

Thursday, February 13, 2014
NEW INVESTIGATIONS — SPACE RADIATION
12:40 p.m. Expo Hall A3

Chair: David Kirsch

- 12:40 p.m. Morganti J. M. Riparip L. K. Raber J. Allen A. R. Fike J. R. Huang T. T.
Nelson G. A. Rosi S.
[*The Role of Oxidative Stress and Inflammation in Synaptic Function After Space Radiation*](#) [#3289]
This work examines a series of endpoints to determine how low doses of space irradiation affect homeostatic synaptic function and if these changes are associated with activation of the innate immune system, polarization of myeloid cells, and release of cytokines.
- 12:50 p.m. Sawtell N. M. Thompson R. L.
[*Acute and Long Term Outcomes of Simulated Deep Space Radiation Exposure on Latent Ciral CNS Infection and CNS Pathology*](#) [#3148]
Space flight stresses can result in increased frequency of herpesvirus reactivation. Chronic inflammation associated with reactivation of latent herpes simplex virus in the CNS remains an unexamined risk of space travel and related radiation exposure. Our project evaluates this risk.
- 1:00 p.m. Chang P. Y. Shaler T. A. Lin H.
[*Particle Radiation-Induced Dysregulation of Protein Homeostasis in the Brain*](#) [#3324]
Protein modification by ubiquitin is a highly regulated processes catalyzed by specific enzyme families. Aim is to evaluate the impact of particle radiation-induced degradation of proteins that are involved in the maintenance of genomic stability, autophagy, and normal function in neuronal cells/tissues.
- 1:10 p.m. Smilenov L. B.
[*The Effect of High LET Radiation on Differentiation and Tumorigenesis in the Human Hematopoietic System: Modeling In Vitro and In Vivo for Risk Assessment*](#) [#3259]
The goal of this study is to contribute to the high-LET carcinogenesis risk estimation. This goal will be achieved using in vivo data acquired from an irradiated human hematopoietic system reconstituted in immunodeficient NSG mice.
- 1:20 p.m. Loucas B. D. Cornforth M. N.
[*Cycle Structure Analysis Provides Evidence that Secondary Electrons from HZE Particles add Breaks to Complex Exchanges Forming Along Primary Particle Tracks*](#) [#3106]
Chromosome exchange rejoining cycle structure analysis indicates that damage from delta rays set in motion by HZE particles add breaks to complex exchanges forming along primary particle tracks and that these events occur preferentially within higher order rejoining cycles in the developing exchange.
- 1:30 p.m. Welford S. M. Gerson S. L.
[*Contribution of GCR Exposure to HEM Atopoietic Stem Cell Dysfunction and Oncogenesis*](#) [#3332]
Sources of radiation in space include galactic cosmic rays, solar energetic particles, and trapped energetic particles in a planetary magnetic field. Sources are difficult to shield due to high energies and dense ionization patterns posing significant health risks to astronauts on long space missions.