# CH2.4 Eukaryotic Cell Structure Cheat Sheet

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## Nucleus

-Contains coded genetic information in the form of DNA molecules
-DNA directs the synthesis of all proteins required by the cell.
-DNA is contained within a **nuclear envelope** to protect it from damage in the cytoplasm.
-Nuclear envelope contains **nuclear pores** that allows the molecules to move into and out of the nucleus.
-DNA associates with **histones** to form a complex called **chromatin**.
-Chromatin coils and condenses to form structures known as **chromosomes**.

## Cytoskeleton

**Cytoskeleton**
-Present throughou the cytoplams of all eukaryotic cells.
-Network of fibres necessary for the shape and stability of a cel.
-Holds organelles in place and controls movement.
**Microfilaments**
-First component of the cystoskeleton.
-Contractile fibres formed from the protein actin.
-Responsible for cell movement and contraction during cytokinesis.
**Microubules**
-Globular tubulin proteins polymerise to form tubes that are usesd to form a scaffold-like structure that determines the shape of a cell.
-Act as tracks for the movement of organelles around the cell.
-Spindle fibres are composed of microtubules.
**Intermediate Fibres**
-Give mechanical strength to cells and help maintain their integrity.

## Nucleolus

-Responsible for producing ribosomes.
-Composed of **proteins** and **RNA**.
-RNA is used to produce **ribosomal**

## Mitochondria

-Site of final stages of cellular respiration.
-Forms ATP.
-Double membrane organelle.
-Has a structue called **cristae** which is folded.
-Has a fluid interior called the **matrix**.
-Membrane which forms the cristae contains enzymes needed for respiration.
-Contains mtDNA (aka mitochondrial DNA.)

## Centrioles

-A component of the cytoskeleton.
-Composed of microtubules.
-2 associated centrioles form the centrosome, which is involved in the assembly and organisation of the spindle fibes during cell division.

## Vesicles and Lysosomes

**Vesicles**
-Membranous sacs whose purpose is to store and transport.
-Consist of a single membrane with fluid inside.
-Used to transport materials inside the cell.
**Lysosomes**
-Specialised forms of vesicles that contain hydrolytic enzymes.
-Responsible for breaking down waste material in cells, including old organelles.
-Very important in the immune system as they are responsible for phagocystosis.

## Flagella and Cillia

-Both flagella (whip-like) and cillia (hair-like) are extensions that protrude from cell types.
**Flagella**
-Used primarily to enable cells motility.
-Sometimes used as a sensory organelle

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