cell cycle and cell divison

Dr. Ferdoos *Notes from record (1)

* Eukaryotic cell => True nucleus
* Prokaryotic cell => lack the nucleus
* organells => always present and metabolicly active.
* Inculsion => metabolicly inert and may or may not be present.
* we have 3 Types of RNA Formed from the nucleouls.
* IF there is a cell (without a centrosome) it will not divied by mitosis like => Nerve cells => They don't have a centrosome.
* IF there is a cell without a nucleus it will not divide by Mitosis
* Cytoskeleton
* centrosome => 2 perpindicular centerioles.
* centrosome is the organizing center for microtubules.
* The centrosome plays a major role in mitosis.
* organisation of actin filaments :-
* Actin filaments make a network inside the cytoplasm which makes the cell resist physical stress and more flexible.
* Actin filaments makes cell movement possible.
* Actin filaments makes the cell change it's shape.
* Actin filaments contract so they are essential in muscle contraction.

* Actin filaments are also found in the microvilli of the cells ⇒ intestinal cells ⇒ actin filaments in there microvilli contract so they provide more surface area for absorption ⇒ Maximum Absorption.

* cilia ⇒ microtubules at the epical part of cells.
* flagellum ⇒ microtubules at the basal part of cells.

* cell divison is a part of the cell cycle

* cell cycle : 2 successful mitotic divisons and an Interphase

* Importance of cell cycle
① body cells development ② Growth
③ repairs damaged tissue.

* Types of cell reproduction

① Asexual : it happens in the somatic cells (mitosis) and to prokaryotic cells (binary fission)

② sexual : it happens in the egg and sperm (Meiosis)

* مهم نميز بين مراحل (Cell cycle) و مراحل (Mitosis)

* The Go (stop phase) arrest of cell divison
* 2 Types of cells that under go (Go phase)
① The cells fully mature and don't undergo cell divison at all
↳ like the cardiac and nerve cells
② The cells fully mature and don't undergo cell divison until need.
↳ stem cells

* Mitosis : 2 stages

① KaryoKinesis : divison of the nucleus and it has ④ phases

① prophase
② metaphase
③ Anaphase
④ Telophase

يوسف ماتيم الطراونة
لجنة الطبيد الجراحة

② cytoKinesis : divison of cyto plasm.

* KaryoKinesis is mediated by centrosome.
* cytoKinesis is mediated by actin filaments

* at the prophase the Nuclear membrane disintegrates not disappears

* we have ③ types of microtubules in the mitotic spindle

① polar microtubules
② Kinetochore microtubules
③ Astral microtubules.

* Actin filaments role in cytoKinesis :-

Actin filaments which are found under the cell membrane contract forming cleavage furrow wich splits the cell into 2 daughter cells and the cytoplasm of the cell

* The cleavage furrow is formed due to cellular constriction by the continuous contraction of actin filaments.