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IIT-M & NASA lay focus on multidrug-resistant pathogens on international space station

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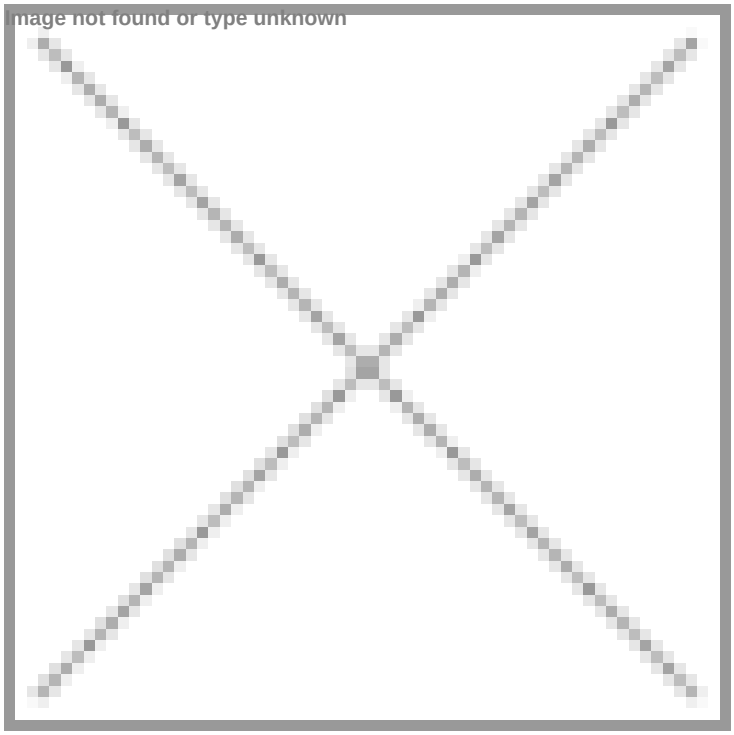

Researchers at the Indian Institute of Technology Madras (IIT-M) and NASA's Jet Propulsion Laboratory (JPL) are studying multi-drug resistant pathogens on the International Space Station (ISS), which could have key applications for astronauts' health as well on earth.

The researchers conducted a comprehensive study to understand the genomic, functional, and metabolic enhancements observed in multidrug-resistant pathogens with a particular focus on Enterobacter bugandensis, a prevalent nosocomial pathogen found on surfaces within the ISS.

Astronauts operating in altered immune conditions with limited access to traditional medical facilities face unique health challenges during space missions. Understanding the microbial landscape aboard the ISS is paramount for assessing the impact of these microorganisms on astronaut well-being.

The current study emphasises the critical need to investigate the pathogenic potential of microorganisms in space environments to safeguard astronaut health and mitigate the risks associated with opportunistic pathogens.

The findings hold promise for applications in controlled settings on Earth, including hospital intensive care units and surgical

theatres, where multidrug-resistant pathogens pose significant challenges to patient care.

Emphasising the broader implications of the research, Dr Kasthuri Venkateswaran, Senior Research Scientist at JPL, NASA, said, “Our research uncovers the microbial community interactions of how certain benign microorganisms help to adapt and survive opportunistic human pathogen, E. bugandensis, in the unfavourable conditions of the International Space Station. The knowledge gained from this study would shed light on microbial behaviour, adaptation, and evolution in extreme, isolated environments that allow in designing novel countermeasure strategies to eradicate opportunistic pathogens, thus protecting the health of astronauts.”