PROJECT TITLE: Effects of algal toxins on the human intestinal tract

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Project Description

The Cyanobacteria, or blue-green algae, are responsible for toxic algal blooms that compromise water sources used for drinking, recreation, agriculture, and industry. One of the most potent algal toxins is Microcystin-LR. Long term exposure to microcystin-LR is associated with liver damage; however, the health implications due to acute microcystin-LR exposure are not well studied. This proposal will test the hypothesis that microcystin-LR causes acute tissue damage to the intestinal tract, and that this local damage can promote systemic dissemination allowing access to sensitive target organs such as the liver. To test this hypothesis, we will use human “mini-guts”, or stem-cell derived, induced human intestinal organoids (iHIOs).