

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Poster Session (P)

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MULTI-DISCIPLINARY STUDIES ON SPACE LIFE SCIENCE

Abstract

From life origin, evolution, and microbes to humans, all of life on Earth live and develop in the gravity field of Earth and have been protected by Earth atmosphere and magnetic field from space radiation. During the space flight astronauts display some physiology disconditioning resembling the aging physiology phenomena, like osteoporosis, muscle atrophy, immune dysfunction and so on, for which what are the identical and different characters, it is needed for both clinical, fundamental medical doctors and space life scientists to attend this study, recently the discoveries of a novel of salt storage and homeostasis, and microRNA(miR-214) control of bone formation and homeostasis are good examples for the collaboration works of space life scientists and clinical, fundamental medical doctors. Under the environment of microgravity, the multiphase fluid mechanics related with mass transportation has many specific phenomena, surface tension takes an important role in these phenomena what is the effects of these characters of the multiphase fluid mechanics under the environment of microgravity on physiology process is an important issue, recently a new branch of space life science, Space Pharmacology coming out is exemplified. Microgravity is one of mechanical environments, as cross disciplines of mechanics and biology, we already have Biomechanics and Mechano-Biology, Some evidences for the directly effects of microgravity on the interaction between biomolecules are discovered. For these studies we need collaboration with physicists for microgravity study related with mass transportation. According to the concepts of Chinese traditional medicine, there are some special channels, which are called Meridians, along these meridians, acupuncture points are distributed and "chi" is transported. Until now there are no anatomical or histological evidences for the existence of acupuncture points and meridians. But there are many evidences from clinical effects, and physical phenomena (for examples: electricity resistance, diffusion path way). Recently two papers of "Visualized Regional Hypodermic Migration Channels of Interstitial Fluid in Human Beings, Are These Ancient Meridians?" and "Fluid Flow along Venous Adventitia in Rabbits: Is It a Potential Drainage System Complementary to Vascular Circulations" were published maybe related with meridians. Some Chinese herb medication beneficial effects on the muscle atrophy caused by hind-limb unloading in rats have been discovered. For these studies we need collaboration between Chinese traditional medical doctors and western medical doctors. It is desirable to introduce microgravity science and space life science to the university courses at undergraduate period in the future.