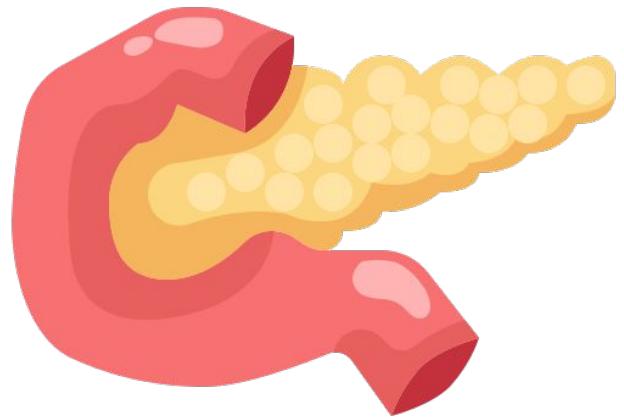


# Pancreas



[ Endocrinology Block | Histology ]

## Editing File

- Color index:
- Main text
  - important
  - female slides
  - male slides
  - Dr.note
  - Extra

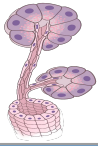
# Objective

- 01** The endocrine part of the pancreas within the exocrine part.
- 02** The histological features of the cells of islet of Langerhans.
- 03** The function of different cells of islets of Langerhans.

This lecture was presented by:  
**Dr. Mohammed Atteya    Prof. Raesa Abdultawab**

# Pancreas

**Parenchyma (mixed): Endocrine & Exocrine**  
**Stroma: Capsule, Septa, Reticular fibers**



## Exocrine Pancreas

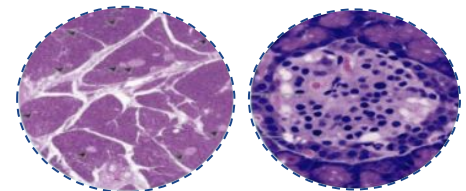
Pancreatic Acini	Pancreatic Acinar Cells	Duct System		
<ul style="list-style-type: none"> <li>• Serous acini: Secreting digestive pancreatic enzymes (Thin fluid).</li> <li>• Centroacinar cells: <ul style="list-style-type: none"> <li>- Nuclei in center of acini.</li> <li>- The beginning of the ducts.</li> </ul> </li> <li>• <b>No Myoepithelial cells around the acini.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Shape: Pyramidal (<b>Rosette shape</b>)</li> <li>• Nuclei: Basal, rounded and vesicular.</li> <li>• Cytoplasm: <ul style="list-style-type: none"> <li><u>Basal part</u> <b>Basophilic</b> → Abundant rER <b>secrete proteins</b> (digestive enzymes)</li> <li><u>Apical part</u> <b>Acidophilic</b> → Secretory granules (zymogen)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Centroacinar cells (low cuboidal): <b>First ductal cells, have serous secretions</b></li> <li>• <u>Intercalated ducts</u> (low cuboidal).</li> <li>• <u>Intralobular ducts</u> (low columnar): <b>NOT prominent.</b></li> <li>• <u>Interlobular ducts</u> (simple columnar).</li> <li>• <u>Main pancreatic duct</u> (tall columnar) with goblet cells</li> </ul>		
	<p><b>Low Magnification</b></p>	<p><b>Medium Magnification</b></p>	<p><b>High Magnification</b></p>	



## Endocrine Pancreas

### Islets of Langerhans:

- ❖ Pale-staining spherical collections of endocrine cells, scattered among the acini.
- ❖ Richly vascularized by fenestrated capillaries (with diaphragm)
- ❖ Each islet is surrounded and supported by reticular fibers (collagen type III).
- ❖ About 1 Million islets in human pancreas, Most numerous in the **tail**



(According to islets)	$\beta$ (B) Cells	$\alpha$ (A) Cells	$\delta$ (D) Cells	G	PP
<b>Percentage</b>	<b>70%</b>	15-20%	5-10%	1%	1%
<b>Location</b>	<b>Center</b>	<b>Periphery</b>	Throughout the islet	Throughout the islet	Throughout the islet
<b>Secretions</b>	<b>Insulin</b> (↓Blood Sugar)	<b>Glucagon</b> (↑Blood Sugar)	Somatostatin (↓Pancreas Secretions)	Gastrin (↑HCl from Parietal cells)	Pancreatic Polypeptide (↓Exocrine Secretions)
<b>Granules</b>	<ul style="list-style-type: none"> <li>• Granules in <math>\alpha</math> cells are much more numerous, more tightly packed, smaller, and denser than those of <math>\beta</math> cells.</li> <li>• Granules in <math>\delta</math> cells are less dense than those of <math>\beta</math> and <math>\alpha</math> cells.</li> </ul>			-	-

-Cannot be differentiated from one another by routine stains. **Immunostaining** is most useful for distinguishing between them.

# MCQs

**01** Islets of Langerhan is characterized by which of the following?

A-Dark staining collection of endocrine cells	B- more numerous in the body of pancreas	C-Rich in fenestrated capillaries	D-Surrounded by elastic fibers
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**02** Which one of the following cells secrete Insulin?

A-Alpha Cells	B-Beta Cells	C-G Cells	D-Delta Cells
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**03** Which ONE of the following cells produce Glucagon?

A- Alpha Cells	B-Beta Cells	C-Delta Cells	D-PP Cells
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**04** Most of Langerhans islets are found in which part of the Pancreas?

A-Head	B-Body	C-Tail	D-Neck
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**05** Which one of the following statements is CORRECT about Pancreas?

A-Beta Cells is concentrated in the peripheral of the islet	B-Alpha Cells secrete Insulin	C-No myoepithelial cells in the pancreatic acini	D-PP Cells secrete Glucagon
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Answer key:  
1-C,2-B,3-A,4-C,5-C

# Leaders



**Mohammed Alqutub**



**Waad alqahtani**

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- **Nazmi M Alqutub**

- **Nazmi A Alqutub**

- **Layan Alobaidi**

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- **Academic leaders**

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