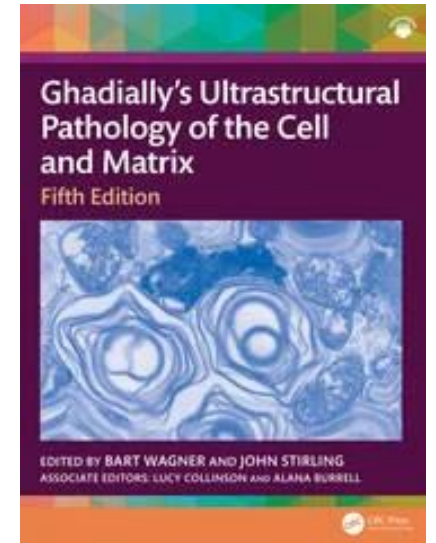


Ghadially's Ultrastructural Pathology of the Cell and Matrix



Editors Wagner and Stirling

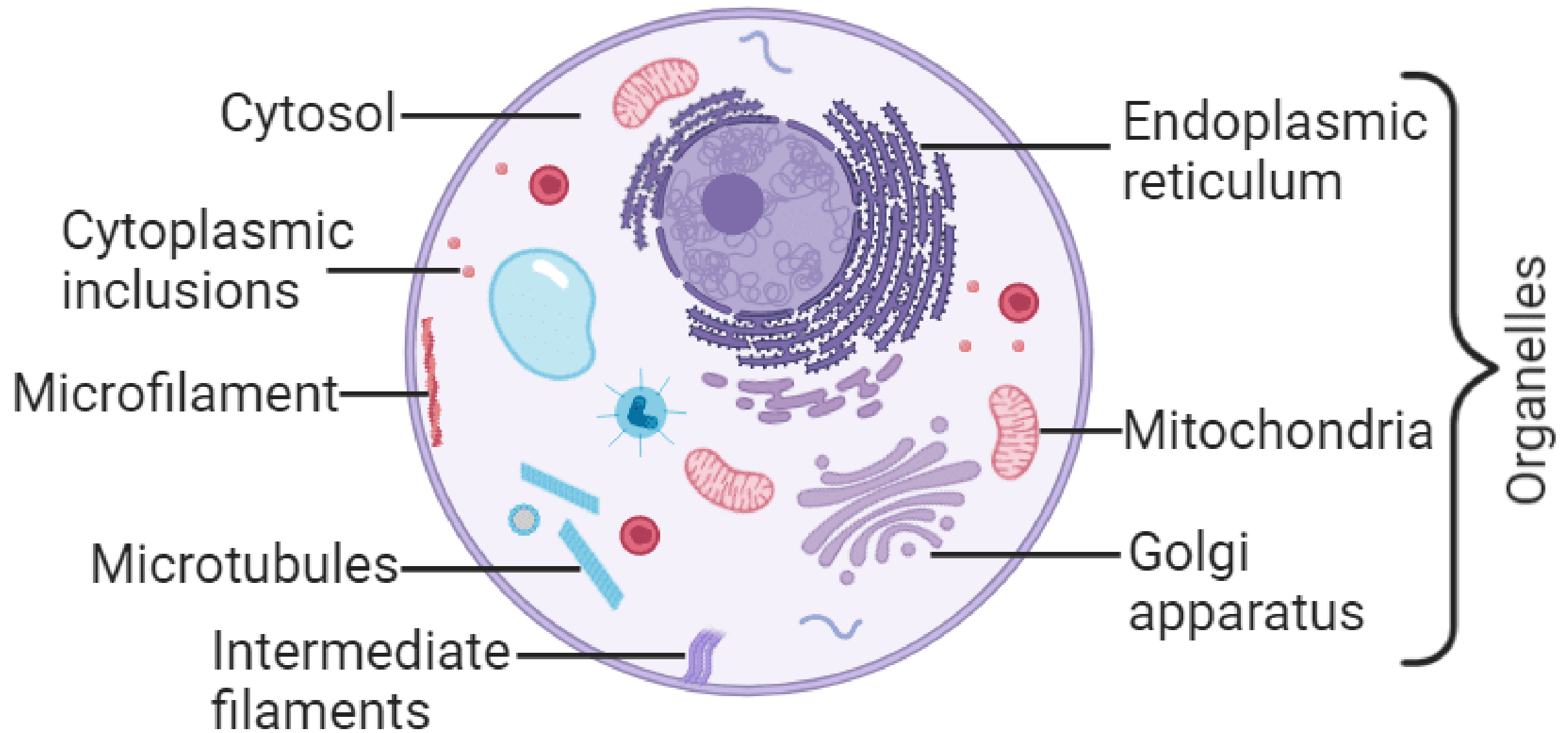
Chapter 13



The Cytosol (Cytoplasmic Matrix) and Its Inclusions

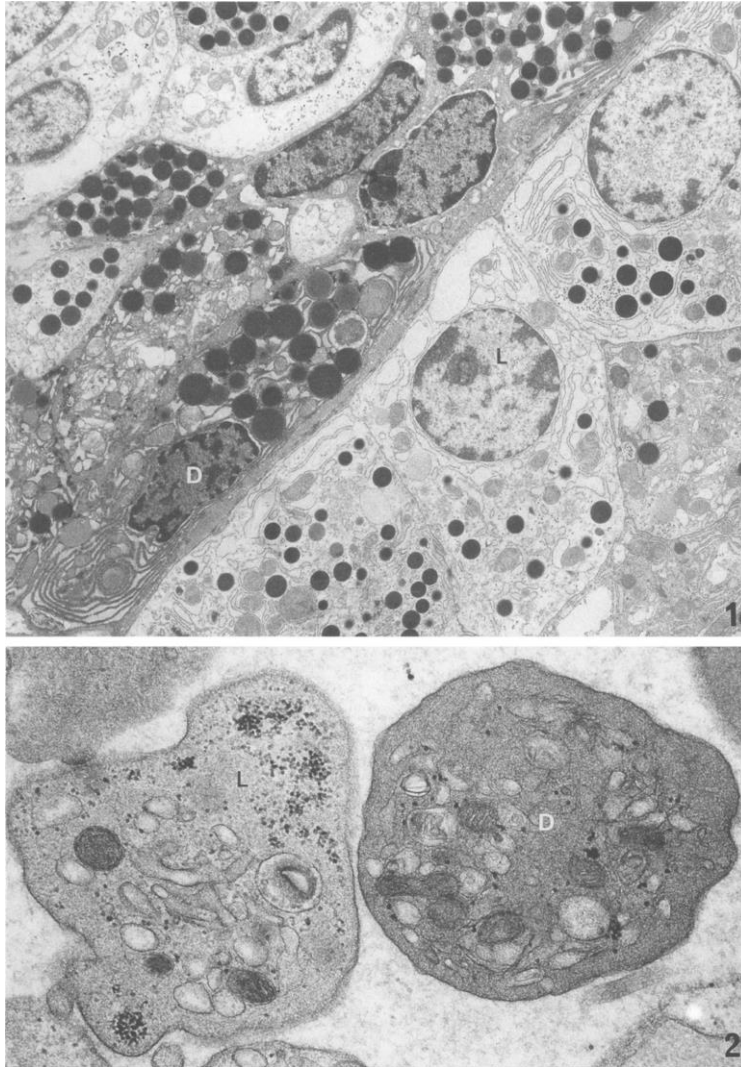
The cytosol

- A.H. Lardy (1965).
- Current concept: the cell's fluid matrix (only).
- Structures suspended within it (organelles) are separate (part of the cytoplasm), and many of the non-membrane bound structures are regarded as **inclusions**.
- Some inclusions may now be considered to be **organelles**, despite having **no bounding membrane**.



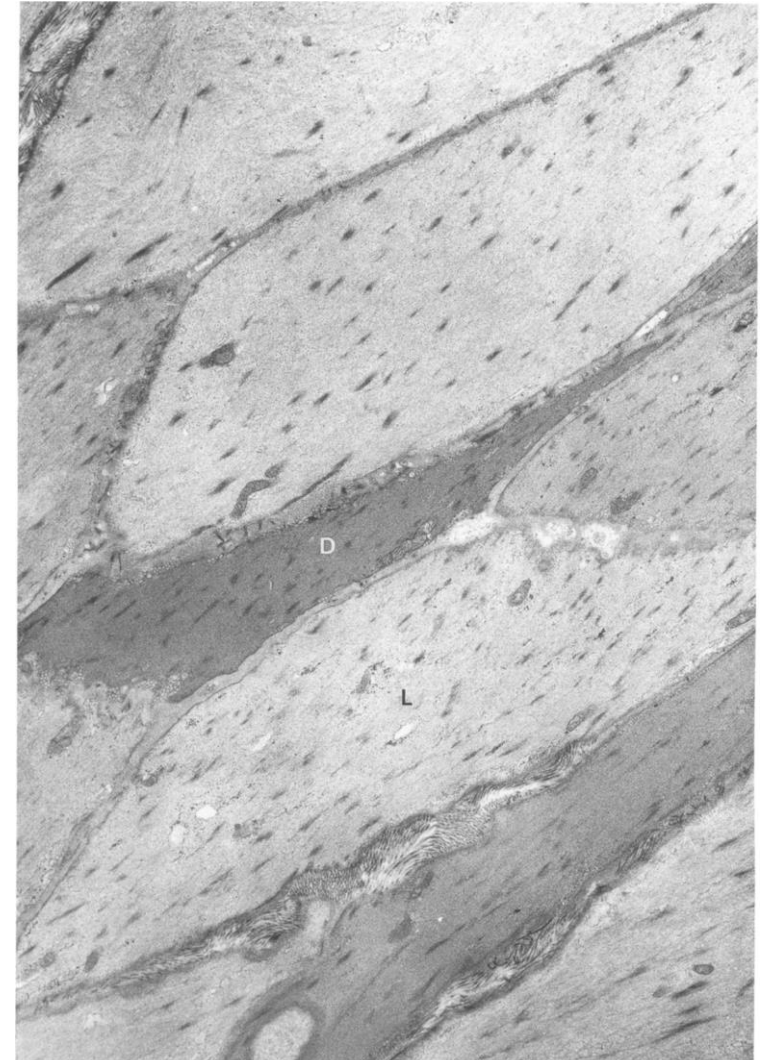
Dark / light cells

13.2



Human pancreatic acinar cells
Platelets > buffy coat human blood

13.3



Smooth muscle cells: normal human vas deferens

Dark-light cell phenomenon

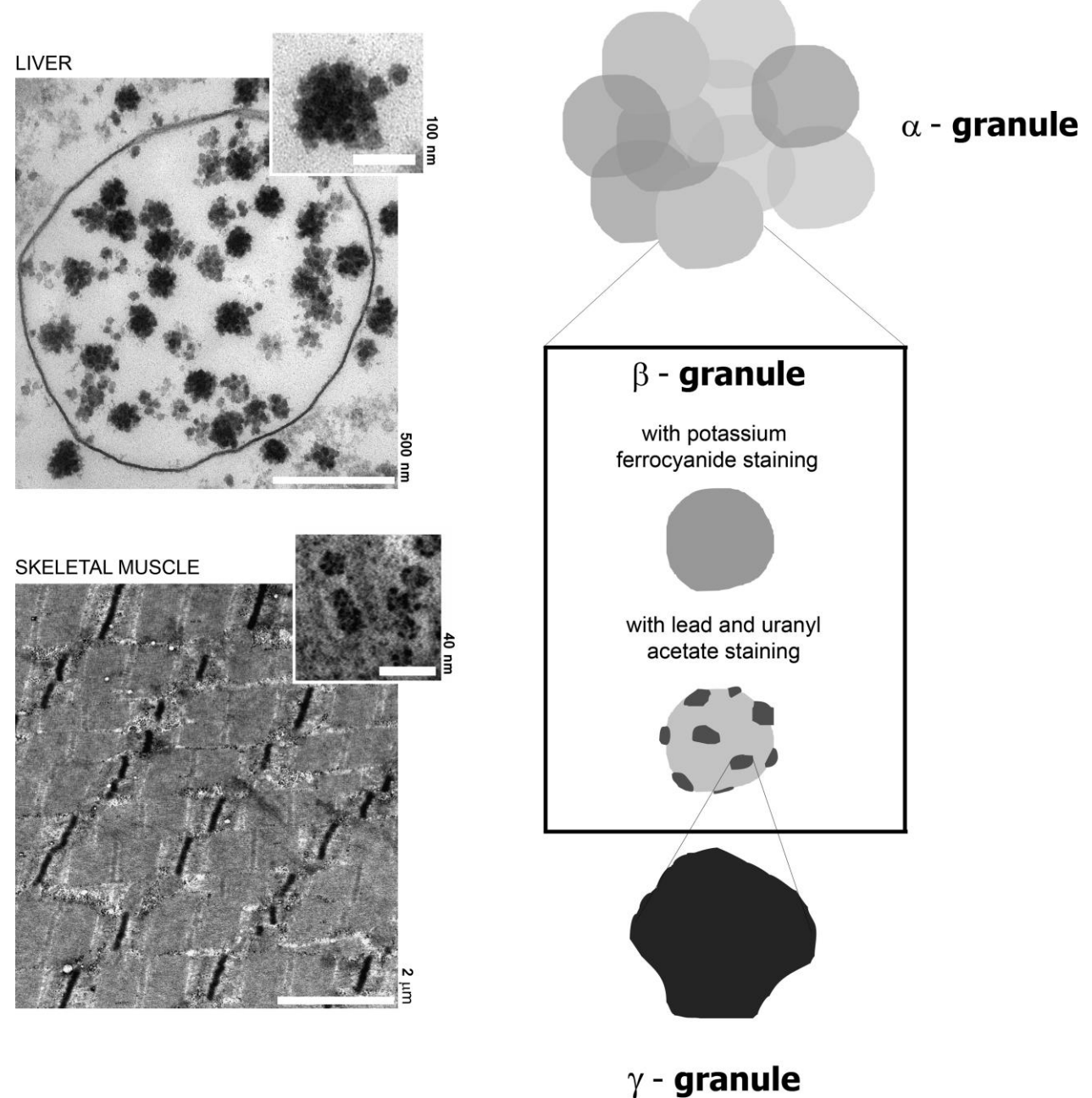
- A variety of underlying physiological bases and is not purely artefactual.
- Manifestation of a particular cell condition, or property, that is only revealed under certain fixation conditions.
- Cell shrinkage and the subsequent condensation of cellular contents - artefactual?
- Shrinkage may be due to underlying physiological differences, especially when shrinkage occurs as a variable effect.

Glycogen

13.5

?An organelle – glycosome.

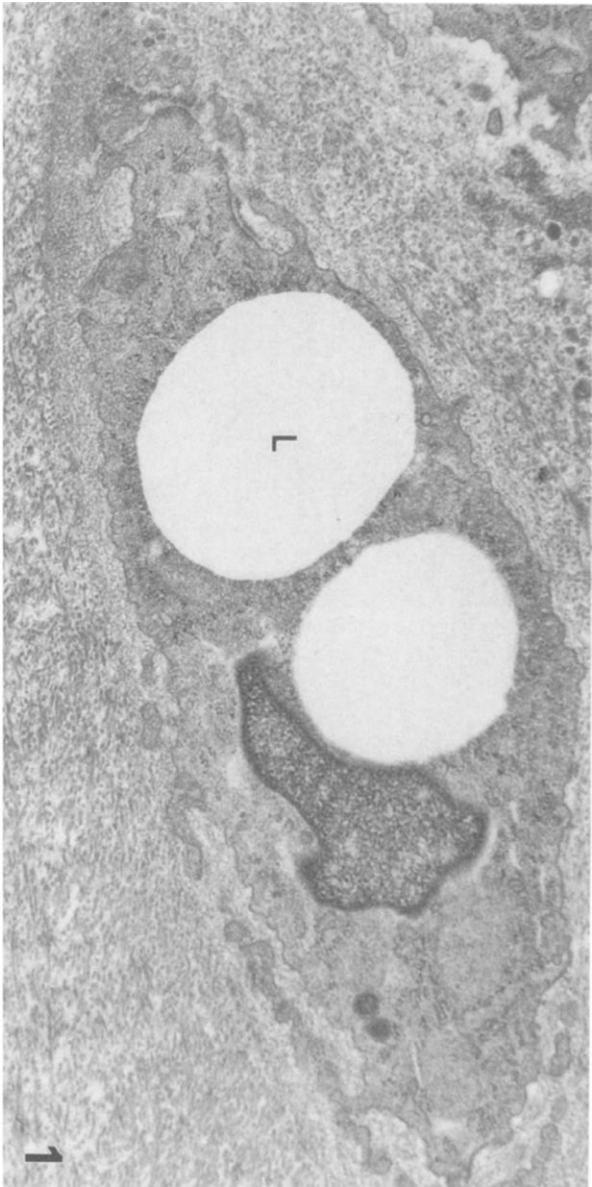
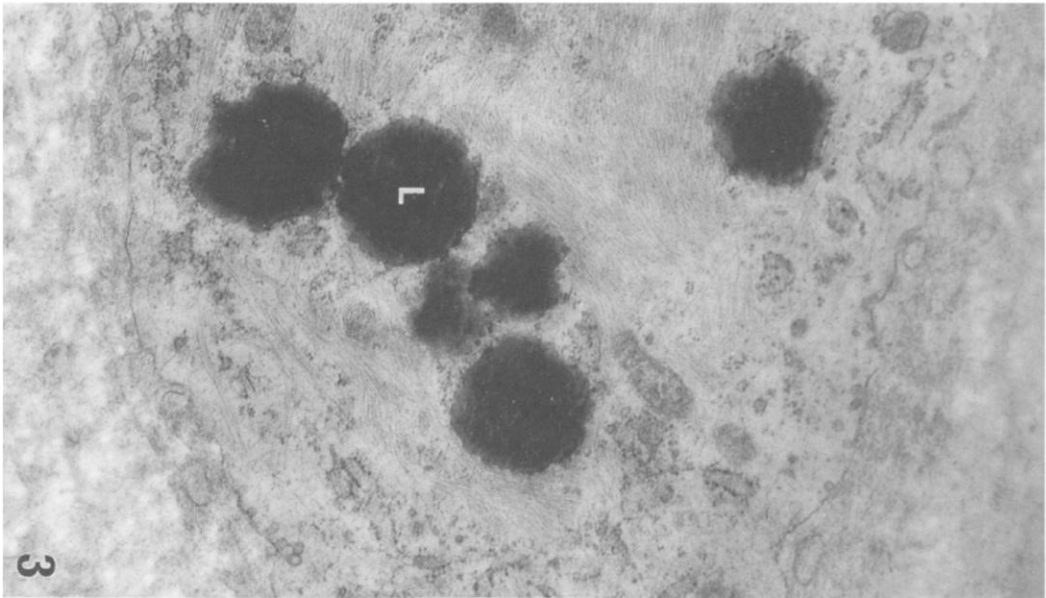
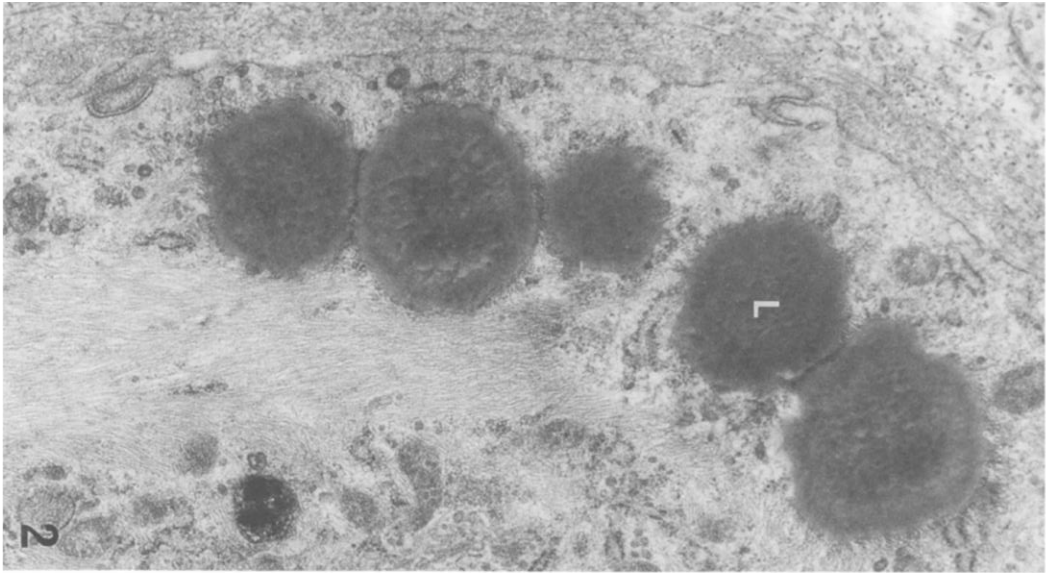
Extensive content on glycogen & glycogen storage diseases



????????????????????

Dynamic **organelles** in
cytosol of most cells

13.2



Lipid droplets (lipid bodies, fat bodies, oil bodies, spherosomes, oleosomes, adiposomes)

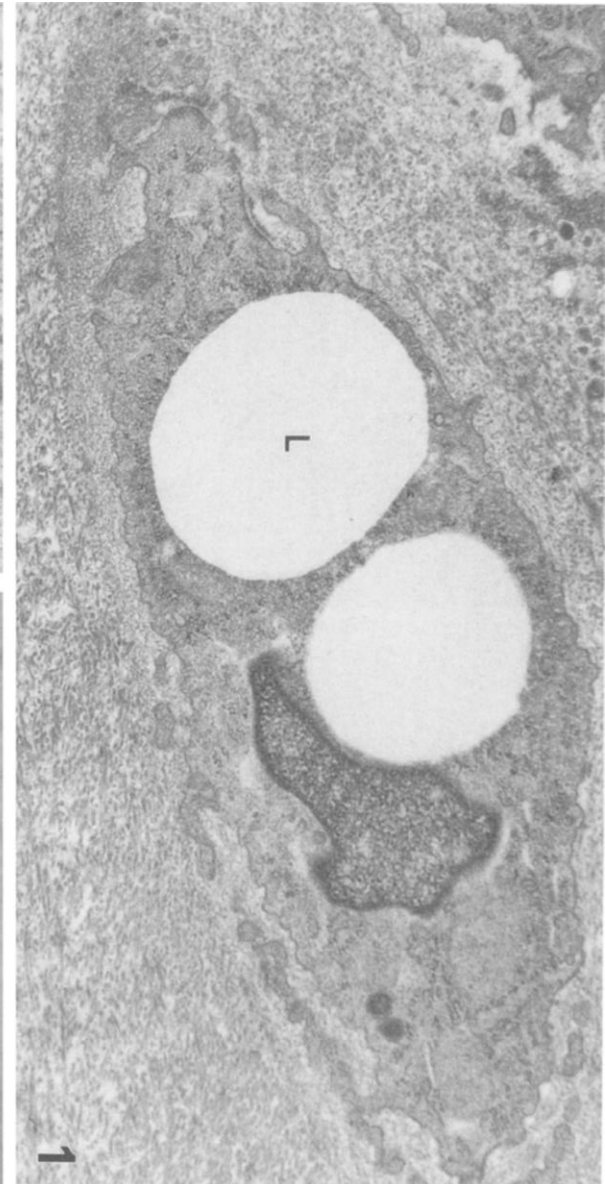
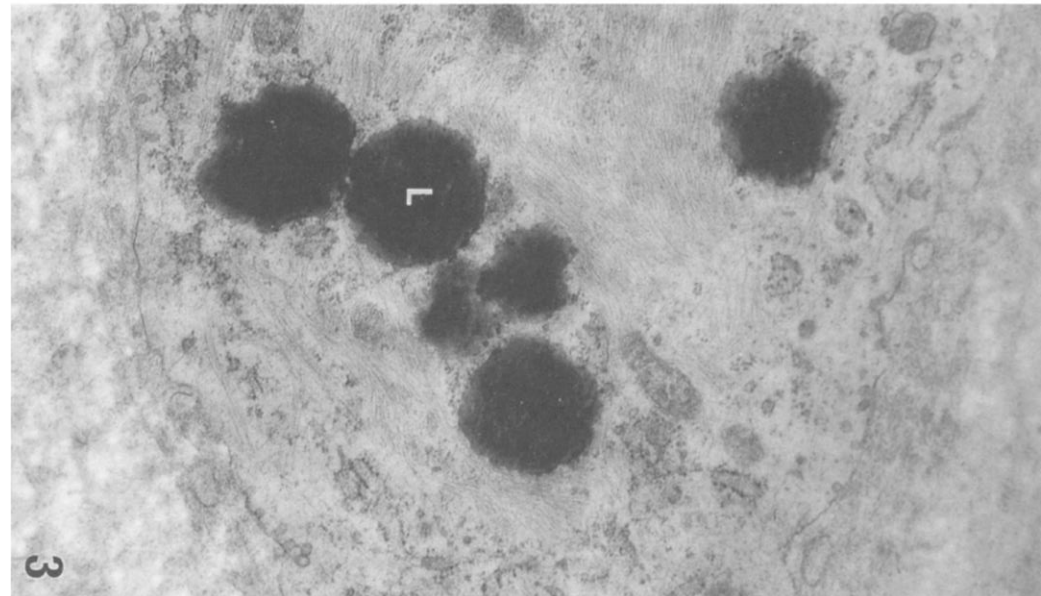
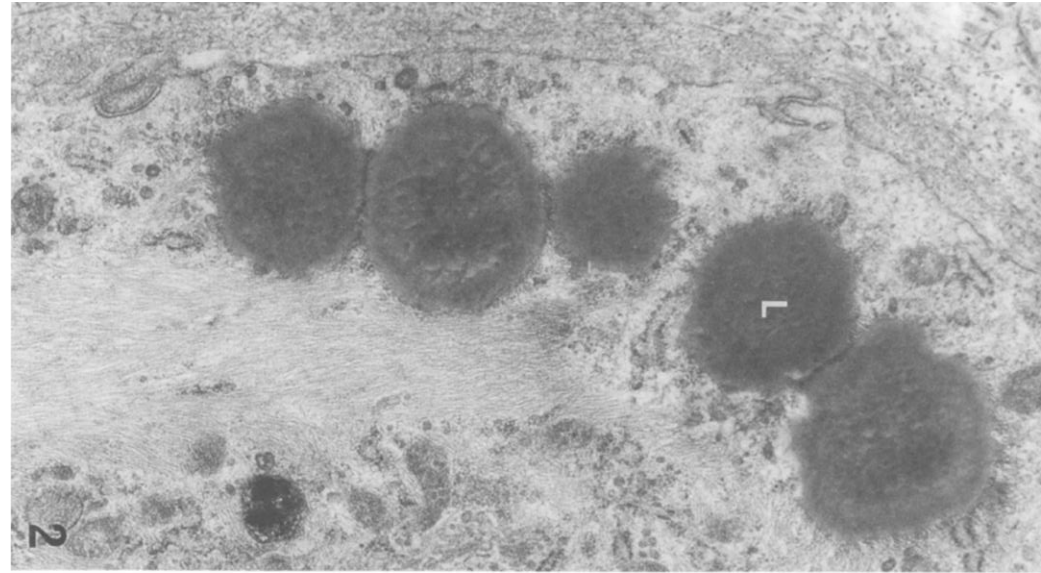
Dynamic **organelles** in
cytosol of most cells

13.2

Chondrocytes

Electron-lucent LD: saturated fatty acid

Electron-dense LD: **UN**saturated fatty acid

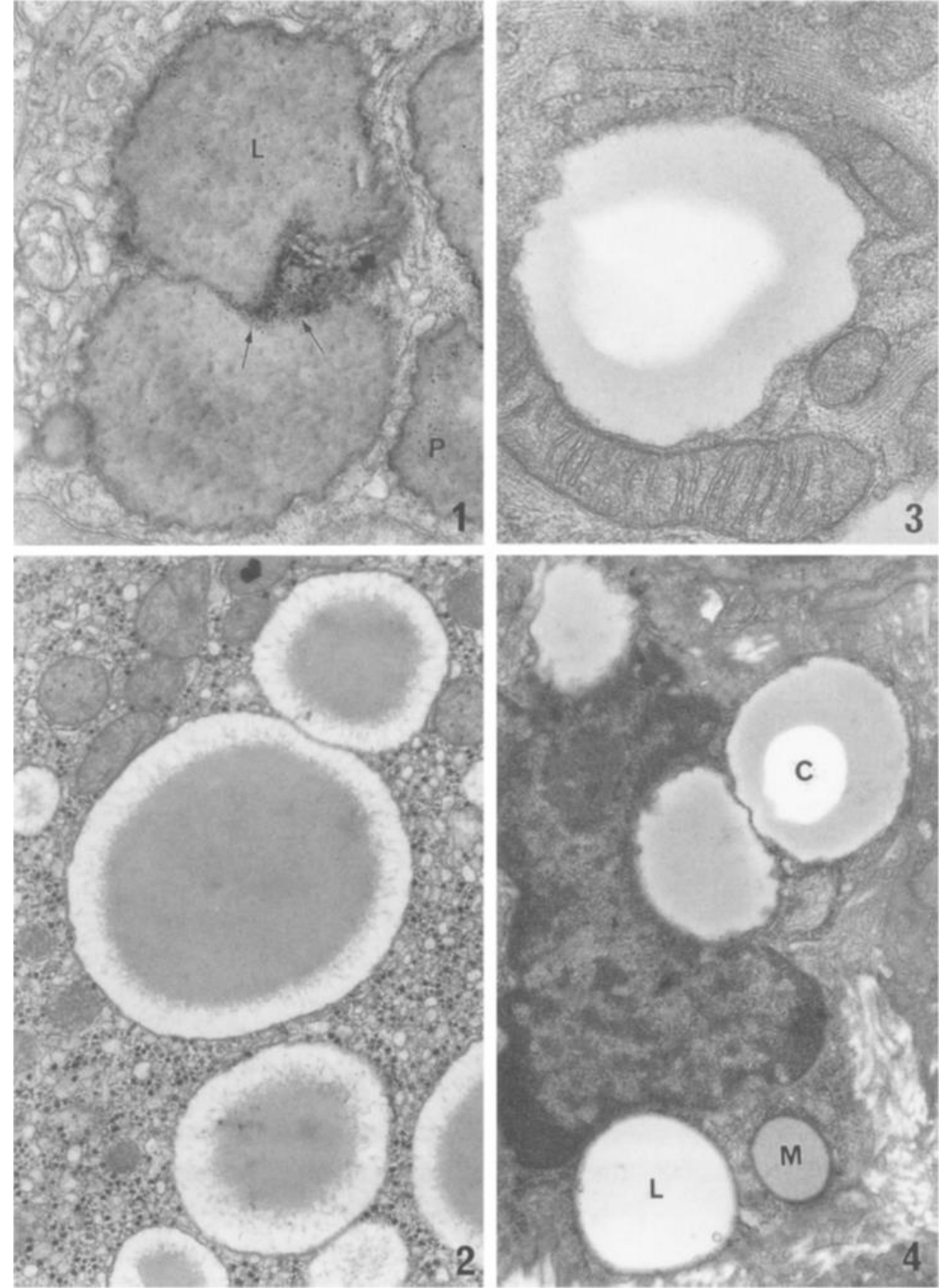


??????????????

13.13

Rat liver > with a carcinogen-induced sarcoma in its flank

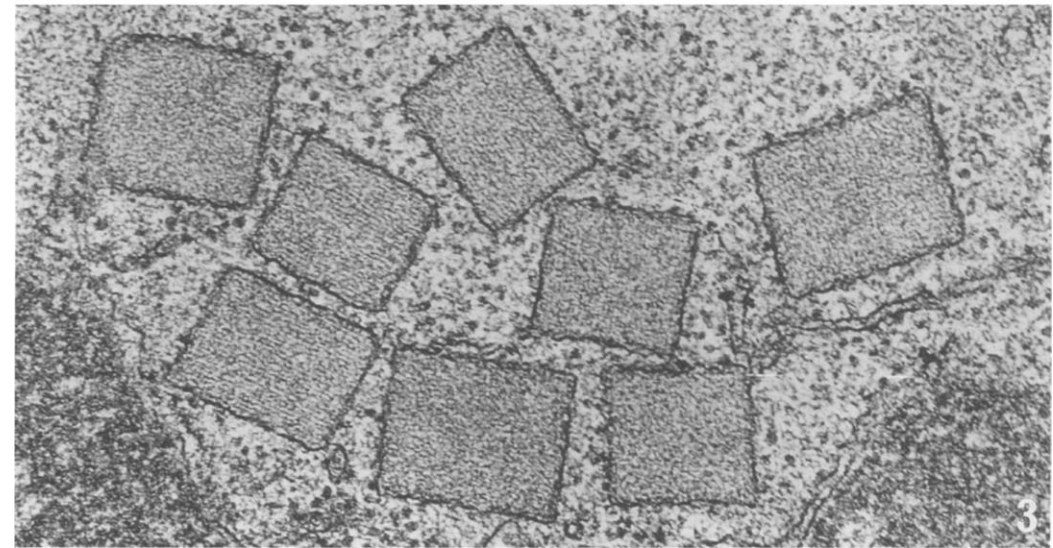
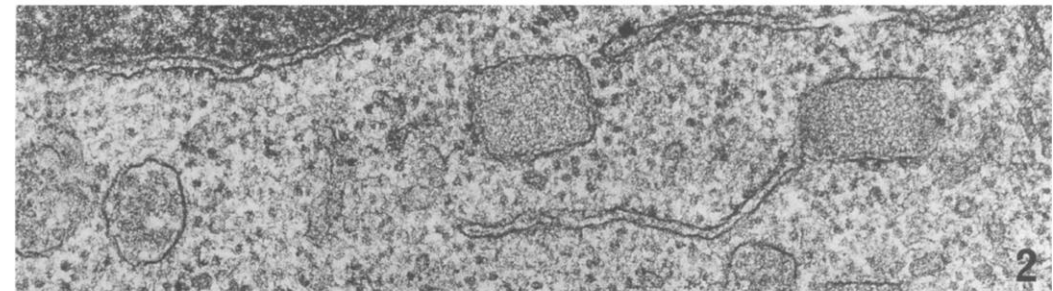
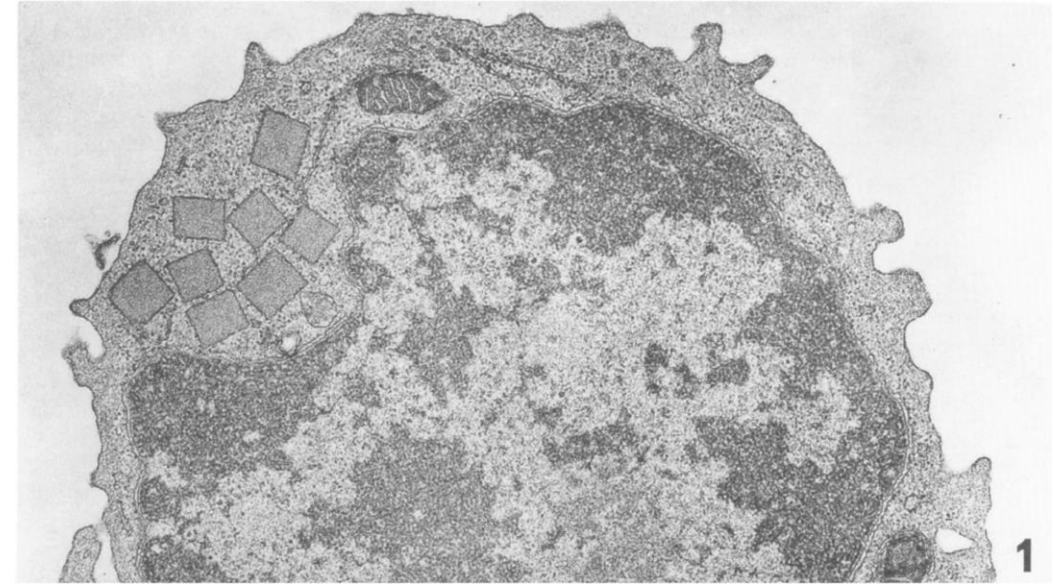
What is the dense rim??



??????????????

13.15

Lymphocyte > immunocytoma -- IgM lambda

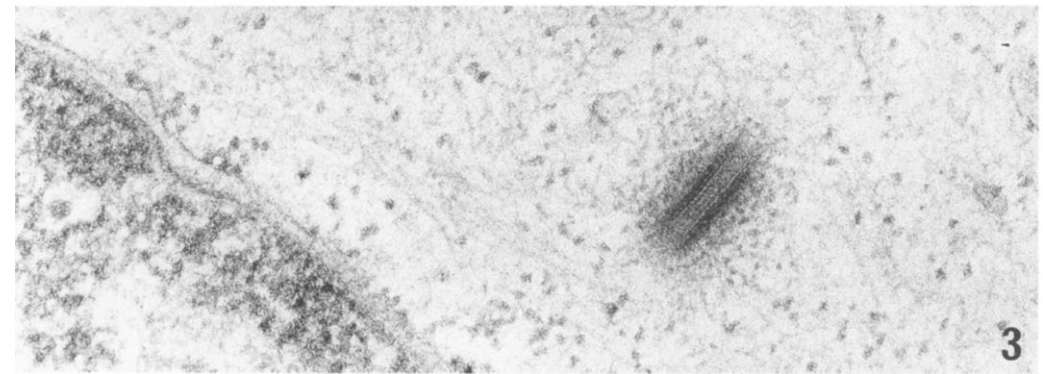
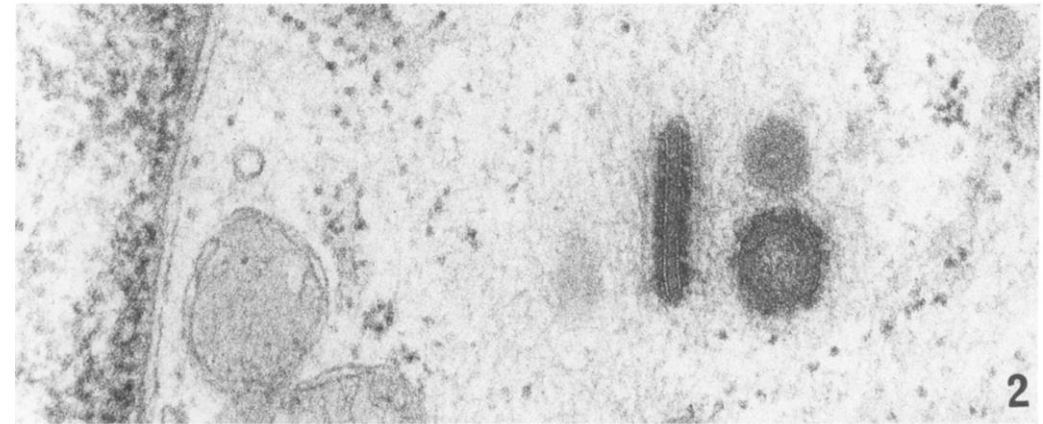
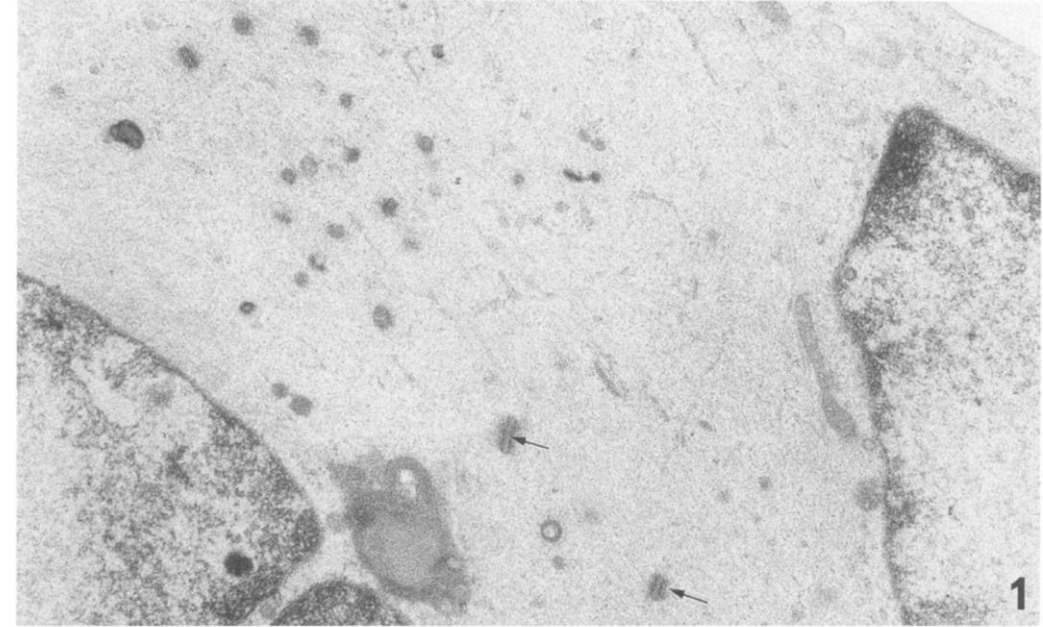


??????????????

13.28

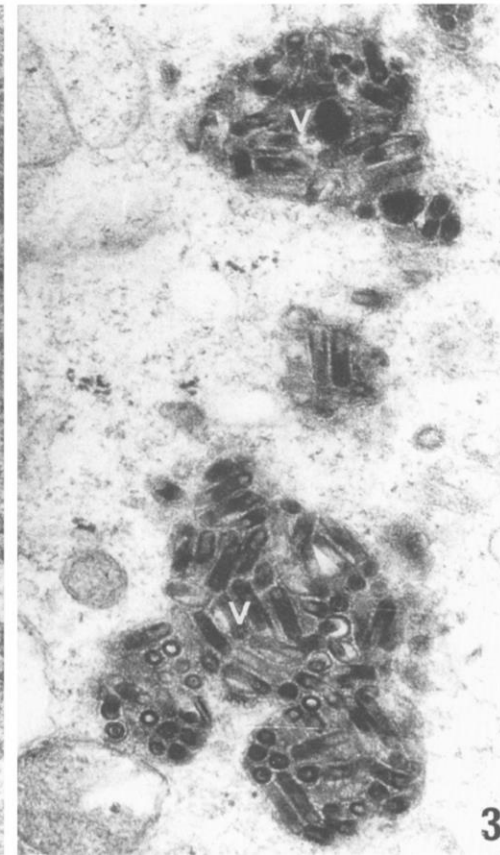
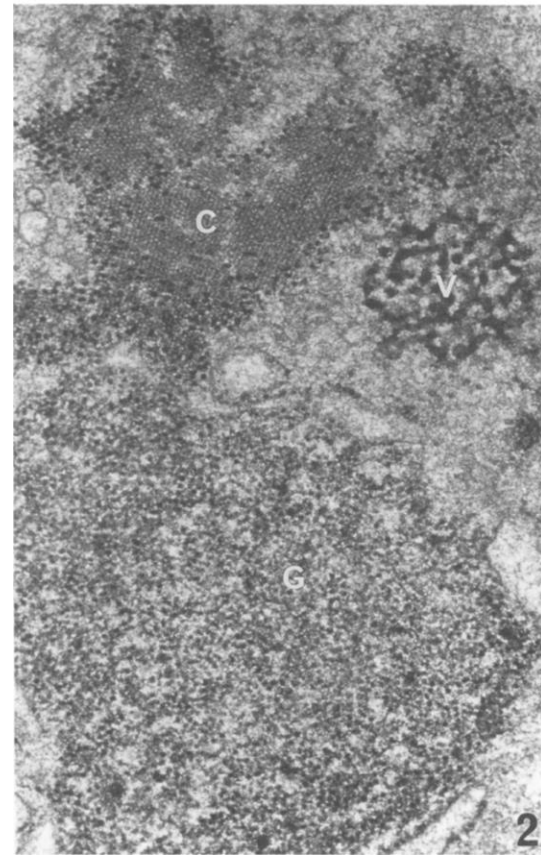
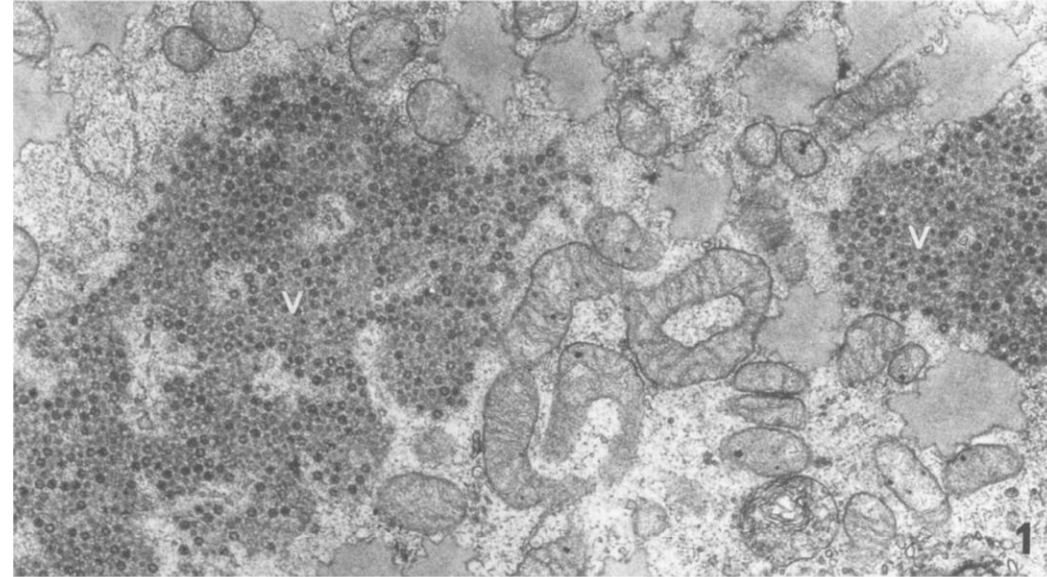
Cytosolic inclusions in varicella zoster
virus-infected human amnion cell (culture)

Cell appears to have two nuclei!



????????????

13.37



Viruses

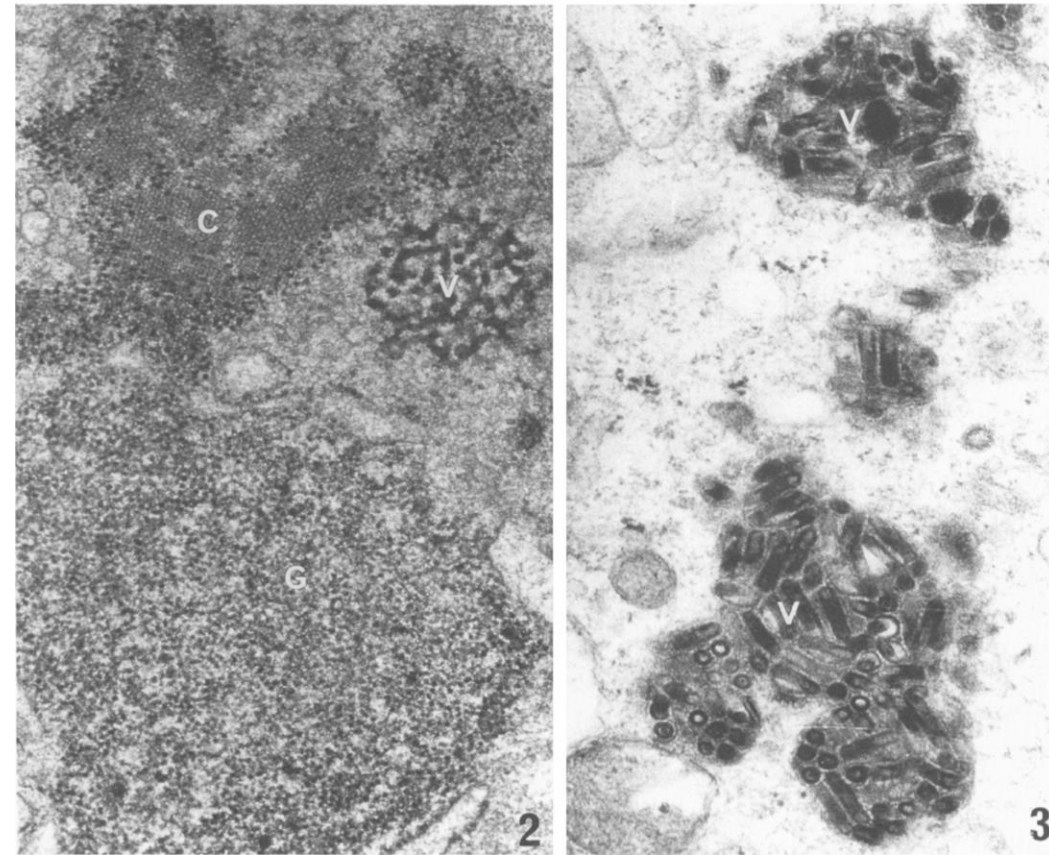
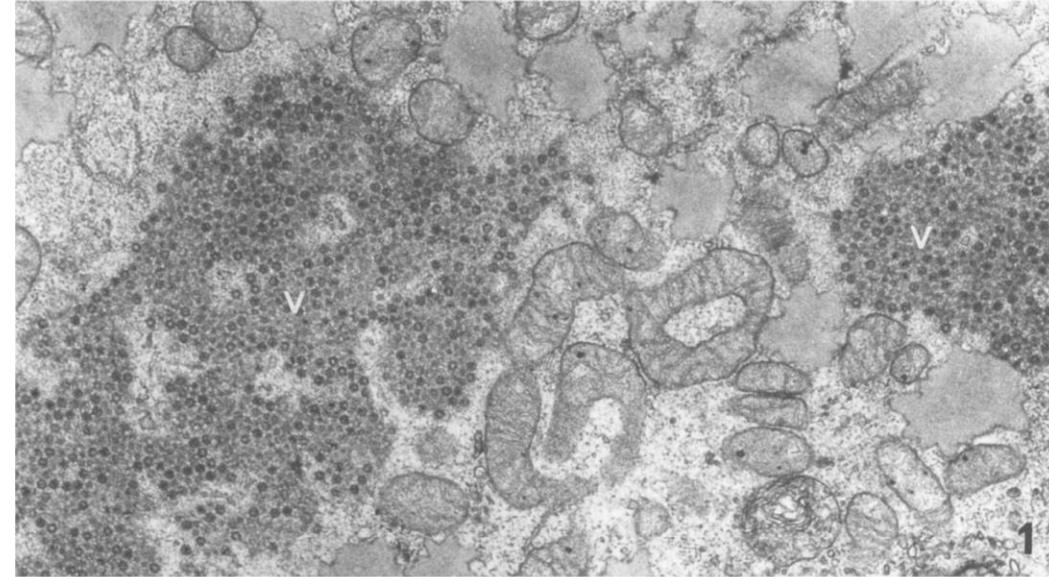
13.37

1: Reovirus (double-stranded RNA) – free in cytoplasm

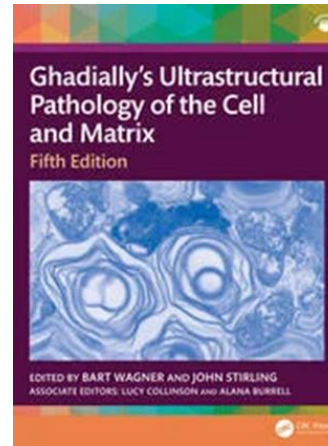
2: Picornavirus (echo II, positive-strand RNA virus)

Granular (G), crystalline/paracrystalline (C), and vermicular (V) inclusions (nuage-like)

3: Rhabdovirus (bacilliform/bullet-shaped negative-strand RNA virus)



THE END – but there's EVEN more!



As reviewed by Donald Trump:

“Totally beautiful book – so many pictures – really beautiful – great people”

“making electron microscopy great again!”