

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)  
Life and Physical Sciences under reduced Gravity (7)

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RHODIUM SCIENTIFIC: ENABLING BIOTECH INDUSTRY THROUGH SPACEFLIGHT QUALITY  
ASSURANCES

**Abstract**

Rhodium Scientific, the first space biotech company, is a Hispanic-American, woman-owned small business founded in 2014. As the ISS National Laboratory's premier bioscience-focused Commercial Services Provider and Implementation Partner, Rhodium has successfully led over 20 high-throughput spaceflight missions (including eight for the U.S. Department of Defense). The Rhodium team collaborates with academia, industry, and government to develop, translate, and facilitate space-based RD testing efforts. Our internal programs focus on the biomanufacturing, drug discovery, regenerative medicine, and technology development fields. Through utilization of Rhodium's Quality, Industry Compatible (QuIC) Space Process<sup>TM</sup>, clients and investors have a mechanism to de-risk overall commercial and science investments made in space by increasing technology readiness levels and adhering to standard processes trusted by scientists and industry.

Over the past year, Rhodium has expanded their life science hardware portfolio to support more diverse science mission requirements on the ISS. The expansion included new flight configurations for the highly reliable Rhodium Science Chamber<sup>TM</sup> Facility. Additionally, Rhodium developed a suite of environmental sensing hardware, including the Rhodium Science TempLog<sup>TM</sup>, Rhodium Science HumidityLog<sup>TM</sup> and Rhodium Cryotube – 4RAD<sup>TM</sup>. The Rhodium Science TempLog<sup>TM</sup> was originally created, tested, and flown to the ISS in 2020 and has supported every Rhodium science mission since inception. The Rhodium Science HumidityLog<sup>TM</sup> provides humidity logging capability during all phases of a mission. The Rhodium Cryotube – 4RAD<sup>TM</sup> provides critical radiation data at the precise location of the science samples, accounting for shielding related to stowage locations and hardware configurations. To test biological responses to Lunar and Martian gravity while on the ISS, scientists can now utilize the Rhodium Variable Gravity Simulator<sup>TM</sup>, a low-speed centrifuge supporting up to 36 samples per incubation period. The centrifuge has currently run over 600 samples at lunar and Martian gravities.

Complementing Rhodium's space flight hardware portfolio is the company's established Quality, Industry Compatible (QuIC) Space Process<sup>TM</sup>. The QuIC Space Process<sup>TM</sup> is the first-of-a-kind for space-science missions. Developed for, and vetted by, the U.S. Department of Defense, the QuIC Space Process<sup>TM</sup> ensures industry-standard quality assurances throughout the life of a mission. By using the QuIC Space Process<sup>TM</sup>, Rhodium's missions are reproducible, on schedule, and produce high fidelity results trusted by industry. In the presentation, the Rhodium Scientific's hardware portfolio and quality assurance processes will be discussed with mission results presented. Mission highlights will include results from microbiome studies, plant biology, biomanufacturing, and drug discovery.