

Supplemental Table 1. Group 1: Not stable at 24 and 48h.

Supplemental Table 2. Group 2: Not stable at 24h, no change at 48h.

Supplemental Table 3. Group 3: Inconsistent changes at 24 and 48h.

Supplemental Table 4. Group 4: Stable proteome at 24h and not stable at 48h.

Supplemental Table 5. Group 5: Stable proteome at 24 and 48h.

Supplemental Table 6. Top 30 biochemical pathways for stable proteome at 24h.

Supplemental Table 7. Proteins identified as stable within the top 30 pathways through ShinyGO analysis at 24h, are no longer present at 48h.

Supplemental Table 8. Top 30 biochemical pathways for stable proteome at 24 and 48h.

Supplemental Table 9. Eighty-four proteins exhibited significant dysregulation, with expression changes of two-fold or greater.

A



B



Figure S1. Parabolic Flight Experiment (A) Altitude (green, left axis; ft) and airspeed (yellow, right axis; mph) versus time for the Boeing 727 parabolic flight from FLL (10:40 AM–1:04 PM EDT). The repeated climb/pull-up and pushover segments outline successive parabolas executed in the 25,000–30,000 ft band. Dashed lines denote the planned altitude envelope. (B) Photograph inside the aircraft cabin showing the ezdraw self-collection device secured to the participant’s upper arm while a smartphone app records continuous $\pm X$, $\pm Y$, $\pm Z$ acceleration (g). The traces capture the hypergravity pull-ups and microgravity intervals, enabling time-locking of sample collection to the 0-g phases.