

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
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EXPLORING THE POTENTIAL OF MICROGRAVITY BASED IMMUNOTHERAPY
INVESTIGATING THE EFFECTS OF ZERO GRAVITY ON THE ACTIVATION AND
PROLIFERATION OF IMMUNE CELLS FOR CANCER TREATMENT**Abstract**

Immunotherapy is a promising cancer treatment that utilizes the immune system to target cancer cells, but its effectiveness and potential side effects are still under investigation. The role of microgravity research in studying the behavior of immune cells under altered gravitational conditions has emerged as a new avenue for enhancing immunotherapy. This project aims to explore the potential of microgravity-based immunotherapy by investigating the effects of zero-gravity on the activation and proliferation of immune cells for cancer treatment. The study will involve experiments conducted on sub-orbital and orbital platforms as well as ground-based research. Immune cells will be isolated and subjected to varying gravitational conditions, and their activation and proliferation will be compared to those in normal gravity. The study's findings could reveal novel insights into the behavior of immune cells and their response to altered gravitational conditions, potentially leading to innovative strategies to enhance the efficacy of immunotherapy.