



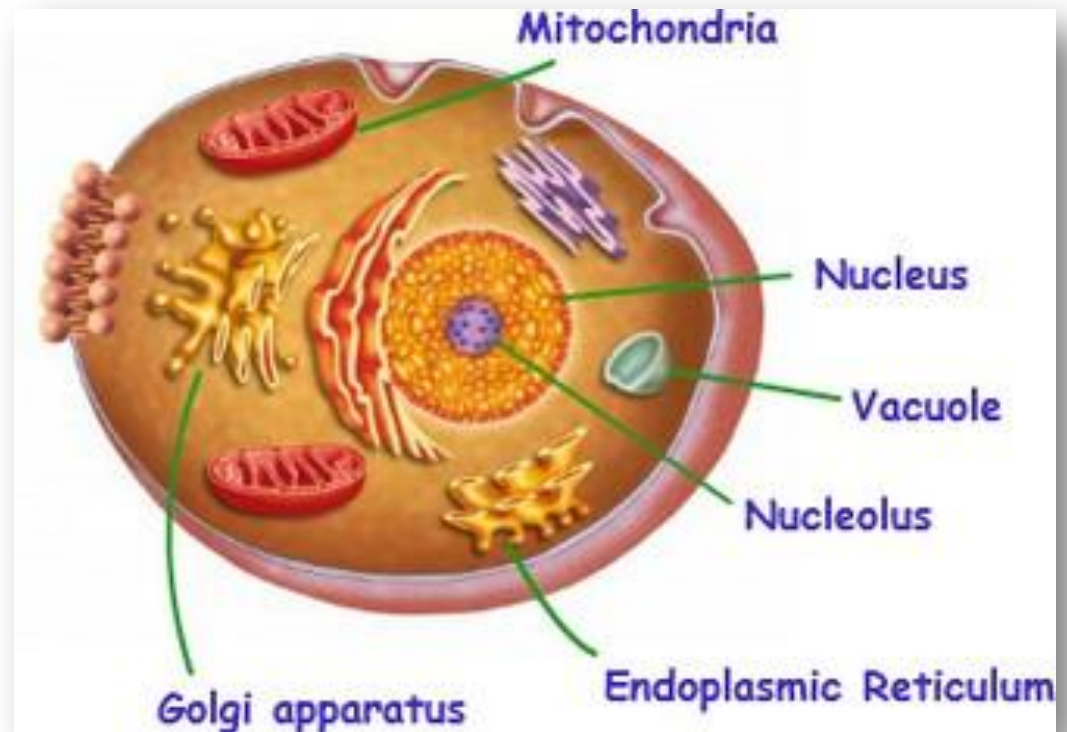
**NATIONAL UNIVERSITY OF LIFE
AND ENVIRONMENTAL SCIENCES
OF UKRAINE**

Agrobiological Faculty
Group 4.2

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Presentation on the topic :
Plant Cell Nucleus

What is a Nucleus ?

? The nucleus is a highly specialized organelle that serves as the information and administrative center of the cell. This organelle has two major functions. It stores the cell's hereditary material, or DNA, and it coordinates the cell's activities, which include intermediary metabolism, growth, protein synthesis, and reproduction (cell division).



Structure of nucleus

- ? **Chromatin**
- ? **Chromosomes**
- ? **Nucleolus**
- ? **Nuclear Envelope**
- ? **Nuclear Pores**

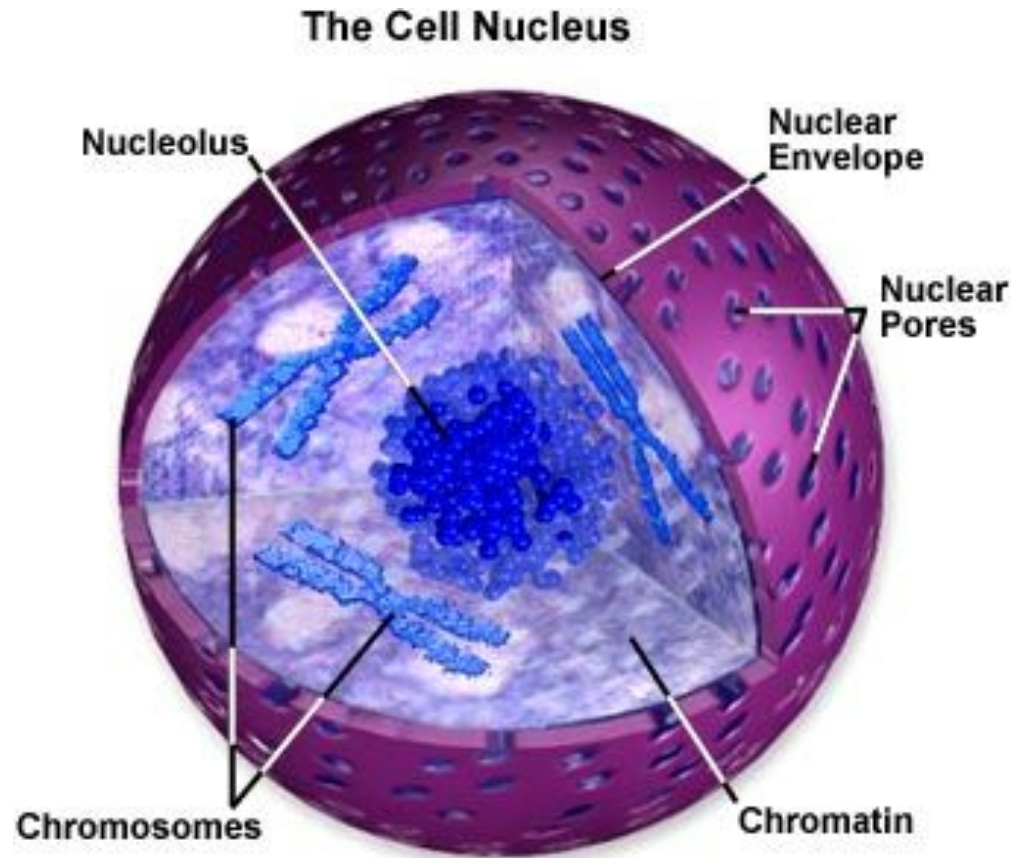
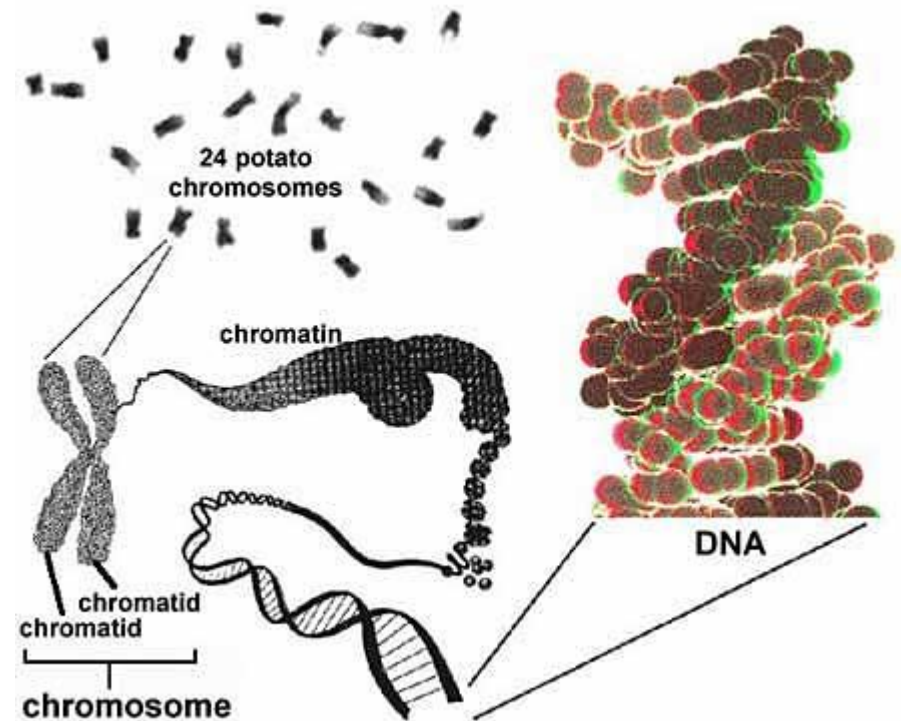


Figure 1

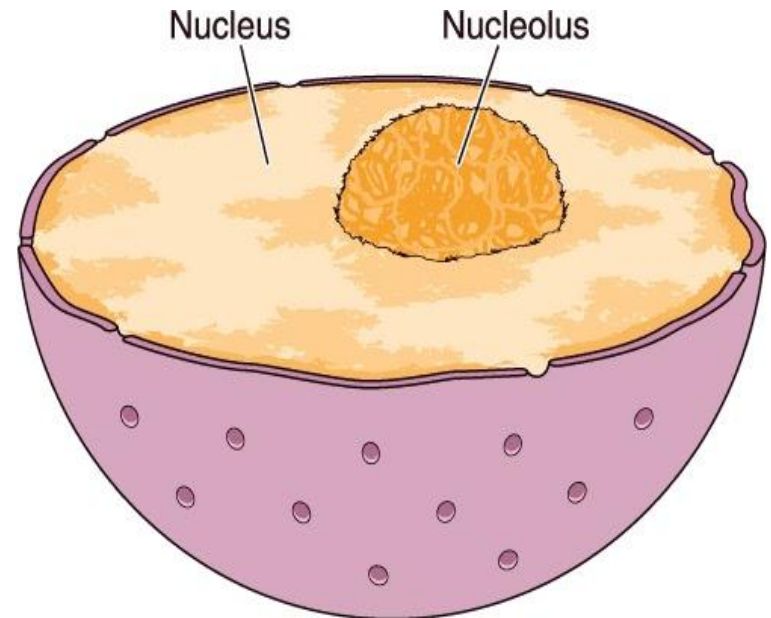
Chromatin/Chromosomes

? Packed inside the nucleus of every human cell is nearly 6 feet of DNA, which is divided into 46 individual molecules, one for each chromosome and each about 1.5 inches long. Packing all this material into a microscopic cell nucleus is an extraordinary feat of packaging. For DNA to function, it can't be crammed into the nucleus like a ball of string. Instead, it is combined with proteins and organized into a precise, compact structure, a dense string-like fiber called chromatin.



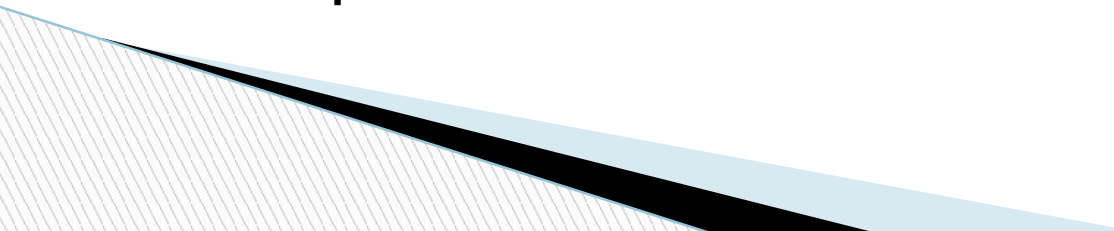
Nucleolus

? The nucleolus is a membrane-less organelle within the nucleus that manufactures ribosomes, the cell's protein-producing structures. Through the microscope, the nucleolus looks like a large dark spot within the nucleus. A nucleus may contain up to four nucleoli, but within each species the number of nucleoli is fixed. After a cell divides, a nucleolus is formed when chromosomes are brought together into nucleolar organizing regions. During cell division, the nucleolus disappears.



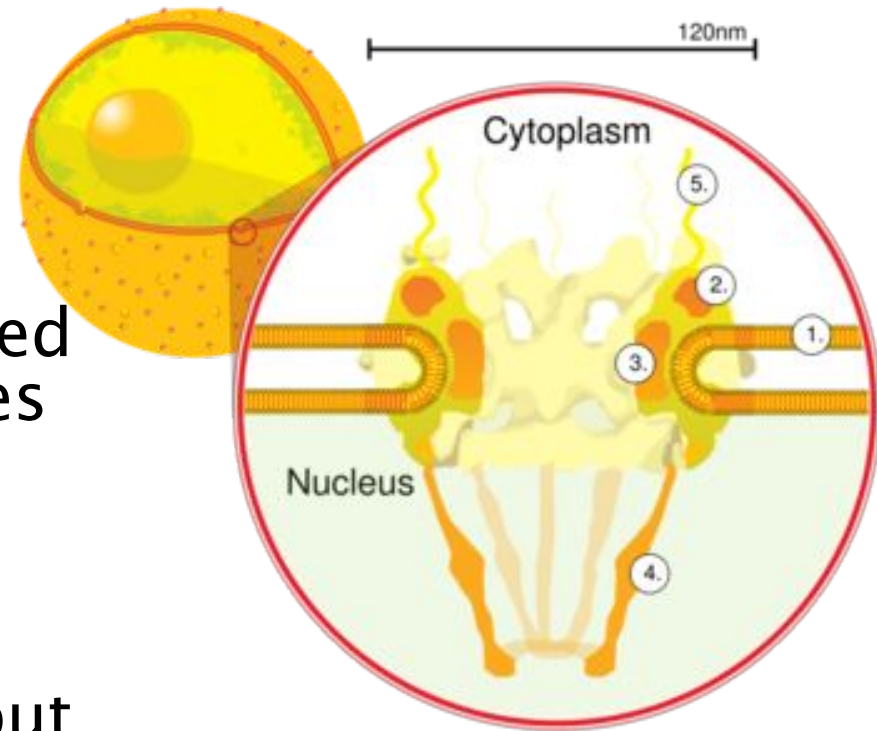
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Nuclear Envelope

- ? The nuclear envelope is a double-layered membrane that encloses the contents of the nucleus during most of the cell's lifecycle. The space between the layers is called the perinuclear space and appears to connect with the rough endoplasmic reticulum. The envelope is perforated with tiny holes called nuclear pores. These pores regulate the passage of molecules between the nucleus and cytoplasm, permitting some to pass through the membrane, but not others. The inner surface has a protein lining called the nuclear lamina, which binds to chromatin and other nuclear components.
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Nuclear Pores

? The nuclear envelope is perforated with holes called nuclear pores. These pores regulate the passage of molecules between the nucleus and cytoplasm, permitting some to pass through the membrane, but not others. Building blocks for building DNA and RNA are allowed into the nucleus as well as molecules that provide the energy for constructing genetic material.



Thank you for attention!

