

Introduction/Microscope Intro/Cell Basics/Cell Division

A215 Laboratory

Lab Organization

- Cadaver Days
 - Focus on the gross structures of the body
- Scope Days
 - Focus on the histology component of lab
- PDFs of intros can be downloaded from
<http://www.indiana.edu/~anat215/lab>

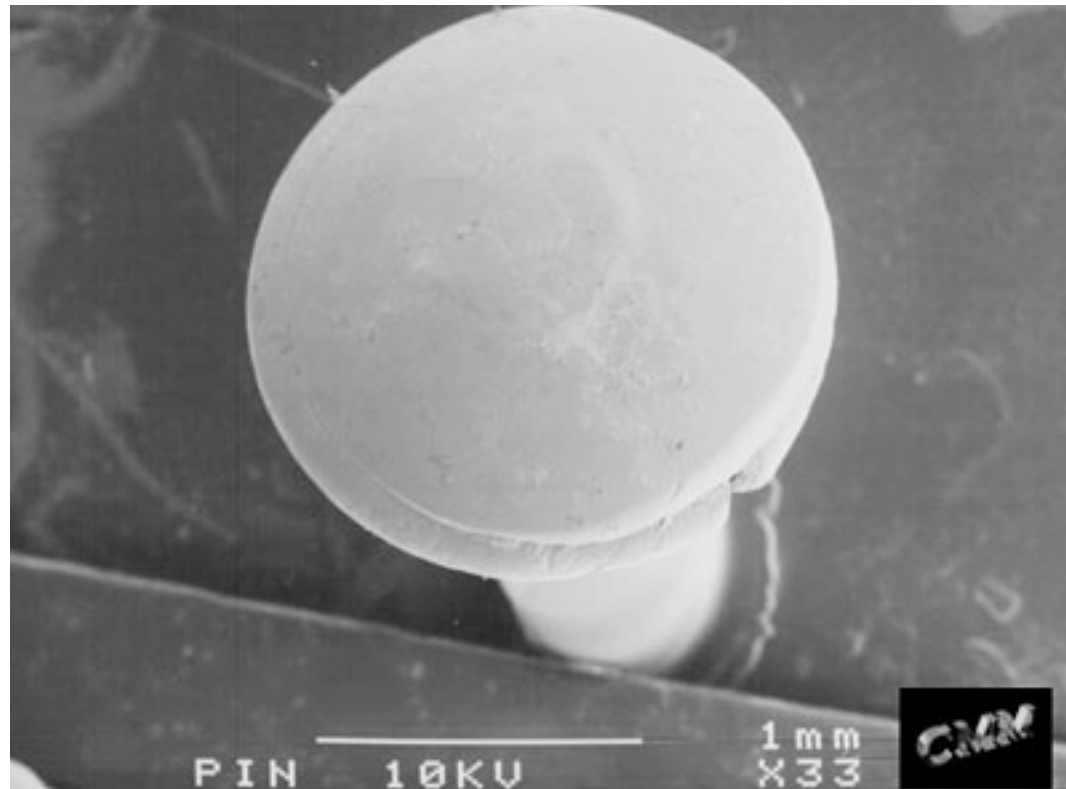
What is Histology?

- Histology=Microscopic Anatomy
 - Learn what makes up the different tissues in the body
 - Learn how different tissues relate to structure and function (or malfunction)

Types of Microscopy

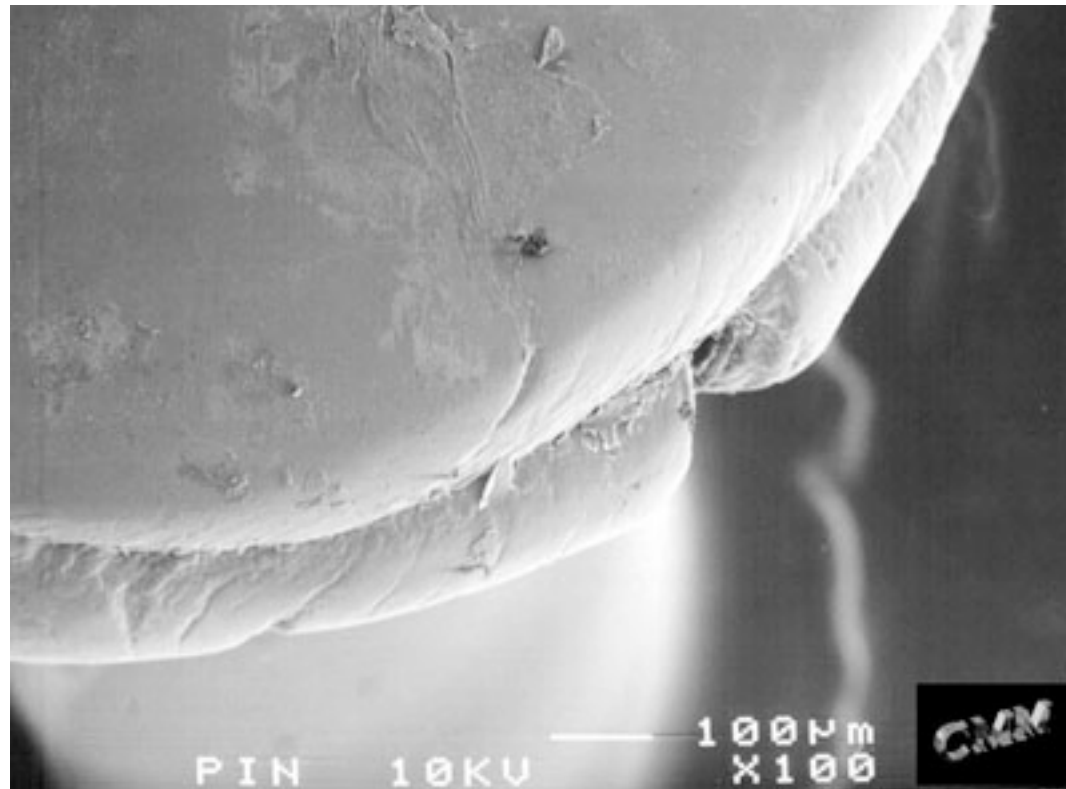
- Electron Microscopy
 - Powerful magnifying technique used to visualize intracellular structures
 - Up to $10^5\times$

Magnification Demo (Pin Head)



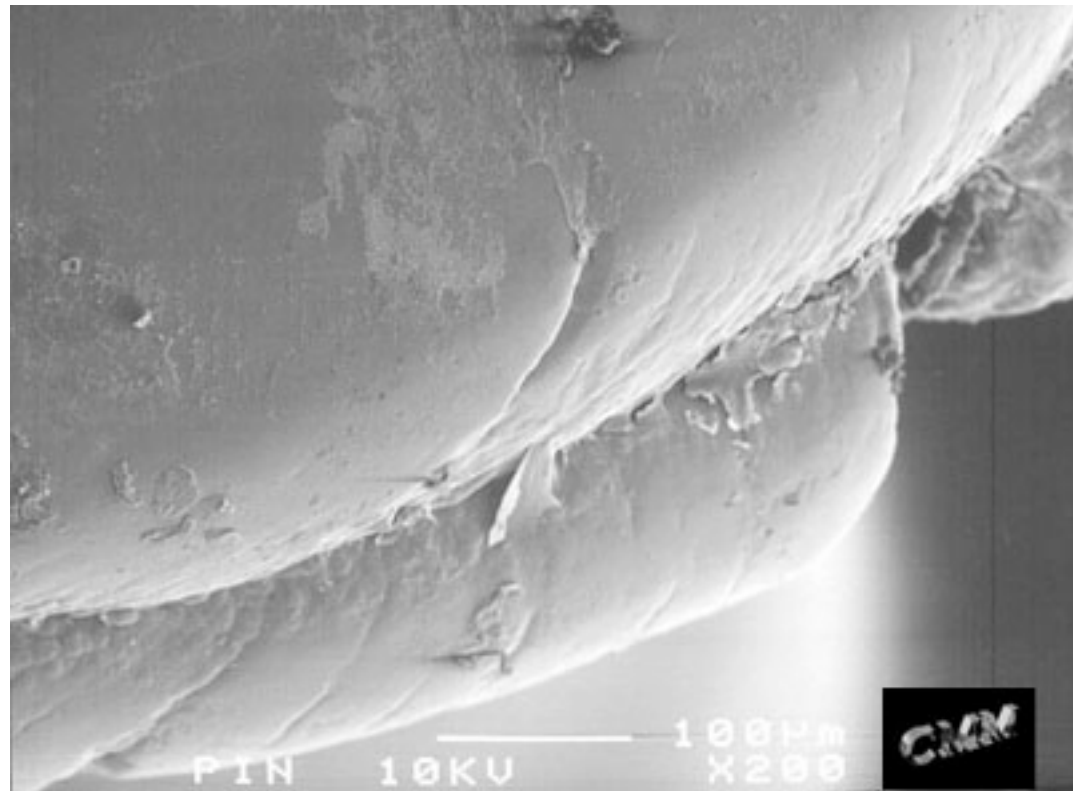
x33

Magnification Demo (Pin Head)



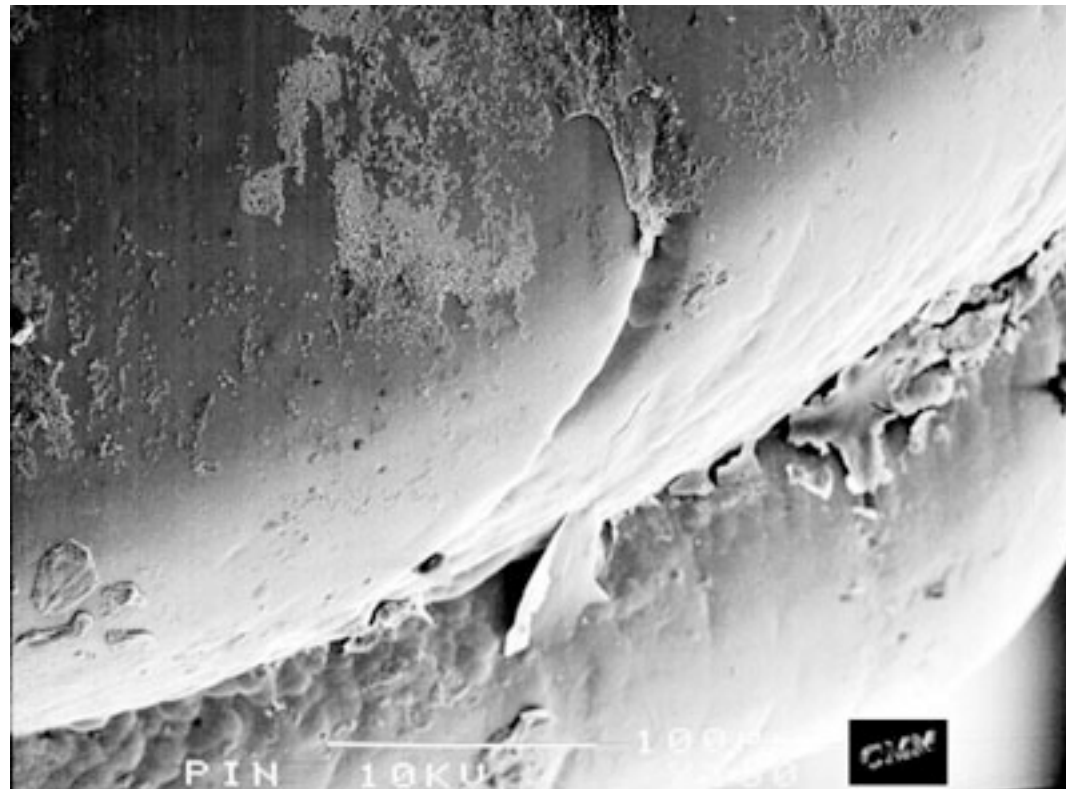
x100

Magnification Demo (Pin Head)



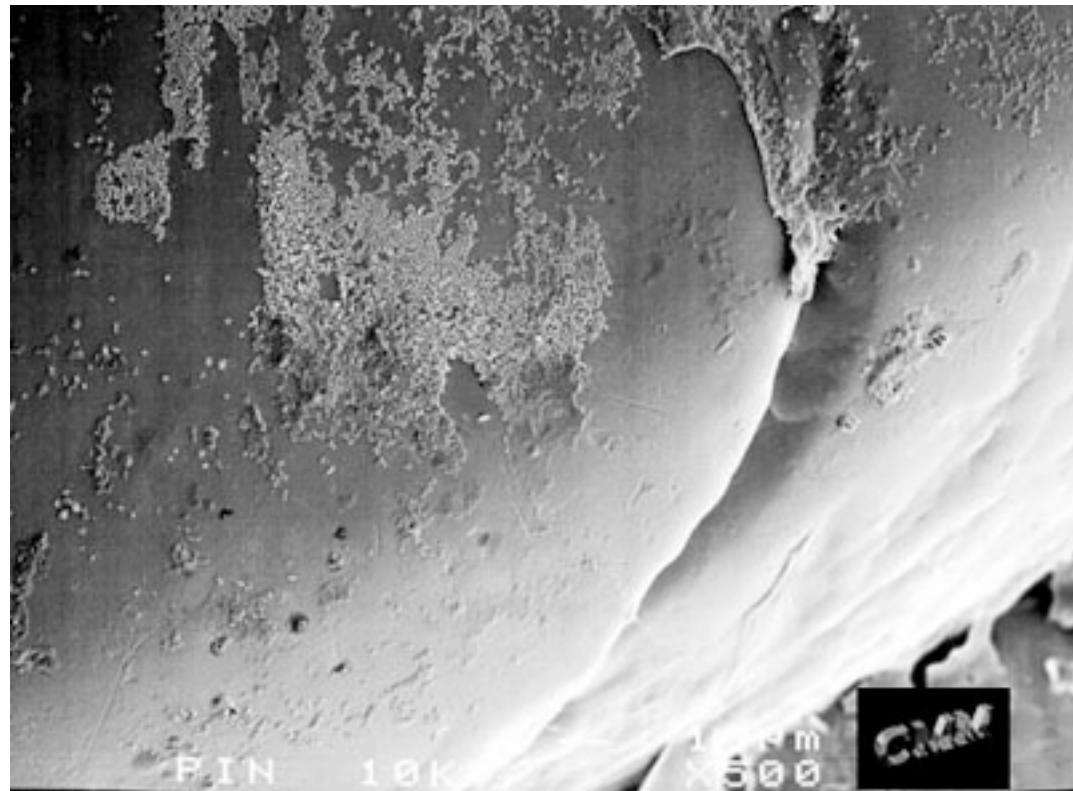
x200

Magnification Demo (Pin Head)



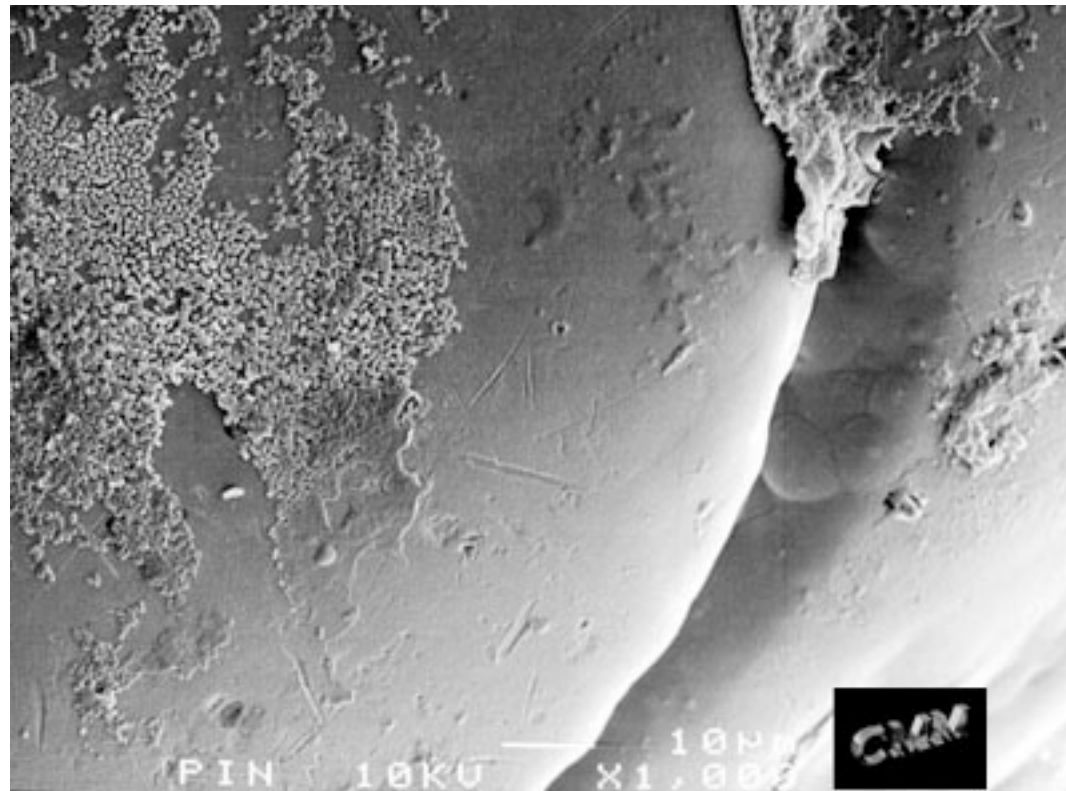
x250

Magnification Demo (Pin Head)



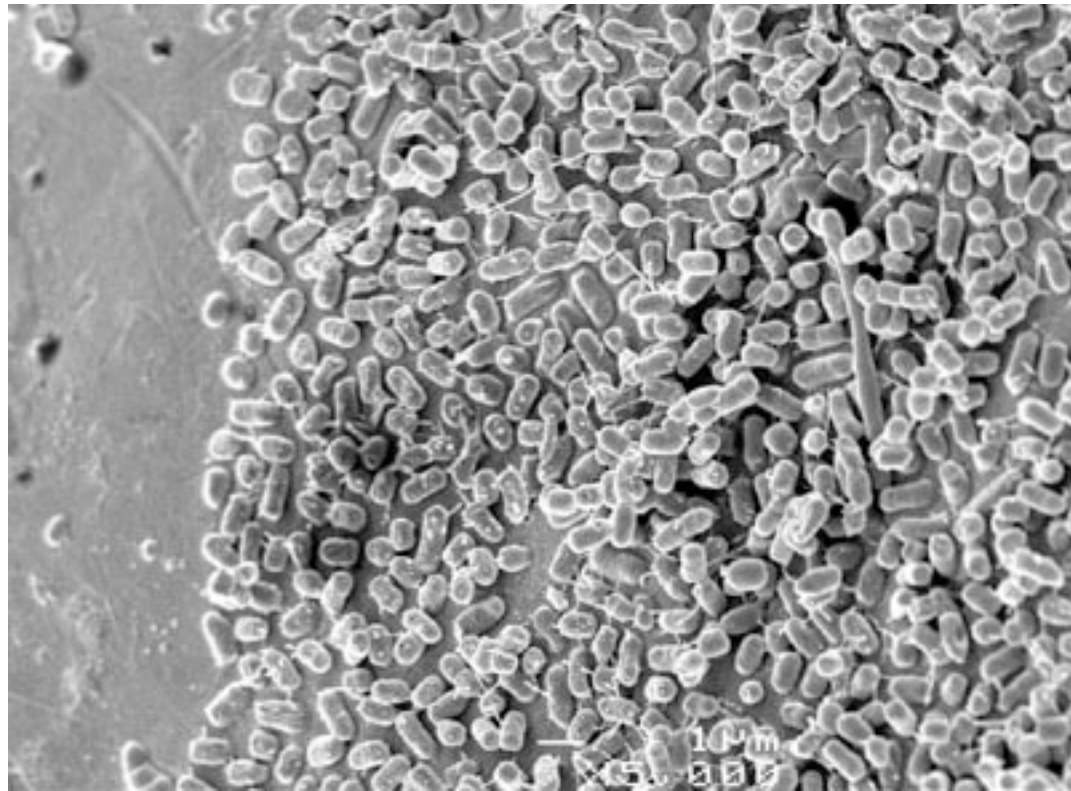
x500

Magnification Demo (Pin Head)



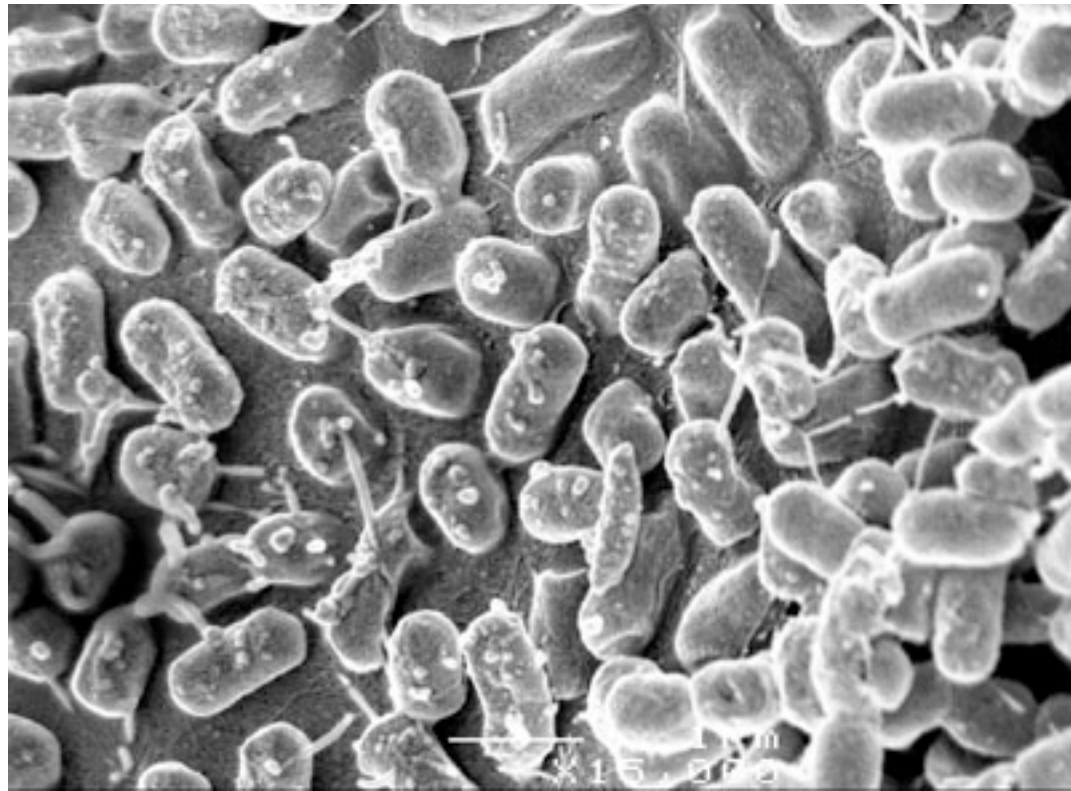
x1000

Magnification Demo (Pin Head)



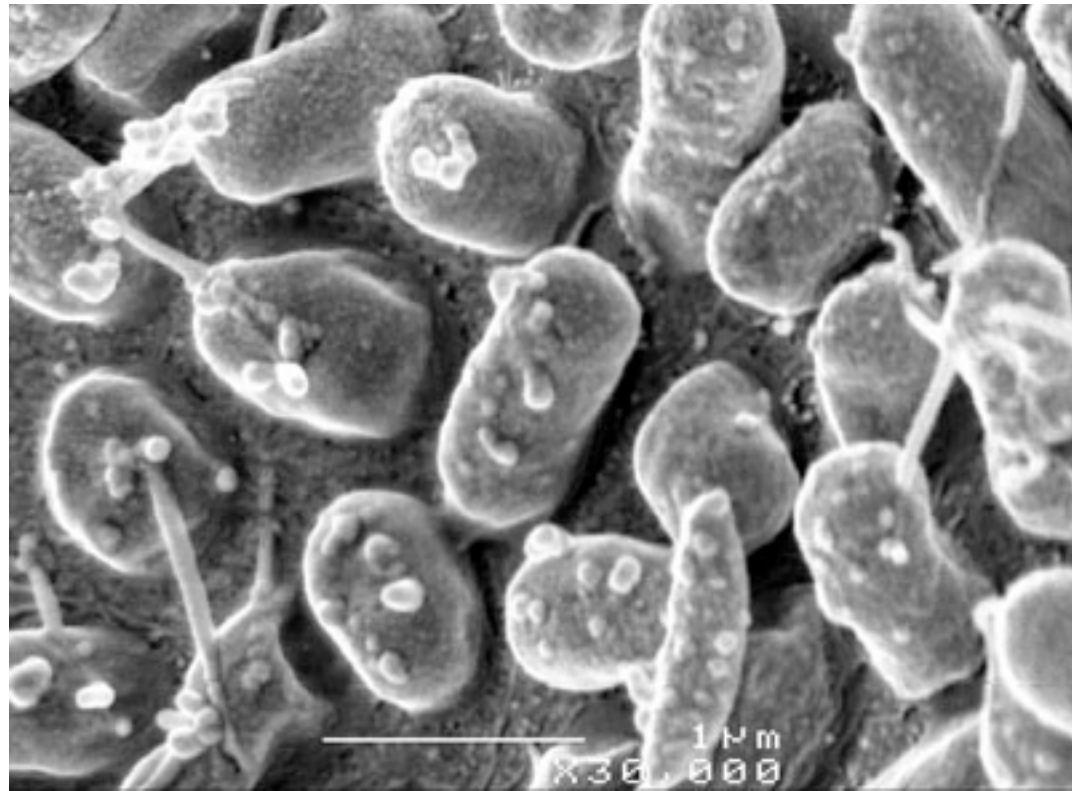
x5000

Magnification Demo (Pin Head)



x15,000

Magnification Demo (Pin Head)

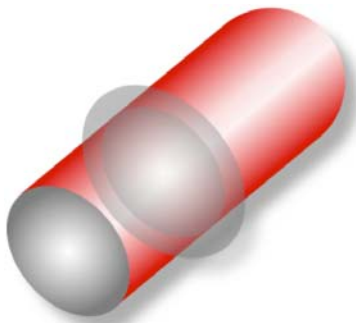


x30,000

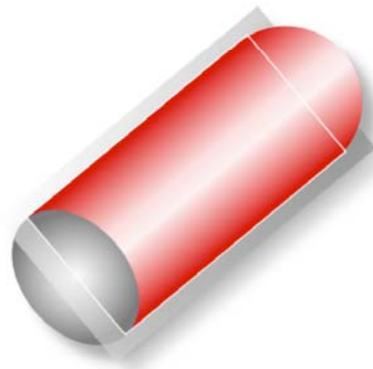
Types of Microscopy

- Electron Microscopy
 - Powerful magnifying technique used to visualize intracellular structures
 - Up to $10^5\times$
- Light Microscopy
 - Thin section of preserved tissue is cut and placed on a slide and stained
 - $4\times$ - $1000\times$

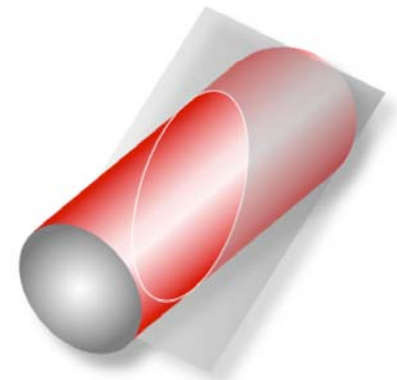
Types of sectioning



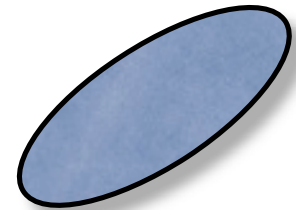
Cross Section

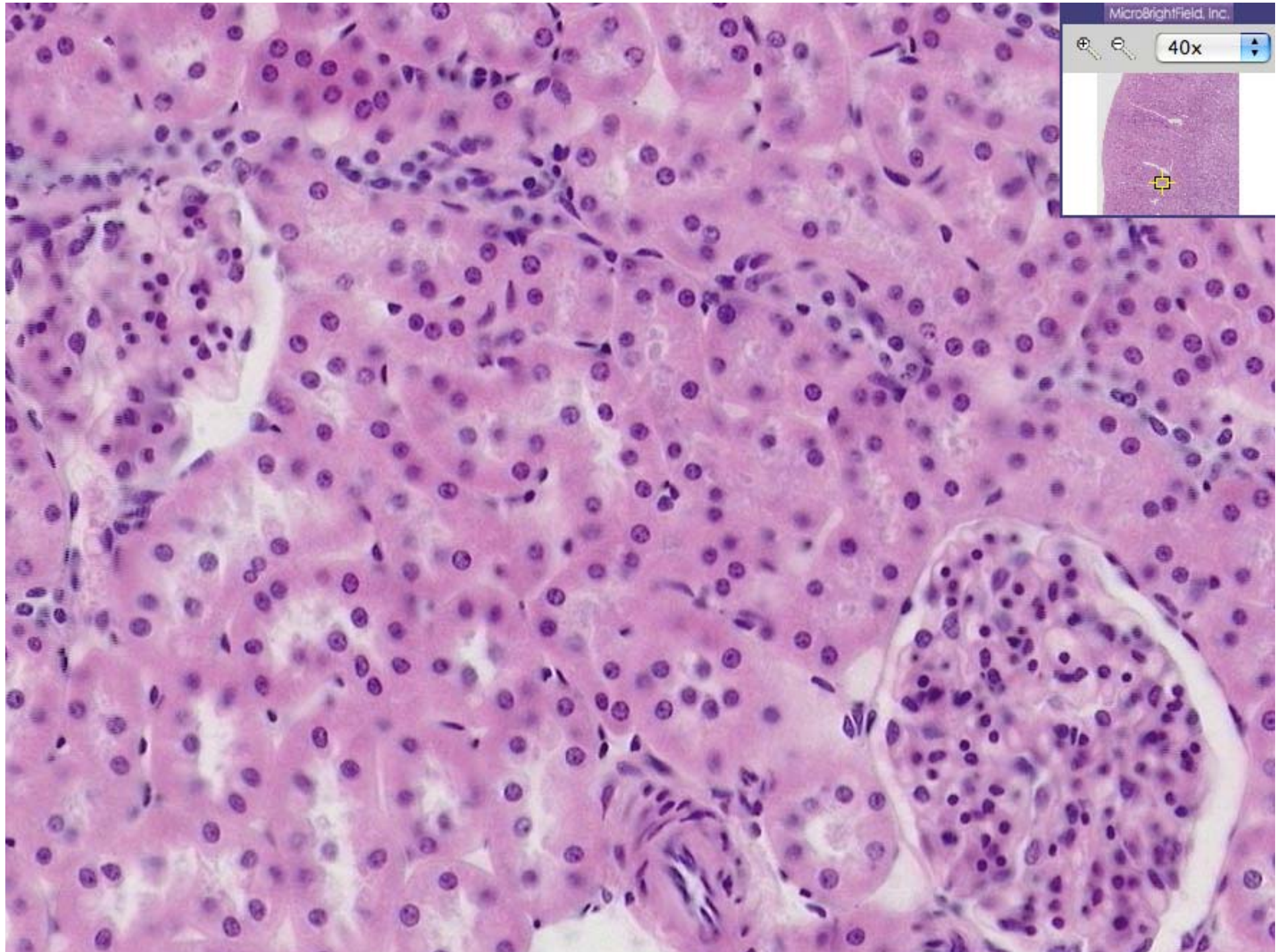


Longitudinal



Oblique





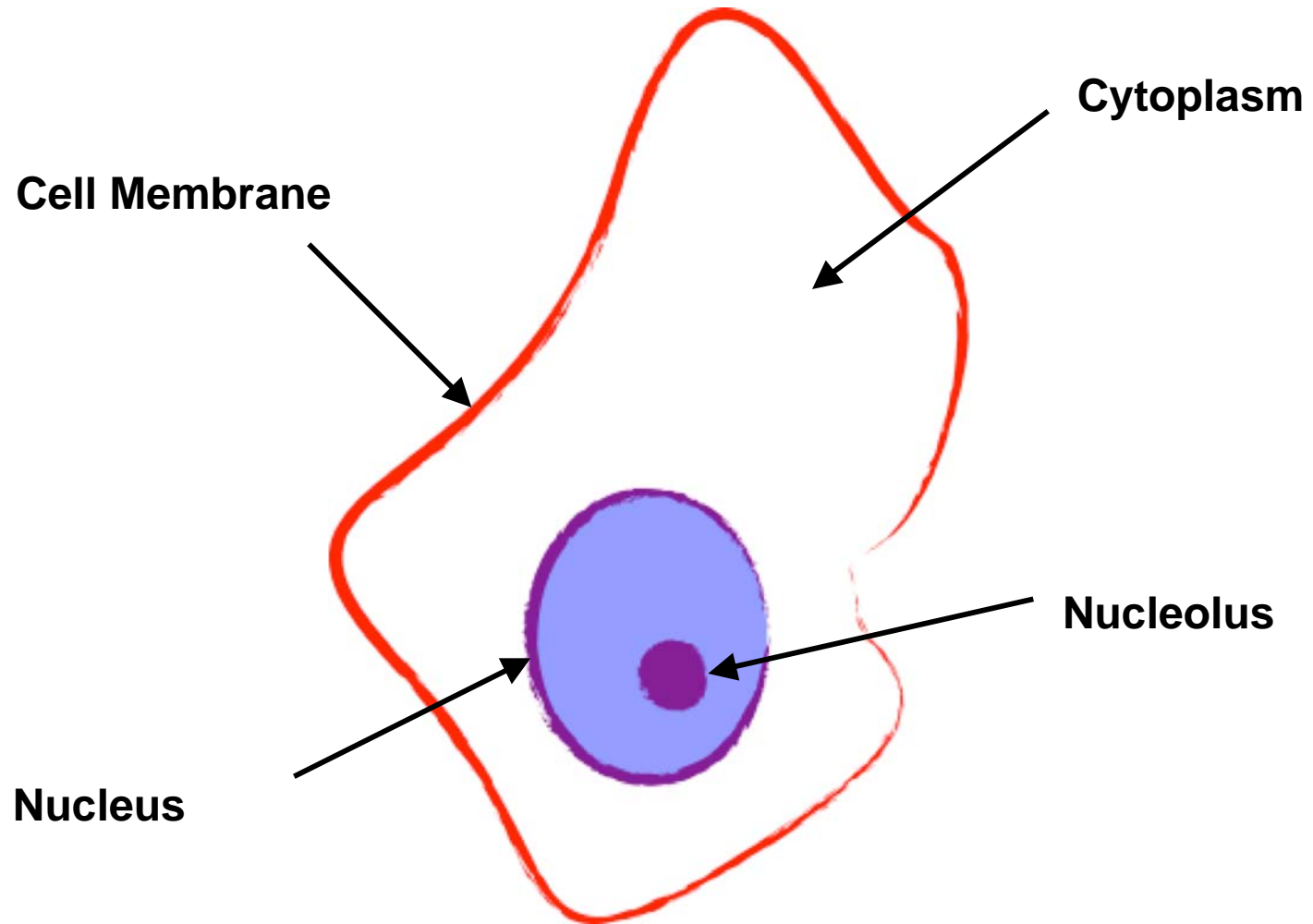
Microscope Introduction

- Pp. 4-5 in Lab manual
- Turn light intensity between $1/2$ and $3/4$
- Make sure you can see pointer in RIGHT eyepiece
- Turn objectives using rubber disc, NOT barrels
- DO NOT use the 100x objective!
- Use “coarse focus” for 4x objective only
- Use “fine focus” for 10x-40x objectives

Kidney Slide

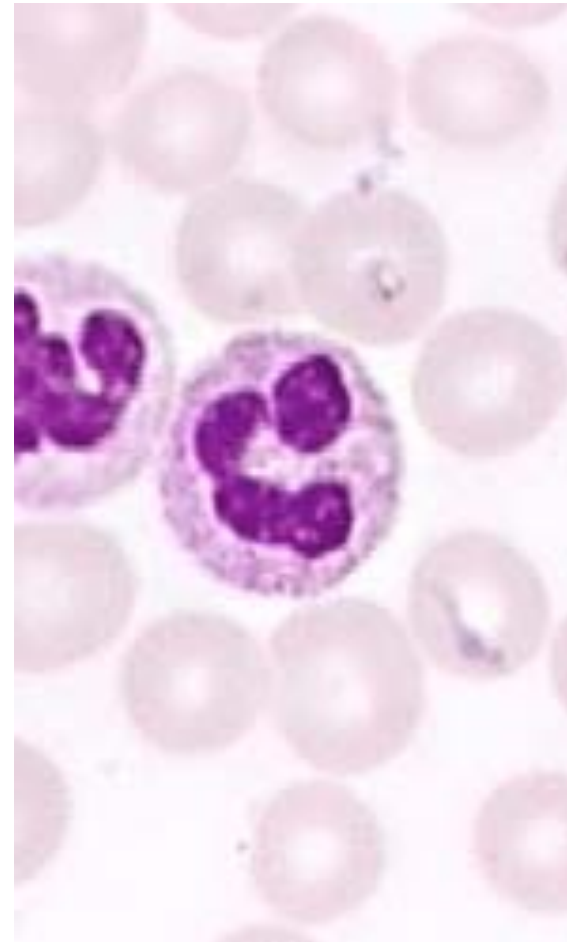
Ureter Slide

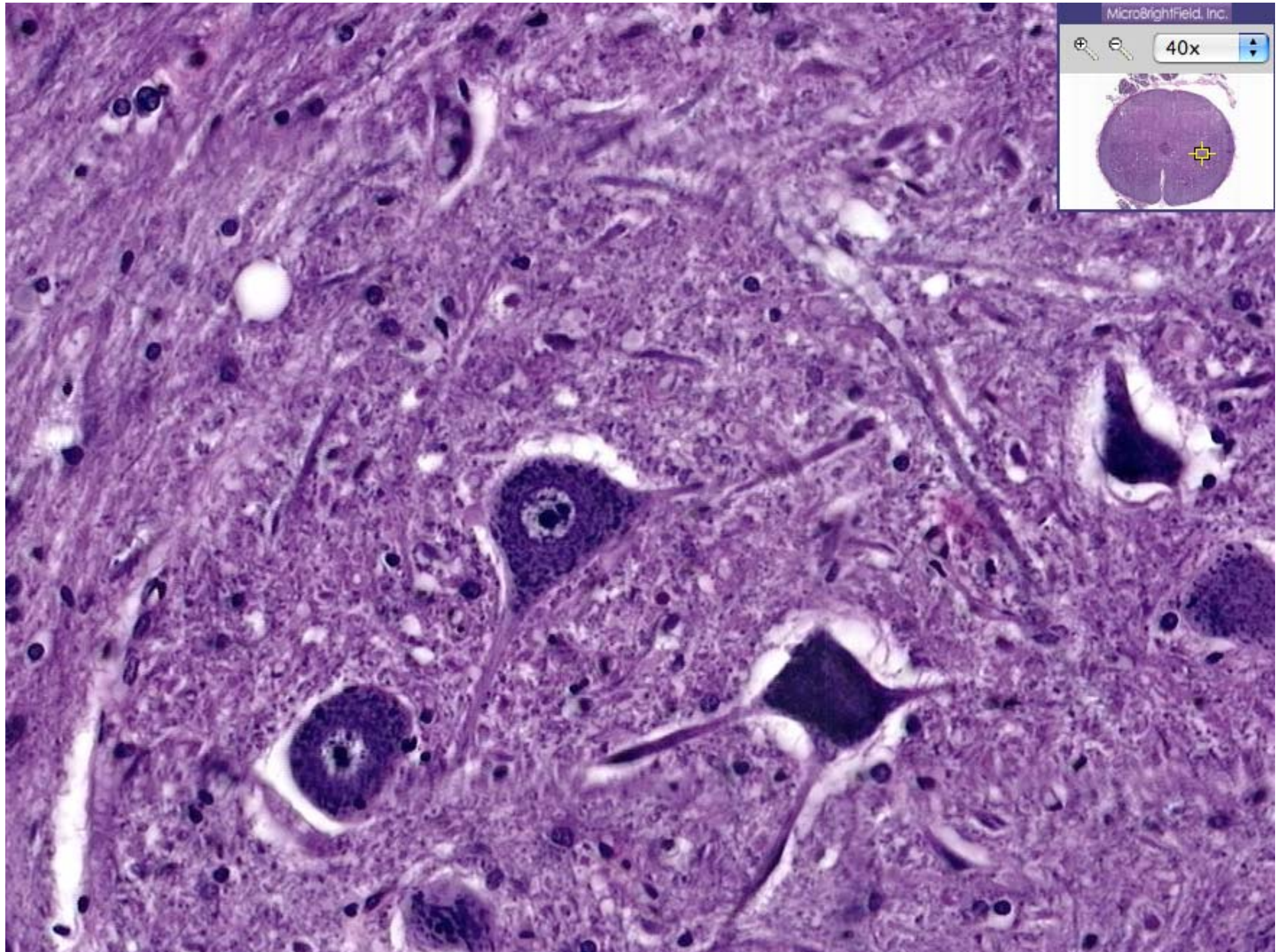
Cell Basics



Cell Basics

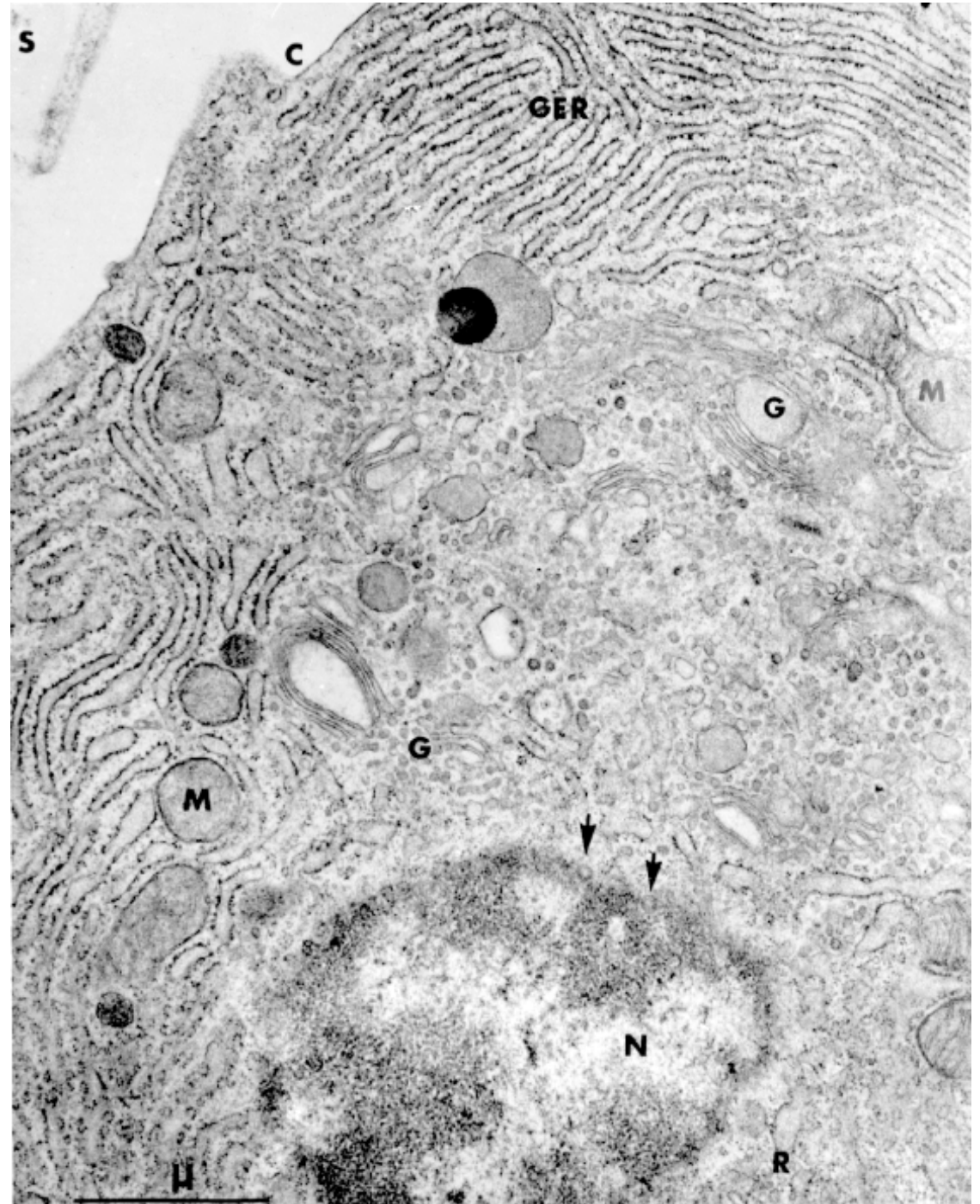
- Not all cells look the same
- Cells can vary in terms of visible organelles and shape

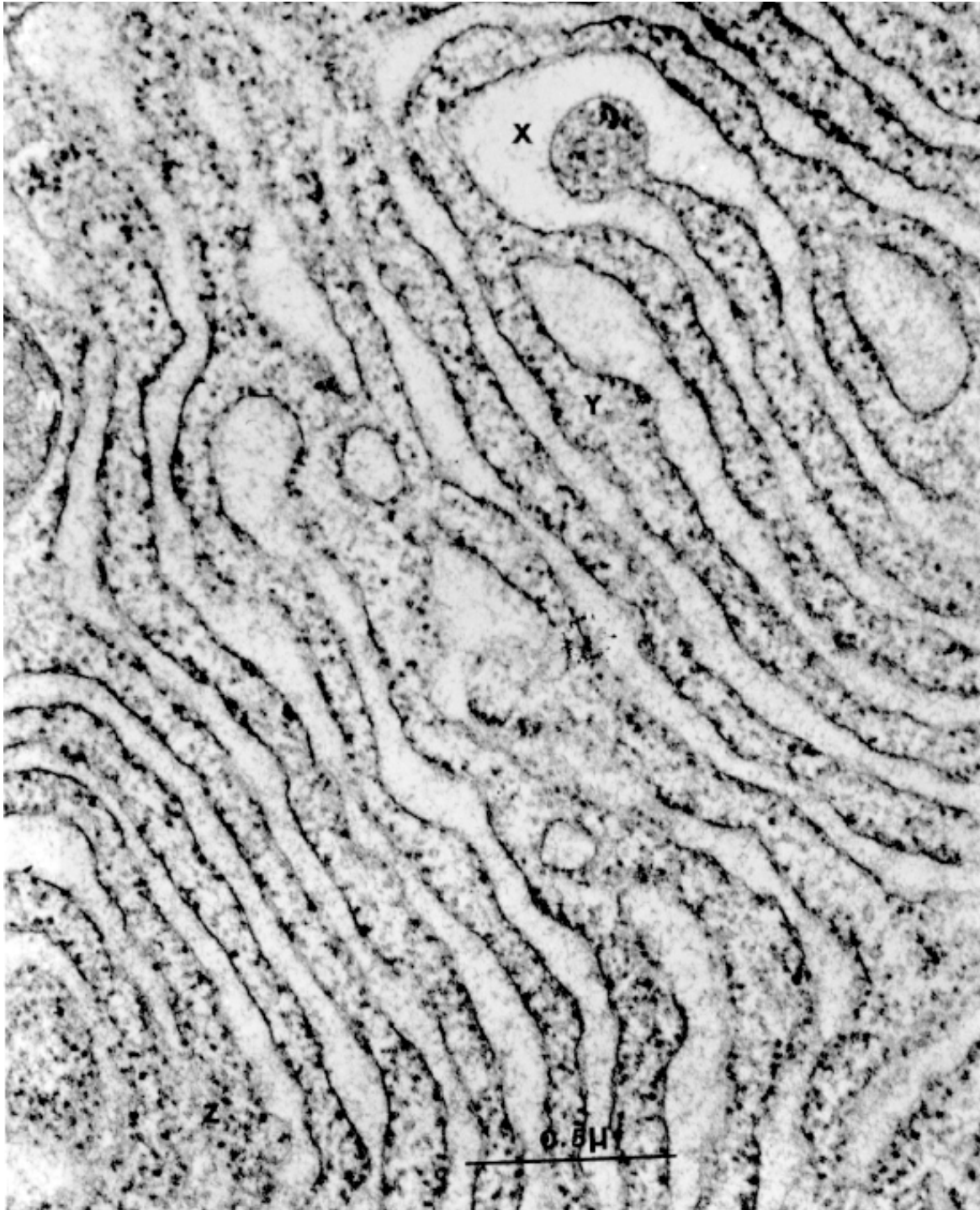




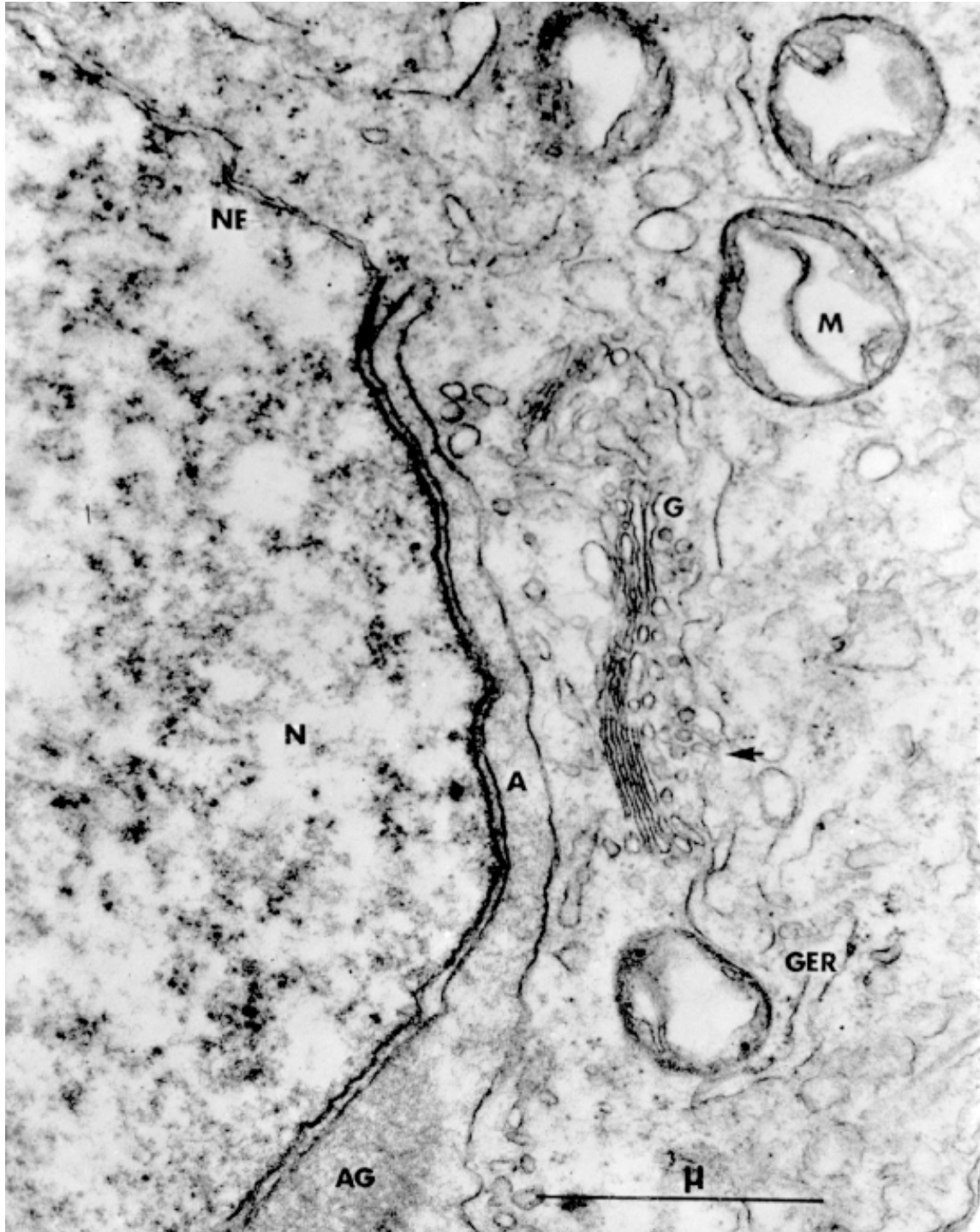
Cell Organelles

Available on
reserves at Life
Science Library or
<http://ereserves.indiana.edu/eres/coursepage.aspx?cid=1260&page=docs>



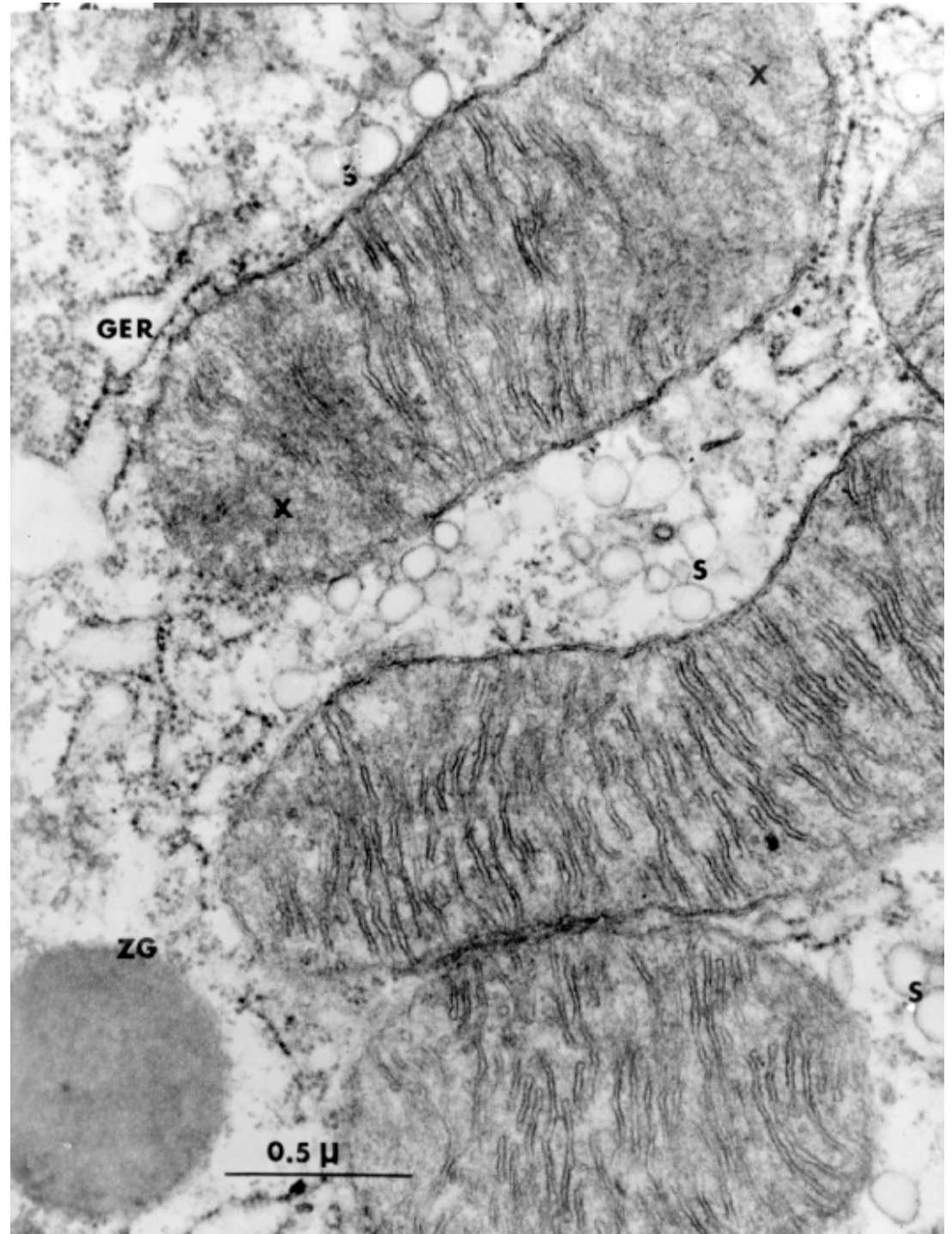


Rough
Endoplasmic
Reticulum



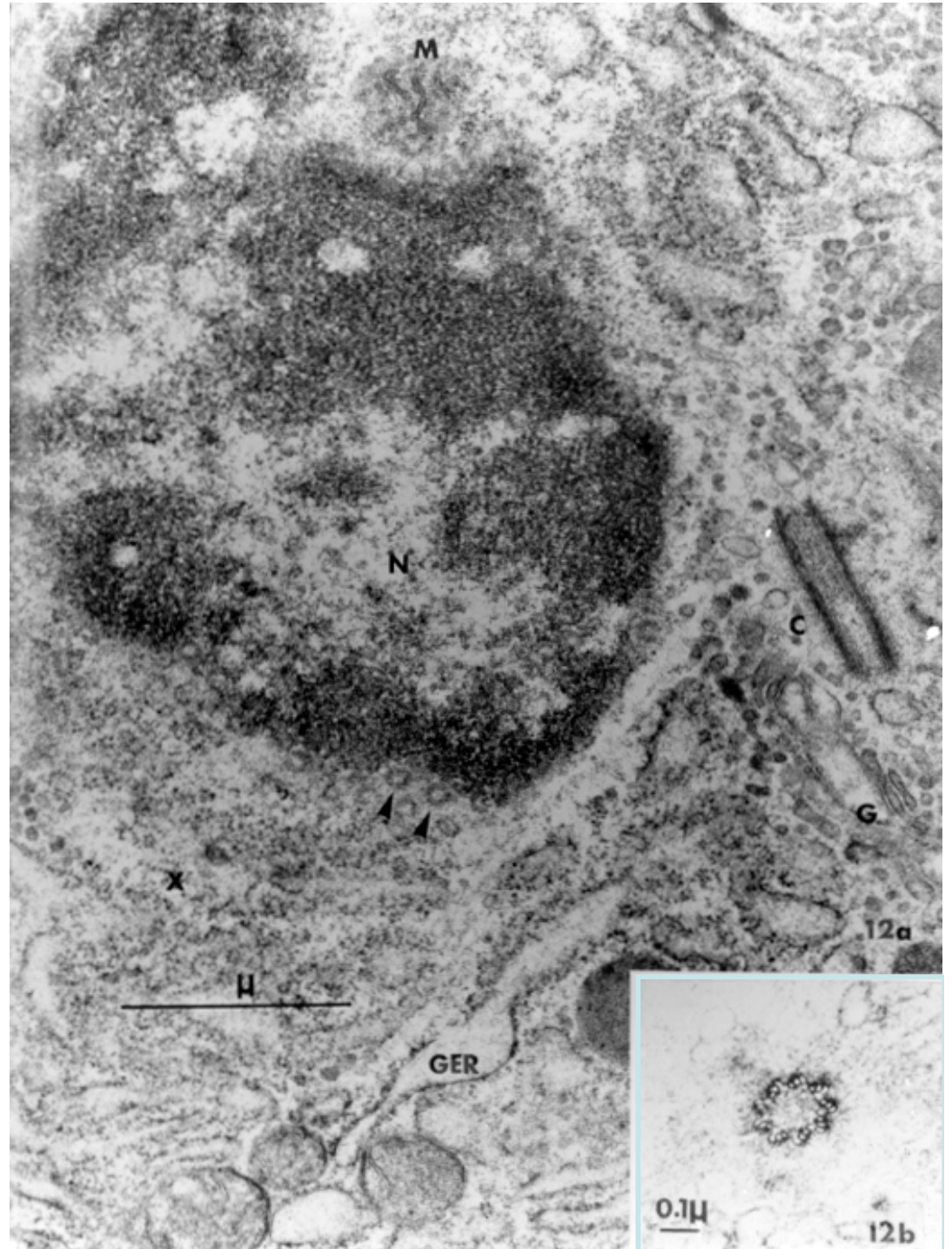
Cell Organelles

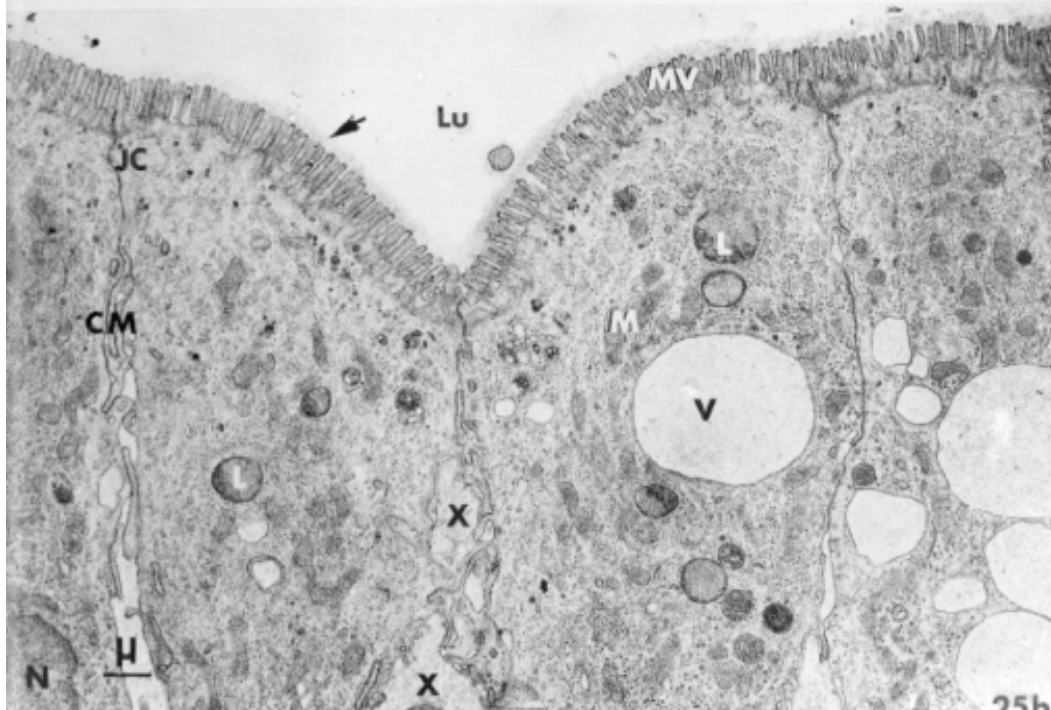
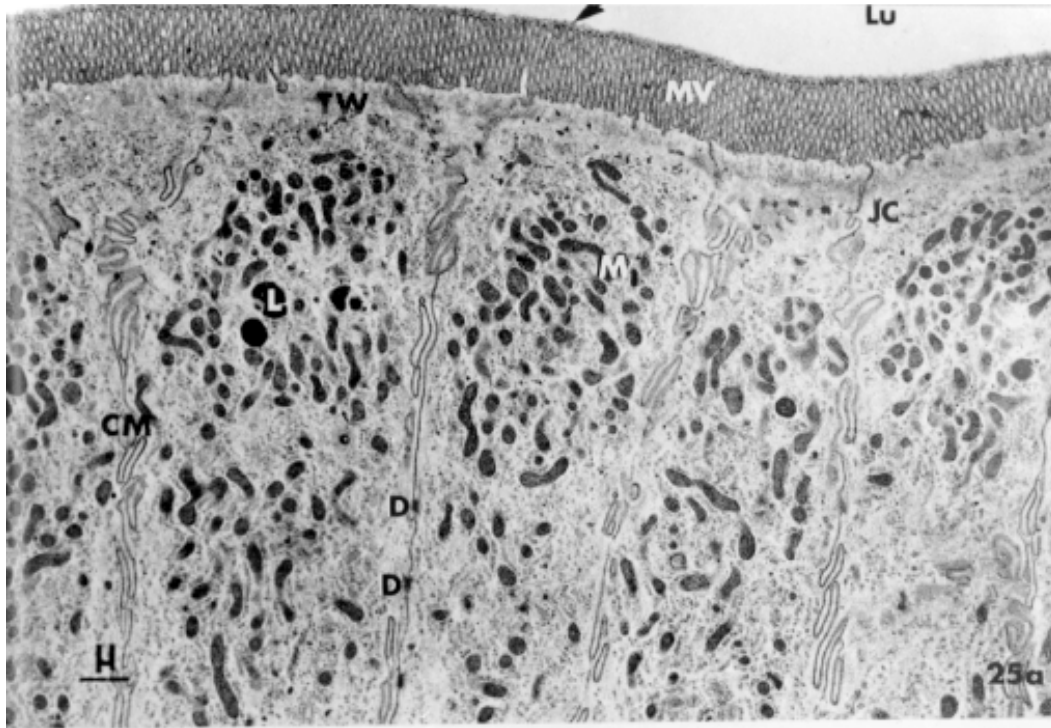
Mitochondria



Centrioles

- 9 sets of triplets

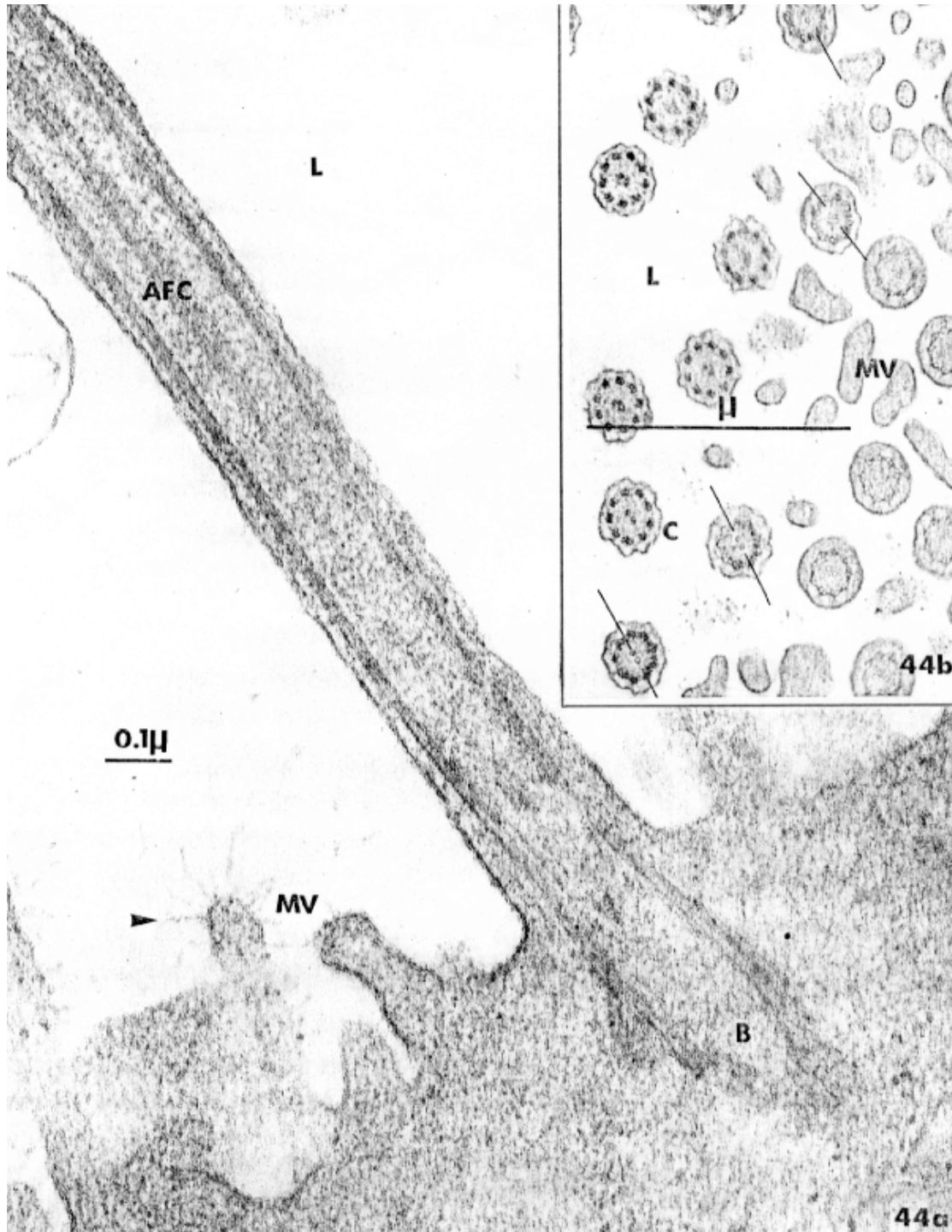




Microvilli



Cilia

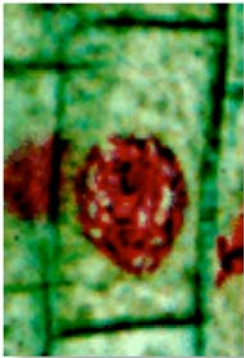


Cilia
9 doublets
+2

Cell Division



Prophase
“Prepare”



Metaphase
“Meet”



Anaphase
“Apart”



Telophase
“Two”

