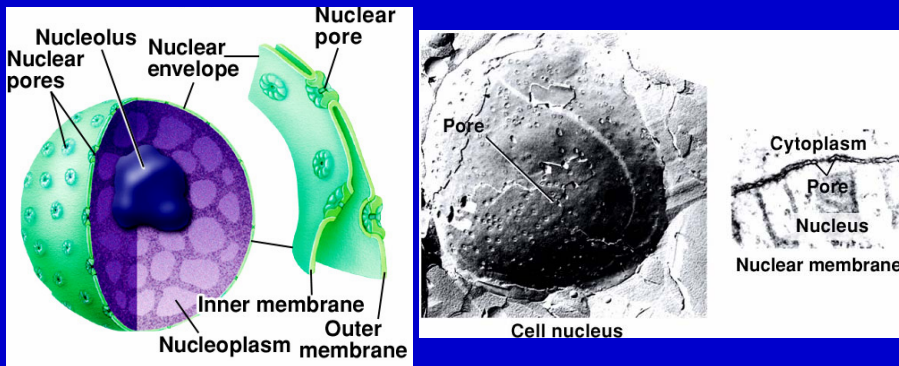


Nucleus is surrounded by the **nuclear envelope** - a double membrane

Nuclear membrane has **nuclear pores** that control entry and exit of materials



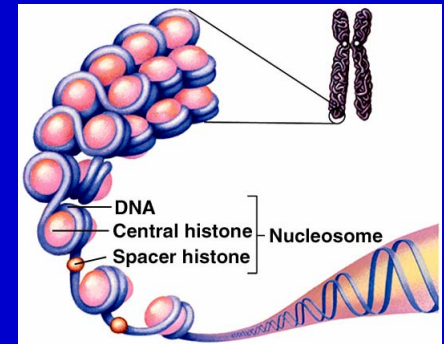
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**Chromosome** - "colored body"

consists of both DNA and protein - seen as chromosomes when highly condensed in preparation for cell division

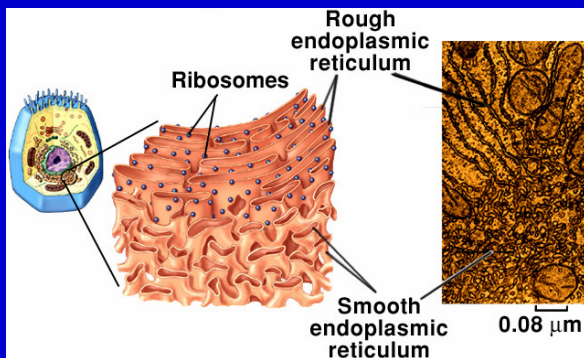
At other times the DNA and protein are threadlike and called \_\_\_\_\_.

The most common proteins are **histones**. DNA is coiled around histones in a regular pattern that produces structures called **nucleosomes**.



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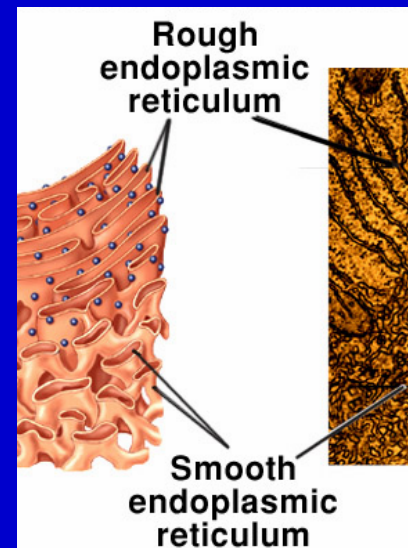
**Endoplasmic reticulum (ER)** - a web-like series of membranes within the cytoplasm in the form of flattened sheets, sacs, tubes, creates many membrane enclosed spaces - spreads throughout the cytoplasm - has connections with the outer membrane of the nucleus and the plasma membrane interior space is called the \_\_\_\_\_



Functions:  
 -circulation and transport  
 -storage of proteins and minerals  
 -synthesis of lipids, carbohydrates, and proteins  
 -A large surface area for enzyme action.

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Two types of ER - rough and smooth



**rough ER** - studded with ribosomes site of synthesis of many proteins all ribosomes on rER are actively involved in protein synthesis -

**smooth ER** - site for synthesis of steroids and other lipids  
 Ca<sup>++</sup> storage in muscles  
 detoxification of drugs, toxins, alcohol (especially in liver)

The highly convoluted surface provides a large surface area for enzymatic activities. Many enzymes are imbedded in the membranes.

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