Taste buds

- Ovoid structures within the stratified epithelium of the tongue and oral mucosa
- Half are gustatory (taste) cells, other cells are supportive cells, immature cells and basal stem cells
  - Gustatory cells have numerous microvilli that project through an opening known as the taste pore
    - Cell surface taste receptors detect food particles
- Special sensory innervation of these cells allows taste
- Five broad categories of tastants
  - Salt (metal ions)
  - Sour (H+ ions; acid)
  - Sweet (sugars and related organic compounds)
  - Bitter (alkaloids and certain toxins)
  - Umami (savoury) (certain amino acids such as glutamate)
- Conscious perception of tastes requires olfactory and other sensations in addition to taste bud activity
o Mucous neck cells
o Parietal cells

- Base contains parietal, chief and ECF cells

**Cells of the gastric glands**

- Mucous neck cells
  - Present in the neck of glands
  - Mucous secretion less alkaline and different composition to surface ones

- Parietal cells
  - Few in base, mostly in upper half of the gland
  - Have circular invaginations in the apical membrane, forming an intracellular canniculus
  - Secrete HCl and intrinsic factor (for B12 uptake in the ileum)
  - Abundant mitochondria and microvilli
  - Activity stimulated by ACh, gastrin, histamine

- Chief cells
  - Predominately in the lower region of the gland
  - Cytoplasmic granules containing inactive pepsinogen
  - Pepsinogen rapidly converted to pepsin in acid pH; active pH<5
  - Also produce lipase and leptin

- Enteroendocrine cells
  - Secrete variety of hormones
    - Ghrelin (throughout stomach) – increased sense of hunger
    - Gastrin (pylorus) – stimulates gastric acid secretion
    - Somatostatin (pylorus) – local inhibition of other enteroendocrine cells
  - In the fundus, located in basal lamina of the gland and primarily secrete 5HT
  - In the lower body and pylorus, located in contact with the stomach lumen as G cells, secreting gastrin (stimulates acid production by parietal cells and trophic effect on mucosa)
- Alkaline fluid produced neutralises the chyme entering from the pylorus
- Protects the mucosa from the acid and provides pH for pancreatic enzymes

- In the ileum, the lamina propria and submucosa contain Payer's patches, lymphoid nodule aggregates (MALT)
- Muscularis is well developed with an internal circular and external longitudinal layer
- Covered by thin serosa with mesothelium