4.1 Crypts of Lieberkuhn & Enterocyte Maturation

There are some additional anatomical and physiological features of the small intestine that are important to understand before we start talking about absorption. Crypts of Lieberkuhn are pits between villi as pointed out by the green arrow in the figure below.

![Figure 4.11 A crypt of Lieberkuhn is the pit between the villi in the small intestine as pointed out by the green arrow](image1)

The crypts of Lieberkuhn (often referred to as crypts to shorten name) are similar to the gastric pits in the stomach. In the crypts are stem cells that can produce a number of different cell types, including enterocytes. Thus, immature enterocyte cells are formed that mature as they rise or migrate up the villi. Thus, the tips at the top of villi are where the mature, fully functioning enterocytes are located, as represented by the purple cells in the figure below.

![Figure 4.12 Crypts are represented by green arrows, fully mature enterocytes are represented by the purple cells at the top of the villi](image2)

This maturation and migration is a continuous process. The life cycle of an enterocyte is 72 hours once it enters the villus from the crypt. At the top, enterocytes are sloughed off, and,
unless they are digested (contain proteins and lipid) and components are taken up by enterocytes still on villi, they will be excreted in feces as depicted in the figure below.

Figure 4.13 Enterocytes sloughed off the villus. Unless these cells are digested and their components are taken up by other enterocytes on the villus, they will be excreted in feces.

Thus, we define absorption as reaching body circulation, because compounds taken up into enterocytes might not make it into body circulation, and thus are not necessarily absorbed.

References & Links