

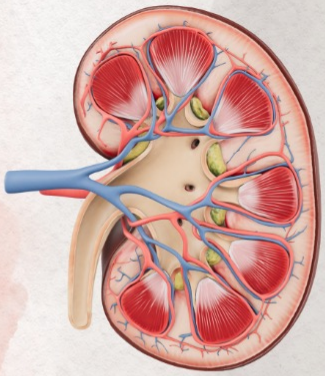
Pathology

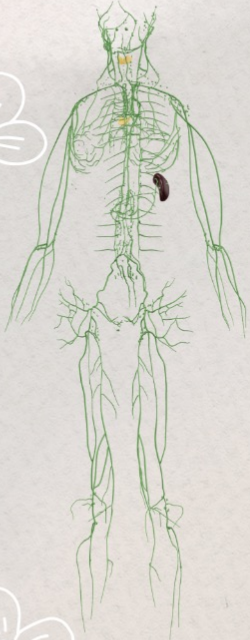
محاضرة 13 د.سامح

Apoptosis



Layan



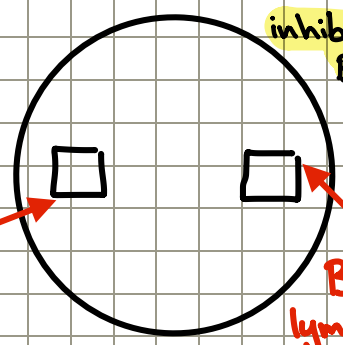


Apoptosis

programmed Cell death. (single cell death)

• بمجرد ما حدث
stimulation of P53 protein
& inhibition of BCL-2 gene
activation of هيحدث
- endonucleas enzyme DNA يكسّر
- protease proteins يكسّر

في عملية Apoptosis يحدث Stimulation
لهذا الـ protein عشان يتوقف نشاط الخلية



هذا البروتين يوقّف نشاط الخلية وانقساماتها

يُنشّط الخلية وانقساماتها

APOPTOSIS

DEFINITION: Apoptosis in Greek means "dropping off". It is another form of cell death that usually involves few or single cells . this type of cell death seems to be programmed and is described as cell suicide or programmed cell death aiming at removal of un-necessary or diseased cells .it can occur in physiological & pathological conditions . it can occur without tissue injury (or with mild injury not causing necrosis).

Apoptosis is not associated with release of chemical mediators &therefore does not excite inflammation.

EXAMPLES OF APOPTPSIS :occurrence of apoptosis is known in several conditions:

1-In physiological (normal)states such as : طبيعية

*During embryogenesis .

*Hormone dependent involution of tissues e.g. endometrium during menstrual cycle

*Cells after achieving their purpose e.g. neutrophils in acute inflammation

*Normal turnover of cells (e.g. intestinal epithelium) to maintain a constant number of cells

2-In pathological states such as :

*Liver cells in viral hepatitis (councilman bodies).

*Apoptosis of malignant tumor cells.

*In some cases of atrophy.

*In cases of mild radiation injury and mild thermal injury.

*Cytotoxicity induced by T lymphocytes as in organ rejection

MORPHOLOGICAL FEATURES OF APOPTOSIS:

*Shrinkage of cell size .

*Nuclear chromatin condensation , followed by fragmentation of DNA.

*Formation of membrance blebs , followed by their separation apoptotic bodies.

*The apoptotic bodies consist of a dark nuclear fragment surrounded by eosinophilic cytoplasm . they becomes engulfed by phagocytic cells .

*Apoptosis does not excite inflammation & is not accompanied by healing or calcification

