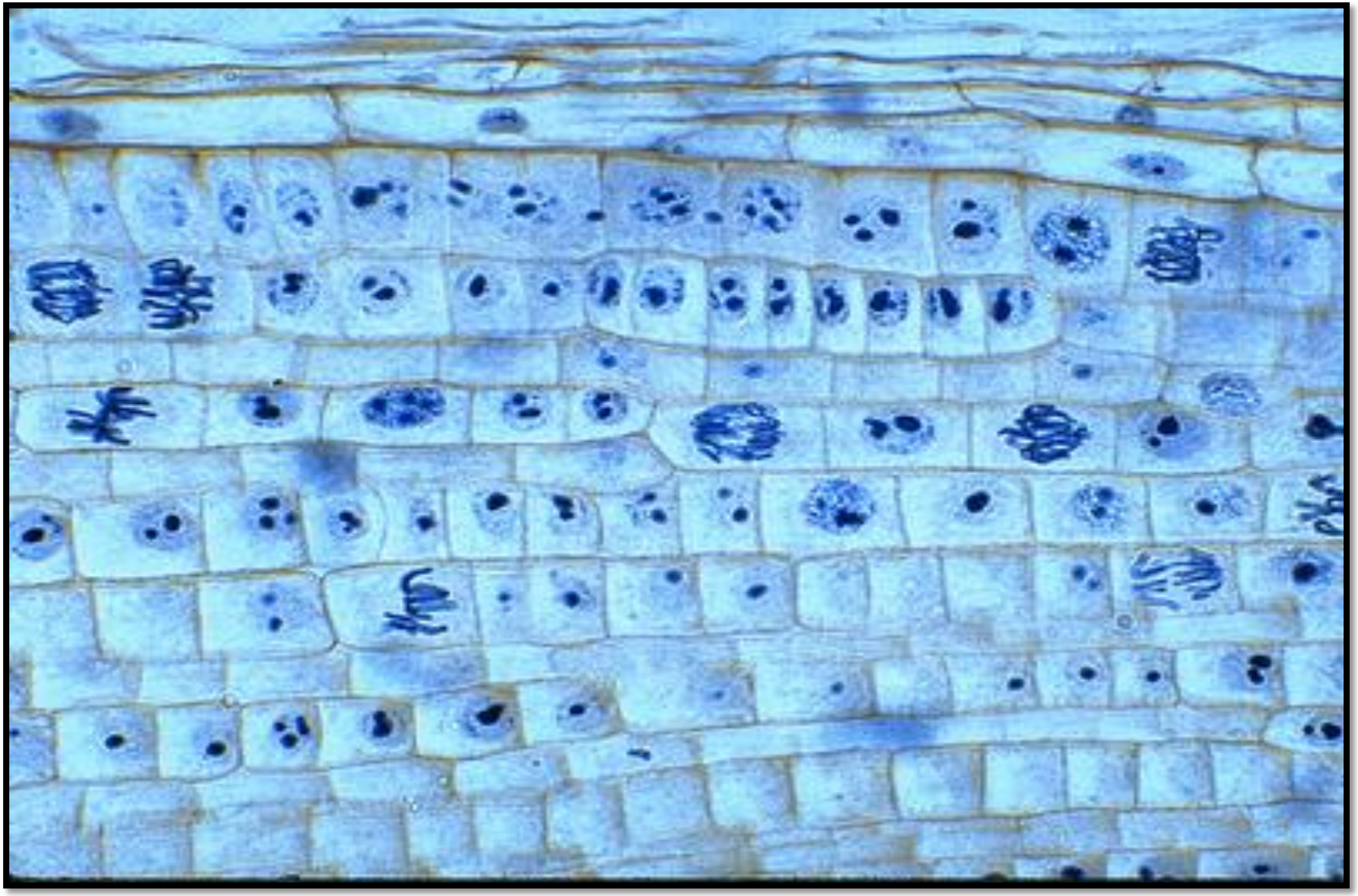


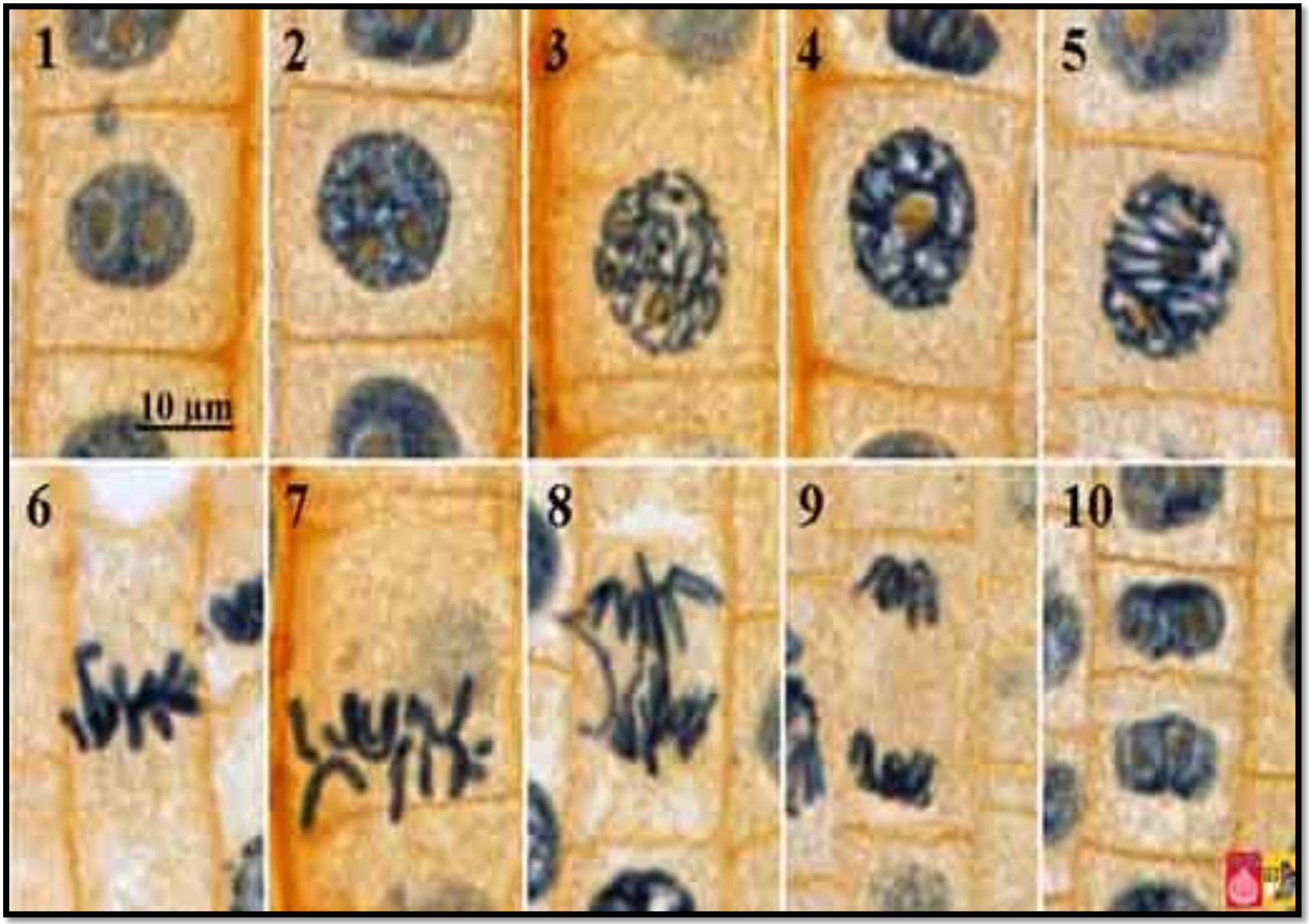



# MOVE TIME


G2 OF INTERPHASE
Centrosomes (with centriole pairs)
Chromatin (duplicated)
Nucleolus
Nuclear envelope
Plasma membrane
PROPHASE
Early mitotic spindle
Aster
Centromere
Chromosome, consisting of two sister chromatids
PROMETAPHASE
Fragments of nuclear envelope
Kinetochore
Nonkinetochore microtubules
Kinetochore microtubule
METAPHASE
Metaphase plate
Spindle
Centrosome at one spindle pole
ANAPHASE
Daughter chromosomes
TELOPHASE AND CYTOKINESIS
Cleavage furrow
Nucleolus forming
Nuclear envelope forming


Prophase:
Chromosomes Condense
Preprometaphase:
Chromosomes Attach
Metaphase:
Chromosomes align
Anaphase:
Chromosomes separate
Telophase:
Chromosomes relax




1
2
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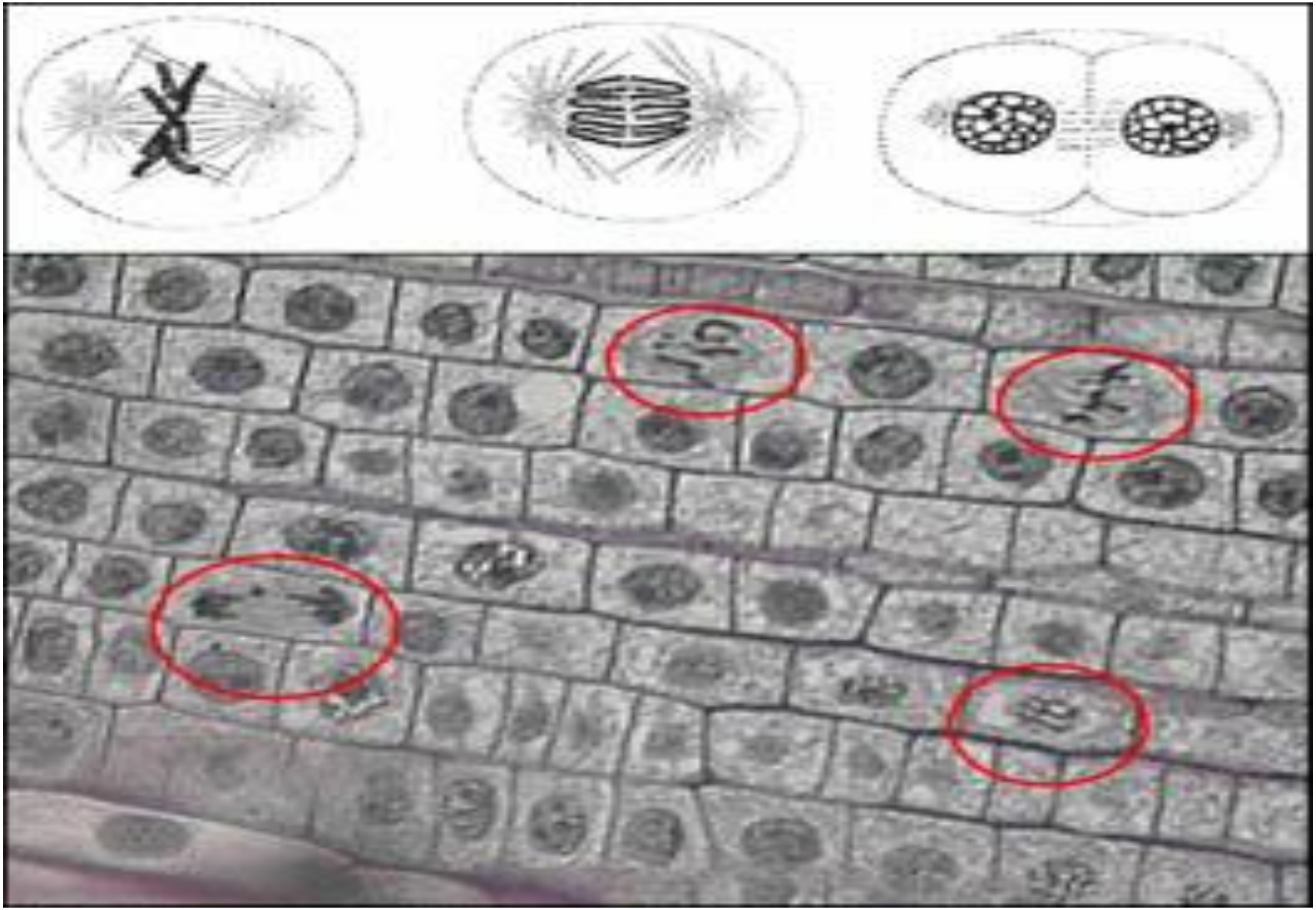

# Working time