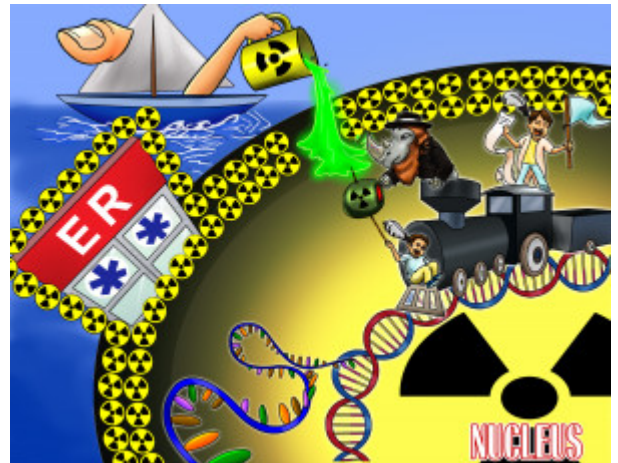


Nucleus

The nucleus is an organelle found in all eukaryotic organisms, and it contains most of the cell's genetic material. The genome of the organism exists in the DNA, and that DNA is transcribed to RNA and translated into functional proteins.

Transcription factors control which genes are transcribed by binding to promoter sequences on DNA. A special subarea of the nucleus, the nucleolus, transcribes rRNA. Ribosomal RNA is the majority component of ribosomes, which are responsible for translating RNA into protein. The membrane surrounding the nucleus is a bilayer and is continuous with the endoplasmic reticulum, which assists in protein synthesis, folding and transport. The nucleus is surrounded by cytosol, the intracellular fluid that fills up the space of cells not taken up by organelles and molecules. Finally, the nuclear membrane has pores allowing for movement of proteins in and out of the nucleus.



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Characteristics

Transcription Factors

[Train-scribe Flagger](#)

Transcription factors control which genes are transcribed by binding to promoter sequences on DNA.

Nucleolus Transcribes rRNA

[Nuclear-olive Train-scribe Rabbi-rhino](#)

A special subarea of the nucleus, the nucleolus, transcribes rRNA. Ribosomal RNA is the majority component of ribosomes, which are responsible for translating RNA into protein.

DNA

[DNA-strand](#)

DNA is organized as a double-stranded helix and contains the genetic information of the cell and organism.

RNA

[RNA-strand](#)

RNA is transcribed from DNA and is single-stranded. It is used as a template for translation, and in eukaryotes the non-coding regions are excised.

Nuclear Membrane is a Bilayer

[Double-layer of Nuclear-balloons](#)

The nuclear membrane is a bilayer, like the mitochondria and cell membrane. All other organelle membranes are single layers.

Membrane is Continuous with Endoplasmic Reticulum

[Membrane is Continuous with \(ER\) Emergency-Room entrance](#)

The membrane is continuous with the endoplasmic reticulum, which assists in protein synthesis, folding, and transport.

Nucleus Surrounded by Cytosol

[Side-toe-sail outside of Nucleus](#)

The nucleus is surrounded by cytosol, which is the intracellular fluid of cells that fills up the space not filled by organelles and molecules.

Nuclear Pores

Nuclear waste Pouring through Pores

The membrane has nuclear pores allowing for the transport of proteins and/or RNA in and out of the nucleus.