

The Bacteriome in the Gastrointestinal Tract



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Specific Aims

The GI tract of humans is populated by a diverse “ecosystem” of micro organisms, mostly bacteria: the bacteriome. The bacteriome can help-- contributing to digestion and immune system function-- or harm-- overgrowth of some types accompanies illness or stress.

This project will examine what changes occur to the bacterial populations over a year in space, that are different from the changes over time on Earth. Are particular types of bacteria susceptible to the space environment, and if so, which types?

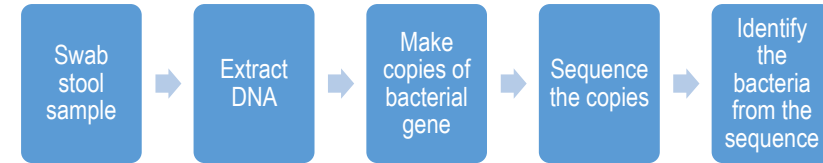
Implications of the Research for Space & Earth



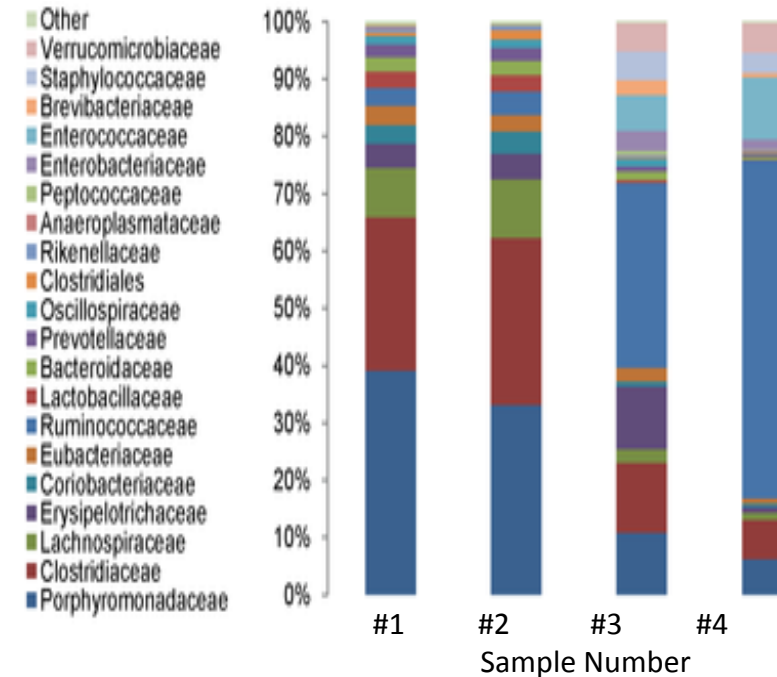
Space: Knowing how the bacteriome changes over time in space can help us make plans to protect astronauts’ health for longer-term space flights. For example, adjustments to diet could help maintain beneficial bacterial types.



Earth: Observing how the bacteriome changes in relation to health and environmental changes, (such as those studied in other Twin Projects) can provide insights into how the bacteriome may respond to challenges and contribute to the human host’s health.



Classify bacteria from each sample



Relative abundance of different families of bacteria. Will there be systematic changes in the twin in space not seen in the twin on Earth?