

Current status of Tanpopo: Astrobiology Exposure and Micrometeoroid Capture Experiments at the Exposure Facility of ISS-JEM

*Akihiko Yamagishi¹, Hirofumi Hashimoto², Hajime Yano², Shin-ichi Yokobori¹, Eiichi Imai³, Makoto Tabata⁴, Hideyuki Kawai⁴, Kensei Kobayashi⁵, Hajime Mita⁶, Hikaru Yabuta⁷, Masumi Higashide⁸

1.Tokyo University of Pharmacy and Life Science, Department of Molecular Biology, 2.ISAS/JAXA, 3.Nagaoka Univ. Tech, 4.Chiba Univ., 5.Yokohama Natl. Univ., 6.Fukuoka Inst. Tech., 7.Osaka Univ., 8.JAXA

Tanpopo, a dandelion in Japanese, is a plant species whose seeds with floss are spread by wind. We proposed this mission to examine possible interplanetary migration of microbes, and organic compounds at the Exposure Facility of Japan Experimental Module (JEM: KIBO) of the International Space Station (ISS). The Tanpopo mission consists of six subthemes: Capture of microbes in space (Subtheme 1), exposure of microbes in space (Subtheme 2), analysis of organic compounds in interplanetary dust (Subtheme 3), exposure of organic compounds in space (Subtheme 4), measurement of space debris at the ISS orbit (Subtheme 5), and evaluation of ultra low-density aerogel developed for the Tanpopo mission (Subtheme 6). Exposure Panels for exposure of microbes and organic materials and Capture Panels for aerogel were launched on April 2015. The Panels were placed on the Exposed Experiment Handrail Attachment Mechanism (ExHAM) in the ISS. The ExHAM with Panels were placed on the Exposure Facility of KIBO (JEM) with the Japanese robotic arms through the airlock of KIBO. The trays and panels will be exposed for more than one year and will be retrieved and returned to the ground for the analyses.

Keywords: Space experiment, International space station, Microbes, Organic compounds, Silica aerogel