

Abstract

Comparison of chromosome aberration frequencies in pre- and post-flight astronaut lymphocytes irradiated in vitro with gamma rays

H. Wu¹, K. George², V. Willingham², F. A. Cucinotta³

¹Kelsey-Seybold Clinic, Houston, Texas, USA

²Wyle Laboratories, Houston, Texas, USA

³NASA Johnson Space Center, Houston, Texas, USA

honglu.wu1@jsc.nasa.gov

If radiosensitivity is altered in a microgravity environment, it will affect the accuracy of assessing astronaut's risk from exposure to space radiation. To investigate the effects of space flight on radiosensitivity, we exposed two crewmember's blood to gamma rays at doses ranging from 0 to 3 Gy and analyzed chromosome aberrations in mitotic lymphocytes. The blood samples were collected 10 days prior to an 8-day Shuttle mission, the day the flight returned, and 14 days after the flight. After exposure, lymphocytes were stimulated to grow in media containing PHA. Mitotic cells were harvested after two different incubation times since previous studies have indicated that lymphocytes collected post-flight grow slower than pre-flight. Comparison of chromosome aberration frequencies for pre- and post-flight samples, as well as for the two crewmembers will be presented.

Presentation