



HISTOLOGY

Summary: Alimentary Canal (1, 2, 3)
(Esophagus, Stomach, Small Intestine, & Large Intestine)

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Summary

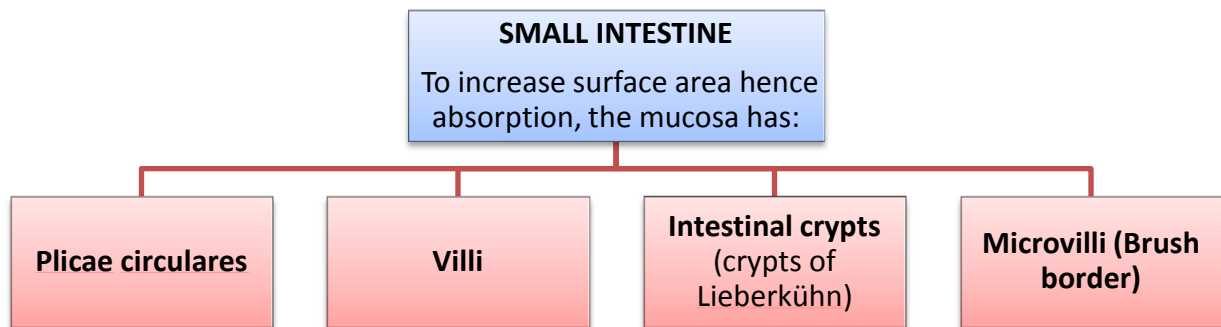
Layers		Esophagus	Stomach		Small Intestine			Large Intestine	
			Fundus	Pylorus	Duodenum	Jejunum	Ileum	Colon	Appendix
Mucosa	Epithelial lining	Non-keratinized stratified squamous epithelium.	- Surface epithelium: simple columnar mucus-secreting cells .		- Shows villi & crypts . - Simple columnar epithelium with goblet cells .			- Shows only crypts .	Similar to the colon, but with much <u>smaller</u> diameter, <u>shallow</u> crypts, <u>more</u> <u>lymphoid nodules</u> , and <u>more</u> <u>DNES cells</u> .
	Lamina propria		C.T.	C.T invaded by numerous fundic glands.				C.T.	
	Muscularis mucosae		Few (2) layers of smooth muscle fibers.						
Submucosa		- C.T containing blood vessels & Meissner's plexus (nerves).							
		Glands.	<u>No glands.</u>	Brunner's glands (secrete mucus).	Neither Brunner's glands nor Payer's patches.	Peyer's nodules from lamina propria that extend to submucosa.	<u>No glands.</u>		
Muscularis Externa (smooth muscles)		1- Inner circular. - Auerbach's (myenteric) plexus. 2- Outer longitudinal.	1- Inner oblique . 2- Middle circular. - Auerbach's (myenteric) plexus. 3- Outer longitudinal.	1- Inner circular. - Auerbach's (myenteric) plexus. 2- Outer longitudinal *.			* Outer longitudinal has 3 interrupted ribbons (teniae coli).		
Adventitia or Serosa		Covered by adventitia except the abdominal part by serosa .	Serosa (C.T covered by mesothelium).	2 nd & 3 rd parts covered by adventitia . The rest is by serosa .	Serosa (C.T covered by mesothelium).		Serosa.	Appendices epiploicae	Serosa.

Stomach: Fundic and Pyloric Glands & their Cells

Characteristic Features	Fundic Glands	Pyloric Glands
Length of Pit	Short pits (1/4 of mucosa).	Deep pits (1/2 the length of mucosa).
Form	Simple or branched tubular glands.	Branched & convoluted glands.
Predominant Cells	1- Parietal cells (secrete HCl & gastric intrinsic factor). 2- Chief cells (secrete pepsinogen).	Mucus neck cells (secrete mucus).
Other cells	- Mucus neck cells (secrete mucus). - Enteroendocrine (DNES) cells (secrete hormones, e.g. somatostatin). - Stem cells : regenerative cells.	-----

Small Intestine: Villi and Crypts & their Cells

Characteristic Features	Intestinal Villi	Intestinal Glands (Crypts)
Origin	Mucosa (lamina propria).	Mucosa (epithelium).
Form of	1- Central core (C.T.). 2- Villous-covering epithelium.	Simple tubular glands between villi.
Cells Covering \ Lining	1- Surface columnar absorptive cells (they have microvilli). 2- Goblet cells. 3- Enteroendocrine (DNES) cells .	1- Columnar absorptive cells. 2- Goblet cells (secrete mucus). 3- Enteroendocrine (DNES) cells . 4- Stem cells . 5- Paneth cells (secrete lysozymes which are antibacterial).
Other cells	M-cells (within epithelium overlying lymphatic nodules of lamina propria).	-----



Note: Cells lining the crypts in colon are the same as intestinal crypts BUT with **NO Paneth cells**

Large Intestine: Crypts

Cells of the Crypts <u>in Colon</u>	Cells Lining the Crypts <u>in Appendix</u>
1- Columnar absorptive cells. 2- Goblet cells (secrete mucus). 3- Enteroendocrine (DNES) cells . 4- Stem cells . 5- NO Paneth cells .	1- Surface columnar absorptive cells. 2- Goblet cells. 3- Enteroendocrine (DNES) cells . 4- M-cells . 5- Stem cells .



**If you have any questions or suggestions please do not
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Best of luck!