Experimental Hardware and Facilities for Space Life Sciences

Specific Seminar – Curriculum 4

2023, May 11, 2:00 p.m.

Speaker:

Dr. Michele Balsamo, Ph.D., Head of Section Life Science Research and Development - Kayser Italia S.r.l.

Abstract:

Space life science research is of paramount importance for the future planned human activities on board International Space Station (ISS), the Lunar Gateway, or for the colonization of the Moon and Mars because either gives insights into the effects of space flight on a number of biological model systems or provides countermeasures to fight the hostile effects of the space environment on the human body. In this context, state of the art experiment hardware proven to be successful in space operations and scientific results is therefore a valuable asset for the support of scientific investigations because it offers solutions that are reliable, cost-affordable, and scientific sound. An overview of space-qualified experiment hardware and facilities supporting biological investigations will be presented.

Short Bio

Dr. Michele Balsamo is Research and Development Area Manager at Kayser Italia S.r.l., Livorno, Italy. He received his bachelor's degree in Biotechnology in 2003 and his master's degree in medical, cellular and molecular Biotechnology in 2005 from "Sapienza" University of Rome. In 2009 he received the PhD in Immunology from "Sapienza" University of Rome, while working as visiting student at David H. Koch Institute for Integrative Cancer Research Massachusetts Institute of Technology, Cambridge USA. At MIT, first as visiting student and then as postdoctoral research fellow, Dr. Balsamo investigated the cellular and molecular mechanisms underlying cancer cell migration, invasion and metastasis. In 2012 he was a fellow of the Sant'Anna School for Advanced Studies in Pisa, Italy, working on cancer biology and space biology projects. Since 2014 he is part of the Research and Development group of Kayser Italia, supporting the development of space biology experiments as Project Engineer, Biology Specialist e Payload Developer Project Scientist focusing on the understanding of the effects of the space environment on biological and physiological systems. He has worked as Project Engineer, Biology Specialist and Payload Developer Project Scientist in 8 space missions in USA (KSC Cape Canaveral, Florida and Wallops Island, Virginia) and Russia (Baikonur Cosmodrome, Kazakhstan). He is responsible for work packages and Project Manager for Kayser Italia for the ASI ReBUS project (In-situ Resource Bio-Utilization to support life on Space) and Project Manager for various projects financed by public and private bodies, or Italian Ministry of Economy (MiSE). He was a member of the Steering Committee of the Italian Institute of Astrobiology-Network of National Astrobiology Laboratories. He serves as a reviewer for several journals, and to date is the author of 33 peer-reviewed publications (H-index 15, https://orcid.org/0000-0002-2315-4761).

Online attendance:

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