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Gravitational Microbiology Research and Applications

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Message from the Guest Editors

Different microbial responses to microgravity have been observed during the first 60 years of space microbiology research. These include changes in growth dynamics, horizontal gene transfer, susceptibility or resistance to antibiotics, cell size, envelope characteristics, formation of membrane vesicles, cellular aggregation, biofilm formation, virulence, gene expression, and metabolite synthesis, to name a few. Increased access to powerful omics tools, devices to simulate certain aspects of reduced gravity environments (e.g., clinostats and rotating wall vessels), and new research platforms for reduced gravity are allowing for novel and comprehensive investigations to take place both on and off Earth. Furthermore, new space exploration programs such as Artemis will enable space microbiology research beyond lower Earth orbit (LEO) and outside Earth's Van Allen belts.

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Message from the Editor-in-Chief

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