Summary of: Modeled microgravity alters lipopolysaccharide and outer membrane vesicle production of the beneficial symbiont Vibrio fischeri

Key findings:

- Exposed to modeled microgravity, V. ■scheri increased the amount of LPS released into the surrounding media.

- The higher levels of LPS shed under modeled microgravity conditions were associated with increased production of outer-membrane vesicles (OMVs).

- Mutants defective in flagellar rotation showed significantly lower LPS shedding under modeled microgravity conditions.

- The motility mutants shed significantly less LPS than the wildtype V. ■scheri ES114 under both LSMMG and gravity conditions.

- The motility mutants showed more modest growth increases compared to the parent strain.

- The cell membranes of V. ■scheri cells were more susceptible to disruption under LSMMG conditions.

- The increased shedding of LPS from V. ■scheri under LSMMG conditions coincided with the exponential growth of the cultures.

- The results suggest that LSMMG conditions may alter the integrity of the Gram-negative outer membrane.

- The increased production of OMVs under LSMMG conditions may provide a survival mechanism under stressful conditions.

- The results indicate that symbiotic microbes display significant physiological changes under modeled microgravity conditions.

- The findings suggest that LSMMG conditions may alter the release of MAMPs, which may have implications on host-microbe interactions.

- The study highlights the need for further research to explore the mechanisms behind these changes in symbiotic microbes.