

MODULE 9 L02

Digestive System: Small Intestinal Functions

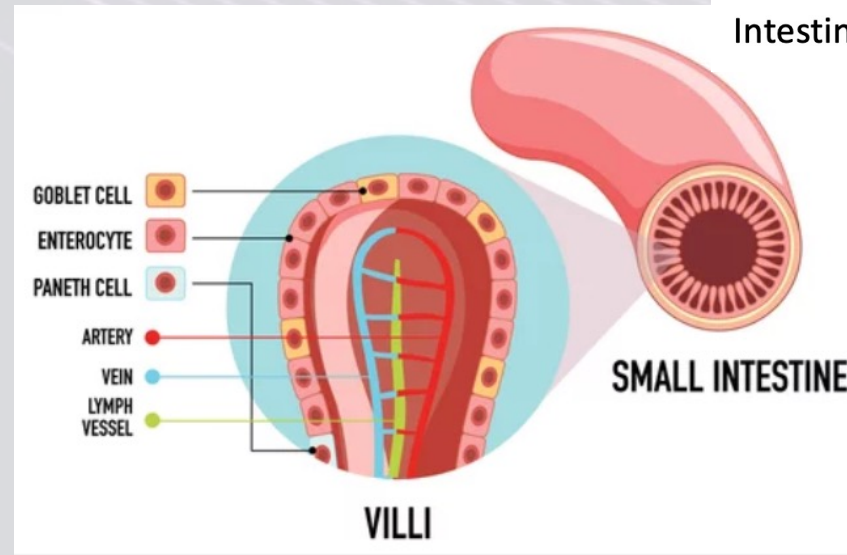
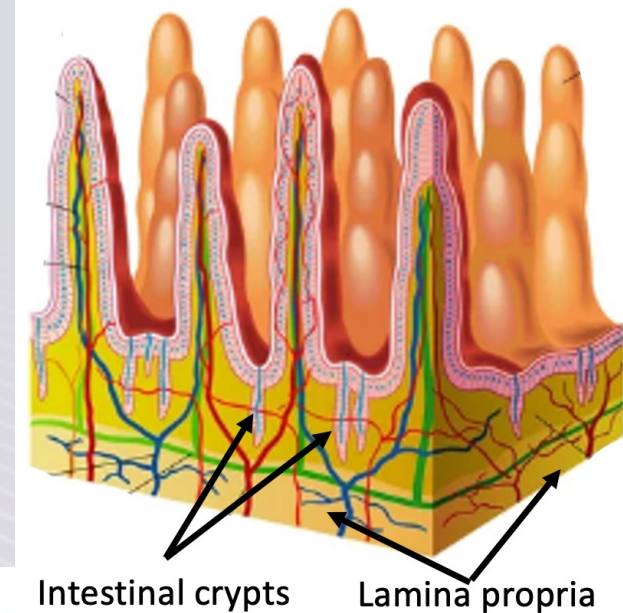
Dr. Lisa Brinn

lbrinn@fiu.edu



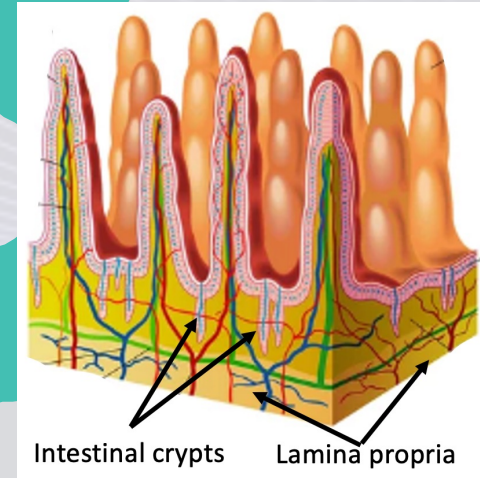
Mucosal Cells

- Enterocytes (absorptive cells)
 - ❖ Represent 80% of total epithelial cells
 - ❖ Functions:
 - Nutrient absorption
 - Secretion of salts, nutrients, and water
- Goblet cells
 - ❖ Secrete mucus
 - Lubricate chyme
 - Protective barrier



Intestinal Crypts

- Enteroendocrine cells
 - ❖ G cells – secrete gastrin in response to presence of chyme
 - Stimulates muscle contraction
 - ❖ I cells – secrete CCK
 - Pancreas – stimulates secretion of pancreatic juices
 - Gallbladder - stimulates release of bile
 - Stomach - controls emptying, suppresses appetite
 - Small intestine – triggers bowel motility
 - ❖ K cells – secretes gastric-inhibitory peptide (GIP) in response to chyme entering small intestine
 - Stimulates insulin secretion
 - ❖ M cells – secretion of motilin
 - Accelerates gastric emptying and stimulates intestinal motility
 - Stimulates production of pepsin
 - ❖ S cells – secretes secretin in response to acidic chyme
 - Osmoregulatory function
 - Inhibitory effect on gastric emptying and motility
- Stem cells – quickly dividing cells
- Paneth cells – secrete bacteria killing enzymes



Paneth Cells

- Intestinal flora
 - A. Control population of bad bacteria
 - B. Responsible for manufacturing essential vitamins
 - Vitamin K
 - Anti-calcification, anti-cancer, bone-forming
 - Insulin-sensitizing
 - B-complex
 - Thiamine (B1)
 - Riboflavin (B2)
 - Pantothenic acid (B5)
 - Biotin
 - Folate
 - + B12 = breaks down folate → create new proteins and forms RBCs

Lamina Propria

- Capillaries
 - ❖ Absorb and carry nutrients → hepatic portal circulation
- Lacteals
 - ❖ Transport large lipids-protein complexes → venous circulation

