Good Tiny Cells Lose Allowing Bad Tiny Cells to "Breathe"

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The human body carries a lot of good tiny cells that are important for our well-being. One way that our tiny cells are good for us is that they stop bad tiny cells from growing in our bodies. However, how the good tiny cells stop bad tiny cells from growing and staying in our bodies is not well understood. When entering from the mouth and down the stomach, bad tiny cells and good tiny cells eventually find each other and have to fight for space and food inside our bodies. One type of bad tiny cell likes to grow by "breathing," much the same as we breathe air so that the cells in our bodies can live. However, "air" is low after entering the stomach. This is because in the normal body, the good tiny cells are always making things that keep the air low. After entering the stomach and moving down, bad tiny cells make things that hurt our bodies. Our bodies respond by making things that kill both good and bad tiny cells. However, the bad tiny cells have figured out ways to not die during the attack by our body, while the good tiny cells have not, and get killed. When the good tiny cells die, they can no longer keep the air low and the bad tiny cells are able to breathe and grow to very high numbers. So, one way that our good tiny cells keep us well is by stopping the bad tiny cells from breathing and growing in our bodies. However, some bad tiny cells have figured out a way to wipe out good tiny cells from our bodies. This is one way that bad tiny cells can make us sick.

From (Rivera-Chávez et al., 2016).

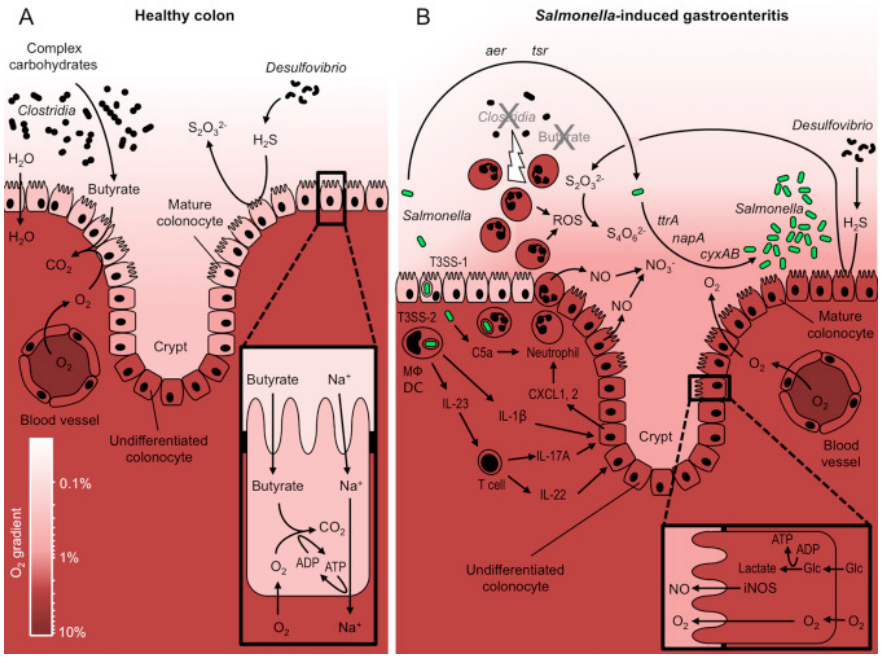

Figure 1: (A) In the healthy colon, a group of "good" gut bacteria (Clostridia) produce butyrate, which renders the mucosal surface of the intestine hypoxic (low in oxygen). (B) *S.* Typhimurium (*Salmonella*) uses its virulence factors to induce host responses that eliminate Clostridia, reducing the concentration of butyrate in the gut. In the absence of butyrate, mature cells in the colon increase the availability of oxygen (O2) in the lumen of the intestine. Image from: (Rivera-Chávez et al., 2017)

References

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